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Urban Forests in Temple Landscapes

The Cultural Services of an Urban Forest within a Temple Garden: The Bangkok Experience

By

Kanokwalee Suteethorn

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Doctor of Philosophy

in

Landscape Architecture and Environmental Planning

and the Designed Emphasis

in

Global Metropolitan Studies

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Joe R. McBride, Co-Chair

Associate Professor Kristina Hill, Co-Chair

Professor Jason Corburn

Fall 2018

ABSTRACT

By

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Doctor of Philosophy in Landscape Architecture and Environmental Planning

and the Designed Emphasis in Global Metropolitan Studies

University of California, Berkeley

Professor Joe R. McBride, Co-Chair

Associate Professor Kristina Hill, Co-Chair

An anthropological study on cultural values of heritage trees in urban landscapes focuses on symbolic functions of old and big trees in temple gardens in Bangkok. In this study, I discuss significance of urban forests on temple grounds in both cultural aspects and how they contribute to ecological aspects in the urban context. For the cultural aspects of the trees in the selected temple gardens, I discuss scholastic doctrines of Buddhist materials and their impact on local culture, then examine the roles of trees as material objects in the Buddhist aspects from the point of view of an insider, as a practitioner, an outsider, and as a scholar. The study consists of two parts, qualitative and quantitative components. In the qualitative part, using an ethnographic approach, I examine the relationship between Buddhism doctrine with ecological approaches that have been influenced by preexisting local culture. The study reveals how cultural values of trees are perceived in the religious realm and the change of religious structure in today society. I conduct ethnographic field work on the cultural perceptions of cultural and ecological services of temple trees and address the historical and cultural significance of trees in Sangha, the Buddhist monk community. I explore the Buddhist monks' attitudes toward trees in the temples, comparing the Buddhist doctrines, rituals, and their actual experiences in order to answer the question how the Sangha perceives cultural values and religious symbolic of trees on temple grounds. I examine influential factors that make trees sacred. Does location matter? If the same tree species with similar size and age grow outside temples, do they still convey the same symbolic significances? From preexisting local culture to religious doctrines, I question how Buddhist monks and their influences on society, culture, and environment assign cultural values and powerful status of sacred symbols to the trees. I question whether temple trees are preserved with these cultural constructions of assigned values.

For the quantitative part, I address the roles of temple gardens as green infrastructure in the city. I examine the green coverage in temple gardens at two scales, the site scale and citywide. Combining the conventional method of Line Transect at the site scale with data from Landsat 8 and the recent Object-based Image Analysis method at the citywide scale with the

high-resolution satellite imagery, the percentage of green canopy coverage of religious land uses is compared with other land uses to address the questions on how cultural values of the trees contribute to the green infrastructures of the city. Qualitative analysis of cultural and ecological perceptions toward the trees are put in parallel to this quantitative analysis of the green coverage ratio to examine how monks, the managers of this monastic landscape, understand and appreciate their habitat and the values of these urban heritage trees. I analyze the patterns and locations of heritages trees in temple gardens and develop an inventory of species of heritage large trees from selected study sites. There are 184 trees of 61 species mentioned as significant trees in temple gardens. Then I conclude from in-depth interviews and my observations the ways temples can maintain species diversity and the ways in which heritage trees in temple gardens can have suitable cares, maintain species diversity, and be a healthy ecological component in urban spheres.

DEDICATION

For my family.

For the Buddha, the Dhamma, and the Sangha.

For every tree in the world.

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Source: dailymail.co.uk

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trees and gardens started in the family. The house in which I was born had a small garden where my father planted numerous trees creating a small forest for his kids. In our small garden, there were a variety of fruit trees; mango, rose apple, guava, custard apple, sapodilla, and the tallest jackfruit tree. There were also a variety of orchids, a small vegetable garden, and a small chicken coop that my father built. I played in the garden, helped water the trees, observed them grow, and waited for them to bear fruits. Gardening taught me to be patient and persistent. When I came to the graduate school, I knew that my family's continual support and understanding would help me get through the PhD program. My dogs, Moo yong, Willy, and their puppies; Mocha, Latte, Coco, Cream, the most adorable crew who always eagerly welcome me when I return home. They demonstrated the most unconditional love that a human could have and reminded me that we are sharing this world with other creatures. My parents, Anurak and Kitima Suteethorn provided tremendous support more than anyone could ask for. The completion of the Doctoral program would not happen without their dedication and encouragement. Even when my father was very ill, he did not want to hold me back. He encourages me to continue pursuing my dream. My sister, Mameow Kanokkarn, who is always my best friend, was the only person I could trust to help take care of everything at home while I am away from home. I could see that the time spent in the graduate school in the United States not only has changed me but has changed my sister as we were growing and learning through the process. My brothers Kanokphon and Kritsada are the smartest kids and always make me proud. Their unconditional love helped me go through the difficulties along the way. I am thankful for the love, patience, and support from my family through these years. They have dedicated so much for me to be here. Without them I definitely could not accomplish this Doctoral degree.

Chapter 1

Background of Urban Forestry with Reference to the Situation in Thailand

1.1 Introduction

There is little precedence in the literature regarding the transition of tree uses in urban areas from ancient times to urban forests in modern cities (McBride and Jacobs, 1986). The records of tree use in cities in ancient times reflect how people appreciated the aesthetic and spiritual values of trees. A larger population of trees planted in urban areas today demonstrates that people have become more aware of the environmental benefits of trees. Trees have played a significant role in the ideological and symbolic functions of many cultures since earlier times (Jones and Cloke, 2002: 21; Rambelli, 2007: 129). During Greek and Roman times, some of the very first trees in cities were those that were planted in religious locations (Lawrence, 2006) to worship gods and to create sacred groves and spiritual places (McBride, 2017: 38). Trees are often religious symbols (Dwyer et al., 1991: 280). They are powerful symbols because their change and growth represent longevity, continuity, and other meanings in different cultures. They are also place makers and serve as identifiers of spaces and times (Konijnendijk, 2008: 199).

In Thailand, Buddhist temples have always been centers of community. They are social gathering places for various events in people's lives (Wasi, 2015). Throughout social, political, and economic changes, temple grounds are a type of land use in urban areas that has had fewer changes during the past several hundred years because the Buddhist institute has been promoted by the government to be a significant symbol of Thai culture (Ishii, 1968: 865). In addition to being places for cultural and religious rituals, temples are also physical and mental sanctuaries for urban dwellers (Ibid.).

Bodhi trees and some big trees in temple gardens were believed to be sacred and became symbols of Buddhism because the preexisting culture in Thailand before Buddhism called *phii*, ghosts or spirits in nature. The belief in spirits in trees is considered Apotropaic, which is a form of Buddhism derived from a combination of Buddhist practices and the preexisting local culture (Spiro, 1982). People believe that such beings can help protect one's well-being, answer one's pleas for assistance, or cure illness (Gethin, 1998: 129). People worship old and big trees and use them as symbols of many things from spirit houses, village centers, and to locate prospective temple locations. Simple ritual acts toward trees in temples that the Sangha and temple visitors perform, such as ordaining trees or pouring holy water at the roots of an old tree, are also derived from this cultural construct of Theravāda Sangha in Thailand. This ritual became the method of preserving big trees used by some environmental monks in Thailand (Darlington, 2012). This is a cultural belief that is more powerful than environmental regulations.

The modernization of Thailand was launched during the reign of King Rama IV, Mongkut (1851-1868) and was completed during the reign of his son, King Rama V (1868-1910) (Ishii, 1968: 865). Modernization in Thailand came with the expeditions of many European countries, the Westerners, who came to expand their territories. During the process of modernization,

King Rama IV and King Rama V applied many strategies to avoid colonization. Buddhism was used as a symbol of 'Being Thai' in order to centralize and unify citizens and to strengthen Thai nationalism. Urban development of Bangkok under the influence of Western philosophy not only ignored the existence of the Buddhist temples in Litchfield Plan (1960), the first master plan of Bangkok, but also put the management responsibility for revenue back to the Buddhist temples with the end of Corvée system (Tantinipankul, 2007). Buddhist temples had to find alternative solutions for labor and economic support. Because many temples have a lot of land, they rented out parts of their property for schools and commercial use. With these land use changes, the temples could earn money to pay for people to help take care of the temple gardens. This change of the political economy of the temples affects physical and psychological values of the forests in temple gardens. Even though temples are significant institutes in Thai society and are not at risk of being relocated to the urban fringe, the influence from urban development and political economic policy has still impacted the land use of temple landscapes and existence of heritage large trees in these monastic precincts.

1.2 Problem Statements

When compared to other land uses in Bangkok, people's notion of temples is that they are urban green spaces of non-commercial, non-residential land use. This was once accurate as shown in the study of heritage tree assessment in Bangkok which claimed that Buddhist temples were places of heritage large trees and also places with a wide diversity of tree species in the city (Thaiutsa et al., 2008). The Bangkok Metropolitan Administration (BMA) included a heritage large trees inventory in the Master Plan for Green Areas in the city of Bangkok in 2003. The tree inventory contained 298 trees of 65 species, with 96 trees on the list located in Buddhist temples. The 2003 Master Plan also proposed to provide suitable types of care for these valuable heritage large trees. However, because of cultural dynamics and an unstable social, political, and economic situation, these heritage trees became undervalued and are at risk of disappearing.

Due to the changes in political, social, and economic conditions throughout history, most temple boundaries in Bangkok are ambiguous. These semi-public urban land uses have both shrunk and expanded over time, while urban development of road systems, commercial buildings built due to economic restraints, the growing numbers of the Sangha, and more demands on the monastic buildings in Bangkok decreased the open green spaces of the temple gardens. Moreover, people have changed their modes of transportation from canal to road since the period of the King Rama V (1910s). The number of cars in the city has been increasing which has led to the need for more parking spaces everywhere, including on temple grounds. In response to these many temples have clear-cut part of their urban forest landscapes to allow for more space for visitor parking.

According to the Vinaya, monks are not allowed to plant anything. No digging of soil is allowed as they might unintentionally kill living creatures in the soil, and the monks are not allowed to cut any living parts of trees as there might be animals living on, inside, or under the trees (Mahamakut University, 2011). Killing life is one of the fundamental activities monks must refrain from. Theravādin Buddhist monks are prevented by the Vinaya from putting their hands on a heritage tree to perform maintenance, which sometimes makes them hesitant to even

discuss them. Many old temples have existing old trees that are not in healthy condition because they have not had proper care.

I am interested in urban large heritage trees, which have been found mostly on temple grounds in the dense urban areas of Bangkok (Thaiutsa et al., 2008). How the trees in temple gardens survive relies mostly on how the Sangha perceive the value of the trees. This dissertation examines and identifies underlying factors of cultural values of urban trees as a symbol of religion and how they convey meaning of religious beliefs from the past to present. I examine the links between religious beliefs and tree care and explore the cultural services of urban trees in Buddhist temple landscapes in Bangkok.

The research advances the understanding of conflicts between cultural belief in heritage large trees and Buddhist canonical doctrine. It focuses on the cultural aspects of urban heritage trees with two approaches; the quantitative and qualitative methods. With a mixed method, the ecological and cultural values of urban trees were investigated through the perception of the users. In the qualitative section, I conducted ethnographic field work with a preliminary survey, participant observation, and a series of in-depth interviews. The responses were put into two groups; the perception of the Buddhist monks of the urban forest in temple gardens, and the cultural values of urban heritage trees. In the quantitative component, I analyzed the roles of temple gardens as places of ecological sanctuary and how the cultural values of urban trees complement the ecological values of the urban forests in this urban green infrastructure. I used Object-Based Image Analysis (OBIA) in eCognition to classify different layers of land use in the city. I then quantified the percentage of green canopy coverage in each district of Bangkok and compared it with the distribution of temple gardens in the city to see how temple gardens are places of sustainable green space within the city.

This research contribution will include comprehensive knowledge and mutual understandings of the relationships between humans and nature, in particular Buddhists and trees, is represented in how people perceive cultural values and religious significance of nature.

1.3 Outline of Chapters

In this dissertation, I discuss the significance of urban forests on temple grounds both in terms of their cultural aspects and their contribution to urban ecology. Pertaining to the cultural aspects of trees in the selected temple gardens, I discuss the scholastic doctrines of Buddhism and their impact on local culture. I examine the roles of trees as material objects in the Buddhist practice from insiders, as practitioners, and from outsiders, and also as a scholar.

This dissertation consists of five independent research chapters. Chapter 2 is a literature review and overview of definition and concepts of urban forest focusing on cultural services of trees and their semiotic notions. In chapter 3, I examine the relationship between Buddhist doctrine and the ecological approaches that are influenced by pre-existing local culture. I examine the Shamanistic wisdom of Buddhism and the urban forest. The chapter reveals how the cultural values of trees are perceived in the religious realm, the change of the religious regime in today's society, and the roles of environmentalist monks in Thailand. Chapters 4 and 5 are based on ethnographic field work on the perceptions of the cultural and ecological services of temple trees using comprehensive information from a series of in-depth interviews with the Sangha. In Chapter 4, based on an empirical study, I discuss the Buddhist monks'

perceptions of trees in the temples, and compare these attitudes to Buddhist doctrines, rituals, and their actual experience. The study is not only about religion, but also about how a culture communicates through the generations. I attempt to answer the questions: In what way do monks with longer experience communicate these cultural values of trees in the temple gardens to the monks with shorter experience, the next generation of the Sangha who will become the stewards of landscape in temple gardens in the future? In Chapter 5, I focus on the semiotic status of temple trees. I address the historical and cultural significance of trees in the Sangha and discuss how heritage large trees in temple gardens became the representation of the sacred. Does location matter? If the same tree species of similar size and age grow outside of temples, do they still convey the same symbolic significances? Chapter 6 focuses on a quantitative approach to measure the vegetation coverage of the city. Using methods from Line Transect at the site scale to Object-Based Image Analysis classification at the citywide scale, the percentage of green canopy coverage of religious land uses was compared with that of other land uses to address the question of how cultural values that trees conveyed contributed to the green infrastructure of the city. Then I compared the perception of greenness of temple gardens from ethnographic field work with the percentage of green coverage analyzed from satellite imagery. Qualitative analysis of the cultural and ecological perceptions of the trees was then put in parallel to this quantitative analysis of the green coverage ratio to examine how the monks, the main users and managers of this landscape, understand and appreciate their habitat.

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Chapter 2

2.1 Introduction

This chapter examines the history of environmental planning, the usage of trees in cities, concepts of urban forests and their relationship with humans and the urban environment. It consists of five sections. The first section focuses on the definitions and concepts of trees and urban forests in the human realm. The second section pertains to the History of Landscape Architecture, particularly in relation with city trees and urban forests. Some historical periods overlap depending on locations and other influential factors. The third section explores cultural theory regarding trees and forests. The fourth section discusses values and services of trees, urban forests in relation to places and humans and how communities interact with trees and urban forests. The last section looks at how trees influence health and public well-being.

2.2 Definition and Concepts

The origin of the word 'forest' is derived from the Latin word 'foris'. The term has a complex and uncertain history as it does not necessarily mean an area covered with trees but it is commonly understood that a forest is a wooded area (Jones and Cloke, 2002). 'Forest' can convey different meanings in different cultures (Schama, 1995). The term 'forest' is very complex and difficult to find a definition that experts can agree on because the term is either commonly understood or it is too complex for people to understand (Randrup et al., 2005: 10). Definitions of 'forest' have been based on land use, land cover, or administrative function. The definitions of 'forest' have also changed over time depending on how people have perceived its values. 'Forest' was previously defined as a source of timber; now it is viewed as a place that provides ecological values and social and cultural benefits as well (Ibid.). There are different ambiguous social meanings of 'forest' such as the concepts of forest as spiritual landscape, paradisaical landscapes, and so on (Jones and Cloke, 2002). Concepts of urban forests in North America have a much longer history than in Europe (Konijnendijk, 2006). The concept of urban forests in North America has focused more on environmental services while in Europe the concept has emphasized their social functions.

The Urban forest is a complex concept that integrates natural, cultural, and political dimensions (Konijnendijk 2008: 3). Unlike 'wildwood' or unmanaged woodland, 'forest' consists of a cultural component. The definition of *urban forest* reflects professions, interests, political values and motives (Haynes, 2002). This might not include all of the same aspects as the concept of urban forestry which is deficient in the area concerning inventory and assessment. It is important to have terminology be consistent especially in the area of natural resource management because agreement on definitions would be useful for inventories and assessment. In *Defining urban forestry – a comparative perspective of North America and Europe*, the authors reviewed different terms and definitions, and examined the concept of urban forestry from a multidisciplinary perspective (Konijnendijk, et al., 2006). They also looked at how urban forestry might be comprehended internationally.

2.1.1 'Urban Forest' in North America

The *Dictionary of Forestry* describes urban forestry in holistic terms:

...the art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society (Kollin and Schwab, 2009).

In North America in 1965, Jorgensen first used the term discussing the topic with graduate students from the Faculty of Forestry, University of Toronto, Canada. He defined 'urban forestry' as:

...a specialized branch of forestry and has as its objectives the cultivation and management of trees for their present and potential contribution to the physiological, sociological and economic well-being of urban society. These contributions include the over-all ameliorating effect of trees on their environment, as well as their recreational and general amenity value.

In 1978, the federal *Cooperative Forestry Act* of 1978 provided a definition that became the first and most widely quoted definition in the modern era:

'..the planning, establishment, protection and management of trees and associated plants, individually, in small groups, or under forest conditions within cities, there suburbs, and towns.'

The Society of American Foresters provided a definition of 'urban forest' in the early 1970's. It conveyed a holistic meaning with multi-functional and multi-disciplinary aspects and became commonly cited:

...the art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society.

Miller (1997) describes 'urban forest' with a more physical perspective:

'the sum of all woody and associated vegetation in and around dense human settlements, ranging from small communities in rural settings to metropolitan areas.'

In the year 2000, Ontario was the only province that recognized the practice of urban forestry in its legislation. Its definition of 'urban forest' was as follows:

...tree-dominated vegetation and related features found within an urban area and includes woodlots, plantations, shade trees, fields in various stages of succession, wetland and riparian areas (Professional Foresters Act of 2000).

Kollin and Schwab (2009) examined the definition of 'urban forest' from more of a planner's perspective and suggested it must be related with ecological, climatic, urban, political, and cultural conditions that affect the existence of trees in cities.

The National Urban and Community Forestry Advisory Council, which advises the U.S. Forest Service, gives the following definition for 'urban forestry':

The art, science, and technology of managing trees, forests, and natural systems in and around cities, suburbs, and towns for the health and wellbeing of all people.”

In the area concerning community involvement, the Planning Advisory Service Report defines urban and community forestry as:

...a planned and programmatic approach to the development and maintenance of the urban forest, including all elements of green infrastructure within the community, in an effort to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms, especially when resulting from a community visioning and goal-setting process.

The United State Forest Service combines the term ‘urban’ and ‘community’ and used the term interchangeably as it focused on functions and benefits of urban forests for people. The US Forest Service stated, “The Urban and Community Forestry Program enhances the livability of towns, communities, and cities by improving the stewardship of urban natural resources”.

Most definitions here focus on the environmental functions of urban forests. However, recently in North America, the aspects of urban forests in the study, design, and management of trees in cities have included more of a social function such as benefits to human health and well-being.

2.1.2 ‘Urban Forest’ in Europe

In Europe, the definitions of ‘urban forest’ are more complex as in each country there is much diversity of culture, language, economics, and landscape. Many cities in central Europe have had a long history of green space design and management.

In a European research overview the British authors defined ‘urban forest’ with a larger scale holistic approach with the inclusion of linked urban green parcels:

Urban forestry is a multidisciplinary activity that encompasses the design, planning, establishment and management of trees, woodlands and associated flora and open space, which is usually physically linked to form a mosaic of vegetation in or near built-up areas. It serves a range of multi-purpose functions, but it is primarily for amenity and the promotion of human well-being (Ball et al., 1999 cited in Konennijdijk et al., 2006).

The British National Urban Forestry Unit (NUFU) defined urban forestry with more of a concern for the locations of the forest:

[the urban forest] collectively describes all trees and woods in an urban area: in parks, private gardens, streets, around factories, offices, hospitals and schools, on wasteland and existing woodland.

The definitions of urban forest in North America focuses more on ecological services while in Europe they emphasize social services such as aesthetic, cultural values, and human health and well-being. Despite the differences, there is common ground between definitions of urban forestry in North America and in Europe. They both take a broad and holistic approach

that incorporates ecological, economics, and sociological elements with relation to people in urban, peri-urban and rural communities (Konennijdijk et al., 2006).

Boundary, location, and scale are other issues addressed in urban forestry discussions. Some definitions focus on forests in cities; some focus only on woodlands, and not on stand-alone trees. However, it is generally agreed that the definition of urban forests should not focus merely on a small scale of decorative landscape or on a single site of tree planting in the city. The holistic approach that binds together fragmented urban green spaces should be the way people look at urban forestry as a significant component for urban regeneration (Simson, 2005).

2.1.3 'Urban Forest' in Thailand¹

The definition of urban forest in Thailand is based on the definition of urban forest in the United States. Urban forestry is a profession relating large trees to urban areas. It is a profession that provides tree maintenance and management in cities. Trees in the cities are national natural resources. Urban forestry is a program that deals with difficult conditions in urban settings including limited soil and air space for tree growing, poor soil quality, limited water and light, heat and pollution. These factors can cause damage to urban trees.

The urban trees planting in Thailand started during the reign of King Rama V (1868-1910). The King sent out a request to *Krom Nakarathorn*² with a recommendation on urban trees plantings in Bangkok. He had specifications on the tree species, locations, and planting methods. The purpose of the planting was to beautify the city.

The office responsible for the city's tree planting was *Krom Nakarathorn* which later transferred the responsibilities to BMA (Bangkok Metropolitan Administrative). Most of the urban tree planting in Thailand has been done for decorative and shading purposes.

More recent researches have been done in the area of urban forests and air quality which influences the ways in which the government plants more larger tree species in the cities. There is no state agency that takes direct responsibility for urban forests and street trees in Thailand right now. Urban tree care is usually done by district offices or MEA (Metropolitan Electricity Authority), mostly providing unsuitable management practices. The current street trees maintenance tends to cause damage to the trees and liabilities in urban settings.

Bureau of Community Forest Management is the only state agency that works with community forests in Thailand. The community forest programs work directly with local communities in many provinces in Thailand. However, the office only takes care of forests outside Bangkok. The Bureau of Community Forest Management is under process of expanding into a Bureau of Urban Forestry that will include the responsibility of urban forests in Bangkok (new.forest.go.th, 2018).

¹ <https://th.m.wikipedia.org/wiki/การป่าในเมือง>

เมือง?fbclid=IwAR04LY2n7PszUJrZRP44BWEM4T53BaWeJUDO6nuTssvZWXWYxRZqhcPZfPY

² *Krom Nakarathorn* was the state agency that was responsible for the cleaning of the city. It was the government agency that was responsible for the tree planting and maintenance of public spaces in Bangkok. Now it is part of the Department of Public Works and Town & Country Planning.

2.2 Trees in Human History: Trees in the History of Landscape Architecture

More than 50 percent of the world's population resides in urban areas and more than 70 percent of people in more developed regions now live in cities (United Nations, 2014). Urban green spaces will be the only places people in the cities can experience the natural world (Dallimer et al. 2012). In Europe during the Middle ages, city boundaries were relatively small in size. People could have a short walk and reach the countryside where they could relax in natural areas with fresh air. For this reason, the needs of trees in cities were relatively low, but there is evidence that some cities used trees in public open spaces. Besides shading, fruit production, and medicinal functions that trees provided for people, they also carried religious symbolism, especially trees in church landscapes (Lawrence, 2006). These trees were commonly located adjacent to religious institutes in Europe and abroad. For example, a tree-lined promenade leading to an entry of temple complexes was used in ancient Egypt (McBride, 2005).

The relationship between humans and nature is complex and infinite (Sowman, 2013). Forests were originally a place of wilderness, darkness, and danger (Cronon, 1995). Wilderness had negative connotations as the wild was considered a place beyond the control of man (Appleyard, 1980). Then men began to fight back by clear cutting the forest to get rid of the darkness of wilderness. After men crossed over their fears of nature, forests became a resource for food, shelter, and transportation. Then the forests took on meaning beyond merely a fundamental resource and they took on a third meaning - a recreation resource. The forest provided not only physical but psychological well-being for humans with its multiple meanings. Finally, in the Art world, for the painter, the forest and trees turned into "landscapes" which also conveyed social meanings representing social status. However, after centuries of urban development, trees and urban forests became a representation of the rich and powerful. Their meaning as wilderness and other meanings other than visual meaning have been sloughed off. Urban forests and trees became a single-dimension urban element. The relationship between humans and urban forests is minimal and the conception of this relationship has become limited to the concept of trees.

Prior to the 16th Century

Even though tree-lined promenades have been used since ancient times as was the practice in Egypt (in approaches leading to temple complexes), people have recognized this pattern of tree-lined streets from the Italian Renaissance gardens in the 16th century (McBride, 2005). Besides tree-lined promenades, in ancient Greece, trees were used to shade walkways for people at Greek gymnasias. However, in Renaissance gardens, tree-lined and other ways of tree planting and pruning were carefully designed influencing the patterns of trees used in public parks, streets, and urban spaces in the 18th and 19th centuries (Ibid.).

In Ancient Greece, even though planting trees in cities was not common, there were fruit trees planted in the cities. There was also evidence of planting fruit trees, flowers, and vegetables in inner courtyards in ancient Rome. Trees were also found around public squares, civic buildings, temples (Ibid.), and amphitheatres (Konijnendijk, 2008). *Pinus pinea* was planted in the city of Rome and became a symbol of the city and a cultural link to the Roman Empire (Forrest and Konijnendijk, 2005).

Tree species were consciously selected for practical purposes in Ancient Egypt (Cowell, 1978). Humans planted trees in cities for shade, aesthetic, and religious purposes and so forth throughout history (Clifford, 1966).

The Sixteenth Century – The Renaissance

The Renaissance was a period of cultural innovation and reinterpretation of Roman and Greek models. During the 16th century, Italy was considered the center when it came to using trees in the city (Lawrence, 2006). At that time, there was some use of trees in open space, squares, and streets, but there was not much evidence of using trees except in private gardens and in conjunction with fortifications and city walls. Most cities had squares and plazas which were created in the Middle Ages. None of these urban plazas had trees during the Middle Ages. However, these urban open spaces became significant spaces for tree planting in cities. Trees were used in many Italian Renaissance gardens as an approach to a vista point. Italian gardens used trees in private gardens to create vistas that opened to the surrounding views of the countryside (Lawrence, 1995).

In the suburbs of Italy, a new form of garden design was developed which reflected the Renaissance aesthetic of the beginning of the 16th century. This was demonstrated in the large gardens designed for the villas of wealthy individuals such as Villa d'Este at Tivoli and the Boboli Garden in Florence. Renaissance garden design was derived from architectural forms of the time, and gardens were considered extensions of the spaces of the villa. This was reflected in smaller suburban villas as well (Lawrence, 2006). Mostly ornamental plants with strictly formal forms were used in the gardens of these villas. The borrowed landscape was another design principle used in these gardens, i.e. the creation of an aesthetic experience through the use of the view of the surrounding countryside to enhance the quality of experiences within the garden. Sets of fountains, vistas, flower beds, trees, mazes, grottos, pathways, stairways, and even a private zoo, were found as the Italian garden was developed into an elaborate landscape design that provided pleasure for social activities. Some gardens in Rome opened portions to the public through a separated gate as it was a European custom to extend hospitality to visitors. These Italian villa's gardens portrayed a new style of garden design that would later influence French gardens and landscapes in other parts of Europe. Italian gardens of the Renaissance became the roots of modern landscape design and later inspired the use of trees in the urban landscape in Europe (Ibid.).

Tree-plantings were used to demonstrate power. In 1580, Queen Elizabeth I designed a three-mile perimeter green belt around London (Forrest and Konijnendijk, 2005). It was the first green belt around London and was built to prevent the spread of plague. This green belt not only illustrated the power of the royal family but also benefited city dwellers. Green belts have been used in different cities with different purposes but not until 1947 that the Town and Country Planning Act in the UK included green belts as parts of local town planning (politics-greenbelt.org.uk, 2011). Green belts were originally used to prevent disease from suburb to spread into the city but today's green belts have been used to halt urban sprawl and to protect the natural areas in the rural England (Ibid.).

Conflicts between the religious reformation and the counter-reformation had an indirect impact on the use of trees in cities. The conflicts caused the changes in city

fortifications and migrations of people from different cultures who brought their traditions into the new urban culture (Lawrence, 2006). The abandoned city walls were other locations where trees were introduced to cities. Fortification and city walls became obstacles of cities expansion. As cities grew, more people lived in the cities and more built up areas were required. This urban growth directly led to a decline in urban green spaces. It was not until the mid 16th century that some towns started to plant trees atop their walls (Ibid.). In the 1570's Antwerp and Lucca had promenades on their city walls for public uses (Girouard, 1985 cited in McBride, 2005). In Antwerp, double or triple rows of trees were planted atop the city walls for public enjoyment. There was a tradition of vistas created from straight streets leading to places, but similar to squares, none of these streets had trees planted alongside them. However, this tradition provided spaces for future adaptations of adding trees in the urban landscape (Lawrence, 2006).

The Seventeenth Century – Baroque

The palace of Versailles is a clear representation of what is considered French Baroque. It was symbolic of the cultural leadership of the 17th century. In Europe, France, Britain, and the Netherlands were the countries that led in integrating trees within their cities during this period. Trees were introduced in these cities in different ways.

In France, trees were planted in the *cours*, an open space provided for summer evening social events. *Pall Mall* was another pattern of using trees in cities to provide shade for players and spectators of a game called "pall mall". Started in Paris in the 1590's, two malls were constructed having one row of trees on the side of a mall and another parallel row to create shade for a walkway (Lawrence, 1995). Pall Mall was also used in London in 1650 and in the same year in Berlin. Similar to Pall Mall, in Berlin where the game was known as *Unter den Linden*, were Linden tree allées were planted on the side of the playfield or around the square (Konijnendijk, 2008). These tree plantings later became one of the most popular streets in the city (McBride, 2005). People in Paris, London, and Berlin pleasantly strolled along and had conversations underneath these tree-lined streets. It was so popular in London that the time of day when large numbers of people walked along Pall Mall came to be known as "High Mall" (Ibid.). Another urban setting of trees in cities was atop obsolete city walls. Many cities planted double lines of trees atop the old city walls (Konijnendijk et al., 2005; Lawrence, 2006). The old city walls that were no longer used as defensive walls became recreational places for city dwellers. People strolled on the obsolete walls with an elevated level that allowed them to see the scenery of the country of the countryside beyond the city wall (McBride, 2005). Another pattern of tree use in French urban landscapes was a carriage promenade. This was the first known use in Europe of trees and wheeled vehicles in urban landscapes. This carriage promenade later became a city street while the *cours* became a tree-lined street. These tree-lined carriage promenades can be found in many towns in France. Despite the fact that their status was public, some of these *cours*, in effect restricted people from different classes.

In Britain, trees were found in elite residential squares, around spas in resort towns, and in hunting parks. The uses of trees were different from other cities in Europe because there were very few towns with cities walls. Trees were used to surround residential squares which had the continental influences from Pall Mall, *cours*, and other urban landscapes. The British

walk was a tree-lined walkway similar to Pall Mall but was mostly used for walking rather than for games (Lawrence, 2006). Moorfields in London was the first and most influential public walks. It was a connected series of fields beyond the old city wall. These fields became a very popular park, and were used for grazing livestock, drying clothes, and other recreational activities. The British walk was a pioneering use of trees in urban landscapes and it influenced the development of architecture and urban planning (Ibid.).

Another well-known landscape typology in Britain during the 17th century was the residential square. Residential squares had fenced around the gardens and were exclusive for residents who were of the upper and middle classes (Lawrence, 1995). Built in 1630, Covent Garden was the first residential square in London. Similar to other residential squares, it was paved and did not provide space for trees or other vegetation (McBride, 2005).

Converted royal parks was another larger scale urban landscape typology starting in London in the 17th century. These royal parks were turned into pleasure grounds for the public by repurposing private preserves of the royal family. St. James's Park, Hyde Park, Green Park, and Kensington Gardens were well-known public parks that originated from royal land in Britain. They would also become a significant influence on the forms and patterns of city parks throughout the world (Lawrence, 2006).

Both France and Britain introduced trees at the edges of their cities, where the periphery of the cities' physical structure and the forests and natural areas around it were delineated. In contrast, the Dutch developed a novel way of integrating trees into the urban landscape by introducing trees in the city centers in conjunction with canals. In many Dutch towns tree-lined canals were unique landscape features that used trees. Beginning in 1613 when Amsterdam expanded the city, the new boundary was a system of new canals with trees lining both sides. This expansion of the city led to more canals with trees lining them. By 1625, almost all canals there were lined with trees. Tree-lined canals were not used solely. In some Dutch cities, trees were planted atop or alongside of their city walls such as in Rotterdam, and Den Bosch. Despite many trees in cities, Amsterdam was the largest city but lacked a large public garden. In the 1680's, *Nieuwe Plantage*, a new plantation, was organized around three large allées as allotment gardens.

It was the Golden century in Holland that witnessed intense changes to urban development, civilization, transportation, and a more expansive network of canals. Amsterdam also became a pioneer in Public Health Protection. With the concerns on public health, trees and open spaces were promoted more in cities and small towns. Most towns in the Netherlands had trees along the canals. These tree-lined promenades influenced the urban landscape in the 18th century in Russia and most of the Dutch colonial towns in Asia, Africa, and the United States.

There were not many large gardens and private gardens in Dutch landscapes because of the social structure and ecological characteristic of the country. In the Netherlands, cities were mostly mercantile and lacked aristocracies. For this reason, there were not many private gardens that would have been used to represent social status. Moreover, the topography of the Netherlands was mostly wetland so there were not many large open spaces that could be used as solid ground for urban landscapes.

Other countries with Baroque gardens were Italy, Germany, and Austria. In Italy, the usage of trees in gardens was similar to that of the 16th century. There were promenades added

in most towns but still not many trees outside the city walls. In Germany, Hamburg was influenced by the French and the Dutch in the patterns of trees used in the city. Trees were planted along the central quay and atop some portions of the city walls. In 1670's, Berlin was the most important German city with trees planted in the city. *Unter den Linden* in Berlin which was later transformed into a promenade.

With these distinguished uses of trees and potential open urban spaces created for future tree planting, the uses of trees in European cities in the seventeenth century lasted for another century and influenced many patterns of trees used in urban landscapes in the later periods (Lawrence, 2006). The planning and design of these patterns of trees only involved a small number of people (Forrest and Konijnendijk, 2005). Only royal families and wealthy upper classes had the power to make decisions. It was a representation of social status, power, and national cultural traditions (Lawrence, 2006).

The Eighteenth Century – The Enlightenment

Scientific, Intellectual Development, and Urban Embellishment

The 18th Century ushered in economic growth of the urban middle class and led to political reform which would later influence the French and American Revolutions. The rising middle classes living in cities sought urban amenities. One of these urban amenities was a pleasure garden where people could stroll under the shade of trees and have conversations (McBride, 2005). Sixty-four pleasure gardens were opened in London during the 18th century (Wroth, 1896 cited in McBride, 2005). One of the largest gardens was Vauxhall Gardens. It consisted of a variety of common urban tree species, Pall Mall, and promenades. The gardens were opened to the general public and could be accessed with no charge but later there was an entry fee to control the classes of garden visitors (McBride, 2005).

1700 to the 1780's - Urban Embellishment

Embellishment, derived in the 18th century in France, was a concept of improving the physical components in an urban environment and enhancing the quality of life for urban dwellers. To name a few: green public spaces, fountains, improved traffic circulation systems, new market squares, better drainage, and street paving (Lawrence, 2006). Architectural forms were based on Enlightenment ideals of magnificence. However, trees were not necessarily significant for this kind of urban improvement.

Urban embellishment was a cultural movement of the Enlightenment. It was a new sense of urban beauty which included reference points for judging human actions, a guide for creating new forms of architecture, and the belief in a reciprocal relationship between nature and the human realm where spaces planted with trees provided places for humans to have contact with nature. This new sense of beauty was informed by the value that nature was influenced by human contact and would in turn improve human nature. For this reason, there was a heightened public desire for urban green spaces, not only for the upper class but also for the rapidly increasing population of the lower class. This mix of social classes became a concern for the upper classes. There were iron fences and armed guards and this caused a greater social segregation between residential areas and city amenities (Ibid.).

By 1780, most of the towns in Europe had some green promenades. In France, many cities planted trees atop the city walls and alongside fortifications. There were long allées framing vistas to the Champagne. By the mid 18th century, most promenades served multiple purposes. They were called in different terms: *cours*, *malls*, *boules*, promenades, quais, Champs de Foire, Champs de Batille, Champs de Mars, esplanades, and avenues. After the mid 18th century, landscape pattern of London's residential squares was influenced by the parterres of Italian Renaissance gardens. The open spaces in residential squares was replaced by trees and plantings around the edges of the gardens. Berkeley Square in London was replanted with London plane trees in 1777 and now is the site of the oldest trees found in London (Ibid.).

The 18th century English Landscape Movement had an opposite character from the formal gardens of the French Baroque. Influencing the design of many public parks was the concept that English landscapes should emulate nature and create a romantic setting. Britain was one of the few places that first developed municipal parks. The majority of the population in Britain lived in cities and public parks would improve physical health and moral well-being of city dwellers. Municipal parks served as green lungs, especially for people who lived in the industrial midlands and could not afford to regularly visit the countryside. Hampstead Heath was one of the parks that was purchased to be a public park. Besides these parks, botanical gardens, zoological gardens, and cemeteries were also places for urban trees (Forrest and Konijnendijk, 2005). Cemeteries in many cities were important contributors to the urban tree population (Jones and Cloke, 2002). Some remarkable trees were found in the largest green space of Père-Lachaise cemetery in Paris. Highgate Cemetery in London had beautiful picturesque landscape with winding paths and groups of trees. Cemeteries in many English cities also became places for fine specimen trees (Ibid.). Despite an ambiguous feeling caused by a sense of belonging conflicting with cemeteries being places for dead people, many cemeteries in cities provided valuable green spaces for city dwellers.

The Industrial Revolution

During the beginning of 19th century, the Industrial Revolution, many forests were planted for timber. Prior to the Industrial Revolution, many royal forests and parks were open to the public. People came to be aware of not only the economic benefits of trees but also of their benefits to health and well-being. The function of urban forests was "Spiritual and bodily hygiene" rather than financial return (Forrest and Konijnendijk, 2005). In 1833, the British House of the Commons reported that public walks and open spaces where people can walk comfortably and spend time with their families and be places of mixing of middle classes and humbler classes led to improved behavior among people who frequently used the places. There were other developments that were influenced by the Industrial Revolution. Government and city authorities appointed staff for woodlands and parks management. Greenbelts were designed around many cities. In continuity from the 18th century led many cities in Europe to reuse old city walls or fortifications as extensive promenades, public parks, and encircling belts of vegetation.

The 19th century was also the period of renewed interest in "plant hunting" as many European nations brought back tropical and exotic species from different continents during this colonization period (Ibid.). Kew Royal Botanical Garden was one of the most prolific exotic

botanical collections in Europe. The garden sent the plant hunters in several botanical expeditions. Many specimens were shipped back to Kew from many British Empire. Sir Joseph Hooker (1817-1911), Kew's gardener and botanical expeditor who later became Director at Kew, had travelled in several plant hunting expeditions to Antarctic, India, and Nepal and brought back c.700 species to the botanical collections at Kew. Some of these exotic species became popular among British gardeners (Losse, n.d.).

During the Industrial Revolution in North America, the rural cemetery movement in the United States had tree planting patterns influenced by tree-lined streets but evolved into meandering forms of the tree-lined road which was different from traditional grid-plan cemetery. Mount Auburn Cemetery in Boston inspired many urban parks including Olmsted's plan for the Chicago suburb of Riverside, with its natural-looking pastoral landscape (McBride, 2005). Although tree-lined streets were adopted from European cities into American urban landscapes, trees in privately owned gardens in housing projects were a major contributor to landscapes in urban areas in the United States. Urban cemeteries in Europe and the United States became places of species diversity (McBride, 2017: 129).

The Nineteenth Century

1820 – 1850 Pastoral Landscapes

By the early 19th century, residential squares in British towns had been redesigned. The formal landscape resembling Renaissance gardens had been replaced with a more naturalistic English, pastoral landscape aesthetic. More trees and shrubs were planted at the edges of residential squares creating privacy for the garden users (McBride, 2005). This residential square landscape character influenced other cities in Europe, Canada, and the United States. Even though the landscape setting was similar, residential squares in Paris were open to the public, unlike the ones in London that were kept private and reserved only for the landowners living around the squares. This urban landscape pattern played a significant role in incorporating trees in many cities and influencing the design of small urban parks in North America in the next century (Ibid.).

It was not until the 19th century that large city parks were introduced to urban areas. In England, large city parks were a transformation of royal hunting parks which was part of a larger tradition of quasi-public use of large private gardens since Medieval times (Lawrence, 1995). Most of these hunting parks were large, walled areas. They started to become quasi-public during the late 17th century in that they allowed well-dressed people to get in. There were only a few places that allowed poorly dressed lower-class people access.

Unlike other landscape settings in other European cities, London's large city parks had a more rural and natural character. This English pastoral landscape later influenced the redesign of large parks and new park development occurred in the nineteenth century including Bois de Boulogne in Paris, the Tiergarten in Berlin, and New York's Central Park (Ibid.). In North America, the tree-lined boulevard was adapted to use in urban landscapes as green connections between urban parks. These parks and urban green spaces were usually located in the urban periphery, far from built up areas such as New York's Central park and Hampstead Heath north of London. In the 20th century, development and urban expansion reached and surrounded

these urban green spaces making these large parks urban green spaces in the center of large urban areas.

The Automobile Age

Industrialization and Private Residential Gardens

Industrialization in urban centers and the use of mechanized transportation were key factors that drove the upper and middle classes to leave the city because of urban environmental degradation. The Automobile Age began in 1895, and the rise of the automobile in the 20th century accelerated the growth of suburban residential development and distance from the city came to be associated with prestige (Ibid.). In North America, housing development styles of suburbs resembled the character of the earlier colonial, detached housing with private garden. Low-density housing and gardens were the norm of the upper class. Trees and vegetation represented the wealth of these neighborhoods. Trees were rarely coordinated. They randomly appeared both inside the private garden and on the street in front of the houses.

1840-1920 Post Industrial Revolution

Public Green Spaces and Public Health

During the period following the Industrial Revolution, urban blight increased and cities became dense and lacking of public open space. In 1831, Cholera epidemics struck in Berlin, Paris, London, and New York, and again in 1849, causing crisis across these cities (Lawrence, 2006). A relational approach that examined factors across different fields of study was executed as a way to investigate the source of this urban sickness. Louis-René Villermé, a Parisian physician, combined aspects of field site and laboratory views in his research with the premise that political and economic inequity were significant factors of urban sickness and mortality (Corburn, 2013). Edwin Chadwick, a lawyer who worked on the Poor Law Amendment Act of 1834, examined the unsanitary conditions throughout Britain. He believed that it was physical conditions that caused higher mortality rates more than did social or economic factors. Chadwick's report raised awareness about the impact of urban environments on health and the importance of improvements of living conditions of urban dwellers. As a consequence, municipal and national policies were established to clean up urban environmental blight (Ibid.). Furthermore, higher classes believed that urban forests and green open spaces enhanced behaviors and health conditions of the lower classes. In 1870, Copenhagen, Denmark had developed the first public park on the site of an old fortification. The 1866 extension plan for the city of Amsterdam included a pattern of city parks. The tree-lined boulevards in Paris were replicated in many cities throughout the world after the mid 19th century and the beginning of 20th century. The 1840 Schmuck-und-Grenzzüge proposal for Berlin became an influential inspiration for the work of Frederic Law Olmsted in Boston.

The Industrial Revolution and the use of fossil fuel furthered natural resource consumption and the growing distance between humans and nature (Konijnendijk, 2008). As a

consequence, people desired to 'go back to nature' and this helped form the modern relationship between nature, forest, people and culture.

The City Beautiful Movement

The City Beautiful Movement began after the World Columbian Exposition in Chicago in 1893 and was prominent until the great depression in the 1930s. With the fundamental idea to altering the image of the city from a symbol of economic development and industrialization to an aesthetic landscape that enhance living environment for the city's inhabitants, an ideal city – the "magical white city" concept was demonstrated in architectures and the built environment in the city of Chicago, then New York, Detroit, and Washington D.C. The height of the Industrial Revolution drew many workers to the cities for economic progress and ignored the visual aesthetic of urban components. The elaborated decoration of Chicago World Fair inspired many cities that an aesthetic value can support the health and wellbeing of urban residents. Supporting the movement, urban trees were used to beautify the cities and bring back natural beauty to urban dwellers. This led to several governmental plans and regulations in different cities. Washington D.C. had the McMillan Plan, the first governmental plan that regulate the aesthetic functions in the city with a tree-lined National Mall (NYPAP, 2016).

After the mid 20th century, trees served as a significant component of "urban beautification" (Lawrence, 1995). Urban tree planting was used to create unique places and screen unpleasant elements in urban areas. Numbers of parkways and new parks were incorporated in urban landscapes in many cities in the United States. Recently, the primary operational criterion for urban tree planting has changed from the ecological, aesthetic, and social values as factors for consideration. Instead, many cities and governments have selected low maintenance cost as the main criterion for urban tree selecting and planting (Ibid.).

The Twentieth Century

The Environmental Movement

Henry David Thoreau and John Muir are considered to be the founding fathers of the modern Environmentalist Movement. Thoreau stated that "in wildness is the preservation of the world" (Schama, 1995). Both men believed that wilderness would be the cure for the poison of industrial society. However, this healing nature was framed within a cultural framework that provided access for humans into the wilderness realm. In 1864 the area now known as Yosemite National park, was transferred from the public domain to be used as a public park the first and most famous "American Eden". This, in effect, made Yosemite the place where nature was held sacred in the United States. However, it was too overpopulated and over represented to be a true Eden. People saw images of Yosemite as a natural sanctuary without any human beings while the landscape was actually paved with large numbers of hikers walking up and down the trails with their backpacks. While John Muir characterized Yosemite as a "park valley" and perceived the place with "a religious idea", Ansel Adams, working with the National Park Services in 1952, mentioned the Half Dome as "just a piece or rock..." Despite his admiration of John Muir, Adams believed that in order to protect Yosemite's spiritual potential, humans would need to occupy it (Ibid.).

In the mid 20th century, large parks were open to the general public. Lower classes could also have access to the parks as people in elite classes came up with a concept of a moral improvement through contact with beauty and nature (Lawrence, 1995). The idea was that peaceful recreational spaces in cities could educate and improve the moral conditions of lower classes who had a low living standard in their high-density housing in city centers. This theory raised the social value of urban trees to be appreciated beyond merely their aesthetic value. Improvement of well-being, urban environmental improvement, and places for wildlife habitat were taken into consideration during this time.

Rachel Carlson's *Silent Spring* in 1962 moved society into starting to think more about the negative environmental impacts caused by humans. In 1963, Ian McHarg's *Ecological Determinism* explained how pivotal the role of humans was and that we must be aware and understand underlying natural processes in order to prevent further environmental degradation. In 1964, the Wilderness Act was passed and in 1969 the National Environmental Policy Act was passed creating the Environmental Protection Agency. In the 1970s, the Clean Air Act, Water Pollution Control Act, and Endangered Species Act soon followed.

Urban greenbelts were introduced to many cities to preserve natural forests in the cities' peripheries. Streets became public spaces where people could walk pleasantly in the shade, children could play safely, and drivers could feel like they were driving in a garden which would help to slow down traffic. These street trees also served as visual reminders for pedestrians. Traffic calming circular islands were introduced in several cities.

Laws, Regulations, and Concepts of Urban Forests in Town Planning

Rules, regulations, and ordinances regarding trees in cities have been incorporated in city development since the 16th century and this has revealed how trees were pivotal elements in urban landscapes. In 1552, King Henry II of France issued an ordinance for the planning and maintenance of trees in Paris. In the 16th century, Rome had *Ulmus minor*, elm trees, planted along the road leading to churches and the species became a symbol of Papal Rome. Laws of the Indies (1573) were royal ordinances for the *Laying Out of New Cities, Towns, and Villages* for town planning of Spanish colonial towns. The Laws of the Indies stated that new towns be laid out on a grid with a plaza in the town center. Spanish colonial towns' town planning followed the Laws of the Indies which used a grid design for street pattern and had the locations of churches correlate to the plaza. Ordinance #113 designated the dimensions and proportions of the plaza. In order to build a street that was suitable with the microclimate, the Laws of the Indies recommended narrow streets in warmer locations to utilize shade from adjacent buildings and wider streets in colder locations. Trees were not mentioned for any streets or plazas and there was no space allocated for tree plantings. However, individual gardens in each residential plot were introduced with orchard trees (McBride, 2005).

In the 17th century, some European town councils had a public tree policy (Forrest and Konijnendijk, 2005). There was city regulation related to urban trees in Versailles in the 17th century. Louise XIV required that houses of the town's bourgeoisie be limited to lower than the height of the trees so that they did not block his view from the palace. Another proposed tree regulation was developed by Jean-Baptiste Colbert, the king's chief minister's proposal. He gave an instruction to plant all the streets in Versailles with elm trees (Lawrence, 2006). This idea

was not executed but it helps to illustrate the interest in urban tree design during that time. In Amsterdam, municipal ordinances called for the strict protection of trees by encasing their trunks with wooden boxes to prevent injury from traffic in their narrow street settings (Ibid.).

England's Epping Forest was started in 1878 with the Epping Forest Act (Forrest and Konijnendijk, 2005). This regulation was initiated from the Conservators of the Forest (The Corporation of London) to protect timber and other trees, pollards, shrubs, and other vegetation that grew in the forest. These preserved woodland areas became public spaces for recreation. Several private estate gardens became public including Kenwood in Hampstead Heath, located in a northern suburb of London, Fontainebleau and Orleans, and Chantilly in Paris, Foret de Soignes in Brussels, Belgium, and Nuremberg in Germany.

Cronon's (1995) statement that nature is viewed as white and good, while cities are viewed as dark, dirty, and decaying, reflected how people perceived nature. There is not much precedence reflecting the transition of tree uses in urban areas from ancient times to urban forests in modern cities (McBride and Jacobs, 1986). From ancient times, records of trees used in cities reflected how people appreciated the aesthetic and spiritual values of trees. A larger population of trees planted in urban areas today demonstrates how people have become more aware of the significance of trees in cities. Furthermore, the laws, regulations, and other movements regarding urban tree preservation and other related aspects emphasize how important urban forests can be in the human realm. However, planning and management of trees and urban forests are inefficient and deficient in many places in the world. To understand their roles from history and be able to explicitly assess the overall value of these valuable natural resources is important for future sustainable living.

2.3 Cultural Theory: Past Studies of Cultural Services and Ecological Management

2.3.1 Cultural Concepts of Trees

*Can culture influence perception to the degree that a person can see things
that are nonexistent?
Topophilia and Environment. Yi-Fu Tuan 1974*

As Guy Debord (2002) said "*Culture is the general sphere of the knowledge and the representations of the lived...*". Thus, in order to understand and appreciate cultural values, people need to be acknowledged and see beyond only the physical spaces.

Hill (2002) in *Ecology and Design: Frameworks for Learning* referred to cultural theory as '*theories about human behavior, particularly in the context of relations with other humans, their environments, and other forms of life*'. Ecological understanding in cultural theory explains how people make decisions and how these people perceive the consequences of their behavior. Cultural theory is complex. Reducing the complexity will cause the missing of insights and diversity of individuals' narratives (Hill et al., 2002: 279). The challenge of cultural theory is how to recognize complexity within the narrative. There are criticisms from scientific-based methods that cultural methods are ambiguous and implicit (Ibid.). Cultural methods can be seen as

subjective as they can be interpreted differently by different people when they are in different temporal and spatial contexts.

There are rarely any cultures that have not employed trees as part of their cultural symbols. Trees have been found throughout the history of human culture, such as the large urban gardens found in Mexico at the time of the Spanish conquest as recorded in an old map of Tenochtitlan. The map, published in 1524, shows seven large urban gardens in the ancient Aztec metropolis of Tenochtitlan (McBride 2017: 31). Urban gardens present since the first European exploration can still be seen in Mexico, Central, and South America. In Egypt, urban tree use appeared in palaces, important government offices, and temples. Evidence of urban gardens has been found on the tomb walls of Egyptian rulers and in papyrus documents at archaeological excavation sites. Lines of palm trees along rectangular pools and urban orchards in courtyards were found in various Egyptian officials' residences. In Persia, Persian gardens were known as 'paradise gardens.' The word paradise is derived from the Persian word *pairidaeza* meaning 'enclosure,' which reflects the characteristics of Persian gardens (Ibid., 34-36).

Several educational institutes were established among sacred groves outside Athens where many Greek philosophers used gardens as outdoor classrooms (McBride, 2017: 38). Trees were planted near temples to worship gods and to create sacred groves and spiritual places. Paradise gardens turned into pleasure gardens during the later Greek and Roman eras. There were also utilitarian gardens with vegetables and herbs that had less ostentatious displays than the pleasure gardens (Ibid., 40). Because urban trees were found mostly in the residential gardens of the elite classes, during the Dark Ages in Europe with the fall of the Western Roman Empire, the decline of urban populations also affected the records of urban gardens. There was evidence of the early monastic gardens where certain tree species such as pine and juniper were used for their symbolic meaning of everlasting life (Landsberg, 1996).

In France, liberty trees were often planted near churches as symbols of popular sovereignty. These significant ceremonies became a popular tradition after the French Revolution as a symbol against the monarchy, aristocracy, and church. Liberty trees were ceremonially pruned to a columnar shape, a tradition derived from the May festivals meaning that the trees were reminiscent of maypoles (Lawrence, 2006: 135). In many cultures, trees were perceived as a symbol of higher values such as religious symbols or as representative of the Supreme Being (Ibid., 137). Although trees had widely been accepted as having strong symbolic meanings, there were not many street trees in cities until the 17th and 18th centuries (Ibid., 279). While forests were paradisaical and were spiritual symbols in many cultures such as a pastoral paradise (Jones and Cloke, 2002), they could also be places of fear that contained dangerous animals, criminals, and evil spirits (Cronon, 1995; Konijnendijk, 2008).

Geertz (1973) defined culture as "*the total way of life of people*", and so it follows that cultures are the way we live our lives and perceive our environment. Culture is not static. It changes over time, place, and through generations. It reflects the way people interact with each other and how they interact with the environment.

Cultural theory of nature changes through generations. In Japan, in the past, trees represented eternity. They have a very long life spanning through human generations along their family lines for several hundreds of years. But trees cannot stand forever. People with knowledge and understanding are needed to manage when it is an appropriate time to cut

down certain trees. According to some Japanese beliefs, the first life of a tree ends when it falls. Then the tree is reborn into its second life as building timber used to build a house. However, globalization in this modern world changed the ways people valued and believed in natural elements. Younger generations place more value on other things than their family forest. These changes of social and cultural aspects in Japan brought an end to the normative cycle of forests-house-forests. Because of the change in the styles of housing and new construction technologies, wooden houses have become less popular while concrete and commercial foreign timber have become the major construction materials used. Moreover, it is less expensive to import the woods than using the timbers from their family forest. With the loss of demand and belief, the values of forests have changed. They no longer convey family traditions. Family forests are now forgotten (Knight, 1998).

2.3.2 Meaning, Beliefs, Symbolism and Identity

Trees mean different things to different people, and many of the older meanings of trees are being lost...It is time that we restored the many meanings to trees.
Urban Trees, Urban forests: what do they mean? Appleyard, 1980

Certain plants carry special meanings. Trees represent personal, symbolic and religious value (Dwyer et al. 1991). Trees convey spiritual values which provide both a physical and a psychological influence on humans (Rae et al., 2017: 99). Even though trees provide benefits to the environment, people can have positive or negative feelings towards trees for several reasons (Ibid., 93). Trees give many ecological, economic, and cultural benefits but also require proper care to maintain their well-being. When people are involved in tree planting or participate in tree planting programs, they appreciate trees more (Summit and Sommer, 1998).

Geertz (1973) referred to symbols as *'any object, act, event, quality, or relation which serves as a vehicle for a conception - the conception is the symbol's "meaning"'*. Religious symbols allow religion to introduce and integrate itself into pre-established culture using specific metaphysical and borrowed authority from pre-established culture (Geertz, 1973: 90).

Besides production functions, trees have carried symbolic meanings and cultural associations. Lawrence (2006) examined the three major issues of trees in Western cities from a historical perspective. These three issues that have repeated through history are: Aesthetic, Power and National Cultural Tradition.

Aesthetic: The aesthetic function can be seen as trees used in beautifying cities, enhancing spaces for city life, as decorative elements in French gardens, and as a significant element in the City Beautiful Movement.

Power: Trees have been used in social spaces to reflect a degree of social power. For example, as Lawrence (1995) points out, it was more common to have trees planted in urban spaces used for the parading of troops where laypeople were not allowed to access. Trees have also been used to emphasize the power of the state and of social class status. Residential spaces with more trees, more garden spaces and privilege were typically belong to the upper classes with. During the French Revolution, revolutionaries planted trees in public squares in their protest against this symbolic power. It was a deliberate contrast to the aristocratic government that

had, up until then, controlled the planting of trees in public spaces. This practice could be likened to modern activism such as gorilla gardening, tree-sitting, and other similar movements. Any time people have tried to take control of the way trees in cities are planted and cared for that are otherwise under authority power of governments can be placed under this category.

National Cultural Tradition: National tradition has strongly affected the tree planting patterns in cities in countries all over the world. France has a concept of human control over nature with topiary, hedges, and parterre. Trees used in English gardens represent British pastoral landscapes, while tree-lined canals were found mostly in Dutch towns.

Symbolic meanings of trees can be identified as large as national cultural tradition to small groups of local belief. Uchiyamada (1998) conducted an ethnographic research study on trees in a community in Kerala, India, and found interesting connections between the Malayali people's lives and trees that were represented in the landscape. In Kerala, all Hindus plant coconut trees on the south side of their family tombs. In some cases, when there is a cremation, the family will plant a coconut tree (*Cocos nucifera*) in the cremation pit after they have removed the bones. Later, the bones are buried under a jackfruit tree (*Artocarpus heterophyllus*), usually planted at the southwest corner of their houses. By following this custom, they believe that the ghosts of their ancestors will protect them. Both tree species are planted for deceased persons, however, the symbolism they convey differs. The jackfruit tree symbolizes family longevity, while the coconut tree represents the remaining life-force of the ghost. For this reason, people perform excellent maintenance on jackfruit trees because they are considered sacred. On the contrary, the funerary coconut trees are left without any maintenance and eventually die. Without explaining the religious cultural traditions of this area, people from different cultures and backgrounds would not necessarily understand the meaning of these trees and their use. Native people learn and convey their cultural beliefs through generations thereby affecting their vernacular landscapes. Outsiders only see Malayali house gardens filled with coconut trees, some dying but most well-maintained, and jackfruit trees that are always located in the southwest corner of the houses. People who understand more about the cultural beliefs in the local context can read the landscape and the pattern of tree plantings. These fruit trees did not exist only for their fruit production or other ecological functions; cultural meanings and attachment values are influential factors that make these trees part of the cultural landscape.

Trees were often used as a symbol of human life. In Japan, there was no difference between the word for "tree" (木) and the word for "wood" (木材) as both are represented by the same character. Knight (1998) explained that Japanese culture is a 'tree culture' for two reasons. First, their way of living everyday life is closely integrated with wood, from houses and shrines to chopsticks. Second, very often places and people in Japan are named after trees or have tree characters in their names. A Japanese forester, Shimoyama-san, gave an analogy between growing a tree and bringing up a child. The younger generation of children are physically bigger than their grandparents but these big children, over cared for and overfed, were not as strong as their ancestors. He argued that a beautiful big tree is not always a stronger one. The social, political, and economic contexts of their upbringing all affect how a child grows into an adult. Similarly, a tree's location between north-facing and south-facing mountains can significantly impact the quality of its timber. Trees that grow on the southern

and western sides of a mountain, where it is warmer, have weak wood, just as pampered children may not grow to be sturdy and healthy adults (Ibid.). Jones and Cloke (2002) critiqued that in many contemporary societies, youth is valorized and commonly used as a symbol that can be used to draw in people. However, in relation to society and trees, the age-related valuation is the opposite. The older the trees are, the more valuable they become. Old trees are symbols of love and attention.

In Europe, forests convey various symbolic meanings from sustainability, recreation, and home, to community, and so on. Forests and trees are suitable symbols for public and political communication. On the other hand, forest dieback can be a symbol of threats (Ottitsch and Krott, 2005: 144). The same quality can represent something completely different in different cultures. Similar to other Eastern cultures, especially those with Buddhist beliefs, cutting down trees is no different than taking a human life. In Thailand and other Buddhist countries, people believe there are spirits in some trees. For this reason, people offer food for the spirits in the trees. Cutting down trees without a proper ceremony getting a permission from the tree spirit may bring danger to the loggers from the curse of the spirit. However, it is a belief in the Japanese culture that cutting down trees is part of the marriage ceremony. On the wedding day, the tree will be milled into timber. Then, it will have a new life as a house. Like a woman getting married, a tree and a bride become part of the new house (Knight, 1998).

In *The World's Urban Forests* book, McBride (2017) conducted surveys of trees in 33 cities and detailed urban forest composition with lists of the most common tree species found in urban areas. The five most common species found in Bangkok are Makham or Tamarind tree (*Tamarindus indica*), Hang Nokyoong Farang or Royal Poinciana (*Delonix regia*), Chopupanthip or Pink Tecoma (*Tabebuia rosea*), Honduras mahogany (*Swietenia macrophylla*), and Pradu Angsana (*Pterocarpus indicus*) (McBride, 2017: 78). Tamarind tree was introduced into Thailand and has been used as a street tree since the King Rama V era (1868-1910) on the boulevard of Ratchadamneon Road. The name of the tamarind tree in Thai – Makham (*Tamarindis indica*), also makes it more popular because of its meaning. People plant tamarind trees on the West side of their houses as a symbol of power and protection. Because tamarind trees are big and shady, the trees provide shade for the house and are believed to protect residents from any problems. They believe that the tree will help promote dignity and prestige for habitants.

Bodhi trees are symbols of Buddhism in many Buddhist countries. The Bodhi tree or Sacred fig (*Ficus religiosa*) is known as the tree that the Gautama Buddha sat underneath when he reached enlightenment (Phlāinōi, 1970: 405; Gethin, 1998: 15). Because of this, as a species, it already has more religious value than other tree species. However, the acts of paying homage to a Bodhi tree, Bo- tree, 'the Tree of Wisdom' (Rahula, 1974: XV), pipal tree or 'the tree of awakening' (Gethin, 1998: 22) in monasteries is not a religious ceremony. The traditions of bringing flowers, lighting candles, burning incense, and adorning the trees with colorful scarves and papers are conducted by those who have less intellectual understanding of Buddhism because there are no articles of faith in Buddhism (Rahula, 1974: 3); however, these spiritual traditions help satisfy their religious beliefs and gradually lead them to the right path of the Buddhist teachings (Ibid., 81).

Despite the fact that worshipping trees and other natural objects is not instructed in the Pali Canon and does not represent Buddhism, Buddhist monks in many countries worship trees in their everyday life as well as during special rituals (Omura, 2004; Darlington, 2012). The act of

worshipping trees or other liturgical objects is not part of Pali Canon. There is no esoteric doctrine in the Buddhist teaching. The Buddha was a normal person and did not have any benevolent graces of a god that could grant any wishes. Human's emancipation depends on one's own realization of truth (Rahula, 1974: 2). Believing that trees or any objects are symbols of religion is contradictory to Buddhist theory. When people believe in the meanings of things and put values on them, they tend to attach to the objects. Buddhist teaching has the goal to be free from these attachments. However, with the predominant local culture, Buddhist monks began to anthropomorphize nature, including Bodhi trees, to be sacred symbols of the religion.

2.3.3 How a Place Assigns Sacredness to a Tree and How Trees Create Places

From the list of heritage trees in Bangkok's Green Areas Masterplan (BMA, 2003), 32.2 percent of the city's big and old trees are found in temple gardens. There are 298 trees in the heritage trees list with 65 tree species. The most common species found in the list of heritage trees is the Bodhi tree which contributes 14.4 percent of the total and more than one third of these heritage trees are located in monastic precincts. Buddhist temples are the places with less change in land uses and have become places in urban context that have more old trees (Thaiutsa et al., 2008) while heritage large trees that have been preserved in temple gardens create sacred atmosphere for the temples.

"Space is claimed for man by naming it" (Relph, 1976: 16). To name a place is to make the place exist. Trees can be representative and identifications of places (Jones and Cloke, 2002: 92). Regarding the names and ideology of places, there are many references that point to the fact that the names of tree species have been used as the names for places (Dwyer et al., 1994: 138). This practice is one of the indications of public affection for trees. Trees are also used to commemorate or memorialize loved ones in cemeteries or at disaster sites where they help to remind survivors of the events and those who were lost.

Trees have also been used as symbols of faith. In Sarajevo, an urban reforestation project was planned during the siege even when it could not be executed at that time. The reforestation plan symbolized faith in the future of the city after the war (Lacan and McBride, 2009). These examples illuminate how people recognize and strongly value urban trees as a cultural symbol.

Trees were protected even during disastrous periods. At the end of World War II, Germany's government issued tree protection laws to permit people to collect broken branches for firewood but not to cut down trees or trim living parts. People followed the law and respected the trees even under difficult circumstances (Stilgenbauer and McBride, 2010). After World War II, 22 trees were designated and protected as natural monuments. Most of these trees are "veteran trees" that survived damages during the war, although it was not the criteria of selection. One large, war-scarred oak tree is now being considered to be put on the list. If so, it will have a sign to explain its survival through the 1945 firebombing in Dresden (Ibid.). Veteran trees are recognized and preserved as war monuments. Veteran trees may not be as structurally sound or as healthy as newly planted trees. They may provide less instrumental functions such as carbon sequestration and may require more maintenance to prevent public liability. However, heritage trees have sentimental values which are just as critical to a society's wellbeing.

In Hiroshima, there is an inventory of veteran trees that survived World War II. These surviving trees are marked with information about their species, distance from ground zero, and their conditions after the bombing. These trees in Hiroshima became landmarks that have shaped places in the city where they serve as powerful symbols of the city's wounds and survival struggles. Besides the recognition of the tree's survival, community participation and community building stemmed from the reforestation process. (Cheng and McBride, 2006). The reforestation in cities after a war is accentuated by people's awareness of and the longing for the environment they lost, and urban trees are symbolic of lost life in these tragic landscapes. People's attachment to landscape through trees, and the trees' symbolic meanings are essential to local livelihoods and their human identity.



Figure 2.1: The miracle pine, the lone pine tree that survived after 2011 tsunami in Japan.
Source: dailymail.co.uk

Trees are used to represent the underlying culture of the region, faith, and belief. Without ecological values, some trees are still preserved. In Figure 2.1, the miracle pine is the only pine tree that survived the devastating tsunami that hit Japan in 2011, a sole surviving 88 foot pine tree left standing in the town of Rikuzentakana, Iwate Prefecture. This "Miracle Pine" came to symbolize survival and longevity for the survivors of the tsunami (Wilensky, 2012). The Japanese government put a lot of effort toward preserving this single surviving tree but due to environmental changes of saltwater intrusion into its habitat, the miracle pine died two years

after the tsunami. The government decided to make it immortal by re-building a sculpture, a replica of the miracle pine, as a monument marking the second anniversary of the tsunami and it was raised at the same location (Malm, 2013).

Predominant trees can define and create places by their names. In Thailand, many places are named after the vernacular landscape or existing trees in the locations. There are a few stories about where the name of the city 'Bangkok' originated. One of them was that there were abundant Makok trees, or Hog plum (*Elaeocarpus hygrophilus* Kurz.), on the central floodplain where the city is located. The old name of the city was 'Bang-Makok' when it first started; then over time it changed into Bangkok. It was the existing trees that dominated the landscape that gave the character, identity, and name to the place.

2.3.4 Rites, Rituals, and Religious Belief

Without these stimulating sounds, it is believed that trees would remain merely as trees; with them and with their accompanying rites of sacralization, they become magically efficacious power, akin to the "virtues" possessed by herbs in Western folk-therapy.

Paradoxes of Township in Ndembu Ritual. Turner 1969: 55

Turner (1969: 15) explained the symbolic function of ritual elements that the Ndembu of Northwestern Zambia conducts on trees. A ritual element called *chijikijilu* meaning "landmark" or "blaze" is to mark a sign on a tree with an ax or break one of its branches. This ritual practice is derived from hunting and distinguishes one tree from another and makes it into one's realm. A collection of medicinal plants is used in another ritual. Villagers collect pieces from certain tree species that convey different symbolic values and are used during the rites. One example is a *kapwipu* tree (*Swartzia madagascariensis*). A piece of bark chipped from the tree was used in the ritual because of its hard wood representing the health and strength for the patient to be cured after the performing of the rite. There are many different tree species used in the rituals and several species have been used in different kinds of rituals, not only for their tangible herbalism benefits but also for their symbolic functions that make these trees significant ritual elements (Ibid., 23-24).

Ritual makes a tree sacred. Ritual creates the way in which people perceive the values that are created during the ceremony (Geertz, 1966). In Nepal, villagers paint on the bark of certain trees and pray for prosperity on the full moon (Omura, 2004: 180). In Laos, people put small sticky rice balls on the bark of a big tree and surround the tree with banana leaf vessels full of colorful fragranced flowers and popped rice (*Khao tok*). Several countries share similar rituals and similar religious concepts. In Japan, people pray and touch the big tree's bark at the gate of the Shinto temple as they believe it will bring the power of long life.

In Thailand, there are several tree species that relate to myth and many cultural rites, such as Sarii or Weeping fig (*Ficus benjamina*), Kluay or Banana (*Musa acuminata* Colla), Ngew or Silk cotton (*Bombax ceiba* L.), Monta or Magnolita (*Magnolia libifera* Baill.), Sadao or Neem tree (*Azadirachta indica*), etc. These species have been mentioned in ancient stories and used in different rituals. People believe that some species have female deities residing in them and that if humans pay homage by bringing food, flowers, and clothes to the deities of the trees,

their wishes will be granted because the tree's sacred spirits will give them blessings. Sometimes people use only parts of these trees such as the flowers or wood to conduct rituals or make appliances to use for good fortune. Sometimes they plant the trees in certain locations in their gardens as part of the cultural belief that doing so will bring them good luck, well-being, and prosperity.

Buddhist monks in Northeastern Thailand perform ordination ceremony onto big trees, which in Thai is called *Buat tonmai*, as the way to change the status of the trees to be parts of the Sangha. When laities ordain, they change their social status from laypeople to monks and become part of the Sangha. Laypeople pay respect to Buddhist monks and hold them in high regard although they did not have much social value as humans before becoming Buddhist monks. Large old trees that have been ordained also received respect from laypeople. People who intend to cut these trees have more hesitation when observing the saffron colored robes tied on the trees. This religious ritual of tying monks' robe around the trees is a mechanism that local villagers and monks use to preserve the trees. Tree ordination ceremony is done to preserve community forest and is the way in which the group of Environmental monks help increase environmental awareness and natural resource preservation (Darlington, 2012).

Trees and forests have their parts in every culture and play significant roles in almost every religion (Konijnendijk, 2008: 20). The roles of trees and forests in religions have changed throughout history. Religious institutions play important roles in urban forest history (Ibid., 22). Temples, shrines, and churches are sites of the oldest trees in cities (Ibid., 23; Thaiutsa et al., 2008). Some monasteries also manage woodlands outside cities where the churches authorize the uses of the sites and earn economic benefits from them.

2.4 Ecosystem Services of Trees and Urban Forests

The values of trees and urban forests have been quantified with numbers of methods. The concept of ecosystem services is the way in which people perceive functions and benefits from ecosystems. Costanza et al. (1997) defined ecosystem services as "the benefit human populations derive, directly or indirectly, from ecosystem functions". These functions were categorized into 17 categories for 16 biomes. Using this breakdown, they found that the approximate total value of worldwide ecosystem services amounted to USD 33 trillion. There are some direct and indirect services. Some services are indirect as they benefit wildlife habitat that in turn impacts humans. Some services are directly related with the health and wellbeing of urban dwellers. Ecosystem services are spatially ambiguous because the scope of services can be local or global scales depending on how the services are connected and how they transfer to where humans can benefit from them (Bolund and Hunhammar, 1999).

Recognizing and understanding the value of nature will increase investments in conservation of these valuable natural resources. Individuals and institutes will increase their willingness to pay for preserving urban trees when they recognize their value. Because people tend not to recognize the values of ecosystem services until they have been lost, the Natural Capital Project developed a tool, InVEST (a system for Integrated Valuation of Ecosystem Services and Tradeoffs) to help people understand the values of natural resources and be better able to integrate the concept of ecosystem services into their decision making processes. Therefore, conducting effective policy at a larger scale could be realized (Daily et al., 2009).

Urban tree cover is one of the three most significant Ecosystem Services, Goods (ESG) indicators³. Using the UFORE model (Urban Forest Effects), Dobbs et al. examined specific urban forest structure variables to quantify urban forest ecosystem functions (Dobbs et al., 2011) (Nowak et al., 1998). The urban forest ESG indicators are based on four ecosystem functions related to well-being which are regulation, habitat, information, and production. These four ecosystem functions provide essential functions for human health and well-being with both physical and psychological aspects. 'Ecosystem disservice' which includes disadvantages of urban trees such as CO₂ emissions, risk of infrastructure damage, and other factors affecting human well-being are also included as one indicator. Dobbs et al. analyzed the field data of urban trees in Gainesville, North Central Florida, using the UFORE model and calculated ecosystem disservices from urban trees (Dobbs et al., 2011). However, the ecosystem services are too complex as they consist of multifunctional components with direct and indirect services. Using the UFORE model may lead to underestimating or overestimating indicator values. For this reason, the authors concluded that ecosystem functions that are used as indicators should be flexible for different locations, times, and other influential factors.

In their report, *Chicago's Urban Forest Ecosystem: Results of the Chicago Urban Forest Climate Project*, Rowntree et al. referred to urban forests as "all of the vegetation and soils of an urban region" (1994). To emphasize the ecological approach, the term is occasionally replaced with "urban forest ecosystem". The ecosystem concept is used to quantify the structure of vegetation, and its effects through the ecosystem are then examined to find an effective method of ecosystem management. The ultimate goal is to manage the ecosystem so that the benefits exceed the costs. Ecosystem management has been used in federal and state agencies as a tool for decision-making and policy management.

Cost and benefits of urban trees can be estimated by the Cost-Benefit Analysis of Trees (C-BAT) model. The model aims to quantify the benefits and costs of urban forests and to be able to answer the question of whether or not certain trees are worth the cost of their placement in a particular location. Do their benefits exceed their costs? What urban forest management strategies can increase the benefits and lessen the costs of urban forest planning? McPherson (1994) assessed the values of urban forests in Chicago, using C-BAT, to calculate the total leaf area for each class by using the typical tree's leaf-area (LA). LA is the typical tree's leaf-area index (LAI) multiplied by the ground projection (GP) or the area under the tree-crown dripline. Most of the benefits of trees are calculated on an annual basis but some costs are periodic such as some special pruning or removal of a stump when a tree has died. Regular pruning can be scheduled and have an annual fixed cost. With this C-BAT model, the older the trees grow the more benefit they can produce due to the larger leaf areas. This model directly estimates energy saving from shading, temperature modification, and wind reduction from trees which can be calculated from the LAI. Other indirect values can be estimated from other environmental control measures or an assessment model such as the willingness to pay for better environmental management. The C-BAT model is a straightforward way to measure and make known the cost and benefits of urban trees. The results can be used in policy implementation and decision-making. However, the limitation of this model is the indirect

³ Tree cover, soil pH, and soil organic matter are the most influential ESG indicators while monetary valuation such as property values and household income did not yield significant results (Dobbs et al., 2011)

impacts such as liability and infrastructure repair that are difficult to anticipate precisely. Moreover, the C-BAT model only estimates some of the benefits and costs but not all benefits and costs in relation to urban forests. Benefits of trees on human health and well-being are not taken into account either.

Pertaining to physical characteristics and ecosystem services values of urban forests, there are several methods, based on computer programs, to estimate the values of urban forests. For wind and air temperature, Heisler et al. (1994) examined the phenomenon with meteorological instrumentation by using sensors to measure air temperature, wind speed and direction and their effects on urban trees. In regards to the energy-saving function of urban trees, Micropas and the Shadow Pattern Simulator (SPS) was used to estimate the effects of urban trees on microclimate and different temperatures that impacted the levels of energy used in buildings (McPherson, 1994). These models were based on a scientific method and have been effectively used in urban tree management. However, many functions, services, and benefits of urban forests are still not conveyed and captured with these evaluation methods.

2.4.1 Cultural Services Appraisal

Cultural services are difficult to quantify but some research has been done on the appraisal of cultural values regarding urban trees. While ecological and economic services of trees can be measured and evaluated with scientific based methods using a direct formula to find the values of trees, cultural services are more complicated yet significant. People tend to focus on certain benefits of urban trees such as beauty, shade, cooling, climate mitigation, and global gas balance. To understand more deeply the significance of urban forests, other issues should be studied. Specifically they are psychological attachment between people and urban trees, and people's preferences and perceptions about urban forests in different settings. If the overall functions and benefits are overlooked or not understood correctly, urban trees will not get needed support. As a consequence, poor choices will be made in their planting, preservation, and management, and urban trees will not efficiently serve urban dwellers (Dwyer, 1994).

Jim (2006) conducted a formulaic expert method to integrate evaluation and valuation of heritage trees in Hong Kong. He argued that existing assessment methods do not capture the true value of heritage trees that have historical, social, and cultural significance. They cannot justify the true value of these exceptional trees and the services they provide to a compact city where green space and tree cover are deficient in the urban core. As the existing contingent valuation and hedonic pricing are insufficient to calculate the values of the heritage trees, the author developed an alternative formulaic expert method (FEM) that integrates evaluation and valuation with tree-environment and tree-human traits. With physical data calculation (dimension, species, tree, condition, location, and outstanding considerations) and 45 secondary criteria, tree values are scored into values with a Monetary Assignment Factor (MAF). The results from this assessment method yielded monetary values of trees 66 times higher than the widely used CTLA (Council of Tree and Landscape Appraisals) method. However, the survey method that simplified the values may not be able to capture some unique values, relationship, and cultural attachment of humans in conjunction with urban trees. Despite its detailed data collection, the cultural values cannot completely capture with a yes-no or Likert

scale questions. The attempt to simplify in order to quantify the values of trees lessens the value and could fail to record some essential values of these heritage trees.

Similar to Jim (2006), Kumar and Kumar (2008) argued that the existing perception of ecosystem values in a conventional economic approach does not capture the true values of ecosystem services. In the paper, *“Valuation of the ecosystem services: A psycho-cultural perspective”*, the authors addressed how ecosystem services could be valued from a psychological perspective. Economic valuation refers to a way to quantify the values of goods and services that an ecosystem provides. However, the multi-functional values of an ecosystem are complex and it is difficult to see how they influence human well-being. It can be difficult to measure some services using economic valuations, based on a utilitarian framework. Services such as environmental preferences and psychological well-being are examples of this. Travel cost (Jim, 2006), hedonic pricing (Morancho, 2003), and production function approaches have been used to quantify these services. However, the underlying complexity of human behaviors, attitudes, and preferences are not adequately quantified by economic valuation methods. These values may seem implicit and do not necessarily reflect the majority public opinion, but these factors are human values, and ultimately decision-making is based on these values. In their study, Kumar and Kumar pointed out two strong issues for ecosystem valuation that are psychological. The first one is intrinsic value, which includes aesthetic, moral, and cultural values. The second issue is the interaction between humans and natural environment that influences psychological well-being. The authors studied Freud’s model of personality structure and a new “dynamic decision making theory” they defined as “ecological identity” that is associated with culture, memory and language acquisition. Although cultural services and social values assessment tools still need to be further developed, for sustainable development and efficient environmental management, solely using economic valuation is insufficient for long-term management policy.

The cultural services of urban forests are a significant part of ecosystems that impart immeasurable socio-cultural values to urban dwellers including symbols of nature, community identity, religious symbols, aesthetic values, enhancing human well-being and so on (Costanza et al., 1997; De Groot et al., 2002). Despite the essential social values of trees in cities, many of the older meanings of trees are being lost (Appleyard, 1980). Because these socio-cultural values are complex and difficult to quantify, most of the urban forest appraisals focus on economic or ecological aspects with scientifically based quantitative methods. The qualitative approach in urban studies has long been overlooked but has recently become a significant aspect of urban studies (Jacobs, 1993).

2.4.2 Ecological Ethic and Citizen Movements

Community Participation and Other Significant Movements

Prior to the late 19th century, tree planting mostly belonged to private landowners. During late 19th to early 20th centuries, many cities promoted tree planting in city streets and woodlands, and partnerships for tree planting were set up. People were aware of the benefits from planting trees which include timber, an increase in land values, aesthetic values, and improvement to the health of neighborhoods (Forrest and Konijnendijk, 2005).

In Tokyo and Hiroshima, local communities desired to restore the green in their cities and participated in replanting their city parks after the war (Cheng and McBride, 2006). These people felt attached to the dying trees in their neighborhoods as the trees were seen as part of their community (O'Brien and Morris, 2013).

The concept of urban forestry is quite new in Southeast Asia. The problems of urban forest management are the conflicts between each player as they sometimes misunderstood their scopes of work. The Department of Agriculture in Hong Kong refuses to work cross-departmentally on urban trees with a working group because they do not think it is part of their responsibility. There is no specific arboriculture training available in this region (Webb, 1999). Even when some people are aware of the existence of urban trees in their neighborhood, it is still difficult to get public involvement due to the safety and liability issues of trees being planted on the streets and other public settings. It is not safe or convenient for the general public to be involved in planting a large tree next to a busy public street. Despite the difficulties, policy support and commitment to public participation is necessary for urban forestry especially in developing countries (Ibid.).

In the United States, urban trees are better recognized as significant urban elements than ever before. There were no street trees in San Francisco's early landscape. As the city grew, people became more aware of the significance of the urban forest and started to grow more trees in the city. San Francisco's Friends of the Urban Forest (FUF) is one of the most active organizations and it is expanding. They play a significant role in increasing urban green coverage and spreading environmental awareness among the citizens. FUF promotes many community outreach and environmental awareness programs. The organization was founded in the late 1970's after the City and County of San Francisco cut the budget for urban forestry. After almost four decades of FUF community trees planting, more than half of the street trees in the city has been planted by FUF and its volunteers. Citizen participation is a critical component that helps monitor for hazardous trees or reporting other incidents that requires governments or experts to take care of problems.

Tree sitting is an environmentalist act of civil disobedience in which a protester would sit on a tree to stop it from being cut down. The longest tree sitting was in 1997 in Humboldt County, California. Julia Butterfly Hill sat for 738 days (2 years and 8 days) on a 600-year-old coast redwood. She and her supporters eventually raised enough funds to protect the tree. In 2006, 2007, and 2008, a Berkeley tree sitting became the longest urban tree sitting in history with over 21 months during which the petition process was filed in court (SF Gate, 2008). The Berkeley tree-sitting postponed the reconstruction of the Memorial Stadium project, which cost the University more time and money in order to redesign and negotiate with the protestors. Originally, University of California, Berkeley had wished to expand part of the stadium supporting facilities to provide better service for their sport teams. Some big coast live oaks had to be cut down according to the landscape design. The pressure from tree sitters pushed the University to redesign that part of the stadium and landscape in that area. More big trees can be saved but what are they worth? What if the university promoted and made the community aware of the cost and benefit before the construction began, or suggested an alternative to plant more trees in other acceptable locations? The conflict of urban tree preservation had a negative impact on the community and communication efforts. Prevention of controversy before it happens would have been one of the best solutions for this situation.

Trees planted illegally on abandoned sites by a group of environmentalists, artists, or communities is one type of guerrilla gardening. Most of the time, Guerrilla gardening involves planting vegetables or small decorative plants with the desire to improve the use of abandoned land, create aesthetic value, and build a better atmosphere in neighborhoods. The Tenderloin National Forest in San Francisco was one of the smallest urban forests created by two artists who live next to an abandoned plot in the Tenderloin area. In order to improve the urban environment of the plot, twelve redwood trees were planted in 1990 in this residual urban space. They believed that the trees could beautify the space and reduce the crime rate in that area.

Most cities are well aware of the significance of urban forests but with limited resources, urban trees are not always well maintained, and this could jeopardize public safety. Urban tree stewardship is the key to maintain healthy urban trees, prevent public hazards, and enhance the community's environmental awareness.

2.5 Concept of Health and Well-Being

2.5.1 Well-Being and Relationship between Individuals and Their Environment

The concept of well-being is related to surrounding context and built environment. It is an overarching and integrating concept that encompasses all other aspects of human life. The measurement of well-being often focuses on measurements of illness and on instrumental environmental factors. These factors include physical factors that impact health such as clean water, clean air, and safe food. Also, psychological health factors such as freedom from physical threat, interpersonal relationships, leisure and so on (Kollin and Schwab, 2009).

The terms *health* and *well-being* are often used interchangeably. These two ideas are normally used in reference to each other. However, these terms have different meanings. The definition of health in Sowman (2013) is *"an instrumental measure of bodily states, both physical and psychological."* The concept of health focuses on the human body and is a constituent part of well-being. The World Health Organization (1946) gave a definition of "health" as the state of complete physical, mental and social well-being, and not merely as the absence of disease or infirmity (Konijnendijk, 2008). Therapeutic landscapes have enhanced people's physical and mental health since biblical times. Kollin and Schwab (2009) discussed the benefits of urban trees as they helped to create a better quality of life. They defined quality of life as *"the sum of all things that make life enjoyable and meaningful, including physical, mental, economic, psychological, aesthetic, and recreational benefits"*.

Urban spaces shape people's behaviors (Konijnendijk, 2008) and have a pivotal impact on public health and well-being. Human well-being is enhanced by natural surroundings (Berman, Jonides, and Kaplan, 2008; Wolf, 2008; Zhu and Zhang, 2008; Tsunetsugu et al., 2010; Dallimer et al., 2012). This improvement is evident in many areas, including the physical, psycho-social, and environmental effects on a person.

Urban trees provide a major benefit to urban health. The health benefits from trees as ecological organisms were appreciated from early times. Elms were the very first species that were commonly used in cities as they provided shade which was a benefit for urban dwellers (Lawrence, 1995). In the 19th century, people became aware of other ecological benefits of urban trees such as their ability to clean urban air pollution from the effects of industrialization

in city centers. Later in the 20th century, people started to appreciate the ability of trees to save energy and to provide wildlife habitat in cities. As Olmsted mentioned “The lives of women and children too poor to be sent to the country can now be saved in thousands of instances, by making them go to the park” (Lawrence, 1995 quoted from Olmsted and Kimbell, 1970). There is physical and psycho-social evidence of the benefits trees provide to humans. Urban forests reduce stress, which is indicated by lower blood pressure and enhanced human immune system (Tsunetsugu et al., 2010; Li Q et al., 2008), and improved cognitive functioning (Berman, Jonides, and Kaplan, 2008). According to Kathleen Wolf (2008), inhabitants in residential areas with more green space are 40 percent less likely to be overweight. This may be due to the fact that these people enjoy walking and engaging in more activities in their neighborhoods. Urban green spaces also create psycho-social benefits, as they encourage social activity (Wolf 2008) as well as reducing crime and school violence (Treiman and Gartner, 2005).

In 1984, Ulrich studied patients’ responses to the view from windows. He compared the responses about views with trees and vegetation to the views without, and found an aesthetic and affective response in patients who rested in the rooms with the views of greenery. Shorter recuperative periods requiring less medication were recorded thus reflecting that the views of greenery improved human health. Ulrich et al. (1991) conducted research on human responses to vegetation and argued that ‘aesthetic response’, which is referred to as a preference in association with pleasurable feelings by visual encounter with an environment, is not an isolated phenomenon. Preferences motivate adaptive behavior or functioning that, in turn, promotes well-being.

City forests have a positive impact on human health and well-being as people became healthier after visiting forests and getting in touch with nature (Konijnendijk, 2008; Miyazaki, 2018). Urban forests help shape the relationship of humans and nature. They provide room for natural processes and wildlife habitats within urban landscapes. With urban forests urban dwellers can experience a real nature in the city (Konijnendijk, 2008).

There are public programs that aim to improve health and well-being. *Walking to Health* in England and Wales and *Paths to Health* in Scotland are programs that encourage people to go for walks in the woodlands (O’Brien and Morris, 2013). Exposure to nature and engaging with trees are thought to encourage physical activity and lead to healthy living. Not only physical well-being can be enhanced from activities in the forest, but mental restoration can also be a benefit to people by ‘being away’ from other people and sources of anxiety (Kaplan, 1995).

Trees have a strong correlation with human health. The study of tree deaths, specifically of emerald ash in Michigan and in surrounding areas reflects the link between people’s well-being and trees. Data was collected from 1990 to 2007 that showed that the more trees that died, the higher mortality rate was in that area probably due to decreased air quality levels. The increase in mortality was related to cardiovascular and lower-respiratory-tract illness in counties with trees infested with the emerald ash borer (Abrams, 2013). City trees have pivotal roles in improving public health as much as providing recreational amenities. Planting trees improves the environment which in turn enhances people’s health and well-being (Webb, 1999).

The history of public health is intertwined with the development of urban planning, social structure, and political economies. There is a belief that social illness is derived from

social conditions, inequity, and discrimination (Corburn, 2013). The fields of Landscape Architecture and Urban Planning were involved in the public health movement until the germ theory of disease gained more public attention in early 1900's. That disintegrated the theoretical connection between the built environment and public health. 'Class structure' is a critical social contradiction as class differences determine healthy living conditions and life expectancy of people. Virchow argued that morbidity and mortality rates were much higher in working class districts. He emphasized social inequity when discussing the cholera outbreak in Germany where different values were placed on people from different social classes and divided people further. Inadequate housing, food insecurity, and unstable incomes put the working classes into deprivation states and caused social health problems. To mitigate the social destruction from "crowd disease", Virchow stated that social responsibility needs to be addressed by providing a "public health service" with health workers and health-care facilities (Waitzkin, 2006). However, this public health system needs support from the government and requires basic social change. In Thailand, Temple gardens are urban sanctuaries where people of all classes can access. Buddhist temples are places of urban public green spaces.

Even today social inequity and cultural discrimination still exist in many large cities. Although the government now provides public health insurance, the built environment in metropolitan areas does not provide an environment for healthy living. As Waitzkin (2006) mentioned "*The improvement of medicine would eventually prolong human life, but improvement of social conditions could achieve this result even more rapidly and successfully*". To maintain a healthy environment that support humans' well-being, urban forests, trees, and green public spaces in the cities must be preserved and provided with equal access to the public.

2.5.2 Environmental Perception and Preference

Theoretical Approaches Toward Well-Being

The Study on Restorative Environment

Restorative Environments are environments that promote recovery from stress, mental fatigue or other psychologically or physiologically adverse conditions. Developed by Stephen and Rachel Kaplan (1989), the concept of the restorative environment refers to a physical environment where individuals can rest and recover from mental fatigues. There are four key components in restorative experience: *being away, extent, fascination, and compatibility of restorative environment* (Kaplan and Kaplan, 1998). The implementation of Restorative Environments theory can be seen in the development of urban parks in the United State. Frederick Law Olmsted (1865) stated that viewing nature influences recovery from stress (Ulrich, 1979). With this understanding of the essential benefits of nature in cities, Olmsted's pastoral park and other urban green spaces in American cities were based on the underlying concept of the restorative effect of nature (Ulrich et al., 1991).

Research on Restorative Environment can be classified into two areas: Stress Recovery theory and Attention Restoration theory (Joye and Van den Berg, 2012). Stress recovery theory focuses on restorative environment that help individuals release from physical or psychological stresses that cause the lack for well-being (Ulrich et al., 1991). Attention Restoration theory

addresses restoration from attention fatigue that occurs from prolonged activities that require engagements and mental efforts to sustain focus (Kaplan and Kaplan, 1989).

There are different theories on environmental perception and preference that explain how people perceive their environment and how these physical environments affect humans' health and well-being.

Topophilia and Environment

Tuan (1974) defined topophilia as "all the human being's affective ties with the material environment". Culture, experience, and environmental attitudes influence how people perceive the environment. Gender is also one significant factor influencing how people perceive the environment. A woman and a man may walk arm in arm but they do not see or hear the same things. This explains how men and women have different environmental preferences leading to different views of landscape. For the Lele who live in the southwestern part of the Congo rainforest, a forest was considered a pleasant place for men as they prefer to work there. The forests made them feel more comfortable and efficient about their work. On the contrary, for the women, the forest was dark and vaguely threatening (Tuan, 1974).

Classes and economic status have influence on people's perceptions. In the lower and middle classes, gender is a significant factor in different perceptions while for the cosmopolitan elite class, the difference of genders does not significantly affect perception and preference on the environment (Ibid.).

Tuan (1974) described places in reality and places of the mind, "...when you described something, part of you was there or part of it was here." Space is not static. It has a three-dimensional structure. Spatial and temporal aspects of a space impact how people perceive it.

Different cultures, backgrounds, and professions influence different perceptions of landscapes. In the mid 18th century, there was a dilemma between wilderness and preference. For example, varying perspectives created a growing gap in environmental evaluations between that of farmers on one hand and cultured gentleman on the other. While farmers struggled against the wilderness, the gentleman appreciated it as peaceful natural scenery. Outsiders merely see the aesthetic values of places but do not understand and perceive the places as the insiders do. This dilemma still exists today.

Changes in the environment can cause a sentimental attitude toward nature. Cultural perception and changes of perception during different times and in different cultures also impact people's preferences and how they perceive spaces. As society and culture evolve, attitude toward an environment changes overtime. While Eskimos have at least 12 different names for wind, city dwellers have a very limited vocabulary to describe nature because they have a lot fewer perceptions about nature.

Prospect Refuge

Jay Appleton's "Prospect Refuge" has deep roots in the experience of human's ancestors in the wilderness. "Prospect" refers to the scope of surrounding environment and activities that occur in the spaces where people can perceive. "Refuge" is a condition of being safe or hiding from dangers. Fear of the environment increases where there is a poor prospect and good

refuge in which potential offenders can hide (Li et al., 2008). This Prospect Refuge is also based on an evolutionary perspective. For example, people have preferred a landscape where they had good prospect as an open Savannah grassland with some tree canopy as a refuge.

Biophilia Hypothesis

Biophilia refers to human relationship with nature. E.O. Wilson explains the concept of Biophilia as aesthetic and habitat selection, human preference for nature, and the reasons why some certain features in landscape attracts more than others do (Kellert and Wilson, 1993). The reasons of environmental preferences may be explained by *evolutionary theory*. With two million years of humans living and adapting to be familiar with the landscape characters of the savannas of East Africa, trees with high canopies allowing humans to see through, or flowers as a sign of food sources could have been causes of preference formation.

Evolutionary Theory

Evolutionary theory refers to how humans relate with nature throughout the evolutionary period. An evolutionary perspective comes with various approaches. One common argument is that humans evolved over a long period in natural environments and have adapted physiologically and psychologically to a natural environment, which in turn made people opposed to urban contexts and settings. Another common argument is that people pay attention and positively respond to natural content and landscape characters that provide food and shelter which are favorable for survival. That preference would enhance their well-being and would be passed on through their evolution.

Another evolutionary perspective is that the brain and sensory systems evolved in natural environments (Ulrich et al., 1991). The encounter with built environments with more manmade components can cause stress from adaptation demand. This idea is similar to Kaplan and Kaplan's approach (1989) on evolutionary theory that argues that restorative influences are cognitive-based drawing upon human interests in the components of their surrounding context.

Frederick Law Olmsted discussed stresses and environmental perception. He argued that natural settings are pleasurable and "restore" because they draw attention without any mental effort required. He stated that "when an individual is exposed to a natural view, the attention is aroused and the mind occupied without purpose" (1865) (Ulrich et al., 1991). Restoration of cognitive performance is enhanced by exposure and interacting with nature (Hartig et al., 1990).

Stress Recovery Theory

In 1984, Ulrich's *View Through a Window May Influence Recovery from Surgery* was an original study portraying how human health is improved by the view of trees and nature. Ulrich proved that in comparison patients with a brick wall-view, those who are given a window view with natural settings could have reduced recuperation periods and require less analgesics during their post-operative period.

In 1991, Ulrich conducted another significant study, *Stress Recovery During Exposure to Natural and Urban Environments*, on stress recovery from exposure to natural environments. With the hypothesis that emotional, attentional, and physiological aspects of stress could be reduced by the influences of nature, the research used two methods of self-rating of affective states and a battery of physiological measures. The 120 subjects first watched a stressful film, and then were exposed to six different types of scenic environmental films, ranking from natural to urban settings. Using the self-rating method, the subjects then scored their affective states and stress recovery while watching the films. Physiological assessments were used to measure heartbeat, muscle tension, skin conduction, and pulse transit time. The result was that attention and perceptual intake were higher during the exposure to natural scenery. This finding was evidence for the psycho-evolutionary theory that natural scenery has a positive effect on restorative attention (Ulrich, 1991).

Attention Restoration Theory

Direct Attention

Tennessen and Cimprich (1995) defined directed attention as “the capacity to inhabit or block competing stimuli or distractions during purposeful activity” (Kaplan and Kaplan, 1982). Attention requires mental effort to sustain focus and prevent distractions from interfering with intended activity. Continuity of mental effort can lead to attentional fatigue, which in turn can affect ability in effectively functioning and living in daily life. Existing stimuli are distracting activities, noise, and irritating environments. These stimuli make people require more effort to maintain competing cognitive activity for effective functioning. Kaplan and Kaplan (1989) defined four factors for an attention-restoring experience:

- Fascination, involving a spontaneous, involuntary attention
- A sense of being away, absence from daily anxiety, escape to a different place
- Sufficient extent of immersion in the restoring experience
- Compatibility with an individual’s purpose

These four factors exist in the natural environment. The views of nature such as trees and water help maintain people’s directed attention (Ulrich, 1981). Exposure to nature gives a restorative effect on directed attention (Tennessen and Cimprich, 1995) which reduces mental fatigue and stress.

There are two approaches of adaptive positive responses to nature. First is the restoration response after stressful activities. The second one is the preference of certain content that supports well-being or survival environments such as a savannah landscape or a low-risk environment. Unconscious or immediate responses are the initial responses to nature which has significant influences on attention, physiological responses and behavior (Ulrich et al., 1991).

Attention Restoration Theory (ART)

Attention Restoration Theory (ART) is one of the best known environmental psychological theories. The concept of ART is the capacity to focus, or pay direct attention to one stimulus at a time (Warber et al., 2013). Attention Restoration Theory involves restoration

from the mental fatigue and stress from everyday life within urban environmental complexity (Coles and Millman, 2013). The continuity of concentration in direct attention can lead to this capacity fatigue which in turn becomes mental fatigue. With this decrease in attention concentration, people make mistakes, fail to focus, or become impatient (Kaplan, 1987). Attention Restoration Theory suggests that exposure to natural environments can decrease mental fatigue and increase direct attention capacity.

Shinrin-yoku – Forest Bathing

In 1982, the *Shinrin-yoku* (森林浴) or 'Forest Bathing' concept was introduced by the Forest Agency of the Japanese Government. Shinrin-yoku is a practice "to take in the forest air" with the objective of reducing stress. Researchers in Japan have been experimenting with studies on how the forest benefits human health and have proven scientifically that forest environments contribute to human well-being. Their subjects were people of different ages, professions, and genders. Walking in forests was shown to bring benefits such as lower blood pressure and increased immune systems. The preliminary research started in 1990 but not until 2004 did this scientific investigation become socially accepted (Li, 2018: 63)

Shinrin-yoku is a major form of relaxation in Japan. However, the effects from shinrin-yoku are still ambiguous (Morita et al., 2007). The benefits of shinrin-yoku can be explicitly addressed with a physiological assessment method. Forest environments can be considered therapeutic landscapes as they can decrease the risk of stress-related diseases (Miyazaki, 2018). However, with the field view of research (Corburn, 2013), there was some skepticism about whether stress reduction was only due to the visual factor of scenic beauty that lowered the stress level of the subjects. There are more complex factors in this field of research that calls for more studies regarding the effects from forests on health and well-being (Ibid.).

The study of health-promoting environments is an emerging field of research (Pinder et al., 2009). With more complexities in the urban environment, cross-disciplinary theories need to be utilized in the future of urban environmental theory.

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Chapter 3

Cultural Services of Urban Forests as a Symbol of Religion and Environment: Cultural Significance of Trees in Theravāda Temples

Abstract

This chapter is a review of global Buddhism on how the religion spread and embedded in different cultures in different regions, and how this religious belief relates to culture and nature in local contexts. It explores the theoretical approach of the relationships between religions and the urban environment with social, political, and economic influences. It investigates the cultural values of forests that serve as a symbol of Buddhism and reviews the relationship between religions and nature in both the body of canonical doctrine, where trees are valueless as a *rūpa*⁴ and in the aspect of Buddhist studies of living systems in light of the social, political, cultural, and economic contexts that varied greatly in different times and places. It also explores the reformation and adaptation of Theravāda Buddhism in Thailand and factors that impact these changes over time. Religious rituals, spiritual beliefs, and other community involvement activities that turn the intangible values of trees into the sacredness of places are also examined.

Keywords: cultural services, religious symbol, temple gardens, Theravāda Buddhism

⁴*Rūpa* is a form, material object, or physical phenomena that does not have mental activity, feeling, spirit, or awareness. Anything that only has *Rūpa*, without spirit, does not belong in the *Samsāra*, the round of rebirth (Gethin, 1998: 136).

3.1 World Buddhism

Over 2,500 years ago, ancient Buddhism was born in India and has spread over time from the west to Afghanistan and parts of Persia, to the east over the greater part of Asia, from Mongolia, to Japan, and to the south on the islands of Sumatra and Java. Buddhism has been the dominant religion at one time or another over areas where more than half of the world's population resides today. Buddhism is now classified into three broad traditions: Theravāda, Mahāyāna, and Tibetan traditions (Gethin, 1998).

More than half of the Buddhists in the world live in China, which makes it the largest population of Buddhists in the world. Ten countries with the largest Buddhist populations are in the Asia-Pacific region. Thailand is the nation with the second largest Buddhist population in the world with 93.2 percent of population being Buddhist (The Global Religious Landscape, 2012). The Buddhist population represents 7.1 percent of the world total population of estimate 488 million Buddhists worldwide. Despite the diversities of sects and genres of Buddhism practices in each country, they all share similar beliefs and sets of values.

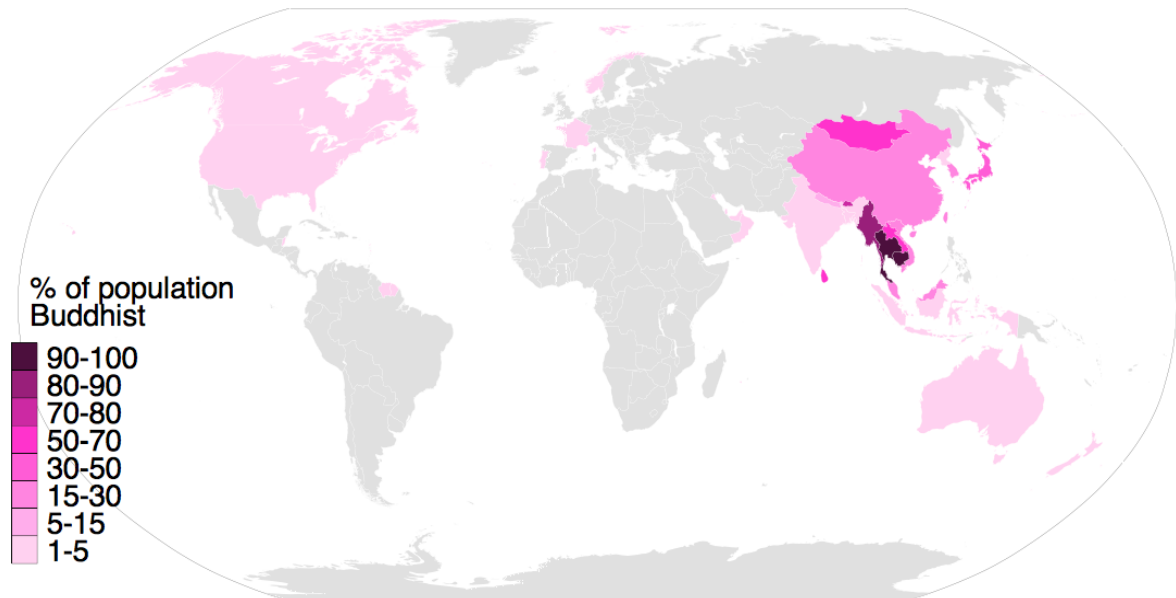


Figure 3.1: Percentage of Buddhist population by nations.
Source: Pew Research Religious & Public Life Project, 2012

Theravāda tradition, referred as Southern Buddhism, is known to have more conservative and traditional practices than other Buddhist traditions. Followed by over 100 million people in Sri Lanka and Southeast Asia, its canonical scripture is in Pali⁵. Mahāyāna is an East Asian Buddhism tradition, followed by approximately 500 million to a billion people in China, Korea, Japan, and Vietnam. Its scripture is in Chinese. Mahāyāna means a great vehicle. It has extremely diverse doctrines including Confucianism, Shintō, and Taoism. The Mahāyāna tradition is a very progressive Buddhism tradition because it derived in different regions and

⁵ Pali is an ancient Indic language used in canonical scriptures of Theravāda Buddhism in Sri Lanka and South-East Asia (Gethin, 1998).

became very diverse. Tibetan traditions, or Northern Buddhism, has its majority of followers in Tibet, Mongolia, and parts of Nepal and Himalayan India, and is followed by ten to twenty million people (Gethin, 1998).

Unlike Theravāda in Southeast Asia, Mahāyana Buddhism in East Asia is more progressive and has made tremendous changes to many components of Buddhism to make it fit the local culture. The simplicity from the very beginning of the Buddhism in India became bureaucracy when the religion expanded and spread across the other parts of the world. After the Buddha reached nirvana, 500 Buddhist monks took part in a 'communal recitation' and after seven months they concluded the first version of the Pali Canon, which also called *Tipitaka* or the three baskets. It is one of the oldest books in human history (Chansongsaeng, 2018: 57). Buddhist monks' precepts or *Vinaya* is parts of the Pali Canon. The first *Vinaya* or the Buddhist monk's monastic rules consisted of 250 precepts. The monks carried their precepts as their moral conducts and passed them on to new local monks wherever they went. Pali Canon was recited several times in different regions of the world. The *Vinaya* was revised in China and Japan which arrived at many monks in East Asia observe only sixteen precepts. Many rules that mentioned the local details that were important in India, where the rules originated, were diminished because they were not applicable to the local culture in East Asia. The rules were changed so the monks could cut trees, plant vegetables, be economically independent, and become self-sustaining (Weitsman, 2018). Because many Buddhist temples are located in remote areas, reliance on lay supporters would be difficult. Although many Buddhist temples still receive financial support from laypeople and get donations from businesses, these monks who live far from villages do not have lay supporters offering food and amenities to them. Being a Buddhist monk had to become a professional occupation and be self-dependent. Thus their *Vinaya* became more flexible and aligned with the practical aspects of their communal existence.

Theravāda monks preserve most of the ancient traditions. It is the oldest sect of Buddhist study in the world. Theravāda means the ways of Buddhist monks. Theravāda monks carry over 200 precepts as their moral conducts, similar to the original Pali Canon. There are different sects within Theravāda order which some sects omit some of the precepts that considered irrelevant to their culture. However, most of them are still preserved and practiced by the monks. Within the two major sects of Buddhism in the world, Theravāda and Mahāyāna, there are many subgroups and minor branches. This study focuses on Theravāda tradition, its adaptation to local culture, and the relationship between religion and nature.

3.2 Buddhism in Southeast Asia

Buddhist teaching did not have written documents until three months after the Buddha passed away which was around 2,500 years ago (1BE⁶ or 543 BCE⁷). Then the monks recited and put together his teaching called *tipitaka* (Pali *ti*, "three," + *pitaka*, "baskets"). *Tipitaka*, the Three baskets, or Pali Canon, consists of three parts; *Vinaya Pitaka*, *Sutta Pitaka*, *Abhidhamma Pitaka*. *Vinaya Pitaka* is the monastic rules or Buddhist monks' precepts. *Sutta Pitaka* is the collections of suttas - stories and discourses attributed to the Buddha and a few of his closed

⁶ Buddhist Era

⁷ Before the Common Era

disciples. *Abhidhamma Pitaka* is the underlying doctrinal principles of Buddhism (Mahamakut University, 2011).

Over time, as the religion expanded, some of the teachings have changed. When Buddhism propagated in different regions of the world and was introduced into different contextual realities with the local tradition of each place, Buddhism did not try to eradicate the local culture but respected the existing people and their culture. The relationship between existing tradition and Buddhist culture can be a plural affiliation (Tibet, China, Japan, Thailand) or an absorption of the local (Japan) (Gethin, 1998: 88). Theravāda has been documented in Southeast Asia since the 11th century in Myanmar and the 13th century in Thailand. Prior to the 11th century, there was no significant evidence of Buddhism in Southeast Asia.

From an academic viewpoint, religions can be studied as a body of their canonical doctrines or as a living system in an anthropological approach. In the latter approach, historical and cultural contexts must be taken into account. Spiro (1982) classified three types of interaction between religious actors (Buddhists) and normative religious doctrines from his study of the post-war Burmese Theravāda Buddhism practice. The three forms of Buddhism were 1) Nibbānic 2) Kammatic, and 3) Apotropaic. These first two forms of Buddhism are Soteriological. The Apotropaic is considered a non-soteriological approach.

A. Soteriological

1. Nibbānic Buddhism – Normative Soteriological Buddhism *nibbānic* (Pali) or nirvana (Sanskrit) is the form of Buddhism with the ultimate goal of nirvana or escape from the *samsāra*⁸. This is the conventional approach as it is in the Buddhist doctrine. Spiro mentioned that *Nibbānic* Buddhism is exclusively for Buddhist monks and not laypeople. However, in practice most monks are also equally concerned with the *kammatic* and apotropaic practices, while some laypeople follow the *nibbānic* approach and practice on the path to nirvana (Gethin, 1998: 111). *Nibbānic* Buddhism aims to be selfless, which is *arūpa* (no form). It holds that the human body is only physical elements consisting of the four realities; earth, air, water, fire. The human body is similar to any other elements, including trees, that have no religious or moral values and only consist of the same basic four components. This approach denied identities, cultural constructs, and any values that humans assign to anything. Therefore, giving an identity or symbolic values to trees or other elements does not exist in the *nibbānic* approach.

2. Kammatic Buddhism – Non-normative Soteriological Buddhism

The goal of the *kammatic* approach is to get to different positions in the wheel of life, or the *samsāra*. While *Nibbānic* Buddhism strives to transcend from the *samsāra*, the goal of people who believe in *Kammatic* Buddhism is to improve their position in the wheel of life, to be reborn in a better place. There are six realms (*bhūmi* in Sanskrit) in the *samsāra* that anyone who still is in *samsāra* can be reborn into. The six realms are: 1) deities (*deva*); 2) humans (*manusa*); 3) animals (*tiryāñc*); 4) hungry ghosts (*preta*); 5) hell-beings (*naraka*); 6) ominous (*asura*). All actions will impact our karma. Our behaviors will accumulate and become our habits, which in turn will lead to where we will be reborn. However, trees and any objects that are not categorized as living beings in these six realms will have only physical elements (*rūpa*) and have fundamentally no *kammatic* meaning. Yet some of the *Vinaya*, monastic rules that the

⁸ *Samsāra* is the wheel of life or the repeating cycle of birth, life, and death.

Buddha gave to the Sangha, were to refrain from cutting any living branches of trees, not to cut any trees or living greens, not to dig soil, and not to practice farming. The reason behind these rules was not the significance of trees themselves, but because there might be animals living in the trees. Therefore, to cut the trees or their living parts could cause damage to animals' lives. Refraining from taking others' lives or hurting them is the first and most important rule in the *Vinaya*.

B. Non-Soteriological

Apotropaic Buddhism – Avert evils, protection from demons

Those who subscribe to the Apotropaic form of Buddhism believe in magical components such as trees, woods, ponds, or holy talismans that Buddhist monks and other spiritual beings created. Apotropaic Buddhism provides protection for laypeople by sacred charms or other holy objects. Some of the rituals involve offering oblations such as food, flowers, and colored fabrics as clothes for the spirits. This form of Buddhism is derived from an amalgam of Buddhist practices and the preexisting local culture. In Thailand, Apotropaic Buddhism is derived from the belief that such beings (spirits, ghost or *phii* in Thai) can help protect one's well-being, answer one's pleas for assistance, or cure illnesses (Ibid., 129).

These three forms of Buddhism are related and they developed with magical and spiritual components that local laities put values on. Because Buddhism is a religion that does not eliminate the existing beliefs and culture of local people, the doctrine of Buddhism itself transformed to fit with the local culture. Mahāyāna Buddhists in East Asia revised part of the *Vinaya*, the monastic rules, so that local communities would accept the new religion when it first came from India. In Tibet, Buddhist monks were allowed farm and prepare food for themselves because they lived farther away from communities and did not have sufficient daily alms from lay supporters. While Mahāyāna seems to have become less strict on the original *Vinaya*, Theravāda Buddhism in Southeast Asia is considered more traditional and conservative. Despite the way Buddhist monks removed themselves from the society and became renouncers of society, Theravāda tradition encouraged monks to live near communities. One of the *Vinaya* rules that does not allow monks to touch money or practice farming forced monks to live near laities and have relationship with the society (Ibid., 93).

There are different methods of temple classification. By using purposes of the temples, Buddhist temples can be classified into two types; *Kamavasi* and *Aranyavasi*. Monks in *Kamavasi* temples focus on study *Tipitaka* as Buddhist canonical doctrines. *Kamavasi* temples usually located near communities. Buddhist monks in *Kamavasi* temples provide religious ceremonies and socially support and have strong connections with laities. *Aranyavasi* are forest temples. Monks in *Aranyavasi* temples refuse from society, focus on practicing meditation, and have less contact with communities. *Aranyavasi* temples located far away from villages but may not located farther than 1 kilometer or 0.6 miles from communities because the *Vinaya* addresses that the monks must be able to leave for morning alms and return to the temple before midday (phuttha.com, 2009). The Buddha intended to make lay supporters integral to the way of life of Buddhist monks. When monks received food and support from people, it was presumed to be a kind of social contract that monks would have the responsibility to live in a certain way of the holy spiritual life and share that knowledge with laities (Ibid.).

Wasi (2015), similar to Spiro, looked at Buddhist monks on a spectrum from apotropaic on one end to *nibbānic* at the other. He classified Thai Buddhist monks into 4 groups:

1. Local culture monks – Apotropaic and *kammatic* buddhism

The cultural roles of temples are as centers of community where people gather for religious ceremonies and cultural events. Temples are places of sanctuary for homeless and poor students. They provide opportunities to those with fewer opportunities in society. Many temples adopt poor children who later become novice monks and have the chance to study and better their lives. Many monks listen to laities' suffering and teach them with different *upāya* (skillful means) (Darlington, 2012), sometimes via spiritual and sacred objects which people believe can protect them from evil forces. Colored scarves on some big and old trees, as well as the food and flowers that temple visitors offer to the trees, are believed to improve their life, protect them from bad spirits, and may bring them joy and prosperity. This belief is the combination of one aspect of Buddhism and the local culture in Thailand.

2. Meditation monks – *Nibbānic* Buddhism in practice

Practiced monks within the *nibbānic* tradition provide many social services with meditation courses. They look at trees as *rūpa* with no cultural or ecological values. However, they would prefer to have trees in temples for a better microclimate because in their practice, the bodies must have as few constraints as possible so the minds can focus and better meditate, thereby leading to a comprehension of higher knowledge as a path to reach *nibbānic*. Trees in temple gardens provide shades, create peaceful atmosphere, and result in pleasant spaces for practicing meditation.

3. Academic monks - *Nibbānic* Buddhism in theory

Academic monks have sophisticated knowledge of Buddhist canonical doctrines and at the same time have progressive ideas about developing the Sangha in this rapidly changing society. Although what the Buddha taught from 2,500 years ago has successfully been passed on through history in different regions and cultures, globalization and new technology have had negative impacts on Buddhism. Academic monks can efficiently use these technological tools and adopt them to improve relationships between temples and society, convey the valuable canonical knowledge, and widely spread the Buddhism taught in this complex technological society.

4. High priest - Apotropaic - authorities in the Sangha and symbols of Buddhism

High Priests have their charisma from many years of accumulated experience and from having taught many novices. They garner more respect and have more authority within the Sangha. Some of them became symbols of Buddhism as their words were repeated over and over, and some lay followers use their words as magic spells and their images to worship within the apotropaic tradition. Because of the power of the Sangha, High Priests can support many projects and can assist younger monks in the teaching and promulgating Buddhism.

Prawase Wasi (2015) explained these categories of Buddhist monks in Thailand in a booklet "*Buddhism, a Great Asset for Development of Thailand*" that was distributed during the talk about the project "*Khao Wat Bundan Jai*" (The nine inspiring temples) on January 23, 2016. "*Wat Bundan Jai*" was a development project for temple spaces to create physical and spiritual centers for Buddhist temples in Thailand (Ngamwitthayapong et al., 2016: 48). The project started in 2015 with nine temples and a group of volunteer architects and landscape architects who had the impetus to redefine the meanings of Buddhist temples in Thai society and improve

the physical conditions of temples to make them more suitable within the changing contexts of the social, cultural, political, and economic environments. This project started with proposals of conceptual design for the first nine temples as pilot projects and case studies of the design and management of different categories of temples; forest temples, urban temples, historical temples, and so on. The projects investigated how to bring back the social values of temples as centers of community, and how to redefine the cultural meaning of temples in this changing society. The design team discussed with the Sangha and analyzed their needs, problems, and possibilities. The goals of the projects were to improve the uses of the religious spaces and increase public green spaces in the cities, to create a network of volunteer architects, landscape architects, and designers for monastic design and development, and to communicate and build public awareness (arsomsilp, 2018). There are over 30 thousand Buddhist temples in Thailand (Dhammathai.org, 2004) with more than three billion US dollars donation per year. This could be important opportunities to improve public green spaces (arsomsilp, 2018). By redesigning spaces in the Buddhist temples, temple gardens could provide more potentials as cultural and physical spaces where laypeople can get benefits. The volunteer team attempted to have more temples involved in the following years so they could provide a better design, public green spaces, and proper care for temple gardens in the future.

Unlike Wasi, the conventional classifications of Buddhist monks, or *bhikkhu*, divided monks into four categories. Each category is determined using the level of the Sangha divided by the period of time the monk has been ordained or *punsa*⁹. Novice monks, *saamaneen* or *neen*, are not included because *neen* are in a preparatory stage prior to *bhikkhu*, only hold ten precepts (Ishii, 1968: 864), and are mostly under 20 years old. The four categories of Buddhist monks are (PhraThamkittiwong, 2008):

1. *Nawaka* – newcomers who are ordained between 1-5 *punsa*
2. *Matchima* – monks who have been ordained between 5-10 *punsa*
3. *Thera* – monks with 10 -20 *punsa*
4. *Mahathera* – monks who have been ordained longer than 20 *punsa*

This conventional classification of Buddhist monks is the formal categorization commonly used in Thai society and in the Sangha Council. It classifies monks by their years in the Sangha, not by their ages. There are some very old monks who are *nawaka* and some relatively young monks who are *Matchima* or *Thera*. The youngest age that a person can ordain as a monk is 20 years old. This classification is used as a hierarchy in all of the monastic activities. The longer experience monks always sit in the front and get more respect in the Sangha. However, sometimes, outside of the formal rituals, old *nawaka* monks receive more respect because Thai culture pays a great respect to the elderly. Because every Thai Buddhist monk was once a layperson, his underlying local culture is integrated in the religious culture in Buddhist monasteries even after he became a monk.

⁹ The length of 1 *punsa* equals 3 months during the rainy season, from the full moon of the 8th month to the full moon of the 11th month. It can also mean 1 year when counting the period a monk has been ordained in the Sangha. If a monk is ordained and then quits the Sangha (monkhood), when he returns to the Sangha as a monk, he has to count it as his first *punsa* again.

Because Buddhism has been reshaped by local culture, political and economic influences, and has been reinterpreted over the periods of time, to study the normative religious doctrines is to study canonical Buddhism through history. But to understand how religious believers behave and relate to their environment through the Buddhist doctrines is an anthropological study of a specific group of people to see how they take in the theory and doctrines of the religion, how they adapt their preexisting local cultures, as well as how the religion is integrated into their lives. In order to understand how people believe in their religions is not to understand merely the doctrines of the religion.

“... normative religious doctrine is irrelevant for an understanding of the beliefs of religious actors is to evade one of the most important theoretical problem in the anthropological study of religion, viz., the relationship between real and ideal, the actual and doctrinal, the existential and normative, dimensions of belief systems.”

-- Spiro, 1982: 5

Besides lay supporters, support from the king and royal family or royal patronage were always key to the existence of Buddhism (Gethin, 1998: 100). In Thailand, the king became a patron of the Sangha beginning in the Sukhothai period which was one of the major reasons that Buddhism prospered in Thailand. The three forms of Buddhism have been dominant in Thailand at different periods of time. However, each of these different forms of Buddhism have always existed. Their predominance alternated in each region over the history of Thailand.

3.3 Theravāda Buddhism in Thailand

Since the 1st century BCE, Buddhism has been propagated into various cultures outside India. The religion has been accommodated with preexisting culture in each region. In Thailand, Buddhism became coexistent with the *phii*, ghosts or spirits, which were the predominant beliefs in Thai culture (Gethin, 1998:128). Local Thai culture respected the spirits of the natural environment because they were Mother Nature, which maintains well-being for human beings. There are gods of rain, river, mountains, trees, and the like. Assistance of *phii* and beliefs that these spirit beings who dwell in forests, trees, and other natural elements such as rivers, mountains, or termite mounds can be the answer for one's *duhka* or suffering, provide cure for an illness, fix any previous unwholesome actions.

Theravāda was a small, non-influential school in Southeast Asia until the two great kings; King Aniruddha of Pagan in Burma in the 11th century, and king Ramkhamhaeng of Sukhothai in Thailand in the 13th century adopted it. The previous beliefs in spirits of nature are evidenced in many rituals that show human respect for nature. Offering food, flowers, incense and candles to trees, termite mounds, or other local sacred objects can be found in many places in Thailand. This belief is the opposite of the Buddhist theory that these physical bodies, or *rūpa*, have no moral or religious values. Any actions toward these physical objects do not create any karma. However, there are monastic rules that monks refrain from killing any living creatures. Taking down a termite mound, cutting down trees or cutting living parts of the trees might cause damage to animals and other living beings on the trees or in the termite mound. As a consequence, the monastic rules state that Buddhist monks may not cut down trees or any

living parts of trees. As it is true now, monks also are not allowed to practice farming because digging soil could kill animals living in the soil. These rules have been omitted in some Mahāyāna groups where their temples are located in remote areas and few laities can regularly offer food for the monks. Theravāda Buddhism, being more uncompromising, still maintains these rules in the canonical script, but not as much in practice.

During the Ayutthaya period (1351-1767), the Ayutthaya Kingdom became much greater because with every victory the kingdom brought in conquered people. Every freeman had to register and serve as a servant or *phrai*, and must have had landlord, or *nai*, who could put his *phrai* in any public service, military work, or temple (Onozawa, 2002). In the nineteenth century, this corvée system covered one-third of all the man labor in the kingdom. Status, wealth, and the political powers of lords depended greatly on their manpower supply. Apotropaic Buddhism where monks prepared holy talismans for the Kings and soldiers to protect them from the enemies and sacred charms for laities for their prosperity was the most common form of Buddhism during this period.

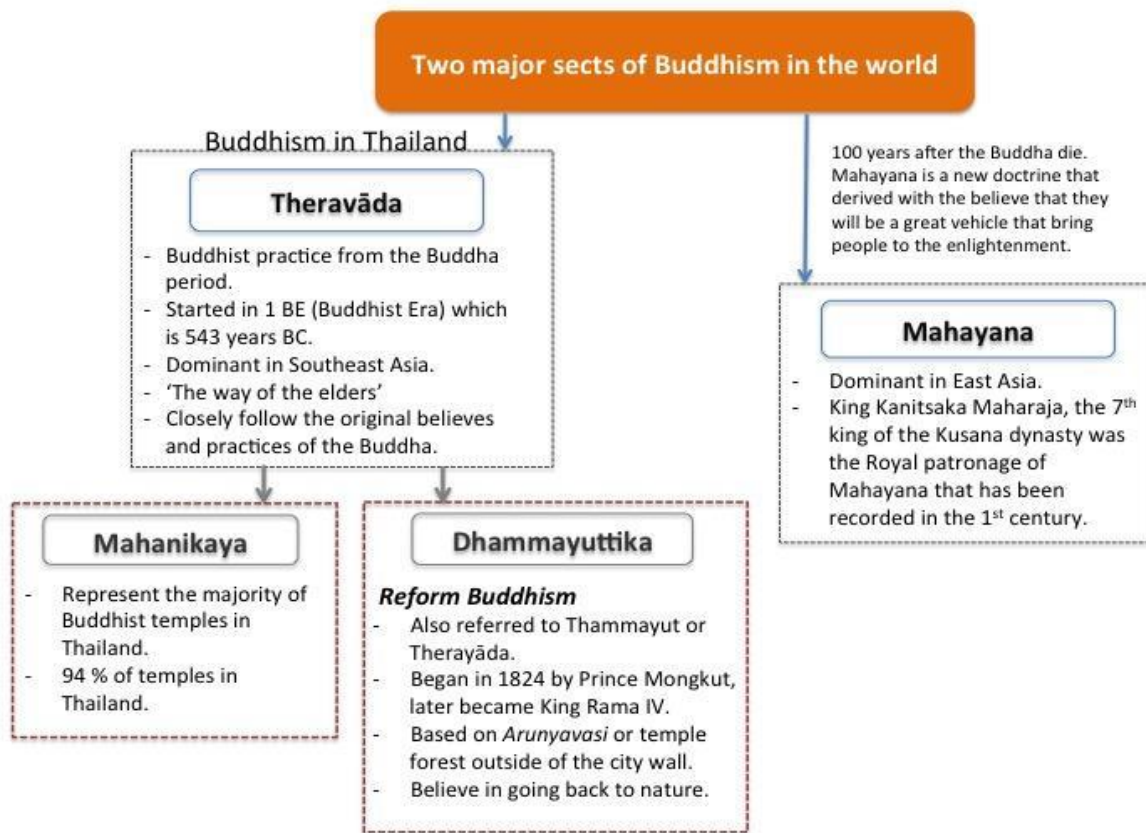


Figure 3.2: Major doctrines of Buddhism in the World and two major sects of Buddhism in Thailand.

During the early Rattanakosin period (1782-1932), there were people of many creeds and cultures. Half of the population was not Thai or Siamese (Smithies, 1986). Buddhism was not the major religion because there were people of many nationalities living in Old Bangkok.

Reformed Buddhism was found by King Mongkut (1851-1868), the 4th King in the Rattanakosin period. The Reformed Buddhism was a new Buddhist order that focused more on the practice of self-cultivation instead of a practice centered on communal rituals in the conventional Cosmological Buddhism (Keyes, 1989: 126). Prince Vajirañāna, who had been educated in the new system of clerical education, was assigned by the King Mongkut to be head of the Thammayut Order (Pāli *dhammayutika* means “adhering to the dhamma”). He introduced a new approach by building the new secular schools. Because *Dhamma* is nature (*dhammajāti*). The word nature in Thai is *thammachāt* so he believed that to understand dhamma, ones need to study science to understand nature (Ibid.). King Mongkut believed that the old Buddhist religion was “superstitious accretions” (Ibid., 127). Reformed Buddhism not only fundamentally altered the religious culture in Thailand but also changed the perception of the Royal family and influenced in the lengthy process of the abolition of slavery and the replacement of the corvée system during the King Chulalongkorn era (Ibid.).

Until 1902, during the reign of King Rama V, Chulalongkorn (1853-1910), the Buddhist Order Administration Act was enacted. Buddhism served as a unification and became a strong symbol of Thai national culture (Ishii, 1968: 865). The Act is to place the Buddhist Order under the control of the nation’s administrative organization. Another change that affected the Buddhist temples during this time was the end of the Corvée system. After the abolition of this system of slavery in Thailand, King Rama V terminated the Corvée system not only because he would like to give freedom to his people but because he was concerned about the increasingly strong power of lords who had more manpower in their control. The King Rama V announced that every *Phrai* could be a free man and was not required to have lords anymore. They could register in the military services by themselves without any permission or assignment from their lords. They would also receive their own salary from their military position. This political change not only impacted the political status of the lords but also impacted political and economic status of Buddhist temples in the country. Temples in Bangkok used to have full financial support from the Royal Patronage but King Rama V also cut the funding to the temples. The temples also used to have *Phrai* as free labor under their authorities but the abolition of the Corvée system made them lose that resource. As temples struggled to find a way to survive, they cut part of the temples’ properties (*Ti thorrane song* or temple grounds) for laypeople to rent. Most temples have many vacant properties that used to be left as natural areas; some were small forests that monks used for isolated meditations. With these political and economic changes, along with the development of the city, many natural areas of the temples’ properties changed into schools, commercial buildings, and multi-purposed areas from which people could make economic gains. In return, the renters or communities who lived on the temple properties paid a small amount of rent and helped take care of the temples and the temple gardens.

The continuity of the Buddhist Sangha in Thailand may seem to prevent the nation from having radical changes, yet the Sangha has played a significant role in many political and environmental movements (Keyes, 1989: 136). The two pillars of the traditional the Thai value system are monarchy and Buddhism. Buddhism, similar to the monarchy, is an enduring major institution in Thailand that is almost untouchable (Ishii, 1968: 865); however, the institutions themselves, both monarchy and Buddhist Sangha, have been influenced and been sources of social and political changes and how people believed and gave values in the Thai society (Keyes, 1989: 136). King Rama VI, Wachirawut (1919-1925), adopted a Buddhist calendar and

systematized Buddhism with an aim to deepen monks' knowledge of formal Buddhism. Buddhism Order and Buddhist monks gained an official status which was the method the government used to control the monks. There were no more unregistered monks and every monk must live in a temple.

After the *coup d'état* in June 1932, Thailand changed from an absolute monarchy to a new democracy government with a constitutional monarchy. Buddhism was not affected at the beginning but the new government then proposed to construct 122 new Buddhist temples in August 1934 which reflected their belief that Buddhism was a strong reinforcement of national unification (Ishii, 1968: 866). The 1941 Buddhist Order Act was an experiment of the introduction Buddhism into political structure. The new Sangha structure under the 1941 Buddhist Order Act went smoothly at the beginning. However, there were disputes among the Sangha. There are two major sects or *nikaya* in the Thai Buddhist order (Ibid., 868). The majority of the Sangha was *Mahānikaya* which had authority over 92 percent of the temples in the country. However, because *Thammayutikanikaya*, the smaller sect, had a better reputation of disciplinary strictness with more *Vinaya*, and also had closer relationships with the Royal family, this smaller *nikaya* occupied half of the seats in the organization of the Sangha (Ibid.). The Buddhist Order Act of 1962 was enacted to simplify the structure of the Buddhist Order and to strengthen the authority of the Supreme Patriarch and the power of local abbots over the monks (Ibid., 869). Despite the changes in the Buddhist order's political structure, Buddhism continued to provide symbols and meaning and was a center of societies. As Ishii (1968) mentioned, that to be "Thai" was synonymous of being "Buddhist".

The years from 1932-1973 were a period of increasing Modernization and Westernization in Thailand under the influence from the Western nations. There were some major social and physical changes. Although this political democracy and devolution of powers influenced many traditions and constitutions, some scholars argued that it did not simply displace the state religion (Taylor, 1993: 65). Although Buddhist temples were impacted from these urban changes from Modernization, the imbued religious beliefs had not changed into secularizations (Ibid.).

Bangkok Transportation Plan and its Effects on Buddhist Temples

Bangkok was once called the "Venice of the East" because of its canal systems and the way that people used water transportation as a major mode of commuting. Residences and public places had their entrances or front doors as a small *sala*, or gazebo, on the river banks. Buddhist temples also faced their front entrances to the rivers or canals because it was the way that people approached and entered the temples. Public sections of the temples were adjacent to these water-facing entrances while the private areas and service sectors such as the cemeteries were in the back, farther from the water and not normally allowing laypeople access. However, with the change of the transportation systems of the city, the planning of temples was affected.

The first transportation plan of Bangkok is commonly known as the Litchfield Plan. It was initiated as part of the first National Economic and Social Development Plan in 1960 under the government of Field Marshal Plaek Phibunsongkhram (Jittrapirom and Jaensirisak, 2017: 3996). Although its implementation was not successful because of the lack of city planning and

the rapid growth of the city, the Litchfield Plan became the prototype of the city planning of Bangkok (Tapananont, 2004). The government made several attempts to improve the plans to accommodate the changes in the city. From 1972 to 1975, the government invited experts from Germany to help with traffic and transportation planning in Bangkok. This plan proposed several new transportation infrastructure ideas including an expressway, a mass-transit system and a change in the surface transportation system. Only the expressway was executed.

These transportation development projects were proposed to help improve the flow of traffic in the city. However, the preexisting major mode of transportation, water transport, was not taken into consideration. The high cost for new transportation infrastructure and ambiguous city planning made the plans difficult to accomplish. The social and cultural ways of life and how people used to commute within the city were ignored, which had a long-term impact on the city's development. The physical infrastructure of the water transportation network was underdeveloped. Although the river and canal system was still widely used, many Buddhist monasteries and other institutions that located on the river banks had to change their pattern of land use to accommodate the new transportation plan. Many temples struggled to find new access points accessible to the planned land transportation network, which often approached the formerly private sections at the back of the temples. To maintain their role as community centers, temples now open their back doors for the public to walk through the once private areas such as cemeteries, monastic buildings, and other Sangha spaces. The change of the major mode of transportation of the city affected the land uses of the temples, which in turn slowly impacted the social status of the Sangha and the ways in which the Sangha interact with society.

Socio-Political and Cultural Changes in Thai Buddhism

Even though the Modernization and Westernization did not change the way people believed nor their soteriological conceptions of merit-making, or *tham bun*, the social norms had changed and the numbers of Buddhist monks decreased. While the overall population increased and numbers of Buddhist temples increased, the numbers of ordinands declined (Taylor, 1993: 66). It used to be a belief that every man had to be ordained at least once in his lifetime. Many stayed in the monkhood for life. However, with the tradition change, few young people were ordained, and many of those who were only stayed in the monkhood for a week to ten days or one *punsā*. Since the 1970s, this short-term ordination has become the new norm in Thai religious culture (Ibid., 67).

The decreasing numbers of Buddhist monks was also caused by the change of traditions in the Sangha. To be a Buddhist monk used to mean to be a refugee from society (Gethin, 1998). However, the new authority system of the Sangha and the establishment of Buddhist universities allowed monks to have status and hierarchy in the Sangha. It caused an issue of insufficient numbers of Buddhist monks in rural temples in the countryside because many young monks moved to the city for more opportunities in Buddhist education and monastic careers (Taylor, 1993: 66).

Another social change under the influence from the Modernization and Westernization was Westerners becoming ordained in the Sangha. Since the 1960s there have been Westerners who came to Thailand on spiritual quests and who became important parts of the forest monasteries which later had international influence in different parts of the world

(Taylor, 1993: 67). Even though the forest tradition led by the late *Ajaan Chaa* and other Westerner Buddhist monks became an influential Buddhist tradition in different countries, it had conflicts with the Sangha in Thailand. Because Buddhism is the ideology of the Thai people and was used as a nation traditional value that strengthened the national unification according to the 1962 Sangha Act during the time of Field Marshal Sarit Thanarat (1957-1963) (Ishii, 1986: 115), it was difficult for some people to accept foreigners becoming a major part of it.

The establishment of The Sangha Council of Elders (*Mahaathera-samakhom*), which can use regulations to control the Sangha and has authority on prosecution or disrobement of Buddhist monks who violate the *Vinaya* or the monks precepts happened in 1963 (Na-rangsi, 2002: 71). During 1991, there were many cases of a *paaraajika* offence. People complained and attacked the Sangha Council of Elders for not responding to these cases and not making clear the Sangha Monastic rules (Taylor, 1993: 69). There were also requests for a change within the Sangha (Ibid., 70) because the *Vinaya* was based on the local culture of India, where it was first recited after the Buddha left. Although there was flexibility, there were many rules that did not agree with local culture in Thailand, were not suitable for the urban settings, and not fit with the Modernization that changed many things in the society.

The social, cultural, and political changes affected the landscape of the city which also impacted the spaces of Buddhist temples. The relationship between the Sangha and laities changed over the history. Many monks involved in social and political movement inside and outside of the Sangha. More monks were disrobed with cases of a *paaraajika* offence. Buddhist temples became more competitive and strived to get more visitors with different strategies depend on how they positioned themselves. Many temples sold holy objects and talismans for apotropaic believers. Some temples organized meditation courses for laities. Virtual Buddhism was widely used and became new effective ways to connect people with Buddhist teachings. The cultural roles of temples and the uses of spaces has been changing. The government has emphasized in building more Buddhist temples to reinforce the nation culture. They also anticipated these Buddhist temples to be social, cultural, and spiritual centers for people. However, only the place itself could not serve the purposes. The change of this new social norms significantly decreased the numbers of monks who ordained for the lifetime. Many people only ordained and became parts of the Sangha temporarily, thus the numbers of uninhibited temples increased every year (Thaipublica.org, 2013). The social change did not correspond to the physical change of the city. The higher numbers of temples and the lower numbers of permanent ordinands¹⁰ lead to more abandoned temples.

3.4 Buddhist Temples in Thailand

There are 33,902 Buddhist temples in Thailand. Only 60 percent of these temples, 20,281 temples, received royal granting (*prarachathan wisung khamseema*). There are 31,890 *Mahanikaya* temples and only 1,987 *Dhammayutthika* temples (dhammathai.org), which are

¹⁰ An ordinand or Nāk (in Thai) is a person who is in preparation for or who is undergoing the process of ordination to be a monk. Ordinands wear white and practice in a monastery before becoming Buddhist monks. With the new tradition of short terms monkhood, ordinands do not prepare or learn to become a Buddhist monk because they only stay in the Sangha for a short period of time; sometimes only one day or one week for a funeral or a religious ceremony.

the temples derived later after the Reformed Buddhism. There are a few Mahāyāna Buddhist temples which contribute to less than one percent of Buddhist temples in Thailand. With the declining numbers of Buddhist monks, there are 6,815 abandoned sites of the old temples.

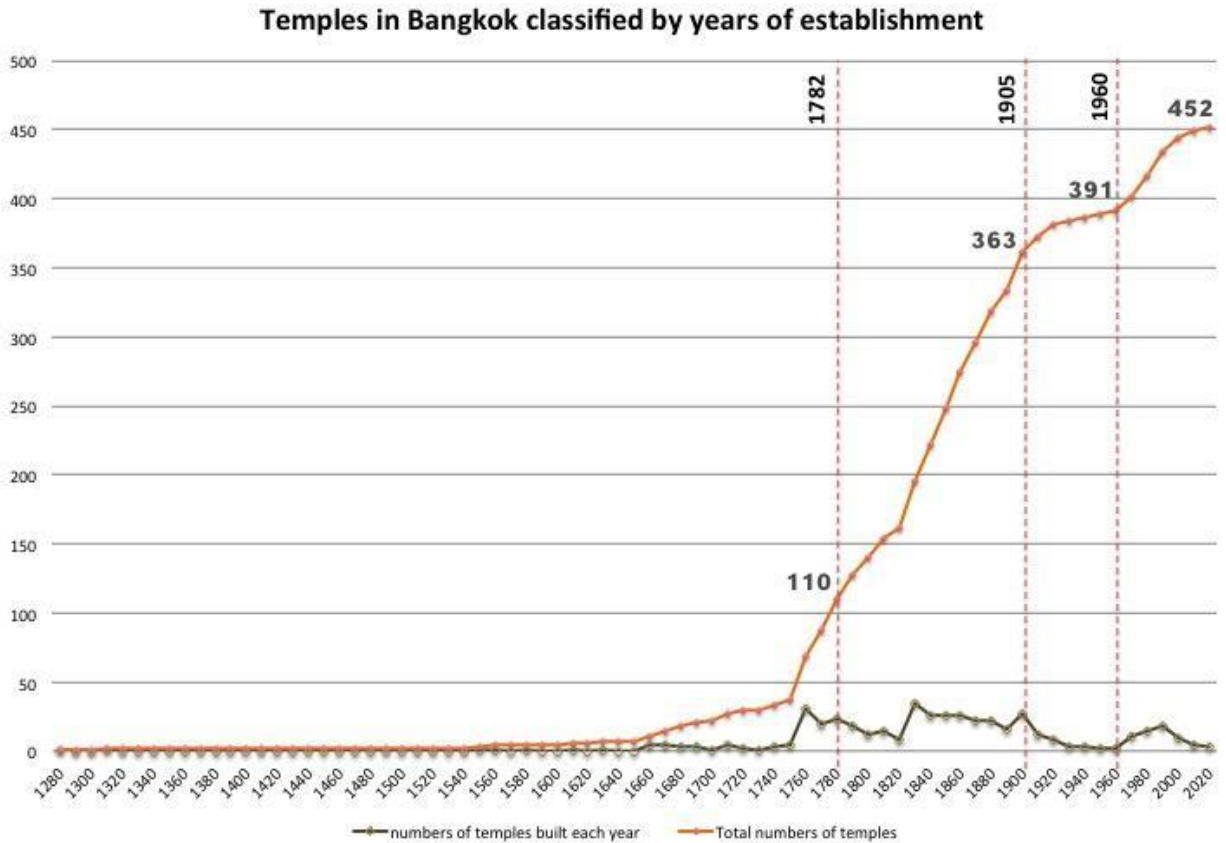


Figure 3.3: Numbers of Buddhist temples in Bangkok and years of establishment.

The capital city of Thailand, Bangkok, is a location of 452 Buddhist temples. There is at least one temple in each district of the 50 districts in the city. Figure 3.3 shows numbers of Buddhist temples in Bangkok built in each year. The city was founded as a capital city in 1782 from a small port town. There were not many temples before Bangkok became the capital city. Numbers of temples reflected from the population or numbers of villages in the areas. The King and royal family established Buddhist temples to be symbolic temples for their families which became Royal temples. People moved to the new capital city and when villages grew larger, people put together money and lands and built Buddhist temples for their communities which became private temples. During the early Rattanakosin period, many temples were built to celebrate the capital and to be symbolic temples of Lords' families. In 1820, there was Cholera pandemic which killed 30,000 people. Many dead bodies were left in temples then removed from the city carried out through the city gate called *Pratu phii*, the Ghost gate, near Wat Srales. Not many new temples built in that year. The *coup d'etat* in June 1932 caused political instability, the government proposed to build over a hundred Buddhist temples to promoted

Buddhism as a national symbol to emphasized nationalism. During 1941 -1945 the city was impacted from the World War II. Allied bombing raids damaged several temples in the city.

The graph in figure 3.3 based on the data of a Buddhist temple inventory conducted by the Department of City Planning, BMA, in 2012. There were other temples built during that time but some are no longer exist. There are also temples around the city skirt and some located outside Bangkok. There are also some abandoned temples where there are no longer monk residences nor used as a site for religious ceremonies which are not included in this study.

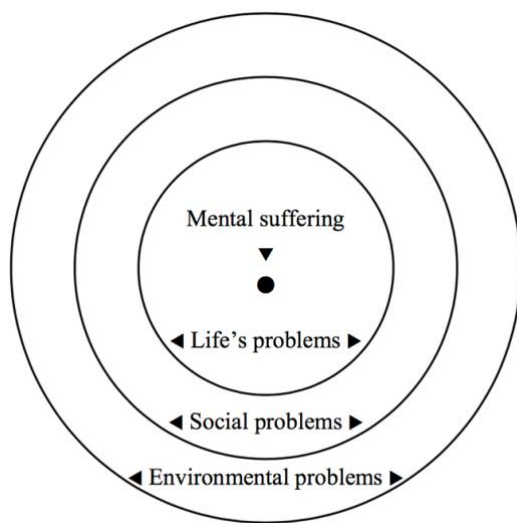
Royal Temples and Private Temples

Royal temples are temples that the king or the royal family privately builds, restores, and then confers to the people who have lower hierarchy. Some royal temples are built or restored by the members of the royal family or laypeople and presented to the king. There are three hierarchies in royal temples; first class, second class, and third class (Bhumisuthikul et al. 2012: 6). There are also different levels in each class of the royal temples. There are 93 royal temples in Bangkok. Some of them open to public. Some of the royal temples that are used as royal cemeteries are not allowed to be used by the public.

Private temples are temples built by the public or laypeople. This process requires permission from the National Office of Buddhism. The first requirement is that the size of the property has to be minimum of contiguous 6 rais (9,600 sq.m. or 2.73 acres) without any streets, canals, or public right of ways passing through. There must be no other existing temples within a 2 km (1.24 miles) radius. According to the National Office of Buddhism (2012), for a forest temple, *Aranyavasi* or *Wat Pa*, the property must have some existing shady forest area. There are 359 private temples in Bangkok. Only a few of them are forest temples.

3.5 Places of Trees in Buddhism: Buddhist Canonical Doctrines

In the *Pali Canon, What a Buddhist Must Know*, Bhikkhu P.A. Payutto (2004) explained the relevance of the Buddhist thought and the environment as a part of the circles of human



problems (figure 3.4). The three circles of human problems start with a center of mental suffering. The inner circle is life's problems. The second circle, the wider one, is social problems. The outer circle, the last and largest one, is environmental problems (Payutto, 2004: 30). It seems like this outermost circle represents the ecological problems that are far away from an individual's perception. However, the ecological issues are in fact the most threatening to the survival of mankind (Ibid.).

Figure 3.4: Three circles of human problems.
Source: *The Pali Canon: What a Buddhist Must Know*

Environmental problems stemmed from the misunderstanding of the relationship between humans and nature. When humans do not recognize themselves as parts of nature, they do not have any intentions to preserve the natural environment. Humans try to conquer nature and take as much advantage as they can. However, in Buddhism, our human bodies are merely physical elements, or *rūpa*, similar to trees, tables, cows, cars, clouds, and everything else. If humans comprehend this ultimate truth in Buddhism, they should treat nature the way they treat their own bodies. Moreover, Buddhism explained this interconnected system and causally conditions of all of our actions. If humans have an accurate understanding of Buddhism, behaviorally, psychologically, and intellectually, they will treat the environment with greater harmony and mutual support.

3.6 Trees in the Aspects of Buddhist Studies on Living System

Buddhist theory does not believe in any gods or spirits. However, it is not against people who believe in god or magical events. Many people expect that divine beings have spiritual powers that can help protect them from bad luck, diseases, or bad karma. Buddhist thought is not against this belief but mentions that belief in these magical spiritual powers can merely temporarily solve the problem. It can comfort and encourage people but cannot solve the root of the problem. The ultimate goal of Buddhism is to reach nirvana and escape from the *samsāra*; escape from rebirth, illness, unpleasantness, and death, which are *dukkha* or undeniable suffering.

Buddhist theory is not against the existence of 'divine' beings as these mythical creatures can temporarily help cure the illness and ameliorate one's suffering. *Dukkha* may temporarily relieve but as long as humans still attach to atman or *rūpa*, they cannot escape from this truth of suffering. Buddhism taught us to become selfless or understand *arūpa* – selflessness. Not only there is no self, everything else is also empty. As a consequence, giving identity to physical objects such as divine beings in a forest or spirit in a tree is assigning 'self' and increasing 'attachment' which ultimately bring us to the undeniable suffering.

Nibbanic Buddhism is believed to be the original, taught beginning in the Buddha period. However, over two thousand years and with many historical, social, economic, political, and cultural influences, Buddhism has been shaped and transformed to fit into each region. Buddhist communities lost their beliefs that anyone could follow the same path as the Buddha and reach nirvana, thus people reached out for other beliefs. In Thailand, *phii*, or spirit, was how Buddhism accommodated and coexisted with local and indigenous belief systems (Gethin, 1998: 128). People were afraid of *phiis* but also sought mental support from them. There were good and bad spirits in many things. Buddhist monks incorporated this spiritual culture and created traditions combining them with the Buddhist canon.

In Thailand many trees on temple grounds, because they are situated on holy ground, are considered sacred and are protected from being cut down. Some big trees have become associated with the places where they are planted, and some have been there since their early establishment or even before the temple existed. Many large trees in Bangkok are found on the grounds of Buddhist temples because they are unlikely to be disturbed there (Thaiutsa et al., 2008). Throughout history temples served as community centers, schools, health care centers, and cultural venues for traditional and religious ceremonies. Today, temple gardens provide

cultural and ecological services that support the well-being of Bangkok's citizens of all classes. In part, this is due to the wide variety of ages and species of trees grown in temple landscapes that ecologically enhance urban biodiversity, which in turn supports human well-being. However, rapidly changing land use due to urban development and the inconsistency in temple urban forest management have impacted the character of these landscapes and have negatively affected the quality and quantity of urban forests in these Buddhist temples.

The Bangkok city government organized a Bangkok Big Tree Competition in 1999 and again in 2009. Big and significant urban trees in and around the city were nominated, and a list of these trees was published. In 1999, the first two awards went to heritage trees in temples. In 2009, 15 of the 100 awarded trees were on temple grounds (Lassus et al., 2011). Presumably these awarded trees would receive better maintenance and special treatment. I assumed that their formal recognition would serve as an efficient mechanism for heritage tree preservation. On the contrary, after my preliminary observation during Winter 2013, I discovered that some of these big trees in the temples had been cut down and many were not in good condition, possibly due to lack of awareness and improper maintenance by caretakers. Resident monks have the authority to manage land use in the temples and it was often found that they wanted to provide more open spaces for people who come for religious and cultural events. Part of the reason why culturally valuable trees on temple grounds are being lost to multi-purpose plazas and parking spaces is the failure of transferring knowledge and values from the older generation to the younger generation of monks. My question is, "What should a temple landscape be like?"

3.7 How the Trees Became Sacred? How Buddhism Defined "Tree"?

Cultural and religious values can contribute to ecological preservation. In Japan, religious traditions of preserving vegetation in Shinto and Buddhist places of worship help preserve forests (Ishii et al., 2010: 308). Shrine and temple forests are objects of nature worship, providing aesthetic values, and serving as a place for religious practices (Ibid., 309). Several tree species convey religious and spiritual meanings. Some of the spiritual trees have names that convey the meaning - Oogatama noki tree (*Michelia compressa*) means "inviting soul", pine trees (*Pinus thunbergii* and *Pinus densiflora*) mean "waiting for a god's soul to descend from heaven," and Kudamastu means "the pine tree to which the god descended" to name a few (Omura, 2004: 180). Some special trees in temples or shrines are used to summon the god and identify sacred areas. Although people today have forgotten the religious significance and cultural meanings the trees convey, Shinto shrines have managed and preserved these trees and their sacred forests for centuries (Ibid., 182). The forest helps protect the sacred atmosphere of the shrines and temples. To preserve the cultural and religious values of these sacred trees is a way in which humans can preserve the natural environment. Temples and shrines are places of urban green space and have potential to be centers for ecological preservation (Ishii et al., 2010: 307).

Unlike Shinto, the ancient religion from Japan, where forests have an assigned function as objects of nature worship, Buddhism in Southeast Asia does not have any scriptures that obviously state the sacredness of trees. Trees do not have semiotic status in Southeast Asian Buddhism. As a matter of fact, there are no physical objects that have values in Theravāda

Buddhism because in the Pali canon, the physical objects, or *Rupā*, do not exist in the *samsāra*. However, the predominant local culture that believes in spirits in nature encouraged Buddhist monks to emphasize the details in the story of the Buddha's life and recreate sacred objects, including trees, through religious rituals to be used as a representative and symbols of religion. Yellow robes, the only outfits for Buddhist monks, are commonly used to create sacredness so people can use liturgical objects as homage, talismans to help protect them and remind them of Buddhist teachings. Trees with these values can be cut down because people want to use the wood to build religious buildings or craft images of Buddha. Chan (*Diospyros decandra*) is one species that is commonly used in many royal and religious rituals in Thailand because of its aromatic wood. With the high demand and its increasing value, many chan trees were cut down. The King Narai of Ayutthaya had to prohibit the cutting and selling wood from chan trees without a royal permission to preserve the species and kept them privileged (Phlāinōi, 1970: 162).



Figure 3.5: A spirited tree with liturgical objects and colorful fabrics.

At odds with this view, Blum (2009) argued that the ultimate goal of Buddhism is to reach nirvana – escape from the *samsāra*, which means one needs to be detached and become selfless. Attachment to physical bodies whether human bodies, trees, houses, or belongings, would be an obstacle for Buddhists to achieve this goal. He also argued that if the only sacredness in a tree is a spirit living in it, when the spirit moves to another tree, the original tree would lose its sacredness (Blum, 2009: 215). I found a similar belief in one of my interviews of the old monks in Bangkok in 2015. The abbot wanted to cut a Bodhi tree that grew right on the walkway and caused traffic problems. Some laities put traditional women's clothes, food, and flowers on the tree, which took more space and blocked the walkway. More people came to worship the tree, which caused negative impacts on temple visitors who came for meditation.

The abbot asked temple staff to cut the tree, but they were all afraid to do so because it seemed to have a strong spirit residing in it – that why many people came with food, flowers, and sacrificial offering. The abbot told the staff that a male *Rukkha-thewada* (tree angel) had already left the tree because of the female costumes that were put on it. For this reason, because the sacredness was gone, the tree was eventually cut down.

3.8 Roles of Sangha in Environmental Preservation and Temple Tree Care

When the Thai monks in Northern Thailand ordained trees to prevent deforestation, when Korean nun Jiyul Sunim protested against a railway tunnel project to preserve the sacred mountain, or when American Buddhist monks addressed their concerns and responsibilities for toxic waste, water usage, and deforestation (Darlington, 2012: 7), they gave identities, significance, and a sense of belonging to these physical natural environments. The more values given to these physical elements, the more attached one becomes. Environmental preservation may not be addressed in the traditional canonical doctrines. However, after over 2,500 years since the Buddha was born, human population has grown so quickly with rapid social, economic, and political changes that there have been critical impacts on the environment. Engaged Buddhists became important parts of environmental preservation because monks tend to have more influence on Thai societies than laypeople.



Figure 3.6: Ordaining of a tree.

Source: postfromthepath.com

A group of Buddhist monks in Northeastern Thailand helped a community protect their local forest by ordaining the trees. This ritual of ordination was believed to make the trees sacred and was the mechanism the environmental monks used to conserve the trees. ‘Environmental monks’, or *Phra nak anurak* in Thai, are Buddhist monks who are parts of local environmental preservation projects, and who use the idea of Buddhism to tackle environmental issues (Darlington, 2009: 183). They reinterpreted Buddhist theory and used *engaged Buddhism* in their preservation strategies. Not only Thai Buddhist monks engaged in these environmental activities, many East Asian Buddhist monks including Chinese, Korean, and

Japanese, as well as others from Southeast Asia such as Vietnam, and Buddhist monks from the United States also actively engage in environmental and social responsibilities. The International Network of Engaged Buddhists (INBE) is a nonprofit organization that created a network of Buddhist monks all over the world and also supported environmental activities of the Thai Buddhist monks (Ibid., 184). The Thai environmental monks have been using engaged Buddhism techniques for environmental preservation since the late 1970s by ordaining trees, a ritual that emphasizes the connection between humans and nature, where the trees are treated as if they are men becoming Buddhist monks.

Buddhist monks are sometimes called “*banphachit*,” which is derived from a Pali word – *pabbajati* means “to leave home and wander about as mendicant or to give up the world” (Ishii, 1968: 864). Theravāda structure consists of two parts – monks and lay followers. Buddhist monks can live with the support from these laypeople. In Theravāda Buddhist countries, early every morning we can expect to see a line of yellow-robed monks walking on streets to collect alms from lay supporters. Offering food to monks is one way to ‘make merit’. Monks may not work and earn money because they are removed from society. They are economically dependent and can only exist with supports from laities (Ibid.). Gethin (1998) explained that “As a ‘field of merit’ the Sangha is under some obligation simply to make itself available to the laity” (Gethin, 1998: 103). Hence collecting food from lay supporters every day is one of the requirements in *Vinaya*. He also mentioned that “A monk is only a fertile and productive field or merit as long as he lives according to the *Vinaya*, behaving as a monk should” (Ibid., 102).

With these obligations and conditions, monks must refrain from collecting belongings and encourage people to ‘make merit,’ which can be done in three traditional ways; generosity (*dāna*), ethical conduct (*śīla*), and meditation (*bhāvanā*) (Ibid.). They must focus on medication practice, teaching people ethical conduct, and showing laities the way to reach nirvana. With their other duties, providing care to the temple gardens and trees seems irrelevant to the Sangha’s duty and could be violating the monastic rules (Mahamakut University, 2011: 164). The boundary between formal theoretical interpretation of Buddhist doctrine and informal culture as a human being before becoming ordained as monks causes a constraint on the relationship between the Sangha and temple trees. Moreover, it became a paradoxical issue as the surroundings of temples became more urban and more urban tree care is required on temple grounds. Most of the monks I interviewed stated that Buddhist monks may not cut trees or do gardening. However, when they reinterpret the *Vinaya*, some monks unencumbered themselves from the rules of the Sangha. In one interview, the monk mentioned that keeping the temple clean and the garden maintained is the way to invite people to the temples. Therefore, he considered providing proper care of temple trees to be one of the Sangha’s responsibilities because it enables people to make merit, which is agreeable with the *Vinaya*.

3.9 New Interpretation of the Values of Nature and Roles of Buddhist Temples

Through treating nature as human, they changed the rules that applied to both, particularly reframing the ways in which people tended to assume nature was there to serve them. The use of ordination ceremonies in particular shifted the hierarchical relations between humans and nature.

The Ordination of a Tree Darlington, 2012: 58

Today, the act of tree ordination has been revived for different purposes. A new reason for ordaining trees was started by a group of 'Environmental monks' (Darlington, 2012). The Buddhist monks worked closely with local villagers who were trying to preserve trees in their community forests and their sacred sites in rural areas of Thailand. The monks conducted ordination ceremonies for many big trees in the forest. This symbolic action made people perceive these trees differently. Instead of ordinary trees, they became representatives of Buddhist monks. After the religious rituals, these trees conveyed more value and are protected from being cut down. Those who help and are involved in the process of the rituals, not only change the perception of people toward the ordained trees, but also are considered to be doing good things. The Environmental monks assigned religious values to these environmental preservation activities and made them become a new way to receive merit in Buddhism (Ibid., 59).

In Thailand, trees in temples have been preserved because Buddhists believe that humans do not own nature. It is still believed by many that we must share nature and natural resources with all other living things. According to traditional beliefs, there are certain tree species that can only be grown on temple grounds because of the large area required for their full growth. But today, despite traditional Buddhist beliefs about nature, many temple grounds have become developed and many trees have been cut down because monasteries in cities wanted to clear the space to build activity plazas and provide parking spaces for visitors who come for religious events.

Environmentalist monks conduct rituals that reflect relationships between Buddhism and nature (Darlington, 2009: 185). Buddhist monks in Thailand are involved in several types of environmental preservation. Thai people make merit (Thai, *bun*, from Pāli, *puñña*) such as offering food to monks, cleaning temples, practicing meditation, and engaging in rituals, because they believe these merits will bring them to a better place in the next life (Keyes, 1989: 123). Environmental monks reinterpreted and introduced some environmental preservation activities such as ordaining trees, protecting natural resources and the environment as a way to make merit. (Darlington, 2012: 59).

Trees grow in historic areas of Ayutthaya, the old capital of Thailand and a UNESCO World heritage site. Trees are grown on a historic site, and are considered part of the historic ruins, and have become part of the history. In figure 3.7, at Mahathat temple, the head of a Buddha statue is embraced by a bodhi tree that has outgrown the temple. The tree destroyed the old structure and has integrated the Buddha statue's head into its own arboreal body, giving significant cultural and historical value to the tree itself as well as the statue and the site where it lives. Colorful fabric scarves are tied around this relic and sacred objects are placed nearby to pay respect to the tree with the Buddha statue's head. In this example, the socio-cultural values of the Bodhi tree have increased and are entwined with elements of a religious symbolism. This big tree has gained even greater spiritual and socio-cultural value as it is

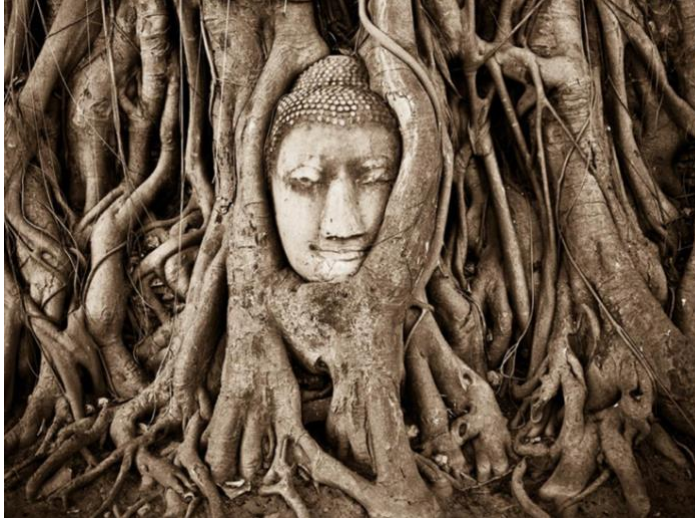


Figure 3.7: The head of a Buddha statue is embraced by a bodhi tree that has outgrown the temple.

Source: National Geographic

adorned with colored scarves, holy relics, spirit houses, flower garlands, and other elements that are symbolic of the spiritual cultural beliefs of the people who still believe in the spirits of nature. Thus, it can be inferred that the more people worship and place value on a tree, the greater the chance of survival of that tree (Kuchelmeister 1998).

Even though temples are significant institutions in Thai society and are not at risk of being relocated to the urban fringe, the influence of urban development has still impacted the land use of temple landscapes. Moreover, people have changed their primary mode of transportation from canal to road since the period of the King Rama V, during the 1910s. The number of cars in the city has been increasing which has led to the need for more parking spaces everywhere, including on temple grounds. In response, many temples have clear-cut part of their urban forest landscapes to allow for more space for visitor parking.

Another finding from my preliminary observations is that there are social inequities in accessing urban green spaces. Although there are large numbers of big trees in the city, not all of them are accessible. Marginalized groups in Bangkok have limited opportunities and places to access urban forests, and many of the big trees which are part of Bangkok's urban forest, are located on private property. Since they are accessible to the public, urban forests within temple landscapes can provide public green spaces for people in the city. Given the social, cultural, and ecological benefits of urban forests, and the risk to their existence in a developing society, methods for urban forest preservation, especially in Bangkok's temple gardens are urgently needed.

3.10 Conclusion

Cultural services provide aesthetic, spiritual, educational, and recreational values that serve as constituents of well-being (MA, 2005). Of the influential social factors that impact the ecosystem, cultural and religious determinants are some of the most critical indirect drivers of ecosystem change (Ibid.). Religious beliefs and cultural factors influence consumption behavior and values related to environmental sustainability. Understanding how laypeople and Buddhist monks value urban forests in temple gardens will lead toward better environmental stewardship of urban forests on Buddhist temple grounds. Moreover, comprehensive

knowledge of the ecosystem services that include all aspects of values through the study of cultural services of urban trees in temple gardens will be the way that makes people understand the relationship between humans and urban environment and the significance of cultural values of the natural environment in the cities.

Another significant reason that the cultural services of urban forests need to be examined is the rapidly changing land use patterns of urban areas in many cities in the world. Today, market values define the value of land from the income they can generate (Miller, 1997). Land-use planning is most often based on economic determinants or market values. However, people change their values over time. The highest valued land has changed from productive farmland to land that can generate the highest income. Urban land has higher value than farmland. Similar to forestland, temples might have the lowest value ascribed to them, since they do not provide direct functions that people can identify and they do not provide as many economic benefits as other land uses. Many studies have been done quantifying the ecological and social values of urban forests. However, these values are still not common knowledge among the public.

Very little research has been done so far on Buddhist roles in environmental issues, and their interpretation of *Vinaya* because Buddhism is a long-standing major institution that supports Thai traditional values. Politicians used Buddhist Order as a means of national integration and made Buddhism the core value of Thai culture. However, this assigned value interpretation and monastic rules prevent Buddhist monks from providing proper care for heritage trees in temple gardens. To explore Buddhist monks' perception of the cultural and religious values of temple trees and their roles on preserving urban heritage trees in temple gardens can lead to sustainable management for these urban forests. The status quo of how Sangha interpret the *Vinaya* prevent them from providing proper care for temple trees. Whether it is possible for the Sangha to reinterpret the *Vinaya* to make it more suitable for today's times and context? What factors influence their decisions, and why have monks allowed these trees to be grown on temple grounds? Why are some types of tree allowed on temple grounds that are not allowed in other landscapes? Do older trees have more cultural values attached to them than younger trees? How do people perceive trees that have had colored scarves tied around them? How have temple landscapes become places with unusual vegetation in the city? How have temple landscapes affected urban forests citywide? And how do different cultures affect landscape? These questions need to be investigated for better understanding of Theravāda Buddhist temples in the Thai cultural context to provide better management for preserving these heritage trees in temple gardens.

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Chapter 4

Anthropological Field Investigation of Theravāda Sangha in the Context of the Urban Buddhism of Bangkok

Abstract

Temple grounds are monumental lands in an urban context where historically and religiously significant trees are preserved within their unchanging monastic precincts. Moreover, monastery rules prohibit Buddhist monks from cutting trees or any living branches. For this reason, trees on temple grounds have been well preserved, and temple gardens would likely contribute forest patches of mature trees in dense urban areas. Because of this assumption, people often overlook the ecological, social, and cultural issues that temple trees are facing. This text ethnographically analyzes the case of old trees in temple gardens in Bangkok, Thailand, which are at risk of ignorance with lacks of suitable care because any changes or development on temple grounds are only under authority of the Sangha, the Buddhist monks' community. The traditional belief that Buddhist monks would abide by the Monastic rules may no longer be suitable within today's social, cultural, and economical context in the city. Because the Sangha cultures are subject to change, more attention needs to be paid to the needs of temple trees because they are valuable cultural and ecological assets that may not survive to the next generation.

Keywords: Bodhi trees, cultural values, religious symbols, temple gardens, Theravāda Buddhism, urban trees

4.1 Introduction

It is hard to imagine that Bangkok, the capital of Thailand with an area of 606 sq.mi and a population of 10 million people and less than five square meters of green area per person, has almost 500 temples within the city limits¹¹ (Environment Department, BMA, 2018). When driving, walking, or commuting by car, train or bus in the city, one rarely sees a temple. Yet if you travel by boat through the existing canal system, the old mode of transportation in the city, many more temples will be revealed.

During the winter of 2013, I conducted preliminary observations and visited the award-winning Big Trees from the Bangkok Big Tree Competition that was organized in 2009¹². I also visited some temple trees that were listed in the 2003 heritage large trees inventory after received the first Bangkok Big Tree Awards in 1999. Surprisingly, I found many of the heritage trees were lacking proper maintenance and were underappreciated. Some trees had new structures built in their immediate proximity which led to heavy pruning. The uses of the nearby structures could also cause severe impacts to the root structures and other parts of these old trees. Worst of all, one of the heritage trees from the 1999 survey, the oldest tree in Bangkok, was already dead and had been removed. There are several reasons for losing trees, especially old trees in urban environment, but an understanding and appreciation of the trees' historical, ecological, social, and cultural values would be significant factors in fostering proper care and long-term maintenance for these trees and prolong their lives as valuable assets for city dwellers.

I conducted ethnographic field work that includes participant observation, in-depth interviews with the Sangha, and informal interviews with temple visitors in attempts to answer the questions: How do the Sangha, the Buddhist monks, perceive the cultural values and religious symbolism of trees on temple grounds? In what ways do senior Buddhist monks communicate the values from their generation to the next generation? How does the younger generation include their belief in the cultural value of the trees into their religion? How does the public perceive these values? In what way do the senior monks include the beliefs of the old Thai traditions and pass on those values to the next generation? How can senior monks communicate the values of the trees to the next generation and also to the lay followers? What are their methods of conveying the beliefs to the younger generations? Senior monks communicate in unusual ways – through rituals, art, lectures, stories, ceremonies, newsletters, dried Bodhi leaves, pictures of trees, etc. If the monks believe there are spirits in trees, how do they communicate that? If the next generation of monks does not believe in the spirits in the trees, what we will lose? How are the young generation monks influenced by modernization and a changing cultural context?

This chapter contains empirical studies of cultural perception of ecological assets. It presents a cultural history of the relationship between Theravāda Buddhism and trees in temple gardens in Bangkok. The sacredness of temple spaces and liturgical accouterments in the Buddhist temples have been influenced by social, political, and economic changes from the beginning of the Rattanakosin period in 1782 until today. Through culturally constructed

¹¹ Temple in Bangkok. cpd.bangkok.go.th:90/web2/strategy/DATA54/MO_BKK55.pdf

¹² BMA and the Big Tree group organized a Bangkok Big Trees Award and have a list of the final 100 big trees in the city. Twelve of those awarded trees are located in the temples in Bangkok.

physical components in Buddhist temples and oral history, I synthesized and analyzed the changes of human geography through the aspects of the Sangha, Buddhist monks who are the stewards of temple landscapes, and examined their assumptions and perceptions of the heritage trees in temple gardens.

4.2 Background

4.2.1 Religious Culture and Biophysical World

Monastic Rules of Theravāda Buddhism and Heritage Large Trees on Temple Grounds

Those who study the Lord Buddha's life may well know that his life was spent in the forest with intermittent stays in towns among people. We say his life was spent in the forest because he was born in the forest, and he obtained enlightenment, preached, observed Lent, and passed away in the forest. And we say he intermittently stayed among townspeople because he had to go and save both those who lived in towns and those who lived in the forests, such as priests, ascetics or people in the communities in the wooded areas. To say, in other words, that the Lord Buddha discovered Dhamma in the forest and he brought it out to help townspeople is not a misstatement. If we look at it this way, a forest is thus a source of peaceful living.

October 21, 2014

W.Vajiramedhi

The Buddha and Buddhist monks in the old times spent a significant amount of their times in nature. They practiced in forests and slept under trees. There were many *Phra Pa* or forest monks in Thailand. The forest monks are wanderers who live with minimum belongings. They collect food from laities during morning alms, practice in forest and sleep under trees. There were diversities of local culture and belief and different interpretations of Buddhist practices (Ishii, 1968: 866). However, with political and cultural changes and the use of Buddhism as a unification of the nations, Buddhism was standardized. Every monk must be registered and stayed in Buddhist temples.

The culture that existed before Buddhism in Thailand believed that all natural element such as mountains, trees, and rivers, had spirits in them. However, even though Buddhist monks must refrain from cutting trees, it does not mean that they believe in spirits or pay respect to these spirits in the trees. While Buddhism in Thailand was a plural affiliation as it amalgamated with the predominant culture, it was paradoxical for Buddhist monks in their practices whether they should treat a tree as if it has a spirit in it. There are the differences between the behaviors of religious actors and normative religious doctrine (Spiro, 1982: 5).

The Theravāda Buddhist doctrine considers trees as *rūpa* which do not have indifferent feeling (*vedanā*), recognition (*samjñā*), volitional forces (*samskāra*), and self-consciousness (*vijñāna*) like other transient beings (Gethin, 1998: 136). Trees are *rūpa* which do not have spirits. People respect a tree because they believe in the holy spirit in the tree. As a consequence, if the holy spirit leaves the tree, the sacredness of the tree would be gone (Blum, 2009: 215). A big Bodhi tree naturally grows on a sidewalk in a temple. It was blocking the way

and started to damage underground structure. One laity started bringing worshipping objects, more laypeople followed, and the tree became famous and overly adorned with colored fabrics and flowers. People believe that there was a holy spirit in the tree whom can help them if they worship the tree with these objects. The abbot was not so happy about it as the temple became chaotic with people who came not to practice meditation or discuss Dhamma with the monks but to worship the supernatural Bodhi tree. So he asked the district office to send someone to cut down the tree. Once the staffs from the district office came and saw the big Bodhi tree with all the liturgical adornments, they were afraid and refused to cut it down. They believed that if anyone cut the holy tree, a tree with spirit residing in it, that person would face a mortal destiny. But when one believer brought a traditional woman's dress and hung it on the tree, the abbot told the district officer that the deity living in the tree was gone since people put a female outfit on the tree. This is another local cultural belief. A gender discrimination in Thai culture is that women were lower and any female objects can contaminate the holiness in the tree or any sacred places¹³. Since there was no spirit living in the tree anymore, the officer had courage to cut the Bodhi tree down. I asked whether cutting down the tree was against the Monastic rule. The abbot replied "What if a Bodhi tree grows on the roof of the Ubosot or a Chedi?" Bodhi trees are holy but they have to be in the right places. Bodhi trees are sacred but only when there is a holy spirit living in them¹⁴.

Buddhists believe in the six forms of *Sattva* that humans can be born and reborn into. This cycle is called *Samsāra*¹⁵; perpetual wandering or an indefinite cycle of birth and death (Gethin, 1998: 27). Trees are not one of *Sattva* so many Buddhist studies do not consider it wrong to cut trees. However, the Theravāda's *Vinaya*, the monastery rules for Buddhist monks in Southeast Asia, prohibit monks from cutting trees. The reason is because trees are places for wildlife habitat. To cut or damage trees can affect life and well-being of other animals living in the trees. For these reasons, the larger and older trees, which tend to have more animals living and depending on them, have to be preserved to avoid encroaching on other life.

If the Buddhist doctrine is to be detached and no-self, the traditional morals, ideas, and beliefs will have no worth of values (Spiro, 1982: 8) but because Buddhism is in perpetual flux as it affiliated with local culture that also has had continual changes over time, the discrepancy between the belief in spirit or *phii* in the large old trees in Thai culture and the no-self (anātman/anattā) and no attachment approach of Theravāda Buddhism became factors that influence the Buddhists' behaviors and how they behave toward the environment and their perception of the values of the large heritage tree. Some of the empirical actions of this plural affiliation are rites and rituals conducted by Buddhist monks. These auspicious rituals had not existed but it was the combination of preexisting culture and the strategies that Buddhist monks used to gain authority in the Thai society as a conductor of sacred ceremonies. In the old time, Buddhist monks used these religious ceremonies to create holy talismans for people who were going to war. These days, different groups of activist Buddhist monks such as the International Network of Engaged Buddhists (INEB) found by Sulak Sivarakka, a strong Buddhist

¹³ Similar beliefs in many temples in Northern Thailand that prohibited women to enter some sacred areas of the temples.

¹⁴ (A-1-1) An interview with a monk with high authority at one of the oldest temples in Bangkok (June, 2015).

¹⁵ *Samsāra* is a cycle of death and birth. Buddhist teaching demonstrate the right path as a way in which humans can transcend the endless round of rebirth and escape the *dukkha* (suffering) in *Samsāra*.

social critic, with the concern of social justice (Darlington, 2012: 7) or Environmental monks or “*Phra nak anurak thammachat*” (Ibid., 10), use religious ceremonies as social symbols to achieve their purposes.

Despite the conflicts between the *Vinaya* and temple gardening practices, there are religious rituals relating trees and forests. Since the Buddha time, Buddhist monks have adapted religious ceremonies and conducted them with an intention to preserve trees and natural resources. These environmental preservation rituals that related with trees and forests included (Sawangying, 2009:92-93);

1. *Buat ton mai*

Buat ton mai or tree ordination is a ritual commonly conducted within Lanna community, the ancient Kingdom in Northern region of Thailand dated back over 700 years ago. The ritual derives from an ordination which mean to refrain from bad karma and originally performed on males who are 20 years old and older. A group of Environmental monks applied this religious ritual on big trees. When a tree ordained it is a way to ask people to refrain from cutting it down. Tree ordination rituals initiated from overconsumption of natural resources and impacts on cultural and moral beliefs. Using saffron colored robe, a color of monks’ cloth, to tie around a tree assigning a symbolic meaning of an ordination onto a natural element.

2. *Tod pha pa ton mai*

Tod pha pa is an off-season offering robes and other needs to Buddhist monks. *Tod pha pa ton mai* is a ceremony that laypeople offer tree saplings to temples instead of monks robes. The saplings collected from people will be planted in the temples or other places for public benefits.

3. Making merit by planting trees

There was a discourse about a ritual of planting trees as making merit in Vanaropa Sutta. As mentioned in Vanaropa Sutta when an angel asked the Buddha “*Who would receive the result from their merit making days and nights? Who would be in Dhamma and hold all the precepts and can go to heaven?*” The Buddha replied that “*Merits would flourish days and nights with laities who plant trees – orchards of fruits and flowers that provide shade, build bridges, wells, and pavilion for people. These laities who maintain their Dhamma and precepts will certainly go to heaven*”. People who plant trees create shades and relaxing spaces for public are considered making merit.

4. *Sa dor Kroh*

Sa dor Kroh is a ritual to exorcise bad luck or bad karma. There are different methods of exorcise in Buddhism. Planting trees is a new way to exorcise and ward off bad karma. After facing unfortunate events in life, laities often turn to temples as they believe that performing a religious ritual can help dispel bad luck and bring prosperity to their life. Monks convince laities to plant trees as a way of doing good karma.

5. *Suep chata* or a long-life ceremony (Darlington, 2012)

Suep chata pa is a long-life ceremony for forest. It derives from a life-long ceremony for a village or a person. A life-long ceremony conducted with a purpose to preserve natural resources and build people awareness on the environmental issues.

Although there is a discourse in sutta, the story part of Pali canon, on how Buddhist monks combined tree preservation with religious rituals and how monks considered planting trees are an action of making merit, the ordination of a tree, similar to other rituals, is one of the examples which were just invented recently in less than 3 decades ago (Ibid., 27). Pertaining

heritage trees in urban temple gardens, many of them were worshipped and adorned with colored scarves, flowers, incenses, and many different liturgical objects. This is a living system of urban Buddhism in Thailand which is different from the canonical doctrines of Theravāda Buddhism. The historical and cultural context that influences and shapes the religious beliefs in the Sangha is represented in the behaviors of the Buddhist monks toward the temple trees.

Theravāda Buddhism, the South Buddhist or the Buddhist sect in Sri Lanka and Southeast Asia, is known to be more traditional and strict in its doctrines compared with other sects. Theravāda tradition is followed by 100 million people, or only 10 percent of the one Billion Buddhists worldwide, in Sri Lanka, Burma, Thailand, Laos, and Cambodia (Gethin, 1998). Unlike Mahāyāna Buddhism, Theravāda Buddhist monks are more conservative and have more meticulous Vinaya or 'discipline' than those in Mahāyāna. While some Mahāyāna monks in remote areas can practice farming, Theravāda Buddhist monks are prohibited from cutting living greens, digging soil, or picking fruits or leaves from any living trees as dictated by the monastic rules. Theravāda Buddhism in Thailand is also believed to be more conservative and to retain most of the original Vinaya. However, the socio-economic and political changes in Buddhist society in Thailand put more constraint into the Sangha. The loss of labor from the abolition of the corvée system in 1905¹⁶ and a decrease of government funding for temples forced the Buddhist monks to search for alternative economic revenue and monks needed to do more work in the temples including taking care of trees in the gardens.

4.2.2 Monastic Precincts and Temple Trees

Buddhist temples or *Wat* consist of three sections in their entire monastic complex; *Phutthawat*, *Sangkhawat*, and *Thoranisong* (Tantinipankul, 2007: 24). *Phutthawat* is a sacred precinct or public section in the temple where temple visitors can access the temple ground to conduct religious ceremonies. *Phutthawat* section usually consists of *Ubosot* (an ordination hall), *Chedi* (pagoda) and *Viharn* (an assembly hall). Sometimes, there are minor structures and other components such as a Bodhi tree, learning hall, Tipitaka library, bell tower (Ibid.). *Sangkhawat* is a monastery compound. It is a private section which usually located in the back of the temples. Due to the change of major transportation in the city; from river to roads, *Sangkhawat* section in many temples turned into the front side with an entrance from a newly built road. This change of urban surroundings affects the land uses, public perception and relationship with the Sangha. *Thoranisong* is monastic donated land. It can be adjacent to the temples or located at different locations, sometimes in another province outside Bangkok. *Thoranisong* adjacent to temples may use for generating revenue or other functions.

Besides the Bodhi tree in *Phutthawat*, there are usually groups of large trees in *Sangkhawat* that serve as visual buffers and provide shades for the private section of the temples. Spaces with heritage large trees in temple gardens have historically been used for several purposes. Sometimes the use of the space is functional, and sometimes the use of the space is a way to communicate the values of the trees.

¹⁶ King Rama V spent 28 years from 1877-1905 in the process of the abolition of the corvée system with different political policies and regulations to avoid the critical conflicts that might have happened.

4.2.3 The Courtesy of Attending the Sangha

The Buddhist community consists of Buddhist monks, nuns, male (upāsaka) and female (upāsikā) disciples (householders, lay supporters, or committed followers) (Gethin, 1998: 108). I am considered myself an upāsika because I occasionally attend religious ceremonies and have commitment and involvement with Buddhist practice. Most Thai are born as Buddhist but not many of them practice as a Buddhist. Although it was mentioned in the Monastic rules that Sangha must make themselves available to the laities, to provide a gift of Dhamma to the society by conducting an auspicious ritual, chanting, or providing a blessing of protection for laities (Ibid., 103), to request the time from the Buddhist monks for an in-depth interview was not always agreeable. I found that Buddhist monks were afraid of sullyng their reputation by granting interviews to a female. One old monk said that the “*Two most dangerous things for monks are women and money!*”¹⁷. To show respect to the Sangha, female laities must visit monks in public spaces and always have a chaperone. The women should also cover themselves and dress appropriately. People usually wear clothing that is white or a light color, which is not too tight, not too short, and covers their shoulders and legs. Some temples adhere strictly to the *Vinaya* and do not allow laypeople into the monastic sections. Females must not be present or have a long conversation with a Buddhist monk alone even in public, and at least one male chaperone must be present. To avoid any risk of tarnishing their reputations, I conducted the interviews in public spaces and always had at least one other person accompanying me.

4.2.4 Ethnographic Study and Seniority in the Sangha

Punsa is the numbers of years monk have been ordained. People usually expect older monks to have longer *punsa* than younger monks. However, an old monk may have much less *punsa* than a young one. Therefore, they have less experience in the monkhood, less seniority which means they have to sit in the later positions in the line during the ceremony and walk behind during morning alms. Moreover, the monks with less *punsa* tend to know much less about the temples and heritage trees on temple gardens.

The years of experience in the Sangha are used to classify groups of monks. Prior to when a man reaches his 20th year birthday, he can only be a novice monk. Once he turns twenty, he can ordain as a monk. The first five years in the Sangha, a monk would be called *Phra Nawaka* which means a new monk. A monk who has been ordained for 5-10 years is *Phra Matchima*. *Matchima* means middle or moderate. A monk with longer experience, from 10 years to 20 years, is *Phra Thēra* which means a high position. *Phra Thera* is considered a senior monk. Then after 20 years of time in Sangha, a monk will become *Phra Maha Thēra*.

The *punsa* or years of experience does not correspond with ages of monks. I found some very old monks with very short experience in sangha. If a person ordained and quit the monkhood, when he returns, his years in sangha will start all over again.

There are a few occasions that more than one monk is present at the same time. I usually can only get responses from one monk who has more seniority in the Sangha. When two monks with similar ages and experience came for an interview at the same time, they

¹⁷ (A-1-3) An interview with a monk with long experience in the monkhood. He is 79 years old, been in the Sangha for 59 *punsa*. June 11, 2015.

mostly agree with each other. Another time, an old monk who was also sitting nearby interrupted during the middle of the interview with a young monk. Once monks with low seniority got interrupted or corrected, they became hesitant to respond as if they were afraid they might make more mistakes. I was able to get only parts of the answers. I have been trying to avoid this kind of situation but most of the time, *Phra Nawaka* or new monks required a mentor to be with him. Because of a strong seniority in the Sangha, younger monks or monks with less experiences would not speak much and did not reply anything different from what the old monks previously answered. Even though, I tried to emphasize on asking the younger monk and focus on his answer, interruption from the senior monk still happened casually.

4.3 Research Questions

Using participant observation, informal interviews with temple visitors, and in-depth interviews with Buddhist monks, I proposed to answer the following questions:

1. In what way do the cultural values of urban big trees in the temple gardens contribute to the ecological values of the urban forest in the temple gardens?
2. Do monks with longer experience and those with shorter experience in the Sangha have different attitudes toward religious values of trees in temple gardens? If so, how does the length of experience of the Buddhist monks affect their perceptions and interpretations of the cultural value of the temple trees?
3. What are the causes of gaining and losing of tree canopy in the temple gardens? How do the monks think about the increase or loss of trees on temple grounds?

Using comprehensive information from a series of in-depth interviews with the sangha and participant observation, I address the historical and cultural significances of trees in the Sangha. Based on an empirical study, I discuss the Buddhist monks' aspects toward trees in the temples, compare the Buddhist doctrines, rituals, and their actual experiences to answer the question how the Buddhist monks perceived the cultural values and religious symbolic of trees on temple grounds.

4.4 Study Sites

4.4.1 Study Area

Bangkok, the capital city of Thailand, is located on the central floodplain of the Chao Phraya River, latitude 13 45' 14" N and longitude 100 30' 05" E and has an average elevation of 5 feet above sea level. Bangkok has a seasonal monsoon climate. The area administrated by the Bangkok Metropolitan Administration (BMA) is 1,569 km² (606 sq. miles). The Bangkok administration area consists of 50 districts. According to the Environment Department, BMA, Bangkok's green space ratio is only 4.09 m² per person which is lower than the World Health Organization (WHO) minimum standard of green space of 9 m² per person (Thanapat, 2012). There are 5 districts in the city that have higher green space ratio than the WHO minimum standard. However, there are 8 districts that have less than 2 m² of the green space per person (BMA GIS center, 2013). Moreover, some of these green spaces are not properly maintained, are not designed for public use, and some are inaccessible.

Demographic data has recorded the population of Bangkok at 10.156 million (CIA, 2018). Buddhism is the official religion which includes 93.6 percent of the total population of 64,741,401 people in the country. There are 452 Buddhist temples in the 50 districts of Bangkok. The largest number of temples is in Bangkok Noi district which has 32 temples. The smallest number of temples is in Phayathai, Luksi, and Saphan Soong Districts, which has only one temple in each district (Bhumisuthikul et al., 2012). There are different methods to classify Buddhist temples in Bangkok. In the report *Religious Places in Bangkok: Buddhist Temples* (2012), temples are classified into two sets: royal temples and private temples. Sects and locations are other widely used classifications of Buddhist temples in Thailand.

4.4.2 Royal Temples and Private Temples

Royal temples are temples that the king or the royal family privately builds, restores, and then confers to the people who have lower hierarchy. Some royal temples are built or restored by the members of the royal family or laypeople and presented to the king. There are three hierarchies in royal temples; first class, second class, and third class. There are also different levels in each class of the royal temples. There are 95 royal temples in Bangkok (Chitradon, 2013), some of them open to public. Some of the royal temples that are used as royal cemeteries not allowed to be used by the public.

Private temples are temples built by the public or laypeople. This process requires permission from the National Office of Buddhism. The first requirement is that the size of the property has to be minimum of contiguous 6 rais (9,600 m² or 2.73 acres) without any streets, canals, or public right of ways passing through. There must be no other existing temples within a 2 km (1.24 miles) radius. For a forest temple, Wat Pa or *Aranyavasi*, the property must have some existing shady forest area and locate far from community but not farther than 1 km because the monks must practice morning alms as a part of the Vinaya (Phuttha.com, 2009). There are 359 private temples in Bangkok. Only a few of them are forest temples. Despite its genre as 'private', all private temples are open to public.

Buddhist temples in Bangkok, based on their year of establishment, were classified into four groups according to the time periods. I used the method of stratified random sampling to select 15 temples of different age groups. These 15 selected temples were evaluated based on their size and percentage of canopy coverage. I then visited each temple to conduct qualitative interviews with the Buddhist monks who have responsibility for the maintenance and management of the temple gardens.

This study involved a sample from selected Buddhist temples classified by age¹⁸, class¹⁹, and sect²⁰. Social recognition of heritage trees on temple sites, as recognized by the Bangkok Big Trees Awards in 1999 and 2009, were also taken into consideration. Study sites were chosen to create a diversity across the study and to be representatives of diversity of Buddhist temples in Bangkok. In each selected temple, I proposed to conduct a set of in-depth interviews with each of four people: the abbot; the monk who was the landscape manager; a monk with short

¹⁸ Years of establishment of temples (National Office of Buddhism, 2016).

¹⁹ Royal or private temples. Royal temples are built by the Royal family or built by laypeople as a gift for the Royal family. There are also several subclasses of Royal temples. Private temples are temples for laypeople.

²⁰ Dhammayuthika and Mahanikaya are the two major Buddhist sects in Thailand.

experience in the monkhood; and a monk who has spent a long period of time in the Sangha²¹. I categorized the interviewees by the time they spent in the Sangha, not by their ages. Normally, older monks have spent longer in the Sangha and younger monks have less experience in the Sangha. However, there were some cases that were the opposite was true.

Period		Year	Area (acres)	Class		Sect		Bodhi trees from the Kings	Big Tree awards	
				Royal	Private	Dhammayut	Mahanikaya		1999	2009
Prior 1782	A-1	1277	13.7					Rama II	14	
	A-2	1688	19.8							
	A-3	1762	3.8							
1782-1905	B-1	1782	9.1						1 Chan, 2 Krang	
	B-2	1782	3.2							1 Banyan
	B-3	1783								
	B-4	1807	10.1							
	B-5	1853	12.3						6	
	B-6	1857	7.1							
1906-1960	C-1	1941	33.0							2 Bodhi
	C-2	1948	2.2							
	C-3	1954	18.5							
After 1960	D-1	1963	6.3							
	D-2	1987	3.3						1 Kang	
	D-3	1997	3.4							Bodhi

Table 4.1: Selected temples and variables.

From 452 Buddhist temples in Bangkok, I selected 15 temples as the sample for this empirical anthropological study. The oldest temple dated back to 1277²², which is long before Bangkok became the capital city of Thailand. The newest temple in the study was built in 1997. I conducted 45 interviews in the 15 selected temples with Buddhist monks aged 20 years old to over 85 years of age, from monks with 65 *punsa*²³, years of experience in the monkhood, to

²¹ I learned later from an interview with a young monk at Wat Pathumwanaram that a monk with shorter than 5 years in the Sangha is called *Phra Nawaka*. Those with 5-10 years of experience are called *Phra Matchima*. Monks with experience longer than 10 years, but fewer than 20 years are *Phra Thera*, and monks who ordained more than 20 years are called *Phra Maha Thera*. In the study, I classified the monks with less than 10 years in Sangha as a monk with short experience in the monkhood and the monks who have ordained more than 10 years are in the group of monks who spend a long period of time in the Sangha.

²² Buddhist temples inventory: Temples in Bangkok. (National Office of Buddhism). http://www3.onab.go.th/wp-content/uploads/2018/09/ktm_092561.pdf

²³ '*Punsa*' or rainy season is the way to count how many years a monk ordained in the Sangha (PhraThamkittiwong, 2018: 625). An older monk does not always have longer experience in the Sangha or has more *punsa* than a young monk. *Punsa* is also used to organize hierarchy in the sangha as monks with more *punsa* will sit at the front of the

those with less than two months of experience in the monkhood. By analyzing the interview responses and the content analysis, I examined how monks with different ranges of time spent in the Sangha recognize and view the cultural values of big trees in temple gardens differently. I also investigated how Buddhist monks interpreted Buddhist doctrine within the local culture, and how the Buddhist monks mediated the discrepancy between the attitude toward the natural environment in Thai culture, the Buddhist canon, and modern environmental issues. The study results demonstrated the ways in which social and cultural significance impacts the existing landscape and the level of well-being of these surviving trees in the city. There have been several changes throughout history that impact both physical spaces and other dimensions of the Sangha including the attitudes of the monks toward their environment. I do not provide complete historical events, but instead include relevant significant historical events to provide substantial context for my research. The reasons, factors, and processes of establishing a temple have changed over time, but the Monastic rules, or *Vinaya*, have been preserved for over 2,500 years ago since the time after the Buddha reached nirvana.

4.5 Subject Population

In order to select study sites, I have classified the temples by using age classification. Significant historical events influencing social, economic, and political changes, which also affected the physical environment and land uses of the temples, are used as benchmarks to separate historical time periods. Temples are classified into each period. Temples with no public access (some of the Royal temples), with very small areas, and with no big trees, are excluded from the study.

Fifteen temples have been selected. Four Buddhist monks are recruited from each selected temple for the interviews.

1. The abbot or the representative that was assigned by the abbot
2. The monk who is responsible for the maintenance and management of temple gardens
3. A monk with longer experience in the monkhood
4. A monk with least experience in the monkhood

Health, age, gender, race, and ethnicity were not used as criteria for selecting the participant subjects. Interviewees were selected by their public status (1, 2) and as recommended by the abbot (3, 4). According to this, the total of maximum of 60 Buddhist monks from 15 temples were the subjects for the interviews. All the interviewees were 18 years old or older.

4.5.1 Human Subjects

In-depth qualitative interview helps explain how and why culture is created. Qualitative interview is a process of listening to people describing how they understand and make sense of the world they live in. Buddhist monks in Buddhist temples in Bangkok were the subjects of this study. I interviewed Buddhist monks from the of age 20, the youngest age a person can be

row and monks with less punsa will sit behind. The monks with more years of ordination will walk in the front during the morning alms, sit in the front during the morning and evening prayer, and receive their meals before the monks with shorter experience in the monkhood.

ordained as a monk, to some that were over 80 years old. To ensure that the interviews were socially appropriate and respectful of the Vinaya, I only spoke to the monks in public spaces during the day. The subjects' identities were not disclosed. I was the student investigator and was the person who conducted all observation and interviews throughout the process. The interviews took place in the 15 selected temples in Bangkok during the daytime when the monks were not occupied with their daily practices and routines.

The questions for the monks were as follows:

- How long have you been practicing in the monkhood?
- Are there any particularly large and old trees on these temple grounds? How many are there? Are they treated differently?
- Are there any specific species of trees on temple grounds that have more symbolic meaning than other species? Do different tree species have different religious values?
- Do you think that the same tree species carries the same meaning if the trees are not in temple gardens? If so, do you treat them differently? Are there any special practices with the trees?
- Are there any trees on these temple grounds that have colored scarves, flowers, incense sticks, or offerings? How many of these trees are there? Who performs these actions, and when did they begin?
- As part of Buddhist practice, how have trees on temple grounds affected the duty of Buddhist monks?
- What do you usually do in areas with big trees?
- Does the presence of a large tree in the temple garden increase the holiness of the garden? Why or why not?

For the monks who were landscape managers, there were additional questions about particular trees in temples:

- How old is the tree?
- Who planted the tree?
- Who takes care of the tree? Who is responsible for the maintenance of the big tree (Monks at the temple or private contractors, e.g., professional arborists)?
- What is the relationship between the tree and the temple?
- Do you think there is value in the tree? Are there economic, ecological, socio-cultural, religious meanings or symbolism?
- Do the relics such as colored scarves, shrines, and other talismans, etc. make the tree more holy?
- Are the trees that received the Bangkok Hundred Big Trees Award from the Bangkok Municipal Administration (BMA) in 1999/2009 treated differently?
- Does the presence of a large tree in the temple garden increase the holiness of the garden? Why or why not?
- How does the holiness (or religious significance) of a large tree affect the maintenance of the temple garden?

There were four Buddhist monks to interview in each temple; the senior monk with high authority- 25 minutes, the monk who is responsible for the temple garden- 45 minutes, the monk with longer experience- 25 minutes, and the monk with shorter experiences in the

Sangha- 25 minutes. With 15 temples, I proposed to conduct a total of sixty interviews. However, with several unexpected circumstances and the political movement in the Sangha, I finally conducted the total of 50 interviews. There were between three to five interviews in each temple.

The publicly available existing data that was used for this research are the lists of temples in the city with the years founded, locations, types, and classes that have been collected by Bangkok Metropolitan Administration (BMA) and the National Office of Buddhism (ONAB). I also looked at historical documents from the National Archives of Thailand that showed the relationships between trees and temples, as well as data on the changes of social, political, and economic systems that impacted temple land uses. Furthermore, I used the data from the Bangkok Big Tree Competition organized by BMA in 1999 and 2009 to see the lists of awarded trees that were located in temples in Bangkok. This data is publicly available either as hardcopy documents or online.

Audio recording was used for transcription purposes only. Photographs were taken of the physical elements including trees, architecture, sidewalks, pavement, and other built environment within the temple gardens to help explain the physical conditions of the place. Prior to each interview, a consent form was provided with a verbal explanation.

4.5.2 Risks and Discomforts

Risks were deemed minimal during the process. The physical, psychological, or economic stresses from the research were minimal. The interviews took place in the temples where the monks lived; the subjects did not need to travel from their places which protected them from wasting their time and money. The risks that could occur during the procedure could be social stress as one of the rules of Buddhist monks is not to touch females and it is a custom of the Buddhist monks' practices that they should not be present in private with a female. To avoid these social risks, I asked permission from the abbot prior each interview. Then I conducted the interviews in public spaces during the business hours with an approval from the temples. I made certain that the interviews would be conducted during convenient and appropriate times and locations. I also had a chaperone whenever possible to prevent any social stress that could have occurred. As with all research, there was a chance that confidentiality could be compromised; however, we were taking precautions to minimize this risk. For this research, the probability of a breach of confidentiality occurring was low. However, in the event that an unintended breach of confidentiality should occur, the potential for harm was minimal.

Inadvertent release of the data would not have detrimental consequences as the interviews focused on the topic of temple gardens which were public spaces. In Thailand, land uses in temples have exceptions from building codes and other regulations so the answers of the interviewees would not jeopardized them in any regulations violations.

Buddhist monks have to maintain their 227 rules. Some of the Buddhist monks' rules describe the avoidance of staying in private with women or intentionally physical contacts with women in any situation, public and private (Mahamakut University, 2011). I was well aware of these rules and avoided any risks that might causes the violations. Moreover, to mitigate the risk of detrimental reputation, I conducted the interview in public during business hours. I also

asked to have other people present, either my assistant or people working at the temple, during the interviews.

4.5.3 Confidentiality and Coding System

Data had not been collected anonymously since I had the audio record during the interviews. Names of the monks, temples, locations, dates, and times were collected. However, the identifiable data were kept confidential and would not be publicly exposed or published unless the subjects give explicit permission for this in the consent form. I used letters (A, B, C, D...) to identify each temple site. There was a total of 15 study sites. Then I used numbers to identify each interviewee. There were four interviews in each temple (A-1, A-2,..B-1, B-2,..). I also saved the audio recording files using the same encrypted system. Each file was coded as letter (location), number (person), and date. I replaced personally identifiable information in my research records with this code and kept the key to identifiers separate from the records. I also eliminated identifiers that were no longer needed for my research. Last, the devices used to keep the study data also were password-protected and stored in controlled access places.

4.6 Methods: In-depth Interview and Participant Observation

I spent eight months on intensive data collection and in-depth interviews June - August 2015, December 2015 - February 2016, and July - August 2016. I previously visited several potential sites - Temple gardens with the Bangkok Big Tree Awards listed in Bangkok Metropolitan Administration (BMA) and Bangkok Big Trees in 1999 and 2009 - in the winter 2013. During these visits, I observed performative functions of rituals in some of these Buddhist temples in Bangkok and other provinces in the North, East, and Northeastern Thailand during the five months of June - August 2013 and December 2013 - January 2014. Participant observation was limited due to the constraints of the Sangha rules. As a female researcher, even though I am Buddhist and familiar with the manner in Buddhist temples, I can only appropriately visit the Sangha sections in some temples at certain times. Some areas are more private and may allow male visitors but are completely prohibited for females. Gender is one of the critical limitations for participant observation in the field research of Buddhist temples. In the summer of 2014, I paid several visits and stayed at the temple in Chonburi, a province 90 minutes from Bangkok, where nuns and female lay followers were allowed to stay and practice meditation. I participated in the routines of the Sangha and observed the practices and behaviors as they relate to society and nature.

In each temple of the 15 selected temples, the following procedure took place:

1) Preliminary observations

My preliminary observations were the survey and observation of the old trees in temple gardens and the human interactions with them. The research focused on the perception of these temple gardens and the significance of their heritage temple trees. I used preliminary observation to ground truth after conducting the remote sensing process of selecting study sites to ensure that the study areas, the temple gardens, had large and old trees that played significant roles as a symbol of religion. There was no identifiable information regarding the subjects collected.

- 2) Contact temples by phone to introduce the research project and to set up appointments for the appropriate times and locations for the interviews.
- 3) Interview the abbot to identify who has responsibility for the temple gardens. The questions were similar to those asked of the monks, but were geared toward management level. Interviews were to take approximately 25 minutes.
- 4) In-depth interviews with the monks who are responsible for the temple gardens. I conducted an in-depth interview with monks who were responsible for trees in temple landscapes in each selected temple. Personal data collected included ages, the periods of time the monks stay in the temples, and places where they grow up. The interviews took place in the 15 selected temples in Bangkok during the daytime when the monks were not occupied with their daily practices and routines. Locations were in the public sections of temples. The specific locations and times were determined by the interviewees.
- 5) In-depth interviews with a monk with longer experience and a monk with shorter experience in the Sangha (defined by the year they became Buddhist monks) to examine whether their perception of cultural values of temple trees as a symbol of religion has been influenced by religious beliefs.

4.7 Results: The Experience of the Monks and the Variation in Their Responses

I categorized the interview responses into four main groups according to R.S. de Groot et al.'s table of functions, goods, and services of natural and semi-natural ecosystem (2002): Regulation functions (gas regulation, climate regulation, disturbance prevention, water regulation, water supply, soil retention, soil formation, nutrient regulation, waste treatment, pollination, biological control), Habitat functions (nursery function), Production functions (Food and material resources), and Information functions (aesthetic, recreation, cultural, spiritual, and education).

I found that the interview responses from the Buddhist monks were characterized not by their ages or length of experience in the temples. Instead, I found that there is a diversity of attitudes toward the values of trees in temple gardens not entirely correlated to an assumption about generations. Based on the four ecosystem functions, goods, and services of natural and semi-natural ecosystems, I categorized using emerging design analysis where categories were identified during the research process (Hsieh and Shannon, 2005), a new category of the interview responses was added when the responses were diverse and did not fit in the existing categories. I also used quantitative data on tree canopy coverage to compare to perception of green spaces in temple gardens.

4.7.1 Regulation Functions – ecological services of temple trees

- Provide shading

Because the weather in Bangkok is very hot and humid most of the time, shading is significant and distinguish services that temple trees provide.

Even though there is no such thing like holiness in trees, trees have benefits as they provide shade and create a better environment (A-1-3).

Trees provide shade and create the cooler microclimate for the very hot weather of Bangkok. Sitting underneath a trees provides comfort for both body and mind (A-2-2). Trees provide shade and cool the climate (B-2-4.1). Trees in the temple provide shade. They are also decorative components. We have some newly planted trees. Monks in the temple helped with planting new trees (B-3-1). Other trees have other values such as provide shading eg. Tamarind trees and other trees around the Golden Mountain. Trees provide shades for people (B-3-4). Without trees, it will be hot and uncomfortable. Temples should have trees but the trees need to have proper pruning and cleaning (B-4-2). Trees in the temple garden provide shades and peace of mind (B-4-2).

With the tropical climate and high temperature during the day, outdoor spaces can only be used when there are shaded. Trees provide shade and create comfortable outdoor spaces in temple gardens.

Trees provide shading – create *Sappaya sathan* which means comfortable and convenient places. Places under the trees have lower temperature (B-6-3). temple trees enhance the urban environment by cooling down the temperature in the city (B-6-2). Trees in temple gardens in Bangkok are very important for the monk’s activities. Forest garden provided shade and serenity (B-6-4).

Most trees in the temple garden was intentionally planted to provide shading. Trees in the temples have the main purpose on providing shades for people (C-2-1).

If we do not have trees, it will be hard to live. It will be very hot and could make us feel upset. When the body feel uncomfortable, it will be difficult to keep the mind at peace (C-3-4).

Because trees provide shade. We need trees in the temple. The temple should be shady when people enter the area they should feel cool and calm (C-1-3). Because do not have much space. Almost every area is paved. We emphasized on planting shady trees (C-1-3).

We have trees that provide shades. We do not plant any decorative plants – flowers and any ornamental trees- because we focus more on the trees’ instrumental function that provide shade and make outdoor space usable (C-2-1).

Trees in the temples help provide shade. They have vibrant color yet create a calm, natural atmosphere (C-3-4).

Trees in the temple garden provide shades that make the temple a *Sappāya* place (a wholesome, suitable place) (D-2-3). We take care of the trees and make sure the temple is shaded and cool for temple visitors. There is a big Bodhi tree with a lot of shading (D-2-4.1).

- **Maintaining good air quality**

Air pollution is a severe problem in urban area. Heritage large trees in temple gardens can be parts of the city’s green spaces that help improve the air quality in urban area.

They also help destress and provide clean the air. Temple gardens serve as the lung of the city When we go to temples, we have better health and can breathe better. Quality air is a good medicine and affect a good breath (B-4-2).

Other benefits of trees were they provide shading. Monks can use the space underneath the trees to walk (Jong-klom), sit and meditate both day and night. The Lord Buddha strongly related with forest (A-1-2).

Even though there is no such thing like holiness in trees, trees have benefits as they provide shade and create a better environment (A-1-3).

Monks are aware of these functions of trees that help maintain good air quality. They prefer to have more trees in temple gardens.

Trees in the temple garden affect the monk's behaviors because the trees cool down the temperature (B-6-2).

Our kuti has Liep tree nearby so we get the benefits from the trees, from its shade. The canopy prevent the strong sun and keep our resident hall cool. We do not need air-conditioning in the kuti (C-2-4).

We try to have more trees to create a comfortable atmosphere and reduce the heat from a very hot climate. Without trees, the temple would be very hot (C-3-2).

4.7.2 Habitat Functions

- Providing habitat for plants and animal

Several monks mentioned that they do not think fruit trees are suitable species for temple gardens because laities would come to harvest fruits which could cause damage to the temple architectures. Fallen fruits also requires more maintenance and could be liabilities. However, many monks mentioned habitat functions and the ecosystem services of the way in which these temple forests help maintain biodiversity and places for wildlife habitat in the city.

There used to be many flying foxes coming for the sweet Bodhi fruits. The Bodhi trees shredded their leaves twice a year and used to bare so many sweet fruits that attracted many Lyle's flying foxes (bats). Those flying foxes came at night from 10 p.m. to 3 a.m. So many of them came to eat the fruits of the Bodhi trees. However, the past couple years, these Bodhi trees have bared less fruits and there have been fewer flying foxes coming. The trees just get older. These trees are very old and not doing very well now (A-1-1).

Bigger trees provide food and habitat for more animals. The bigger the tree is the more warmth and hospitality it can give to the wildlife (C-2-4).

We still have very good ecosystem You will not find birds and many animals in other places in Bangkok. We still have many of the animals because we have many big trees (B-3-1).

There are many birds and animals living in this garden. Because all of these big trees reduce the temperature, create a natural atmosphere, and comfort temperature for humans and wildlife (B-6-2).

When there are fruits, squirrel always come to eat them. It was not a problem because we sweep the ground every day (C-2-2). Trees also provide wildlife habitat. You can hear the birds singing, some other animals can live, eat, and rest under the tree canopy also. There are many birds here. [I saw/heard birds, butterfly, and squirrels]. The trees make animals very happy. Hence, humans, including monks, are happy in this peaceful environment (C-3-4).

Temple gardens are places of species diversity of both trees and wildlife in the city. Maintaining healthy temple trees contribute to healthy habitat and urban green infrastructure.

Compare with many other places in the city, there is more trees in the temple. There is also a wide diversity of tree species in the temple garden. many of them were here for a very long time (B-3-3).

4.7.3 Production Functions

- Providing fruits for people

Despite higher maintenance fruit trees require, there are benefits from these production functions of temple trees. Some fruit trees are rare species and some fruits harvesting became temple traditions and reflect seasonal changes.

About 40 years ago, there was a big Samor tree with lot of fruits and flowers. People all over the city got to tried the fruit from this Samor tree. Stuffs from the Bureau of the Royal Household (BRH) who brought Katin in November to the temple always ask for the Samor fruit from this Samor tree. However, it was died because of the concrete at the root. The liquid from the cement damage the roots. The tree located in front of the museum. The temple replanted Samor trees 3 times before it survived (A-1-2). At the waterfall in front of the pavilion of the Reclining Buddha. It is gigantic. Its fruits are edible. The tree bares fruit in April. Temple staffs usually pick the fruits and eat them (A-2-2).

Some trees provide fruits that can be used as medicine. There are stories from the Buddha's time how some fruits became medicine and how monks are allowed to eat them during fasting hours (Monks are fasting after midday until the morning of the next day).

Wa trees in Chomphu tweep were the story of the beginning of alcohol consumption. The beginning of drinking came from a bird. A bird ate the fruits from a Wa tree and got drunk. A hunter found out about it so he collected the fruit and fermented them to make wine. It was an ancient Indian wine (B-4-2). Samor – The Buddha ate a Samor fruit as medicine for the first time. The fruit of Samor tree became an excepted fruit that monk can eat after midday (B-4-2). Also other trees that are considered as medicines such as Makhham pom, Samor. Monks can use them for their herbal qualities. In the old time, monks picked the falling fruits. (Theravāda monks prohibited from eat anything after midday) (B-4-3).

Not only for monks and temple staffs, outside laities get benefit from fruit bearing trees as well.

Some such as Mango trees bared edible fruits for humans (C-3-1). We also have fruit trees such as mango, tamarind, guava, papaya. Children who live in the temple collect and eat the fruits (C-3-2).

On the contrary, some monks opposed to the idea of having fruit trees in temple gardens with several reasons.

Upper section used to have many mango trees, but not many now. Fruit trees (trees with edible fruits) are not good to plant in temples because they attract people to come and collect fruits. It is disturbing (A-1-3).

It is Vinaya that we should not grow fruit trees in the temple gardens because they can bring troubles. Monks cannot harvest any fruits and either fruit trees will bring people and animals, the fruit drops can make the temple dirty (C-2-1).

4.7.4 Information Functions – providing opportunities for cognitive development.

- Reminders of the Buddha

There are a few tree species that serve as symbol of Buddhism. Bodhi trees are reminders of the Buddha.

The Bodhi tree (*Ficus religiosa L.*) in Bodh Gaya (Bihar, India - The site of the enlightenment of Gautama Buddha) is the 4th tree since the Buddha time, people still perceive it as a significant symbol of Buddhism (A-1-3).

Sala tree (*Couroupita guianensis Aubl.*) is a symbol of Buddhism as it was the tree where the Buddha was born. This Sala tree came from Sri Lanka very long time ago (A-2-2).

Bodhi trees are significant trees in every temple. Bodhi trees are the symbol of Buddhist

temples. More than 90 percent of Buddhist temples have a Bodhi tree in their garden. Not only they convey religious significance, they also represent the identity of the temples. We have one Indian Bodhi tree near the Reclining Buddha pavilion (A-2-3).

- Using spaces under trees for meditation

Trees creating atmosphere for meditation.

Monks can use the space underneath the trees for walking meditation (Jong-klom), sit and meditate both day and night. The Lord Buddha strongly related with forest (A-1-2).

We plant more trees to have more shade and create privacy. Sometimes monks sit and meditate under the trees. That was the practice of Phra Tudong (Forest monks). Forest temples in rural areas like to plant trees (D-3-3).

Open spaces with trees were used more frequently than spaces without trees (Kuo et al. 1998). To analyze the uses of green spaces in the temple gardens, I analyzed 42 responses that I received from my questions about how the monks use the spaces with trees in temple gardens. Approximately 66 percent of the monks used spaces with trees in the temples (45 percent regularly use the spaces, while 21 percent of the monks only use spaces with big trees on some special occasions). One third of the monks do not use spaces with trees in the temples. Monks who stated that they did not use temple gardens mentioned that it was either because it was not convenient, there was not enough shade, or there was construction going on that prevented them from using spaces.

We do not use spaces under the trees that much. We currently have some construction going on. We are lacking places for Buddhist meditation training (D-2-4.1).

We no longer have spaces with big trees in the temples. [There are still a few places – in the parking lot and at the riverfront near the shipyard and workers' shelters. However, the spaces are not suitable for the uses of the Sangha] (B-1-1).

However, monks are aware that the lack of trees that provide shade can be due to limited space, existing trees being controlled in size, and the fact that many new plants that have been added to the temple gardens are small ornamental plants for decorative purposes. When I asked about trees in temple gardens, some monks answered and referred to small ornamental plants, flowered pots, and small shrubs.

We do not use spaces with big trees. In some special occasions, we buy some ornamental plants to decorate the temple garden. We do not have any chances to use spaces under big trees (B-2-4.1).

Trees in temple gardens do not affect the monks' routine. We do not use spaces around the trees because they are not very convenient. We do not have plenty of spaces like other temples. Most trees in the temple are decorative components. We do not have many shady trees like other temples. We do not have many shady trees. We mostly prune them to control the shapes (of the canopy) to prevent structural damage. As a consequence, we do not use spaces around the trees. (B-4-3).

They also mentioned that if the outdoor spaces had components that allowed them to use the spaces more conveniently, they would use the outdoor spaces more often.

Monks do not spend much time in the garden or near the big trees because it is not convenient. It should have a space with trees surrounded so we can sit and practice. But we do not have such spaces at this temple so monks mostly practice inside the buildings (D-2-3).

On the other hand, 19 of the 42 monks that responded to the survey regularly use spaces with big trees. While some of them appreciate the ecological services that the trees provide, many of the monks perceive cultural values of these temple trees and use the spaces for both parts of their daily religious routine and occasionally for sacred rituals.

Young monks normally walked and meditated around the ubosot²⁴. Some temples make all young monks walk together but at this temple we do it individually. There is no fixed time or location for this activity. However, there were few potential places to do so; around the Ubosot, waterfront promenade, herb garden near the river. That was the abbot's regular place for walking meditation. Most walking takes place either very early in the morning, around 4 a.m., or late at night to avoid the heat during the day (A-1-4). We used the areas with big trees in the garden. We sit there to conduct a ritual when lay followers offer things for us (A-3-4).

Monks can sit and meditate under the trees. Trees can calm our minds (B-4-4).

We used this open space around the Ubosot for meditating walk in the morning. The murraya trees have very fragrant flowers that create coolness and serenity. The atmosphere is very peaceful with the white flowers and their cool fragrance (B-5-2).

The Buddha taught Buddhist monks to stay in forest and practice meditation (B-6-3).

- Improving mental health

Health benefits from trees are mentioned

Meditations are one major things in Buddhist practice. Many monks perform walking meditation under lines of trees around Ubosot. Trees provide shades. Spaces under trees canopy help calm people's minds. Laities who come to the temples to practice meditation also use the spaces in temple gardens. Temple forests in the city are places that people can practice shinrin-yoku or a forest bathing and enhance their physical and mental health.

Focusing and paying attention to a tree, leaves, or any green objects is one of the 10 methods of *Kasin*²⁵ meditation commonly practiced in Buddhism. *Kasin* practice is a Buddhist meditation method which people strongly focus and stare at an object that support their meditation. To understand the deeper knowledge of Buddhism, ones need to have a continuity of concentration, mindfulness, and perceive the surrounding environment with fully awareness without their minds wandering and being stimulated. Being in an atmosphere and climate that help relaxing and keeping people's mind clean and calm such as places with shady trees will help support meditation practice. Buddhist temples try to be a *Sappāya* place which means a wholesome place where suitable for meditation practice. Temple trees play a significant role creating and supporting suitable places in temple gardens that enhance physical and psychological health and well-being of people in the cities.

The varieties of trees species can improve physical health and minds. Temple gardens with diversity of tree species, monks and novices seem to have healthy life, also temple visitors.

²⁴ *Ubosot* or *Bot* is an ordination hall. It is similar to the church building. Ubosot is normally surrounded by Sema stones. Most temples have restricted time when public can access ubosot. A few temples prohibit women to enter ubosot as it considered a private sacred space where monks conduct religious ceremonies. (<http://thailandforvisitors.com/templeterms.html>).

²⁵ There are 10 different *Kasin* practices. The first set are common *Kasin* including earth, fire, wind, air, light, liquid. The second set is suitable for hateful temperament which are staring at objects with red, green, yellow, or white. The result from *Kasin* practicing are detachment which leads to the path of nirvana.

People who stay in the places with trees will have beautiful minds as they can take the whole inhale. They can fully fill their lung with clean air. A place with many trees, trees with fragrance flowers, humans and animals will not fight. It is also good for our spirits and our tempers (B-4-2).

Cool the body and cool the mind. Trees can teach us to see the way the nature is which is the way the truth (reality) is (B-6-3).

Trees have influences on the sangha life. When monks practice meditation, trees help make us feel fresh and healthy. Sitting under the trees enliven our minds. When we see the greenness of the trees and stay close to the trees, we feel healthy and calm which in turn help us in practice meditation (C-2-4).

Contrary to the Buddhist monks' precepts of refraining from cutting trees or digging soils, a senior monk interprets the Vinaya in the way in which it is more practical and suitable within the urban context. He addresses that providing temple garden maintenance and trees care are a way of making merit.

Gardening is one of the ways to make merit (*tumboon*). It is as if we create happiness for others. When people see beautiful garden, their minds relief from sadness. People with sorrow can be happy. Happy people will be happier when they see a beautiful garden. It is the monks' duty to help people getting away from suffering or relief their sadness. People who plant trees and take care of the garden will get merits from doing so. [suffering or *dhukha* – it means nothing can stand to be in one stage forever. Everything has to change. But people misunderstood that only sadness is *dhukha* and happiness is not *dhukha*. If the monk understood the true Buddhism, he would not say what he said. He would have said that the garden makes people understand the truth of life and *dhukha*, not the help people get away from *dhukha* by making them happy] (C-3-2).

- Creating natural atmosphere

Temple trees create natural atmosphere.

Trees in the temple garden created natural atmosphere (B-3-1). Compare with many other places in the city, there is more trees in the temple (B-3-3). We built the temple along with planting the forest. Temple and forest are related and have strong relationships all along. Wherever we have temple, we will have forest (B-6-3).

Even though some temples did not lack large trees, the reasons for monks not using spaces with big trees fall into the zoning and purposes of tree planting. Some responses emphasized the zoning of the temple; the Sangha area or Sangkhawat section is private for the monks, and the Phutthawat section that is open for the public. In several cases, many old and big trees were in the public sections or outside of the active temple grounds²⁶ which made it more inconvenient for monks to use the spaces. In one temple, the oldest and biggest tree located outside the active temple grounds, all of the monks that I interviewed from this temple mentioned that they do not use spaces with big trees.

Monks do not have much chance to use spaces where the big trees are located. Mostly lay followers, the temple visitors, use the spaces (A-2-2). We rarely use spaces where there are big trees because most of the big trees are in Phutthawat area (public section).

²⁶ Active temple grounds referred to the current boundary of temples. Many temples used to have larger areas and blurred boundaries as they perforated with the community surrounded them. Today's high-density urban fabric separate temples from their social context and create more rigid temple boundaries. With growing economic incentive, many of the temple properties have been rented out for private uses, including many areas with trees that used to be part of the temples.

Monks mostly stay in Sangkhawat (private section) unless we have a task assigned that we have to be in Phutthawat area. There are too many tourists and laypeople in the Phutthawat section (A-2-4).

Temple trees create recreation spaces for public.

Trees in temple garden do not have many things to do with the monks because the temple is separated into two parts. Most of the big trees are in public section and have temple staffs take care of them. Monks mostly stay in the monastic section (A-2-3). We do not have many activities in the areas with trees in the temple garden. Monks used to help take care of the topiary by doing the pruning. Now the soldiers are responsible for the job (B-2-3).

Trees do not affect the monks' activities. I do not use any spaces around the big trees. We, monks, only sweep the ground (B-2-4.2).

- Providing places of education

Monks use spaces under big trees for learning practicing meditation. They also conduct religious rituals around heritage trees in temple gardens.

Monks used the spaces under the trees to read and study. Laities can sit and relax at this space too (D-1-1). We read and study using spaces under trees because of the shade and coolness the trees provide (D-1-3.2).

There are activities that we (monks) use spaces where there are trees in the temple garden. On the Buddha day (4 days/month), we walk mindfully, meditatively around the temple and around the Bodhi trees. On the Buddha day, we normally chant around 6.30 pm. Then the senior monks will start walking, follow by monks with fewer years in the Sangha, and lay followers. The senior monks lead us around the Bodhi tree, sometimes only one trees sometimes we walked around both trees. The ceremony started around 6.30 -7 pm and last until around 8pm when we moved to the main building for the sitting meditation (C-1-4). In the evening novice monks do their activities (reading) under the trees' canopy (C-2-2).

Monks and novice monks usually sit under the trees after *tumwat yen* (the Evening Chant) around 4 to 4:30 p.m. Sometimes we read and study at the seats under the trees (C-2-2). We *tum wat* (morning and evening chants) in the area with trees (C-3-2).

- Providing spiritual and historic information

A strong cultural belief can influent how people perceive their environment. A heritage big tree can have more value than just being a tree. Thais usually bow down to pay respect to a Bodhi tree, a shrine, or a termite mound with colored scarves. They do not pay respect to the physical elements of these things; not the tree, the shrine, or the termite mound. They worship and show their respects to the invisible, intangible, cultural values embedded in them.

"Big trees help increase the sacredness of the place". "Temple is a peaceful forest.

Religious/spiritual atmosphere was created by trees" (B-5-2)

Many changes in socio-cultural, economic, and environmental attitudes have taken place throughout the history of the city of Bangkok, and have affected the cultural values and physical components of Buddhist temple gardens. Some temples disappear. Some have remained since the capital city was a small port town several hundred years ago. Many new temples were established, developed, or changed their classes during these years with the changes in social and cultural patterns and influenced by economic forces. Above all however, temples have been places for spiritual and community centers. Temple gardens still serve as a

green sanctuary for both mental and physical wellness for Buddhist monks, temple visitors, city dwellers, and wildlife alike.

Many fragrant trees and shrubs are planted in temple gardens because Buddhists believe that it is a way to pay homage to the Buddha. Besides using spaces, some monks mentioned physical and mental health benefits from trees in the temple gardens.

Leelavadee (*Plumeria Scop.*) were another species that often found in temples. I have heard that, according to the traditional Thai knowledge, new monks should practice walking meditation under Leelavadee trees. Because it was believed that the fragrance of Leelavadee's flowers can suppress the sexual desire (reduce *Kamnud*). [He believed that smelling this flower in a long period of time can cause one barren. He was not sure where leelavadee's trees locate in the temple garden but he was positive that there were some (possibly in the North section)] (A-1-4).

Temple trees are often preserved because they convey symbolic meanings. Bodhi trees always remind monks of the Buddha. People usually pay respect to Bodhi trees as if they are a Buddha statue. Certain species still serve as a symbol of the place and convey historical significance that passes from generation to generation.

Monks plant many trees and take care of the temple gardens. Samor trees (Tropical almond tree, *Terminalia chebula*) are a symbol as the previous name of the temple was Wat Samor. Some of the trees die. The temple replanted several Samor trees three times before they survived (A-1-2).

Selected species that conveyed religious meanings were often selected to be planted. Some tree species were planted and preserved because they were a symbol of the place. In this case, the old name of the temple is Wat *Samor*, hence, *Samor* trees convey a symbolic meaning to the temple as its *genius loci*.

Trees in the temple garden are components that are spiritual anchors (*Tii yut niew jitjai*) (D-1-4). People feel fresh and comfortable physically and mentally which make it easier to practice meditation (D-2-3). Temple trees help cool the eyes and minds (D-3-2).

4.7.5 Perceptions of Green Spaces

The more monks who use spaces with big trees may not be the leading cause of the higher percentage of tree canopy in the temples. When monks choose to use spaces with trees, it is not only for practical purposes, but also to communicate the cultural values of the trees in the temple gardens. Young monks are taught to practice meditation around ubosot under the lines of old trees, school kids sat under the big Bodhi trees to listen to stories from a senior monk, or clergy gathered and conducted a ritual at the heritage large tree on special days such as the Buddhist days or Thai New Year. Why do these activities have to be performed at the trees? Why must the rituals take place under the Bodhi tree that the temple received from the King? These activities, rites, and rituals are the methods that sangha use to preserve temple trees. Whether through daily routine, weekly activities, or annual rituals practiced by either senior monks, young monks, or laypeople, these cultural constructs that take place where the trees are located create an atmosphere that communicates the values of the trees to the people who have engaged in these rituals.

By comparing the number of monks using spaces with big trees and the percentage of canopy coverage, we can answer the question of whether more use of a space correlates to the

amount of green coverage. The percentages of canopy coverage in the selected 15 temples range from 5 percent to 45 percent. I divided the subject temples into 3 groups based on percentage of green cover, with 5 temples in each group. The first group contains temples with highest percentage, from 19.7 to 45 percent canopy coverage. The temples in the second group have canopy coverage of 13 to 19.6 percent. The last group ranges from 5 to 12.9 percent canopy coverage.

According to the interview responses, 42 percent of the monks use spaces with trees in the temples; approximately 21 percent rarely use those spaces; and 33 percent of the monks do not use outdoor spaces with temple trees. The monks who regularly use spaces with trees in the temple gardens came from the temples with higher percentage of green coverage.

Of the monks that did not use spaces with trees, only 7 percent, or one response, came from a temple within the group of higher percentage canopy coverage. He did not underestimate the values of the trees:

Spaces under the trees are used for recreational purposes for temple visitors. Monks do not use these spaces. [He repeated several times]: We planted these trees to provide a comfortable place for people who visit the temple. (These green spaces are not for the monks). Monks mostly practice inside the buildings (A-3-2).

Of the monks who do not use spaces with trees, 57 percent of them live in the temples with low numbers of big trees. These temples also have lowest percentages of canopy coverage. Their environmental contexts have impacts on the monks' behaviors. More use of outdoor spaces can be seen in the temples with more trees.

	%canopy coverage	Temple	Interview responses				
42%	39.2	B-6-2	3	<table border="1"> <tr><td>Use</td></tr> <tr><td>Rarely use</td></tr> <tr><td>Do not use</td></tr> </table>	Use	Rarely use	Do not use
	Use						
	Rarely use						
	Do not use						
	39.2	B-6-3	3				
	23.9	C-1-1	3				
	23.9	C-1-3	3				
	23.9	C-1-4	3				
	21.6	A-1-2	3				
	21.6	A-1-4	3				
19.7	A-3-4	3					
19.6	D-1-1	3					
19.6	D-1-3.1	3					
19.6	D-1-3.2	3					
19.6	D-1-4	3					
47%	14.5	C-2-1	3				
	14.5	C-2-2	3				
	14.5	C-2-4	3				
	13	C-3-2	3				
	13	C-3-4	3				
11%	12.9	B-5-2	3				
	9.8	B-4-4	3				
	45	D-3-2	2				
	45	D-3-3	2	19 uses			

	39.2	B-6-4	2	
	23.9	C-1-2	2	
56%	21.6	A-1-1	2	
11%	13	C-3-1	2	
	9.8	B-4-2	2	
	5	A-2-2	2	
33%	5	A-2-4	2	9 rarely uses
7%	19.7	A-3-2	1	
	19	B-3-3	1	
	19	B-3-4	1	
	16.9	B-2-3	1	
	16.9	B-2-4.1	1	
36%	16.9	B-2-4.2	1	
	12.9	B-5-1*	1	
	12.9	B-5-4	1	
	10.2	D-2-3	1	
	10.2	D-2-4.1	1	
	9.8	B-4-3	1	
	9.2	B-1-1	1	
	9.2	B-1-4	1	
57%	5	A-2-3	1	14 do not use

Table 4.2: Comparison of the canopy covers in temple gardens and numbers of monks use spaces in temple gardens.

Results

Percent green cover	high	medium	Low	Row Totals
use	8 (6.33) [0.44]	9 (6.79) [0.72]	2 (5.88) [2.56]	19
rarely use	5 (3.00) [1.33]	1 (3.21) [1.53]	3 (2.79) [0.02]	9
do not use	1 (4.67) [2.88]	5 (5.00) [0.00]	8 (4.33) [3.10]	14
Column Totals	14	15	13	42 (Grand Total)

Table 4.3: The chi-square statistic is 12.581. The p-value is .013515. The result is significant at $p < .05$.

The percentage of green canopy coverage affect the monks' behaviors. The more tree covers, the more Buddhist monks using outdoor spaces in the temple gardens.

4.8 Discussion and Conclusions

The results from the in-depth interview were not at all like my anticipations. Younger monks expressed more belief in spirits in heritage large trees while most senior monks treated temple trees in more progressive and scientific aspects. Buddhist doctrine is based on a scientific approach but with its amalgamation with local Thai culture, many religious rituals

cannot be explained in scientific ways. Monks with longer experience perform religious rituals with a better understanding of the Tipitaka. They have more confidence in conveying what the Buddha taught and interpret the precepts in the more practical ways which is more suitable with contemporary time and spaces.

The length of experience of the Buddhist monks affect their perceptions and interpretations of the cultural value of the temple trees. Most of the senior monks do not bow to trees as they do not believe that there are spirits in trees or at least they do not think monks should pay respect to the tree spirits. On the contrary, junior monks expressed their superstitions in tree spirits. Senior monks preserve the trees because of their ecological benefits and functions the trees provide. Bodhi trees are preserved because they are a religious symbol. Most senior monks do not express their fear of these tree spirits. The monks who stayed in the Sangha for a long time understand and believe more on canonical doctrine. Unlike monks with long experience in the Sangha, most of the junior monks pay respect to large old trees with colored scarves which is an act derived from preexisting local culture before Buddhism. They showed their fear of spirits in the old trees. Monks with shorter experience in the Sangha expressed more on the belief of spiritual values in large old trees in temple gardens the way laities do. Junior monks complemented their belief in trees spirits with the precept that monks must be refrained from cutting trees. As a consequence, young monks hesitate to provide care for trees and are reluctant when discussing the issues.

Many Buddha's stories from Tipitaka Sutta related with trees and forests. Senior monks use the stories as methods of conveying the beliefs to the younger generations. Both old and new rituals are also used to communicate and convey the values of trees in temple gardens. The reinterpretation of the way in which laities making merit could also supports temple trees preservation. Many new rituals such as *Buat ton mai* (tree ordination), *Suep chata* (Long life ceremony), or making merit by planting trees are the way in which the monks include and assign cultural values onto the trees by making them become significant parts of religious rituals. Even a simple act of cleaning temple gardens, watering, pruning or providing care for temple trees are considered making merit and creating good karma that laypeople believe to bring them back good fortune. Buddhist monks communicate these values of trees in temple gardens and also included ecological functions of temple trees when they talk to laities.

Hierarchy in the Sangha is a pivotal factor that help senior monks convey the religious belief and responsibility for temple tree care to the next generations. When discussing the cultural values and functions of temple trees, many senior monks emphasized more on the environmental benefits of trees. The cultural values of trees reflect on how it is a religious symbol or a reminder of the Buddha. Senior monks use spaces under heritage large trees in the temple as a place for meditation because trees provide shade and create a comfortable climate. They took young monks for a walking meditation around a Bodhi tree. They sit and talk to the young monks under a heritage tree. The belief in tree spirit maybe a significant factor that help preserve the trees at the first place but the understanding of all other services and functions of temple trees are the main factors that help preserve the trees and maintain them in healthy conditions.

In the temples that have higher percentage of tree canopy in the temple gardens, monks spend more time using outdoor space. They also have more appreciation and in-depth knowledge about the trees in monastic gardens. Cultural and religious values convey through

generations via stories in Tipitaka and religious practices while the appreciation of heritage large trees and temple gardens create from times spending in the outdoor spaces and responsibility of temple trees care. When the monks have deep understanding of the precepts and canonical doctrine, they understand their roles and perform better as heritage trees stewardship.

Cultural values are critical factors that temple trees are respected and preserved. The more cultural and religious values the trees convey, the longer they survive. Monks who stay and spend longer time in the Sangha have more chances to involve in activities, rituals, and events with temple trees. They may not have more beliefs in spirits in the tree but they appreciate more of the fact that large trees provide shade, enhance microclimate, and are places for wildlife habitat. Bodhi trees are a religious symbol that remind people of the Buddha and his perseverant practice. Historical significant trees are also well preserved and even heritage large trees located outside active temple grounds are recognized by the monks with longer experience. Most monks with shorter experience appeared to have similar thinking like laities on tree deities. Some of them expressed their fear of spirits in big old trees while longer experience monks, despite their ages, values trees with their cultural, historical, and ecological qualities. Both attitudes toward trees are equally significant because whatever reasons people and Buddhist monks perceived the values of temple trees, the result would be preserving and maintaining the health and well-being of these trees as invaluable parts of urban forest.

The real age of a person does not reflect in the years in Sangha. I interviewed an old monk, who is in his mid 60s and seems to be the oldest monk in the temple. Despite his elderly appearance, he just ordained one year ago (1 *punsa*) and was relatively unfamiliar to the temple environment. With his age, he received a lot of respect from the abbot and other monks as the abbot told me to talk with *Laung Ta* (Grandpa monk). However, despite his old age, he did not know much about the temple and its history. He talked more about his life before attending the monkhood. He did not recognize if there are any large old trees on temple ground. Regarding his times in the Sangha, I categorized him as a young monk. Then, at the same temple, I interviewed two other monks who have longer *punsa*, longer experiences in the monkhood. They seem to be in their late 30s. and been ordained for about 20 years. They know a lot about the temple, its history, the changes of the land uses, the surrounding neighborhood, the road that cut temple properties into two parts, and a big tree across the street where there used to be part of the temple but now is surrounded with the community who inhabited on the temple properties. One of them regularly visit that heritage large tree to ensure its health and well-being. Years spent in the temples give Buddhist monks appreciation of old trees in temple gardens.

4.9 Limitations and Future Directions

Although participant observation is one of the most important techniques in ethnographic study, it must be contextualized with other qualitative approaches. Moreover, laities study conducted in the environment of the Sangha is limited, especially for female researchers, because the Vinaya prohibits Buddhist monks from being in private with female visitors. Only men can be part of the Sangha by being ordained into the monkhood. I stayed at a temple for meditation and participated in every activity possible, but still cannot be part of the

Sangha. As a consequence, in this study with this constraint, participant observation could only be done at a certain level.

Due to the fact that women are not supposed to be present with a Buddhist monk, during some of the interviews more than one monk was in the location at the same time, especially when I interviewed *Nawaka* monks who have less than five years of experience in the monkhood and must be with a senior monk at all times. When I conducted interviews with a group of people (in this case, it was normally two monks, one senior monk and one new monk) who had differences in age, experience, and social status, the younger or lower status one would rarely speak. In several cases, the young monks either completely agreed or hesitated to answer. Thai culture emphasizes respect of our elderly. The culture of the Thai Sangha has an even stronger seniority tradition and hierarchy. Despite their ages, monks who have longer experience in the Sangha, or longer *punsa* or years ordained, will have priority on every occasion. Even though it is not written in Vinaya, when I asked a question, the young monk did not answer unless the senior monk said he could reply. Most of the time, the answer had similar aspects to what the senior monks replied earlier. I was aware of this issue and tried to avoid the situation, but it was not always possible.

Daily routines and other religious events were sometimes different than I anticipated. Buddhist monks wake up very early for the morning prayer, then walk for hours to collect alms from lay supporters. They come back to the temple, have breakfast, and then have another prayer until lunchtime. Lunch must be consumed before midday because of the Vinaya. After lunch, most monks take a rest, called *Jum Wat*. Even though the daily duties and routines of monks are similar, how they fit these activities into the day at each temple can differ greatly. There was a very diverse daily schedule in each temple. It was almost impossible to make appointments and expect to meet and interview monks when visiting temples. Some larger temples that usually have more visitors have some monks assigned for the social services including praying with people and receiving goods and other personal effects that temple visitors would like to offer to the monks.

Another problem I found during the fieldwork was the hierarchical authority of the sangha. Even though I was aware that conducting an interview with interviewees who were in different social ranks would prevent the one in lower social status to speak freely. It was not always possible to have individual interview with young monks. Thai culture emphasizes on respecting their seniors. This tradition is more underlined in the Buddhist community. A monk with longer experience in the monkhood would sit in the front and has more authorities in most of the events. During the fieldwork, there were a few cases where a senior monk was present when I interviewed a young monk. In those interviews, the young monks barely spoke, or when they did reply, they were corrected by the senior monk.

The Supreme Patriarch of Thai Buddhism (Somdej Phra Sangharaja) passed away in October 2015 and the royal funeral was held in December while I was in Thailand doing field work. Many senior monks had to attend the funeral and other ceremonies during that time. It was difficult to find opportunities to meet with them. Moreover, with the transition between the late Supreme Patriarch and the selection of the new one, there was a political movement and a demonstration in the Sangha. The selection of the new Supreme Patriarch brought a big controversy into the Thai Sangha between the two major sects, the monks from Dhammayuthika nikaya and those from Mahanikaya. The conflict prevented me from

continuing to conduct more interviews at one of the temples and visiting the National Office of Buddhism.

From the in-depth interviews, I found the uses of religious rituals and cultural values of urban big trees in the temple gardens that allow laypeople to understand the ecological values of heritage trees in temple gardens. There are more common in rural areas to have these kinds of rituals and public involvement in temple trees worship. However, large and old trees are significant components of urban realms. The beliefs in tree spirits and adornments on old trees reflect cultural values of the trees and are efficiency method of tree preservation. Development and changes of surrounding land uses affect health and well-being of these heritage trees in temple gardens. Not only cultural beliefs but knowledge in proper tree cares are important for the survival of these heritage large trees and well-being of other trees in temple gardens. The paradox of Buddhist monks' precepts preventing monks from pruning and providing care for trees and how the interpretation of the Vinaya has evolved through the history are discussed further in the following chapter.

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Chapter 5

Bodhi Trees, Tree Ordination, and Other Assigned Values of Nature

Temple Trees and Their Semiotic Status:

How the Trees in Temple Gardens Became the Representation of the Sacred

Abstract

This chapter is an empirical investigation of cultural and religious aspects of urban heritage trees. I studied people's perception of urban forests focusing on big old trees in Buddhist temples. An ethnographic research was conducted which included observations of 15 Buddhist temples and in-depth interviews with 45 Buddhist monks from different Sangha ranks. The monks with high authority and monks who served as landscape managers of temples were interviewed when possible. Using comprehensive information from a series of in-depth interviews with the Sangha and participant observation, I focused on the semiotic status of temple trees. I explored historical precedent from the period of King Rama IV when His Majesty gave the Bodhi saplings he received from Bodh Gaya, India, to several Buddhist temples in Thailand. I analyzed the insights from my fieldwork conducting in-depth interviews with Buddhist monks who are the landscape managers of the temple gardens from selected Buddhist temples in Bangkok, Thailand. I examined influential factors that make trees sacred. Does location matter? If the same tree species of similar size and age grow outside temples, do they still carry the same symbolic significance? From preexisting local culture to religious doctrines, I questioned how Buddhist monks and their influence on society, culture, and environment assign cultural values and the powerful status of sacred symbols to the trees, and the ways in which these temple trees are preserved with these culturally constructed assigned values.

Keywords: cultural values, heritage trees, landscape managers, religious symbols, rituals, temple gardens

5.1 Introduction: Temple Forest

Temples can serve as ecological infrastructure for the city. With more green space and more diversity of tree species, temple gardens can provide sustainable green space with social, economic, and ecological benefits for city dwellers. However, the heritage trees and temple gardens do not receive proper care. Although some people pay respect and give value to sacred old trees, they do not recognize the real value of the temple gardens and these heritage trees. Some big trees survive because of their sacred essence; however, with lack of care they cannot be healthy and can cause maintenance problems and liability issues. With proper care, these trees can live healthily and provide well-being for people. But how can we emphasize the significance of providing proper care to the temple trees? People are frightened that they might hurt a tree that they believe has spirits. In one case, workers refused to cut down a big Bodhi tree because they believed it was a symbol of Buddhism. The workers did not want to cut a big branch or even parts of the roots because they were afraid of the tree spirit. A Takien tree (*Hopea odorata*) has survived and thrives with many liturgical objects. It became a destination for temple visitors because they believed this Takien or Iron Wood tree has a deity residing in it. The heritage large Takien tree is tied with colored scarves. There is a small shrine built under the tree as a place for worshipping. Several women's clothes, incense sticks, and flowers fill the shrine. Worship it, and the deity will grant your wishes. Could this be a reason the tree is preserved? Are cultural beliefs and the religious significance of these trees factors? How do cultural values and religious beliefs contribute to ecological values?

This is an empirical study exploring the factors that make trees in temple gardens become sacred symbols and significant components in the monastic landscape. This study contains an empirical investigation of aspects of religion as they relate to conditions of the landscape, and of the properties of Buddhist ritual. It is an examination of religious culture in the biophysical world, using ethnographic methods conducted in the sacred spaces of Buddhist temples in Bangkok. I examined whether there were different factors that assigned values to the trees in temple gardens and attempted to answer the following questions:

1. What factors make a tree sacred? If people come to disbelieve in this holy spirit, do they still hold that there are other cultural values in the trees? Does the tree represent something? In what way do monks and laities understand the cultural values of these old trees in temple gardens? What factors influence people to preserve the trees and keep them as parts of the urban forest?
2. Where are the locations of trees in monastic precincts? What are the patterns of tree plantings in temple gardens? Are there specific locations for trees that convey religious meanings?
3. Are trees that convey religious meanings and cultural values more likely to be preserved? Do trees that appeared in Buddha's life have more religious values than other species? What are the tree species that convey more significant meanings in temple gardens?
4. What factors make a tree sacred? If people come to disbelieve in this holy spirit, do they still hold that there are other cultural values in the trees? Does the tree represent something? In what way do monks and laities understand the cultural

values of these old trees in temple gardens? What factors influence people to preserve the trees and keep them as parts of the urban forest?

5. Where are the locations of trees in monastic precincts? What are the patterns of tree plantings in temple gardens? Are there specific locations for trees that convey religious meanings?

5.2 Background

5.2.1 Roles of Heritage Trees on Temple Grounds

How a Place Assigns Sacredness to a Tree and How Trees Create Places

No place is in itself especially sacred; only its use is sacred.

J.B. Jackson, 1980: 81

No tree is in itself sacred; only how people react to it is sacred. Only ritual toward the tree makes the tree sacred. Unlike in church spaces where there was no evidence of the sacred uses of outdoor spaces (Jackson, 1980: 84), Buddhist temples in certain periods of time had hierarchical orders of spaces that created a sacred atmosphere where several rituals were performed in the temple gardens. The outdoor setting of Buddhist temples represented the cosmic theory with *Viharn* (Assembly hall), *Bot* or *Ubosot* (Ordination hall), *Chedi* (Stupa or pagoda), and *Bodhikara* (Bodhi tree shrine) aligned along the same axis (Bongsasilp, 2006). The tree was part of the Cosmic axis which was incorporated into the layout of a temple in Phutthawat section.

Trees have a strong relation to places and can also define place. Trees in particular places can be highly valued (Jones and Cloke, 2002). Large trees are often found at religious sites because they have shaped space and have come to carry social significance at particular places. Early history of urban trees shows that they were found in temples located in the vicinity of Ancient Egyptian cities (McBride, 2017: 35). Trees in Greece and Egypt were planted as promenades approaching temple complexes and sacred sites (McBride, 2005). In Japan some large old trees located in temples or shrines are believed to have gods existing inside (Omura, 2004: 182). In Thailand, many old and large trees in Bangkok are found within temple grounds. Indeed, in temple gardens there is a wider species diversity than in other gardens (Thaiutsa et al., 2008). In 1999, BMA produced a list of heritage trees in Bangkok and found that 32 percent of the total of 298 heritage large trees in the city were located in temple gardens (BMA, 2003). The 1999 Bangkok Heritage Tree Inventory indicated that there were 65 species, 51 genera, 25 families of trees. Bodhi trees are the most common species on the list. Because of their religious significance, people hesitate to cut and tend to protect Bodhi trees which allow them to grow larger than other species. There are 43 Bodhi trees, comprising 14.4 percent of the heritage tree list. The Dusit district has more large trees than the others because there are more old temples and palaces in their precincts (Ibid.). The Japanese Ministry of the Environment found that 58 percent of the 55,983 large, heritage trees in the heritage trees list are located in shrines and temples (Ishii et al., 2010: 308).

Forest groves have been places where people could connect with their gods (Ibid., 21). While people built temples and shrines in the city, groves were sacred spaces in the countryside (Uchiyamada, 1998). Unlike parks which may exist on sites where there were no previously grown trees, Buddhist temples usually were located where there was a previous dominant tree (*Mai maii ta*). A small temple in India would be placed under a sacred tree (Omura, 2004). Many temples in Thailand were named after the tree species that was predominate in the area where the temple was built or for an old tree situated on site. Wat Samor (*Myrobalan Terminalia chebula*), Wat Takien (*Hopea odorata*), and Wat Sai (*Ficus Benjamina*) are examples of this practice. Trees create places by their existence from the site to the city scale.

5.2.2 Bodhi Trees

Bodhi trees are a memoir of the Buddha. The Buddha allowed Ananda, one of his 10 principal disciples, to plant a Bodhi tree at the gate of his temple so lay followers could pay respect and to be a commemoration of the Buddha when he was gone (Ibid., 418). Lay followers came, with glorification of the Buddha, with their liturgical objects and worshipped the tree. In India, the Sri Maha Bodhi tree is called the Pipal tree. Many Buddhists visit the Sri Maha Bodhi at Bodh Gaya. There is an annual ritual of watering the tree with milk, decorating it with lanterns, and bringing flowers to adorn the tree. Visitors come to worship the Bodhi tree, then pick up falling leaves and bring them back home as sacred souvenirs. Bodhi trees shed all their leaves on the day that the Buddha reached nirvana and resprouted the day after (Phlāinōi, 1970, 410).

The Bodhi tree in Bodh Gaya, India was the tree that was believed to have been the one that the Buddha sat underneath when he reached enlightenment. It had died for different reasons three times but sprouted and regrew from the old dying trees (Akkachan, 1996). It became an epic part of Buddhism and has been reproduced in several forms including stories, paintings, images, and statues. For prosperity, the wood of Bodhi trees is commonly used to craft Buddha statues (Phlāinōi, 1970: 406). Even one leaf of a Bodhi tree became a sacred symbol of Buddhism. During one interview with the senior monk in one of the oldest temples in Bangkok, the old monk smiled and pointed to the glass shelf behind me and talked proudly of its contents. On the top of the shelf, it was an unusually large Bodhi leaf in a gilded glass frame. He said the leaf came from Phra Sri Maha Bodhi, the original Bodhi tree in Bodh Gaya, India. There was no need to ask how he felt about the Bodhi tree.

In India, women worship Bodhi trees and walk around them 1,000 times every Saturday night during the summer months (July-August). They believe that the Bodhi tree is a tree from heaven that was sent to earth to verify the Buddha. Some believe that the Vishnu god, the "preserver" in the Hindu trinity, incarnated into Pipal or Bodhi tree (Phlāinōi, 1970: 408).

In Japan, there are more than 15 species that have been identified for religious uses (Omura, 2004), while Pine trees (*Pinus thunbergii* and *Pinus densiflora*) are traditionally planted in the precincts of shrines and temples in Japan (Omura, 2004: 180). Omura (2004) noted that there are three common species used as memoirs of Gautama Buddha and commonly found in temples in Buddhist countries - Sal tree (*Shorea robusta*), Bodhi tree (*Ficus religiosa*), and

Tiliaceae. The first two species, Sal trees and Bodhi trees²⁷, were mentioned several times during the interviews with the Buddhist monks in Bangkok. These two species are commonly known as symbols of Buddhism.

Even though forests and trees are not commonly focused on in the story of the life of the Buddha, many trees are mentioned in many contexts. There are other trees mentioned during the significant events of the Buddha's life. None of them became as strong a symbol as the Bodhi tree. Phlāinōi (1970) explained beliefs and rituals on trees in *Phruksaniyai* or 'Stories of Plants'. Several species appeared in *Sutta*, the story of life of the Lord Buddha, such as Sala Lanka or Sal tree (*Shorea robusta*), Rang tree (*Shorea siamensis*), Ma muang or Mango tree (*Mangifera indica*), Paii or Bamboo (*Bambuseae*), and Chompu or Rose-apple tree (*Eugenia javanica* Lam.); however, Bodhi trees seem to be the iconic symbol of Buddhism.

Besides being the most important tree in Buddha's life, there are many other superstitious beliefs about Bodhi trees. *Kham pho*, or supporting a Bodhi tree, is a common ritual that is practiced in Thailand and other countries in Southeast Asia. *Kham* means 'support' in Thai. During Thai New Year, people paint and decorate long sticks and put them under a big Bodhi tree to support its branch as they believe that doing so will make them live a long healthy life. Mon people, one of the earliest ethnic groups in Myanmar and Thailand, have also been conducting this ritual with similar beliefs. They decorate the wood sticks by painting them white, adorning them with colorful pieces of paper and turmeric powder, and putting cowrie inside. They also tie the trees with yellow scarves, the color of Buddhist monks' robes. In the archives from the period of King Rama I (1731-1809), when a princess was sick, the king ordered his servants to paint a wood stick white, put cowrie inside, and cover it with white fabric and then put the stick under the Sri Maha Bodhi tree, the Bodhi tree that grew from the sapling from Bodh Gaya. Besides the superstitious beliefs that putting a wood stick to support a branch of a Bodhi tree will bring you a long and prosperous life, some people believe that to put the wood stick under its branch will help support a Bodhi tree as it does not have a hardy wood structure (Phlāinōi, 1970: 406-407). Some believe that *Kham pho* ceremony, to support a Bodhi tree, is a way to enforce knowledge because Bodhi means 'Awakening'. This tradition is a way in which cultural beliefs contribute to ecological conservation as people would protect the trees, maintain, and provide proper care for them because the tree is the major component of the ritual that convey meanings in many dimensions.

Bodhi means awakening and wisdom (Rahula, 1974: xv; Habbard and Swanson, 1997: xvi; Gethin, 1998: 22). The Bodhi tree is the tree that was in the most significant event in the Buddha's life and became a symbol of Buddhism. However, from the in-depth interviews, a Bodhi tree is not always the most significant tree representing the religion. The type of species can be important but there are also other factors. Phlāinōi (1970) referred to the book '*Buddhist India*' by T.W. Rhys Davids (1903) where the author argues that the 'Bo tree' is not the only Bodhi tree (*Ficus Religiosa*). A Bo tree is a tree located where Buddha reached enlightenment. The Buddha Gautama sat at a Bodhi tree, *Ficus Religiosa*, but the other ten Bodhisattavas who are predicted to become the Buddha in the future will have different tree species and all of them are called a 'Bo tree'. There is also a belief that if lay supporters pay

²⁷ Sal tree or Sala tree were the species in the location where the Prince Siddhartha was born. A Bodhi tree was the tree where the Gautama Buddha sat underneath when he reached enlightenment.

respect and worship these ten Bo trees²⁸, they will be exempt from rebirth in hell (Phlāinōi, 1970: 414).

There are some trees species that are similar to Bodhi tree (*Ficus religiosa* L.). Pho kee nok (*Ficus rumphii* Blume) is in the same family – Moraceae but Pho kee nok is a Bodhi tree that naturally grows by bird drops. They are parasites that usually sprout from the cracks of old architecture which could cause damages to the structures. The senior monks said we must remove them before they grow too big. If they grow too big it will be difficult to cut both physically and psychologically. People do not think there are tree spirits in small trees or even if there are tree spirits, they would not be a strong or sacred ones. Another similar species is Pho sri or Sandbox tree (*Hura crepitans* L.). It is in the Euphorbiaceae family. The leaves are very similar to both Ficus species but the trees are different.

5.2.3 The Evolution of Superstitious, Superstition-like Behavior, and Religious Belief

Many superstitions come from religious beliefs. The phrase “knock on wood” comes from ancient Indo-European civilization and its pre-existing culture. They originally knocked on trees because they believed trees were homes for various spirits. Knocking on trees or touching trees was a way to invoke their protection or ask for a blessing from the spirits within the trees. The beliefs and behaviors seem to be irrational. They can be based on cultural habits which defy logical understanding. People who grow up in a certain environment will do things certain ways because they feel uncomfortable doing things differently. Predominant Thai culture is one of animism. Thai culture believes in spirits in nature. People have worshipped large trees, rivers, and mountains before Buddhism was introduced to the region. The worship of Bodhi trees is a combination of existing tradition and the religious belief. People have worshipped a Bodhi tree for a long time because it is a symbol of Buddhism (Phlāinōi, 1970: 427). It is very common to see old people sit low and bow to a Bodhi tree in a temple (Ibid., 409).

Superstitions are adaptive behavior. Tree species carry different spiritual and cultural significance in different parts of the world. People in different cultures, places, and times appreciate the practical and spiritual significance of trees (Jim, 2000). The same tree species in some cultures convey different meanings in others while some meanings are similar. What they have in common is that they are all intangible values that are attached to and that affect people’s decisions. These values are strongly integrated within society and to humans and influence their behavior. “... *the trees in the forest have never been simply an economic resource for the people in the village. To the trees are attached a rich set of supernatural assistance, as well as a symbolic medium for human lives*” (Knight, 1998: 197).

There are porous boundaries between the existing tradition and newly introduced religions. When Buddhism spread to East and Southeast Asia, the existing cultural traditions were not eradicated. Buddhist believers in Thailand, as well as Tibet, China, and Japan, were

²⁸ There are trees that are believed to convey religious significance because they appeared when the ten Buddha reach enlightenment (Phlāinōi, 1970: 412-414): Kating or Alexandrian laurel (*Calophyllum inophyllum* L.), Chan Daeng (*Pterocarpus santalinus*), Rang or Burmense Sal (*Shorea siamensis* Miq.), Leap or Deciduous Fig (*Ficus superba* Miq.), Champa or Champak (*Magnolia champaca*), Kae foi or Snake tree (*Stereospermum fimbriatum*), and Sai, Weeping fig or Golden fig (*Ficus benjamina* L.).

not required to give up their old traditions. There was mediation between these old and new beliefs, predominant cultures and introduced religion became plural affiliations. Cultural traditions were allowed to continue when Buddhism came to the country. The local culture and religious belief toward trees are different. The local practice of assigning values to an object is against the Buddha's teaching. To give value and attachment to anything causes us suffering (Gethin, 1998: 71) because everything is impermanent (*anitya/anicca*) (Ibid., 61). The bondage of attachment (*upādāna*) is one cause of suffering. Humans assign values to a tree, worship it through rituals and adorn it with food, incense, and flowers. The cultural meaning has been introduced. The tree is interpreted to be a valuable culturally constructed object. However, nothing can stand forever. It is suffering to be in the same stage. The branches can be broken by several causes. The tree can die.

Although cultural belief in natural objects such as a Bodhi tree, a termite mound, or a river does not reflect the Buddhist doctrine, Buddhist monks in Thailand accept this cultural value for several reasons;

Trees are living things. Although Buddhism does not believe that there are spirits in trees, in Sutta pitaka²⁹ there was a story of a monk who cut trees when he helped with a construction project. Laities saw it and expressed their dissatisfaction because they believed that trees were living creatures. Cutting trees was killing living things. The Buddha listened and accepted this local belief and added a rule in the Vinaya³⁰ that monks must refrain from cutting or damaging trees (Mahamakut University, 2011: 164). There was also a story of a *Rukkha Thewada* (Tree angel) whose his residence, or his tree, was cut down by a monk. The tree angel told the Buddha and asked for justice. Even though spirits did not show themselves, to insist that there were no spirits in trees would be against the local belief. Regardless, damaging other properties and causing residents troubles was an unwholesome behavior and was considered committing bad karma. The Buddha then asked Buddhist monks to refrain from cutting trees (Sawangying, 2009: 116). Monks respect and compromise with the local culture. Predominant local culture in Thailand believes in spirits in trees and lands. Big and tall trees have higher statuses in the forest. Soil is flesh. Trees and grass are hair of the Mother Earth. Although the local belief is opposite to the Buddhist doctrine, monks accept these local cultures and use it to create a connection with local laities (Ibid., 117). Despite the different beliefs in tree spirits, trees convey different values in Buddhist teachings. Humans, including monks, rely greatly on trees and other natural components. Hence, we should have mercy upon trees. We should respect trees and other natural elements. We should also appreciate and have limited uses of natural resources (Ibid., 119).

Japanese Shinto believes that cutting down a large or old tree could aggravate the god and be cursed (Omura, 2004: 181). The Buddhist canon also prohibits monks from cutting down trees or digging soil because both trees and soil are considered living objects. Buddhist monks who dig soil, cut or cause a tree to die have offended the monastic rules (Mahamakut University, 2011: 164). However, the Buddhist canon did not explicitly explain it that way which causes different interpretations of the Pali Canon in several Buddhism nations.

²⁹ Sutta pitaka is one of three pitaka in Pali Canon. Sutta pitaka consists of stories during the Buddha's time (Chapter 3).

³⁰ The Buddhist monks' precepts.

With all these superstitions, cultural beliefs, and religious values, what are the factors that make Buddhist monks care for trees? What are the factors that define the way in which people perceive the values of the heritage trees? Does location matter? If the same tree species of similar size and age grow outside temples, do they still convey the same symbolic significances? How do Buddhist monks with their influences on society, culture, and environment assign cultural values and the powerful status of sacred symbols to the trees? How do the monks influence preservation of the temple trees with these cultural constructions of assigned values?

5.3 Methods

5.3.1 Study Sites

From 452 Buddhist temples in Bangkok, I used stratified random sampling methodology and selected 15 temples based on diversity of ages, classes, locations, sects, existence of Bodhi trees from the King, and Big trees awarded from the BMA in 1999 and 2009. The study sites have different characteristics based on the surrounding land uses and demographic information, yet include all the above qualities. There are 10 temples in the inner districts, four temples in the middle districts, and one temple in the outer districts. The inner districts are the old town and business districts with high and middle density residential areas and commercial areas. Land uses in the middle district are middle and low-density residential areas and some environmental conservation areas. The Outer districts' land uses are low density residential areas with environmental conservation and wetland conservation areas.

5.3.2 Ethnographic Field Work

I spent ten months in the field beginning in the Winter of 2014 with preliminary observation to the first interview in Summer 2015, and ended in 2016 when I conducted the last in-depth interviews in August that year. I have talked to more than 50 monks from the age 21 years old to almost 90 years, and from a monk with more than 65 years of experience in the monkhood to one who had only been ordained for a few weeks. I also conducted informal interviews with temple staff, temple visitors, and informal workers such as volunteers and street vendors who are regular users of the temple gardens.

1) Preliminary field work

From the list of 100 Big Trees in Bangkok published in August 2011 (Lassus et al., 2011), and the 1999 Heritage Tree Inventory (BMA, 2003), there were 16 heritage trees that were located in 13 temple gardens. I visited and observed all of those big trees in temple gardens in the winter of 2014 to see how big they were and how well the temples cared for them after the City gave them recognition.

2) Participant observation

Prior to beginning fieldwork among the Buddhist monks, I participated in reviewing a manuscript for a book entitled "Handbook for Temple Garden Maintenance³¹" which the Crown Property Bureau (CPB) published and gave to temples to use as guidelines for temple landscape

³¹ Handbook for Monastery Maintenance (2016)

design and care. I met with a group of monks in the Sangha who considered themselves academic monks³² that actively restore old temple architecture, reach out to communities to get them involved in religious ceremonies, and seek suitable care for trees in temple gardens. I observed, shared, and discussed, and got some insights from the Sangha perspective on temple gardens, the religious meanings of trees, perceived values, and the factors that drive them to care for these temple trees. I filled my notebooks with interview transcripts and sketches. Between the interviews, I roamed around to observe temple visitors and their behavior toward temple trees. With the connection with the monks who were in the publication project, I received recommendations and references to other interviews.

3) In-depth interviews

I conducted more than 50 in-depth interviews with Buddhist monks to examine what the trees and the natural environment meant to them and what factors caused assignment of significant values to temple trees. For this study, I analyzed 45 of those interviews from the selected temples. The remaining interviews were conducted in temples other than those on the list of the selected study sites because there were some selected study sites where I had difficulties setting up interviews. According to the IRB Human Subjects Protocol, I may not mention names or use descriptions that could be used to distinguish or identify the subjects of my research. Pertaining to the *Vinaya*, the Buddhist monastic rules, females are not allowed to be in private with a monk. Therefore, I always had a chaperone come with me and conduct interviews in public spaces at the monks' convenient times.

5.4 Results

From the preliminary observation, I visited and observed heritage large trees that were listed in the Heritage Tree inventory in the Bangkok's Green Areas Masterplan report (BMA, 2003) and the list of 100 Big Trees in Bangkok in 2009. I was surprised to find that many of the monks did not realize that they had awarded trees in their temple gardens. Some of the heritage trees listed in 1999 were no longer there, and many of those that were still there were not well maintained. I found that most of the heritage trees were not in healthy condition and some were at risk of being cut down. Trees are transitory and will eventually die, but with proper care they can live healthier and longer. Even though it had been proposed in the Bangkok's Green Areas Masterplan report in 2003 that these heritage trees have special care, the City did not provide funding or have any maintenance or preservation plans to help take care of these old trees. Most temples take care of the gardens by themselves. Some temples receive occasional services from the district offices, but none of them have regular care or an arborist who can provide suitable care for these trees. Most of the time, the monks did not recognize the social significance of these heritage large trees in the temple gardens.

5.4.1 Findings: Variable Factors that Define the Values of Trees in Temple Gardens

From this empirical study, I explored different factors that defined the cultural values of trees in temple gardens. Besides the local beliefs of spirits that gave sacredness to trees, the

³² Chapter 3

following factors arose from the findings of the ethnographic field research. The findings from my field work covered nine factors that have influence on cultural values of trees: location, size, species, tree spirits, liturgical objects, rituals, symbolic meanings, origins of the trees, social recognition and environmental awareness.

1. Locations



Figure 5.1: Bodhi trees with flowers, sticky rice balls, and sand pagoda in a Buddhist temple in rural area.

I stopped at a Buddhist temple on a quiet street by the Mekong River in *Nakhon Phanom*, a small province in Northeastern Thailand. It was early in the morning but many temple visitors had already left. Lay followers came to the temple after they offered the morning alms to the monks, a practice which normally takes place before dawn. When I entered the temple, I saw many small banana-leaf vessels filled with popped rice, yellow marigold flowers, tiny colorful flags, and other ceremonial ornaments under the big Bodhi tree. In addition to colored scarves around the tree, there were hundreds of small white dots that looked like white flowers lined on the large tree trunk. I curiously walked closer to the big Bodhi tree that was located near the entrance in the middle of the sand yard. The white dots appeared to be a hundred of small sticky rice balls. In Northeastern Thailand, monks only collect sticky rice while they walk for the morning alms. After the morning alms, temple visitors would form leftover sticky rice into small balls, about thumb size, and put them on large trees in the temples. Two young monks walked by so I asked them about the tree and the ritual that people were conducting. The monk talked about a Bodhi tree from Lanka when I asked about the important tree in the temple. A Bodhi tree from Lanka has more historical significance and symbolic meaning because it was planted from a sapling of the Bodhi tree that the Buddha sat under. However, the Lanka Bodhi was smaller, younger, and located behind the building, which was a bit more inconvenient for public access and difficult to see. The Lanka Bodhi also had some sticky rice balls and flowers but much fewer than the big Bodhi tree near the entrance. *“We do not usually bow to trees. We do have a ritual on the Buddha Vesak day, the full moon on the 6th month. Monks do not normally pay respect to trees, but we bow to this Bodhi tree, only*

on Buddhist Holy days. It is not the Lanka Bodhi but we conduct the ritual here because this Bodhi tree is older and bigger. It is over 100 years old. The Lanka Bodhi is only about 80 years old. Lanka Bodhi should be more important due to its origin but this big Bodhi tree has more space in its vicinity and located almost in the center of the temple which make it more convenient for everyone to access and attend the ceremony.” The central location of the big Bodhi tree with open space under and around it allows temple visitors to see the tree from outside of the temple and use the space under the tree to perform religious ceremonies. Location matters.

Inside or Outside Temple Grounds

Although some monks argued that when trees are on temple grounds, their religious values increase, more than half of the monks I interviewed disagreed. Twenty-six of forty monks insisted that location does not matter. Trees that convey religious or other significant meanings still have the same meanings no matter where they are. Place does not matter.

Place does not matter. Trees that convey significant meaning or species that people believe in their sacredness will always have the sacredness wherever they grow (D-1-3.1). Place does not matter. It depends on how people perceive. In Lanka and India, Bodhi trees are significant even when they are outside temples because people believe in their cultural values (A-1-3).

No matter where trees are located, if the trees are the species that convey religious significance, they will be significant. Place does not matter. They will be significant everywhere they grow (A-2-3).

Location does not matter. Trees can be a symbol of religion if people recognize them (B-5-1). Trees that serve as a symbol of religion can serve their function no matter if they are in a temple or grow outside temples (B-5-4).

Bodhi trees, even when they grow outside a temple, are still significant wherever they still relate to the religion (B-6-4). Significant trees are significant even when they are outside of a temple. Trees are significant because they relate to Buddhism (B-2-4.1).

With physical evidence of flower adornment and multicolored scarves tied around trees outside temples, monks assumed that people equally praise those trees even if they were not on the holy grounds.

Beside King Rama II’s Bodhi trees, another Bodhi tree that was tied with colorful scarves was the Bodhi tree on the sidewalk between Section South and North.

A Banyan tree (*Ficus benghalensis*) on the South side near the riverfront was another tree that sometimes has colorful scarves tied around it. I [the monk] did not know when and who did this. I have never seen people doing it. [This Bodhi tree and Banyan tree are sacred because of their species. They are located in the middle of the walkway, not on the same axis as the other two Bodhi trees, yet they still convey cultural values as laypeople adorn the trees with colorful scarves and other offerings] (A-1-2).

Another behavior illustrating that location does not matter to the idea of sacredness is how people are afraid of cutting trees even when the trees grow in residential areas or on other land uses.

Location does not matter. Trees with religious significance have similar values. Because Thais (Buddhists) believe that Bodhi trees are related to religion, they are afraid to cut or do

any harm to the trees. Even when a Bodhi tree grows in a residential area, people are afraid to cut it. Even when a Bodhi tree grows in a rice field, people do worship it (A-2-2). When people plant a tree in their house, if they believe and respect, place does not matter. Bodhi trees or Banyan trees that grow outside temples still have respect and people are afraid to cut them down because they are afraid of bad karma. To cut these holy trees can bring fatality to them (B-2-3.1).

Thirteen percent of the monks mentioned that the species is very crucial to the survival of the trees. It was the primary factor that preserved the trees from being cut down no matter where the trees were located. These groups of monks agreed that species has more impact on how people perceive the values. The Bodhi tree is a symbol of Buddhism. Bodhi trees that grow outside of a temple garden, sometimes on the street, also still convey religious significance.

Bodhi trees are symbols of the enlightenment. In this garden, monks pay respect to the Bodhi tree because it is a symbol of the enlightenment. No matter where they grow, (the Bodhi tree) still is important (B-4-4). Location does not matter. Bodhi trees still have significant meanings even when they grow outside of a temple. The meaning and beliefs are still the same. However, the Bodhi trees that grow outside are mostly naturally grown. No one planted them (C-2-2). Place does not matter. Bodhi trees convey significant meanings no matter where they are (C-3-1). People who know that Bodhi trees are symbols of Religion will always remind them of religion when they see Bodhi trees no matter where they are. Either in a temple or outside temples, a Bodhi tree will make them think of Buddhism; Buddha, Dhamma, and Sangha and creation of a pure mind. Bodhi trees will give benefit to the people who see the connections of the trees and religion. Location does not matter (C-2-4). Bodhi trees are symbols of Buddhism wherever they grow. The Buddha reached enlightenment under a Bodhi tree so it is a reminder of the religion (D-1-3.2). Bodhi trees are significant religious symbols no matter where they grow. It represents Buddhism and does not have to be the one that grows in a temple. Locations do not make any differences in the perception of the value of trees. (D-3-3).

Places of the Trees Inside the Temple

While a majority of the monks I interviewed did not agree that location is an important factor, 13 of 40 monks argued that the location of trees does matter. Because temples convey the symbols of power, trees inside temples have more religious values than the same species that grow outside temples.

Trees have to be in the temple for people to pay respect (C-1-3).

It is more outstanding when they grow in temples. Bodhi trees or Banyan trees that grow in the temple represent more religious meanings. Some of them just grow in the paddy field from the bird drops. Normally, people do not have Bodhi trees or Banyan trees in their houses because these trees are considered sacred with their high status. Maybe there are holy spirits in the trees. So mostly we plant them in temples (D-2-3).

Bodhi trees must be in the temple to convey their religious significance. A Bodhi tree that grows outside usually has less significance and less worship (B-4-2).

I do not think that Bodhi trees outside temples convey religious meanings. Even the ones inside the temple that are unintentionally grown should be considered whether they were in the right places because Bodhi trees are sacred but they have to be at the right place (A-1-1).

Patterns of Locations of the trees in the temple gardens included their variations of placement along the axis of *Ubosot*, *Chedi*, and *Viharn*; whether or not the growing of trees intrudes on temple structures; whether or not they are in public or private zones; and how temple visitors have access to the trees.

Bodhi trees became more significant and had a designed location in temple plans during the reign of King Rama IV (1851-1868). Most royal temples that were built during the reign of King Rama IV did not always follow the East-West orientation like temples in the Early Ayutthaya period (1351-1463) but the temple plans were associated more with surrounding context. There was still an axis in Phutthawat section and Bodhi trees became a significant part of temple site planning as it was part of the axis. The main axis in Phutthawat section consisted of *Ubosot*, *Chedi*, and *Viharn* and *Bodhikara* - an architecture surrounding a Bodhi tree. Bodhi trees became parts of temple gardens since the King Rama II reign when he received Bodhi trees from Lanka. The status of Bodhi trees in temple gardens were highlighted during the time of King Rama IV because of his beliefs and his admiration for the Four Holy Place of Buddhism in India and Nepal and how Indians pay respect to large trees. The King Rama IV also received Bodhi trees from Lanka and Phra Sri Maha Bodhi from Bodh Gaya (Preamkulanan, 2017: 374). His belief in the religious values of Bodhi trees was reflected in *Bodhikara*, a foundation for bodhi tree in the main axis of temple landscape in many Buddhist temples built during his reign.

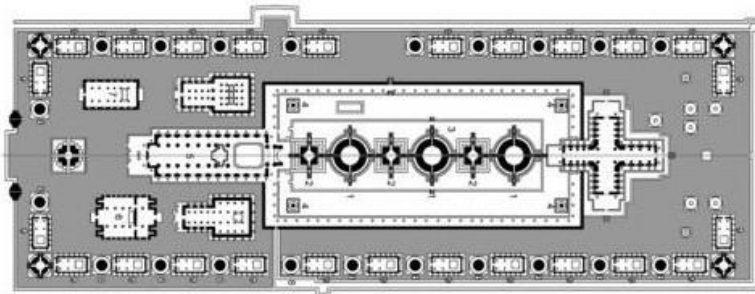


Figure 5.2: Temple axis. Ayutthaya temple plan.

Source: Architectureofbuddhism.com. from "The Golden Land" ISBN 978-0-7892-1194-1
Architectural diagram copyright Vikram Lall

Bodhi trees played significant roles in the temple design and planning. During the King Rama IV period, some patterns in site planning in Royal Thai temples were created (Jiratassanakul, interview 6/7/2015). A Bodhi tree became an important component in the temple plan. As a consequence, not only was it the history of the Buddha's life that put religious significance on Bodhi trees, but its subsequent location as part of the temple plan gave the tree historical and cultural values. Bodhi trees in the temples that were built during the King Rama IV period conveyed status as significant as much as other architectural components in the temples.

Locations also matters. In Lanka, Bodhi trees grow in every intersection. The Bodhi tree here at this temple was planted on the same axis as the *Ubosot*, *Viharn*, and *Chedi*. It was one of the significant elements of the temple (B-3-1).

A significant Bodhi tree is located in the same axis with other main temple buildings in Phutthawat, the public section in Buddhist temples. Sometimes the Bodhi trees are planted in front of Ubosot which is one of the most important public buildings in temples. In some temples, the areas of Bodhi trees have secured accesses to prevent vandalism or temple visitors who want to perform rituals to the trees.

Places matter. A place that a Bodhi tree grew can impact its significance. The Bodhi tree in this temple is very special. We control the access. We intend to plant on the same axis as the *Ubosot*, *Viharn*, and the *Stupa*, in front of the *Ubosot* in the locked area. We do not allow people to get there and pour any water on it (B-3-1).

We planted the Bodhi tree in front of the church to show our respect and emphasize the significance of the Bodhi tree (B-3-3).

Many monks are concerned about locations of trees and whether the branches and root structures can cause damage to temples structures.

Trees that grow in an unpleasant place would have lower values compared to the same tree species that grows in a place that people respect.

Places matter (D-1-1). What if a Bodhi tree grows on the roof of an *Ubosot* or a *Chedi*? Bodhi trees were holy but they had to be in the right places (A-1-1).

We should not allow trees to grow too big if they grow in improper places (such as places that might damage historic buildings) (A-1-3).

There are several Bodhi trees. Bodhi trees that grow in a temple are more sacred. Most people believe that they are holy. However, if the trees grow in a wrong place we have to cut them (B-3-3).

What if a Bodhi tree grows on the roof of the church? It had to be at the right place (A-1-1).

In the North, with the traditions of Northern Thailand, people believe that if they cut a Bodhi tree, they will die. It is karma. However, for people these days in this developed society, if a Bodhi tree grows in a wrong place, it is necessary to cut the tree (D-1-4).

Temple visitors cannot access the trees in private areas in temples. Trees that are located in public sections or near the entrance of temples receive more attention and respect from people. In many temples I visited, old trees and sacred trees that have easier public access tended to be well preserved because people could monitor and praise them.

There are trees with colored scarves. Bodhi trees were tied with colored scarves by both local people and visitors from other districts. Among several Bodhi trees, the visitors choose the one that is most accessible to tie the colored scarves (D-2-3).

Some other remarks from the interviews shed light on the decrease of cultural values when compared with economic benefits of the places. When trees are an obstacle to development, their values seem to be indifferent.

Place does not matter. The same species growing in a different place should have the same value. Bodhi trees are the tree of the Buddha's enlightenment. Even when it grows in the middle of the road, it still is sacred. However, if the trees are obstacles they have to be cut down (D-2-4.1). Location does not matter. The Bodhi tree is a symbol of religion. People tend to cut them down because they do not have economic benefits and could damage the structures (B-6-2).

Depends on the location and the context. There are Bodhi trees that people want and the ones that people do not want. A Bodhi tree that grows in a house is more likely to be unwanted. They are unfavorable and tend to be cut, removed, or given to the temple. I have received many small Bodhi trees. Laypeople dug the trees that mostly grew naturally in their houses. They offered the trees to the monks. They put the Bodhi trees in planting pots and gave them to the temple. We have several Bodhi trees in front of *kuti* (C-1-1).

Bodhi tree has more religious significance than other trees. We used to have a big old tree but we cut it down because of the construction project (Luang Pu Munn sculpture). We were trying to move the Bodhi tree but because it had very long root, it died after the move (C-3-1).

People do not want a Bodhi tree in their houses because the trees can grow very big and have invasive roots that could damage structures. Laities are usually afraid to cut a Bodhi tree so they offer it to the temples. Bodhi trees considered sacred are similar to Buddha images that people hesitate to destroy or throw away.

Places do matter. When heritage trees have convenient accesses, temple visitors can conduct rituals and adorn the trees which is the way in which humans assign cultural values on to the tree. However, if significant species trees grow in wrong places, they are likely to be taken down. Despite recognition of the significance that trees convey, trees are still at risk of being cut down. Economic benefits become more important and exceed the cultural and historical values of trees in temple gardens.

2. Size

Not only have temple visitors always put worshipping objects under the big Bodhi tree, but when the temple has a religious ceremony, the monks always conduct the ceremonies under the big tree as well. Larger trees not only provide more ecological services but also have more charismatic values, give more shade, and have more impact on the space in which they are located. More than half of the monks that discussed the size of trees and their cultural significance agreed that the size of the tree has an impact on the perception of sacredness. Temple visitors perceived more sacredness in larger trees.

Big trees are favored. In rural areas, when people see a very big tree, there are always those who would come with colored scarves to tie them around the tree (A-2-2).

The Chan tree (*Diospyros decandra*) near *kuti* was the symbol of the temple. The tree was so big that it needed five people to put their arms around the tree. It was there since the Ayutthaya period (1351-1767). It was as tall as a 4-story building (B-1-1).

We are about to cut down big Bodhi trees by the river because they are on the proposed site to build a pavilion. The biggest Bodhi tree is the size of 5-6 people embraced. Temple workers refused to cut them because the trees are big and old (B-1-1).

Rain trees (*Samanea saman*) are one of the largest trees that served as their top canopy provide shade that cover the garden (B-6-2). Bigger trees tended to have more significance than smaller ones because they can provide more shade (B-6-4).

Sizes also have impact on how people perceive the values of trees (ecological aspect). Bigger trees provide food and habitat for more animals. The bigger the tree the more warmth and hospitality it can give to the wildlife (C-2-4).

People feel intimidated by larger trees and that has allowed for self-preservation of the trees.

If a Bodhi tree grows very big, even in an inappropriate place, no one dares to cut it (D-1-3.2).

Size and species are critical factors of their significance. Bigger trees are less likely to be cut because people do not dare to cut them (D-1-3.1).

[He does not say directly that because the size of the tree he is scared but the Rain tree is one of the largest trees in that area. Its canopy creates an atmosphere that make the place sacred to him believed there is a spirit in the tree]. Behind the shrine was a big shady Rain tree that was very scary at night (A-3-2). A very big Koi tree (Siamese rough bush, Toothbrush tree. *Streblus asper Lour.*) was there before the construction of the meditation pavilion. We moved the tree to the nursery during the construction and brought it back to plant near the same site (B-6-2). Bodhi trees that grow in the house usually are a Bodhi tree that grows by itself. It grows too big until people are afraid to cut it. A big Bodhi tree has deep respect from people (C-2-2).

Small trees do not get as much respect from laypeople.

Occasionally, there are people who came with incense sticks. However, because the trees in the temple garden are not very big, no one bowed to them (B-2-3).

Even though the majority of the monks argued that tree size does have an impact, sizes of trees did not always relate to their ages and their significance. Some very old and significant trees can be small. Some tree species serve as cultural symbols even when they are not yet mature.

Sizes of the tree do not matter. A tree can be very old and very important despite its size. Sometimes the height and sizes of the tree cannot really represent the age of the tree. Some very old trees may be small because of their species. The textures of its trunk can tell their age (B-4-2).

In Northern Thailand, even a small Bodhi tree is protected. People are afraid to cut it (D-1-4).

Some very old trees are maybe not as big as a Bodhi tree due to their species. However, because of their age, they have more aesthetic value and convey more historical significance.

The skin of the tree trunk tells its age, not its size. For example, Tako trees (*Diospyos rhodcalyx*) or Koi tree (*Streblus asper Lour.*). The thickness of the trunk and the form of the trees, especially *Mai dut* (topiary or a Thai-style bonsai)³³. We can look up in the old Chinese or Japanese text books on *Mai dut*. We plant some new topiaries but they are not as beautiful and valuable as the old ones (B-4-2). Even if they are the same species, or even if a tree is bigger, the significance is the age of the tree. The older trees have more value than the young ones. Other old trees in the temple are Tako trees that surrounded the *Ubosot* and Koi in front of the *Viharn*. [Both are species used in traditional Thai topiary]. Only three Koi trees are the old ones. Besides that, there are new ones which were just planted about 30 years ago (B-4-2).

³³ *Mai dut* is a Thai-style bonsai or topiaries. Sometimes called *Mai Yipun* or Japanese trees, *Mai dut* was a Buddhist monks' hobby started in temple gardens in Early Rattankosin period (1782-1932) during the reign of King Rama II and King Rama III. It became very popular and spread into royal gardens and high society in Thailand. (Sukawattana, 1996: 78).

These urban temples in Bangkok are surrounded by the urban fabric and the non-porous paving of the city. Not only is there limited soil and water, but these trees were limited by concrete borders that were built to celebrate their historical significance. It may seem improbable but criteria other than the size of the trees can be significant factors in preserving them until they can grow bigger to their mature stages.

3. Species

Species, Bodhi Trees or Not

It is very common for Buddhist temples to have Bodhi trees as parts of their landscape because the species is a symbol of Buddhism (Phlāinōi, 1970: 406). Although the Bodhi tree is the tree that Gautama Buddha sat underneath when he reached enlightenment, other Buddhas will sit under different trees but they will be all called 'Bo tree' (Ibid., 414).

Bodhi trees had been planted in the royal monastic gardens since Sukhothai period (1238-1438) (Sukawattana, 1996: 8). Bodhi trees are a symbol of triumph, the victory over the Māra (the Satan, the Bad One; his name means "bringer of death" (Gethin, 1998: 23)) and a symbol of the enlightenment (Sukawattana, 1996: 9). Planting trees with fragrance flowers is also the way in which Buddhists worship the Buddha. Larger tree species were planted in temple gardens because they required minimum maintenance (Ibid.).

In some regions, especially in the North or Northeastern Thailand, laypeople have small banana leaf vessels with popped rice and flowers and put small balls of sticky rice on the tree trunk. They usually perform these rites more with tree species that have symbolic meanings. These cultural constructs influence people's behaviors and their perception of cultural values of trees. From 30 responses, 25 of the monks agreed that species does matter. Bodhi trees are religious symbols and receive a lot more respect from temple visitors compared with other species.

Trees are significant because they are related to Buddhism. Only species define the significance of trees (B-2-4.1). The Bodhi trees were the only species that have been tied with colored scarves and paid homage with incense sticks. People from outside occasionally tied the Bodhi trees with colored scarves. The temple took the fabric off within 1-2 months (A-1-2).

The only trees with colored scarves were the Bodhi trees (A-1-4).

Laypeople believe that Bodhi trees are sacred. Other trees do not have this sacredness. The acts of tying colored scarves around trees or putting wood sticks to support a tree branch are believed to be an act of worshipping the trees (A-2-3).

Bodhi trees are already a symbol (Species is a factor). It was one of the seven elements in the Lord Buddha *Sàhà chât*³⁴. Although some people do not know about it and destroy Bodhi trees. This totally depends on personal beliefs (A-2-4).

Some trees are more special than the other trees such as the Bodhi tree. Monks have to perform a religious ceremony before cutting a Bodhi tree otherwise laypeople are afraid to cut it (A-3-2).

³⁴ Sàhà chât means things born on the same life time. There are Seven things that born in the same time as the Buddha's life. These seven things are considered Sàhà chât with the Buddha; Yasodharā Pimpa, Ānanda (his disciple), Channa (his charioteer), Karutayi, Kanthaka horse, Phra Sri Maha Bodhi, Nithikumpi.

Many monks agreed that species are more important than the locations of trees.

No matter where a Bodhi tree grows, its significance is still there. Its religious meaning does not decrease even when the tree is located outside of a temple (C-1-4). Bodhi trees that grow on the streets tend to survive, compared with other species, because the Bodhi trees are related to religion (C-1-1). Bodhi trees still have significant meanings even when they grow outside of a temple. The meaning and beliefs are still the same (C-2-2). Bodhi trees are a symbol of religion. Location does not matter. Even when it grows outside a temple, Bodhi tree still conveys religious meaning. Even a leaf of Bodhi tree is a symbol of religion (B-6-2).

Because some trees naturally grow, the intention of planting trees also defines their significance.

Bodhi trees and Banyan trees are fundamental trees in each temple. Some are planted by humans. Some are naturally grown. Every temple should have these trees because they provide shade with their large canopies. They also serve as a symbol of religion (D-1-3.2). Significant trees in the temple are the Bodhi tree. We intentionally planted it. (Many Bodhi trees found in the city are naturally grown from bird droppings or wind). This Bodhi tree is about 30 years old (D-1-1).

There are other tree species that are commonly believed to be sacred.

Takien thong or Iron wood tree (*Hopea odorata*) near the shrine was struck by lightning. We replanted the tree with its seedling. The monks in this temple seeded 200-300 Takien and people at the shrine gave them away to many temples (A-3-2). [Takien thong is one of the species that are believed to be sacred. The Takien tree at this temple was very well known because of a famous legend about the spirit living there].

When they built new buildings, they kept the Sala tree [Because Sala trees have symbolic meanings Then someone brought colored scarves and tied them around a Sala tree at the Police hospital. It was not in a temple but people tied colored scarves around it and with this assigned value, the tree was protected (B-2-4.1).

Some tree species became identities of places.

In Ayutthaya, at Amphoe Sena, there is Wat Taku and Taku trees, Wat Kratoom with Kratoom trees, Wat Bang Sakae and Sakae trees, Wat Satue and Satue trees, Wat Samor at Khok Samor (*Khok*=small mountain) (B-4-2).

Trees with historical significance are Sakae trees. It is native here. The previous name of the temple was Wat Sakae. It used to be a temple outside the city, quite far from the Royal palace and the city center. We used to have the Royal cremation there. It had moved to Wat Thepsirin since the period of King Rama V. Sakae trees were mostly cut down to be used as a wood for cremations. We might still have some of them left but I do not know which ones are Sakae tree (B-3-1).

How people's beliefs and cultural values can change over the course of time. As one monk mentioned that it was not always Bodhi trees that were the most significant religious symbol.

Phra Sri Maha Bodhi is the name that every tree used to be called that the Buddha sat underneath when he reached enlightenment. For this Buddha, Phra Sri Maha Bodhi is a Bodhi tree (*Ficus religiosa L.*). The next Buddha will sit under a Chan tree (*Diospyros decandra*). Many

of large species trees in many periods and different times used to be or will be the place the Buddha sits under, including Chan tree, Bodhi tree, Sali tree (Banyan *Ficus benghalensis*), Hu Kwang tree (*Terminalia catappa*). You can read about this story in *Phra Sutantrapidok* (Sutantra Sutta) (B-1-1).

Because we are in changing culturally constructed societies, our beliefs also change with influences from social, cultural, environmental, and economic forces. What people believe and protect at one time might not have the same value in a different time. How can these trees, as valuable cultural and environmental assets, be preserved over time? Bodhi trees are believed to be a religious symbol but several monks mentioned different tree species that convey significant religious meanings as well.

4. Tree Spirits

An age-old practice prevalent throughout Thai culture and associated with Buddhism is the one based on a belief that the land is always owned in concert with the land spirits; that is, land ownership is equally the realm of the living and the land spirits. The spirits in Thai spirit houses protect the persons dwelling in the home from outside forces that may be harmful. Thus, spirit houses are erected to keep the spirits content outside and to prevent them from causing distress or mischief inside.

San Pra Pum (House of spirit). Tuan, 2009: 130



Figure 5.3: *San Pra Pum or spirit houses. This is a spirit house in a Buddhist temple in Thailand. People usually have a spirit house in their house no matter how small their residences are. Cleaning the spirit houses regularly, adorning with flowers and worshipping with food and water are usual practice for Thai people.*

Similar to spirits in the spirit houses, spirits in trees are also believed to have supernatural forces to protect people. Therefore, large and old trees, especially ones that people believe have mighty spirits, are worshipped by laypeople. An ancient Shinto belief is that a god exists in a large or old pine tree on an elegant mountain (Omura, 2004). The Shinto believe that there are gods in everything. Some religious trees have names that relate to god's soul.

Both of Japan's official religions- Shinto and Buddhism- believe that the forest is the realm of the divine. For Zen Buddhists, scripture is written in the landscape. The natural world itself is the whole book of God. In Shinto, the spirits are not separate from nature, they are in it. They are in the trees, in the rocks, in the breeze, the stream, the waterfall. There are millions and millions of kami. They can be everywhere in nature. And the places where gods live can become the places of worship themselves. It is not unusual in Japan to find people worshipping in the forest.

Dr. Qing Li, The Japanese Art and Science of Shinrin-Yoku. Forest Bathing. How Trees can help you find health and happiness. 2018: 19

Unlike Shinto, Buddhism does not believe in spirits in non-living creatures. However, the predominant local culture in Thailand that integrated with Buddhism over time put spirits in many natural elements, including trees, and made them sacred. In Thailand, there are common tree species that are believed to have spirits. Phlāinōi (1970) mentioned several species that people commonly believe have deities – satyrs or woodland gods, or *Thepharak* or *Rukkha Thewada*, residing in them; viz. Ficus tree or Weeping fig (*Ficus benjamina*), Banyan tree (*Ficus banghalensis*), and Banana tree (*Musa balbisiana*). In Thai belief, there are different kinds of angels residing in trees. *Thepharak* or *Rukkha Thewada* are angels or spirits residing in big trees. Fragrance trees have female spirits called *Nang Mai* or *Maeya nang* which means wood lady. *Nang Mai* are similar to nymphs, a mythological spirit of nature. They would be in the woods after the trees are cut down. These angels could cause troubles and be harmful to people (kanlayanatam.com).

The belief in spirits or *phii* (ghosts) was embedded in Thai culture even before Buddhism was introduced to the region. Blum (2009) mentioned that the cultural values of a tree rely on the spirit residing in the tree. If the spirit left, the tree would lose its values. However, there are some cultural beliefs that maintain that the spirits will always be with the trees. Phlāinōi (1970) explained the story about *Nang Mai* and how it is different from *Rukkha Thewada* or tree angel. Because *Nang Mai* will never leave the tree even after the tree is cut down and the wood has been processed, the sacredness is carried within the wood. When the timbers from a tree were used to build a boat, the tree spirit stayed in the wood and became a boat spirit (*Mae ya nang rue*). Unlike *Nang Mai*, *Rukkha Thewada* is an angel who resides in a tree. This angel lives in *Catummaharajika* heaven, the first and lowest heaven in Buddhist cosmic theory. Unlike *Nang Mai*, when a tree died or is cut, *Rukkha Thewada* will leave the tree and can go back to heaven or move to another tree. The belief that there are spirits in trees gives value to the trees and is a significant factor determining humans' behaviors toward trees.

Forests are sacred places because they provide inhabitable places for deities. There have been paradoxical issues between the local folk beliefs and Buddhist doctrines because Buddhism in Thailand has evolved and a new reform sect has separated from the existing one. A majority of Buddhists still carry on the same Pali canon and spirits in trees are still mostly believed - accepted as sacredness in nature.

Takien tree has some beings residing in it. This is the Thai belief that there is a ghost (*phii*), deities, or a non-human being in the trees (A-3- 2).

Every tree has spirit. Almost every tree has a spirit. Only a few trees, for example the very big ones, have people paying respect and bowing. Bodhi tree and Takien tree. Besides the trees at the shrine, I am not sure if there are any other trees with colored scarves or convey spiritual meanings. The two trees at the shrines were tied with colored scarves by temple visitors (A-3-4).

Thai people are afraid to cut Bodhi tree because they believe that there are spirits in the trees. It was a local knowledge to believe in spirits and they are afraid of these spirits in nature, especially in the trees in temples (B-6-4).

What is it that people are afraid of? Is it because the trees convey symbolic meaning? Or because there are spirits in the trees?

People are afraid of the Bodhi tree. They do not dare to cut the big Bodhi tree next to the shipyard. They believe that there is *Rukkha Thewada* or a tree deity living in the tree. To cut the tree, a ritual to invite the deity to leave needs to be conducted. Monks already conducted the ritual but the workers are still afraid to cut it down because of its size and the colored scarves (B-1-1). Big trees made the place sacred because there were spirits in the trees. All trees have spirits in them. We call them *Rukkha Thewada* (*Rukkha* = plants, *Thewada* = angel). In the air, there are *Akasa thewada*. On the ground there are *Pummatha thewada* (spirits of the soil) (B-6-2).

The belief in spirits (or *phii* in Thai) in natural elements is a superstition and the opposite of modern thinking. Young monks tend to have difficulty accepting or discussing it. Their responses reflected the dilemma of local folk beliefs and formal Buddhist theory. Nevertheless, they mentioned that they do not want to go near the big old tree at night as they do not want to disturb or encounter the tree spirits. Some monks were even upset and refused to talk about it. On the other hand, monks with longer experience in the Sangha can talk about this local tradition that integrated into Buddhism without any signs of rejection.

Monks with longer experience	Monks with shorter experience
<p>We believed that there were <i>Rukkha Thewada</i> (Tree spirits) living in trees. It was a story since the Buddha period when a Buddhist monk encroached upon a tree spirit, so the Buddha announced some rules to make sure that Buddhist monks refrain from disturbing other living beings (D-3-3). It was a Thai cultural belief that has been practiced for very long time. To do so (tie the</p>	<p>There is no tree with colored scarves in the temple. We do not encourage people to do so. It was the abbot's policy that we only worship Phra Sri Maha Bodhi. Laypeople are naïve and believe in this superstition that trees can grant their wish. People believe in spirits in trees and worship them with food and flowers. Temples do not allow people to do it. Monks have to warn the temple visitors when</p>

<p>colored scarves or worship with flowers and food) is the way to worship the spirits of the places and spirits of the trees (<i>Rukkha Thewada</i>) (D-2-3).</p> <p>The previous abbot was very protective of these trees. No one could cut them even the dried branch. He loved to preserve the trees because angels live in the trees (<i>Ti yuu Thewada</i>). We lit incense sticks and told (the spirit that resided in) the tree before we cut its branches (D-1-3.1).</p>	<p>we see this behavior otherwise it will make the temple garden very dirty (B-3-4).</p> <p>Every tree is important. It is the <i>Vinaya</i> that Buddhist monks may not cut any living green. We are prohibited from pulling, stepping on, or cutting any living parts of greens. We do not have a holy tree. We do not bow at any trees here (B-4-4).</p> <p>There is no sacred or holy tree. We only have some very old trees. Some big trees are on the streets, in the temple, or in the village (C-3-4).</p>
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Table 5.1: Comparison of the interview responses from the monks with longer experience and the monks with shorter experience in the Sangha.

Even though monks do not bow at trees, most monks, 12 out of 13 monks, expressed their beliefs and respect toward these big and old trees on temple grounds. A famous Buddhist monk in Thailand, Buddhadasa Bhikkhu, once said “*Buddha statues obscure the Buddha, the canon obscure the Dhamma, laypeople’s sons obscure the Sangha*”. Because people had so much respect for the objects which are the symbols of Buddhism, they forgot about the actual meanings and the substances of the Buddha’s teaching. When interviewing the monks, I always had this thought that they were once laypersons and had the question: Did these laypeople have respect for trees before they became part of the Sangha?

Trees are significant because of cultural beliefs which are not relevant to the religion. In Bodh Gaya, India, people pay respect to the Phra Sri Maha Bodhi. Bodhi trees are protected and no one cuts them because they are the reminiscence of Buddhism-places where the Buddha was born. Unlike Thailand, if the tree does not have a spirit or *Rukkha Thewada*, people are unlikely to pay any respect to it (C-1-3).

They are afraid of the spirit and try to be very respectful to avoid disrupting the spirit in the tree. Any profane actions may cause the spirits to be upset and might in turn cause bad things to the people who disobey. Even if you do not believe in the spirit residing in the tree, you had better not disrespect the tree and the spirit in it (C-2-4).

Some small trees are worshipped and well protected because people believe in the spirits in the trees. The two young Kanoon or jackfruit trees (*Artocarpus heterophyllus*) do not have religious significance but people believe that the spirits in these trees bless them and give them fortune and prosperity by giving clues for lotto numbers. People get the numbers, win the lotto, then come back with colored fabrics and tie them around the trees. They adorn the trees to show their appreciation.

Two Kanoon trees that gave very accurate lucky numbers “*Hai huay mann*”. The trees were not very big but had some colored scarves (D-1-4).

Have monks of the younger generation stopped believing in spirits in trees? Will these temple trees lose their cultural values if the younger generation of monks no longer believe in the sacredness that comes from the spirits living in them? From the interviews, most of the young monks expressed their fears of tree spirits while senior monks did not believe in the spirits in trees because it was not relevant to Buddhist doctrine. Junior monks and laities

believe in *phii* or spirits in trees because this notion is an embedded belief in Thai culture and still is a significant factor that helps preserve trees. A better understanding of ecological conditions of trees and suitable tree care is still required to ensure the temple trees healthy conditions.

5. Liturgical Objects

Although a majority of Buddhists understand that Bodhi trees are a symbolic proxy of Buddhism, laypeople still bow, or pay respect, to any trees with liturgical objects such as colored scarves, monk's saffron robe, or incenses and flowers. The rituals, the belief in trees' spirits, and liturgical objects that people use to worship trees are many times inseparable. People conduct the rituals by decorating trees with liturgical objects to worship spirits residing in the trees.

Liturgical articles that people bring to worship and adorn a tree are important factors that make a tree sacred. These relics are evidences that represent the beliefs of holy spirits in the trees. People tend to be more respectful when they walk past a tree that has been adorned or has worshipped objects (C-2-4).

Trees with liturgical objects are perceived as having more value. Not only laypeople are aware of these culturally assigned values, but monks are as well.

Trees with liturgical worship objects are the ones that convey significant meanings because they might have holy beings residing in those trees. We must pay attention and be very cautious when we are around them. We must be aware and have self-control when we are near the trees (C-2-4).

The most important ritual is conducted by the high priest. Several monks in royal temples mentioned the most significant ceremony with trees in the temples take place during Thai New Year. Holy water and other liturgical items are sent from the Bureau of the Royal Household. An abbot would be responsible for consecrating the significant trees because he is the most important monk in the temple.

During Thai New Year (April 13th) every year, it was a tradition that King Rama IX would give holy water to rinse on this tree. It is a ritual that is similar to how we treat our elders on the Thai New Year (A-1-1).

There are people from the palace who come every year on the Thai New Year with holy water to conduct a ritual and pour the holy water on the tree (A-1-2).

I have heard that it is a tradition that during the Thai New Year, the palace sent fragrancd water with flowers to the Bodhi tree (A-1-4).

There are also various simple ritual acts toward trees in temple gardens that reflect how monks emphasize the different aspects of the significance of trees. Buddhist monks in Northeastern Thailand who called themselves *Phra Nak Anurak* or Environmentalist Monks ordain trees with saffron colored robes, similar to monks' robes, to protect the trees and create environmental awareness for local people (Darlington, 2012: 83). Laypeople often adorn the old trees with flowers and colored fabrics as a way to cherish their longevity. Sometimes they worship the trees, or the spirit in the trees, with food, water, incense and candles as if there

was another being receiving their offerings. After making merits, temple visitors pour water at the root of big trees as an act of *Mettā bhāvanā* or spreading loving kindness to all beings.

Laypeople came to pay respect, put incense sticks, tied colored scarves. People put worshipping objects when they beg the deity in the tree to help. Temple cleaning staffs clear away these objects, which include flowers and food, when they get rotten (A-2-2). There are colored scarves tied around Bodhi trees because Buddhists look at Bodhi trees as a symbol of Buddhism (B-6-4).

There are trees with colored scarves; three colored scarves – green, red, yellow.

The Bodhi trees were the only species that have been tied with colored scarves and worshipped with incense sticks. The temple normally allowed people to do it. Most of the time they did not ask the permission to do so anyway. Then we took the scarves off after a few weeks. This happened not very often, about once every few months (A-1-2). Laypeople came to beg for things. When their wish was granted, they came back with colored scarves at the two Bodhi trees. The temple did not tie the scarves. Temple visitors did it. The temple did not prohibit them from doing so but once in a while, we took them off because they started to get moldy (B-4-2).

Some people come to the garden to beg for lucky numbers from some large trees- especially Bodhi trees. Many large trees were tied with colored scarves. “I let them do it. It was their happiness”. The monk said he later took the colored scarves off and threw them away because they became very dirty and visually unpleasant (B-6-2).

Most temples regularly remove liturgical objects from the trees placed by laities but some temples ignored them and do not give regular care. The monk did not explain the reasons why they leave the adornment there.

All the colored scarves, wood sticks, and other liturgical objects that people put under the tree to adorn and worship the deity will be left there until they decompose. The temple will not clean it up (A-2-3).

Even though it is not a Buddhist ritual to tie colored scarves, adorn, or worship trees, most monks are not against it or prevent laities from doing so. Some monks even encourage people to adorn the tree and consider it as *Upaya*, or skillful means. The act of adorning heritage large trees in temple gardens can be the way in which the Sangha build a connection with laities. They would feel good that they decorate as the way to worship the spirit residing in heritage large trees in temple gardens. Laities believe that adorning trees with liturgical objects is the way of making merit. The good karma from making merit would relieve their suffering, then monks can teach Dhamma and lead them to the right path.

The two existing Bodhi trees are the colored scarved trees. They were there since I moved here. They were planted by the abbot after he brought them back from India. They were planted around 1966 (BE 2509) on the side of the *Ubosot*. Under the Bodhi trees, there are colored scarves, broken Buddha statues, old spirit houses, pieces of old shrines. People leave these broken relics there because they do not want to keep them but are afraid to throw them away. The temple has to throw these trashes away because it was dirty. We put these broken statues into our reclamation. We use some spirit shrines that were still in decent condition. When people come and leave these objects, sometimes they ask for permission but most of the time they do not. A senior monk with authority in the temple

suggested temple visitors to tie colored scarves around the trees to make them feel better after they leave broken statues or other objects under the tree (D-1-3.1).

While colored scarves are the most common tree adornment, in some temples I have visited people put wood sticks against the trees because they believe the sticks that support the trees branches will support and elongate their lives. The ritual is called *Kham Pho*, a long-life ceremony commonly performed in North and Northeastern Thailand at big Bodhi trees.

Temples in rural areas normally do things differently. In the North and North East, people use wood sticks to put against the trunk and branches of a Bodhi tree. They also use saffron colored monk's robe to tie around a tree as if the tree is ordained (B-4-2).

I saw wood sticks supporting a Bodhi tree at one of the Royal temples in Bangkok. The sticks were painted in white with some gold and red fabrics tied around some of them. There were various sizes. Some sticks had people's names in them.

Many monks I interviewed expressed their paradoxical feelings regarding tree adornment. Even though colored scarves around a large old tree can commonly be seen around the city, some monks still disapprove of the practice because it is irrational. Buddhism is science to them and it can be proved. They find the belief in deities in trees to be superstitious and not Buddhism.

There are several trees with colored scarves. I do not know how many of them have the colored fabrics tied around their trunks. I know that the Pikul tree has the colored scarves. It reflects both faith and credulity (A-3-2).

There is no worshipping tree. There is no tree that people come to pay respect to. There is no tree with a colored scarf in the temple (D-1-3.2).

We do not have any colored scarves around the trees. This is a Royal temple so we do not tie any trees with messy colored scarves. By not allowing the colored scarves, we respect and recognize the importance of the trees in the temple (B-3-1).

While most of the young monks avoid discussing this topic, most monks with longer experience did not hesitate to mention the existence of trees with colored scarves in the temples, no matter whether or not they approved of this practice. To the contrary, some monks insisted that there were no trees with colored scarves in the temple gardens.

We do not allow people to tie colored scarves around trees in the temple garden because it is credulous behavior. We worship the Buddha but we do not worship other things (B-5-1).

We do not worship or pay any respect to Bodhi trees (D-2-2).

We do not have holy trees. We also do not have big trees because the temple property is not large enough (B-2-3.1). There are no colored scarves in the temple. We have limited numbers of big trees. Big and old trees are very rare here because we cannot plant many trees (B-4-3).

I do not know about any significant or holy trees in the temple. No, I do not think there are any trees with colored scarves (B-2-4.1).

There is no tree with colored scarves in the temple. We do not encourage people to do so.

Some monks refused to admit that there are trees with colored scarves in the temples even though they are there. One of these trees with colored scarves, a big Bodhi tree, is in a

locked gate which had very limited access. The colored scarves on it must have been done by the temple residents not outside visitors. This ritual of tree adornment conflicts with Buddhist teachings. Besides being monks, they are also Thais who grew up in the cultural environment that believe there are spirits in big old trees. With the monks' knowledge in Canonical doctrines, worshipping and adorning trees would be credulous. Assigning values on trees, a non-sentient physical element, is to create self and attachment which is not the right path to nibbana (nirvana). With this contradiction, it is inconvenient for some monks, especially the young monks, to discuss their thoughts on tree spirits and to accept the fact that there are trees with colored scarves in temple gardens.

We do not have any colored scarves around the tree. This is a Royal temple so we do not tie any trees with messy colored scarves. We do not need colored scarves to be respectful and recognize the important of the trees in the temple (B-3-1). I am not sure. I have not seen any trees with colored scarves (B-4-4). We do not have trees with colored scarves. There is no tree that people come and pay respect to or participate in any ceremonies for in this temple garden (B-5-4).

Most of the monks I interviewed are either against or avoid talking about liturgical objects such as colored scarves, flowers, foods, and other worshipping things. Even though some monks believe that there are spirits living in big trees, the liturgical objects seem illogical to them. Judging by the traditional Theravāda Buddhist canon, there cannot be spirits in any trees. However, with the predominant local culture in Thailand, this superstition has become embedded in Buddhism in Thailand for generations and became a mechanism of preserving old and large trees in temple gardens.

There were seven colored scarves tied around it. Temple visitors, those laypeople, who came to the temple, were the ones who tied these colored scarves. Once other people see it, they do the same thing and continue the ritual. It probably started 30 to 40 years ago (A-3-2).

Several monks from the temples that were built recently mentioned untidiness from the trees' adornment and how they want to remove them. Some monks understand the ecological services of trees and seem to under-appreciate the cultural values of trees in temple gardens.

Colored scarves and sticks under the Bodhi trees are unpleasant. The old trees already have their charisma without that trash on them. We should not put this rubbish on the trees. People can pay respect to the tree. It is fine to bow (*wai*) to the sacred trees but they should not tie colored scarves or put wood sticks against them. Because others will be afraid to take these objects away and the areas can become very dirty. We are monks so it is fine for us to clean this up. We do it with good intention. We clean the area and throw away everything including all those broken Buddha statues. These objects are unpleasant and should not be left here (C-1-3).

We keep the areas clean from dried leaves, ashes, and other trash. We do not allow people to put incense sticks at the trees to avoid a fire hazard (B-4-2). We do not allow people to tie colored scarves around trees in the temple garden because it was irrational behavior. We worship the Buddha but we do not worship other things (B-5-1).

All of the trees in the monastic area do not have any worship objects. Their main function was to provide shade (C-2-1).

There are only a few colored scarves on some trees. Not that many, and I think they were mostly there by coincidence. I do not know who did it. There are not many of them. One tree that I saw with colored scarves and flowers that was worshipped was the big ficus tree on the side of the *Ubosot*. There are some colored scarves on some big trees – ficus tree (Liap tree) near the *Ubosot*. There are some colored scarves but not many. If they got too many we just take them out when we have religious ceremonies. We do not have any particular trees that obviously have many colored scarves (C-2-2). There are liturgical objects on some trees but it does not seem to have any influence on the significance of the trees. Colored scarves and some small statues were found on a small tree (2-3 m. height) near the parking lot. There were not many of them. People from outside of the temple put that stuff on the tree. We let them do it as long as there are not too many (C-2-4).

Liturgical objects adorned on big trees in temple gardens influence people's behaviors and their feeling toward trees. Adornment on trees give the trees more cultural values and respect. It could be an effective mechanism that help preserve temple trees. However, if the tradition of tree adornment is discontinued, and new generation monks start taking down all the liturgical objects, and younger temple visitors stop praising and decorating trees with liturgical objects, in what ways can monks communicate the cultural values of trees to the next generations?

6. Rituals: Formal Cultural Rituals and Informal Local Folk Culture

In Buddhism, rituals are the way in which some monks use to assign religious values onto things. *Sai sin*, white threads, when they are used in a rite will gain their holistic values and are believed to help keep dangers and bad karma away from those who wear them. Prior to the ritual, the normal white threads have no religious values. After the ritual, the same white threads become *Sai sin*, holy objects that change the way people perceive and treat them. Water in a bowl that goes through a ceremony of chants with a white candle dropped into it will become holy water that is believed to help heal people from sickness and bring them prosperity when a monk sprinkles the holy water as blessing at the end of the religious ceremony making people feel protected and immaculate from bad karma.

At one of the oldest temples that I visited, a young monk mentioned that the Bodhi tree at the temple was ignored. Although the Bodhi tree held historical significance because it was given to the temple by King Rama III and was brought from Bodh Gaya, without ritual the tree became a forgotten tree. Without rituals a significant tree can be ignored and forgotten.

It was a forgotten Bodhi tree. Unlike the Bodhi tree at Wat Srales, the Bodhi tree here did not have enough attention. We did not promote and make people aware of its historical significance. The Bodhi tree was brought here by King Rama III. He brought the cutting from Bodh Gaya. It was the same type of tree that the Lord Buddha sat underneath when he reached enlightenment. I have seen the colored scarves on the tree for a very long time but we do not have any rituals there. I have never seen any rituals since I have lived here (A-2-4).

The Act of Worshipping and Adornment

Even though most interview responses mentioned that trees were just physical objects with no sacred values, it is ubiquitous that monks, as well as laypeople, worship old trees. A Bodhi leaf in a gilded frame on an altar in the monastic cell, colored scarves and incense sticks

at a Bodhi tree where there is no public access, or young monks bowing at an old Bodhi tree when walking past, are the ways which represent how monks, who were once laypeople, still have these cultural beliefs and worship trees.

None of the monks from my interviews said they pay respect, *wai*, or bow, to trees as the belief in spirits residing in the trees is against the Buddhist canon. Laypeople pay respect to trees, especially ones that have adornment, because they pay respect to deities, the only thing sacred in trees. Even with paradoxical discourses about belief in spirits in trees and Buddhist belief that trees are merely physical elements with no religious values, many rituals conducted in Buddhist temples in Thailand relate to deities in trees, the holy spirits that make trees sacred.

We conduct a ritual to offer things for the deity in a tree because people believe that there are spirits or some angels or beings living in trees. We (monks) conduct the ritual including the process of offering the three pieces of saffron colored robes (monk's regular outfits) to the trees. The ritual is called *Bang Sukun Anitja*, to dedicate the merits that we made to the angel, ghosts, and other spirits. There were four monks praying for the certain spirits who resided here. Then we contributed the good deeds we made to these nomad spirits. This *Bang Sukun Anitja* was believed to dedicate to these nomad deities. We, four monks, conduct the ritual on the 20th of each month at around 6 p.m. It is always crowded (A-3-4).

There are some other rituals that are conducted without the belief in the spirit in the trees. These are not ceremonies whose main purpose is the of worshipping trees. These rites and rituals have been done as part of religious culture as a remembrance of the Buddha or a memoir to people, usually important individuals, who gave or planted the trees at the temples. In this case, the trees are recognized as an important symbol that reminds people of important things or epic events. Conducting these rituals will remind monks and lay followers about the Buddha and keep their awareness on the significance of the existence of the trees.

Many years ago, we had *Kham Pho* ceremony (putting wood sticks to support a Bodhi tree) on the occasion of the anniversary of the King's coronation. We had a *Sama Mongkon, Kham Pho* ceremony for the first time in that year (A-2-2).

We take special care and have some rituals around the tree. People put wood sticks to support the tree as a symbol of supporting their life and bring themselves good fortune. People who have bad luck (as fortune tellers tell them) want to conduct this ritual by putting a wood stick against the Bodhi tree to improve their prosperity. There are different sizes of wood sticks. Some are very small. Some are as big as a column and as long as 10 feet. The very large ones were the ones the people put up for the King and the Royal family (A-2-3).

Sometimes the rituals are related to other social special occasions such as Thai New Year. Buddhist monks in many temples perform similar rituals on the Thai New Year in April. On New Year Eve, many temples also organize religious events for laities to come and pray under Bodhi trees from December 31th to January 1st as a way of making merit for their prosperity in the coming year.

Trees have values in their own without having any meanings. In India, people believe in the symbolic meanings of trees and have many actions that show their respect. They pour milk on the Bodhi trees, offer fragrant flowers and other nice things.

There are people from the palace that came every year on the Thai New Year with holy water to pour on the tree (A-1-2). Every year on the Thai New Year (*Song Kran*), the King (Rama IX) will send the holy water to pour on the Bodhi tree. It was part of the ritual similar to what we do to

the elderly to ask for forgiveness and to bless them with long life, good health, and prosperity. The holy water has been given to the Bodhi tree at the temple since the period of the King Rama II. Every monk in the temple attends this ceremony starting in the evening around 5 p.m. on April 15th every year (B-3-1).

There is a ritual every year. Holy water will be sent from the Palace to pour on the Bodhi tree during the ceremony on the Thai New Year. We have been conducting this ritual every year since the period of the King Rama II. There is also a Royal ceremony (*Chalong Somphot*) that the temple co-organized with the Royal Bureau in April. It is a big event that the public can participate in by pouring the water on the Bodhi tree and adorning the tree with flowers (B-3-4). We have a special treatment for the Bodhi tree. Every year on April 12th, we have a ceremony at the tree. We pour the water on the tree like we do for our elders. The abbot is the one who performs this ceremony (B-6-4).

Another set of rituals occurred when the trees needed to be cut down. People conduct rituals to ask for forgiveness and permission from the tree, or to be more concise, permission from the spirit in the tree. Even when an old tree dies, the spirit is still there. A ritual was conducted before the cutting of the dead old tree.

If people have to cut a Bodhi tree, they will pay respect with incense sticks and tell the spirit in the trees-asking permission to trim it or to cut all the messy bread and hair (branches and leaves of the trees)-we called it *Plee kam* (refuse the karma) (A-1-2).

Laypeople also have a ceremony to ask for forgiveness and permission from a big and old tree when they have to cut the tree down (A-2-2).

When the old Chan tree, the oldest tree in the city of Bangkok, died, we had a ceremony to cut the dead trunk down. Thai people in the old time believed that it was an obligation to ask for forgiveness from the spirit living inside the tree and conduct a ritual before cutting down an old tree. The abbot proposed that we use the wood to craft Buddha statues. We made three big Buddha statues. The largest one was put in the *Ubosot* and the other two were put in the ceremony hall.

One monk explained about the *Plee Kam* ritual that it is like a role play. One person is the tree cutter, and another person pretends to be the tree spirit being asked permission and giving approval to cut or prune the tree. There were also rituals when people replace an important tree with a new one.

There was also a ceremony when we planted the new trees to replace the old one. We conducted a ritual and had a sign put where the new Chan trees will be planted (B-1-1).

There were a few monks who do not believe and do not perform any rituals related to trees. They do recognize the cultural and historical significance of the trees but they do not think these ceremonial performances are relevant. Other religious ceremonies were conducted here as a way to communicate the cultural values of the trees.

We do not have any rituals on the Bodhi tree. We only built it, the Bodhi tree and space around it, to be a reminder of the Buddha (B-4-3). We do not have any rituals but we built a wall and signage around the tree as a memoir of the Buddha's life once he was enlightened and sat under a Bodhi tree (B-4-3).

*Bodhikara*³⁵ or *Ruen Po*, the house of the Bodhi tree, is one of the four significant components in the temple (B-6-3).

Rituals are significant performative behaviors that influence the preservation of heritage trees. Worshipping trees, either with or without the belief in spirits in the big trees, leads to the preservation of the trees in temple gardens. Conducting rituals is also the way for senior monks to communicate the cultural values of trees in temple gardens to younger monks, the next generation in the Sangha who will become the stewards of the landscape in temple gardens in the future. The appreciation of cultural values could contribute to the understanding of ecological values and be an influence on the Sangha to preserve these heritage temple trees.

7. Symbolic Meanings

Symbolism and sacredness are more intellectual ways of assigning value to trees compared to spiritual and superstitious practices. People's way of life reflects their religious beliefs and a group's ethos (Geertz, 1973., 88). In the Thai ethos the spirit in nature and spiritual powers were highly valued. Buddhism absorbed the spiritual beliefs, embedded them into the local culture, and recreated symbols that convey meanings in both religious and local beliefs as the way to get people to accept the new religion.

Sacred or Secular

The symbolic universe of the sacredness of a tree is not limited to liturgical objects, species, or sizes of the tree. Trees also provide secular services and serve as symbols of spaces and times. They represent and remind people of places, institutions, communities, or groups of people.

Pikul tree (*Minusops elengi*) is a symbolic tree of our temple. There are many of them here. They are old but not sacred (A-1-4). I see trees outside the temple that still have meanings. Trees in some government offices. Sala trees. People do not cut them down (B-2-4).

Three gardens on the West side of *Viharn* named after the heaven in *Daowadung-Sunanta*, *Parutsakawan*, *Misakawan* gardens. These gardens were built since the King Rama III period. Stones were put to represent the clouds in heaven. Bamboo and pomegranate trees were planted to provide shade and create a nice atmosphere (B-4-2).

Many tree species are significant because they are memoirs of Buddha. They have important meanings that do not have any relevant spiritual components in them. Trees with strong symbolic meaning in temple gardens are trees located in important events of the Buddha's life. Bodhi trees, or Sacred fig, (*Ficus religiosa*) and Sala trees (*Shorea robusta*) are the most frequently mentioned in my conversations with Buddhist monks. Bodhi trees are the most commonly acknowledged to have Buddhist significance and are the most recognized religious symbols.

³⁵ Bodhikara was a courtyard structure with a gigantic Bodhi tree in the center. The Bodhikara was located on the same axis as Ubosot and Chedi.

Trees can be a symbol of religion if people recognize them. However, most people do not know trees and their meanings. The Bodhi tree is widely known because it is the tree that the Buddha reached an enlightenment (B-5-2).

Significant trees are trees that relate to the Buddha's life (B-4-3). The Bodhi tree is one of the seven elements that occurred during the Buddha's lifetime. The Buddha reached enlightenment under the Bodhi tree (B-3-4). Other trees do not have the values as a symbol as clear and as much as Bodhi tree. Only Bodhi trees have a worship principle (*kati buch*a) in Buddhism (B-3-4). The Bodhi tree is a memoir of the place that the Buddha once sat underneath, used the shadow from the tree canopy, and reached the enlightenment. Bodhi trees remind us about the place so we can be grateful to the place and the Bodhi tree that was an important component supporting the Buddha to reach enlightenment and nirvana (B-3-4).

Sala trees were in the location where the Gautama Buddha was born as Prince Siddhartha. For this reason, Sala trees were mentioned every time I asked about religious significant trees.

There were several trees in the Buddha's life. Sala trees were at the birthplace of the Buddha. They also appeared in the place where the Buddha reached nirvana. The Buddha reached enlightenment under a Bodhi tree. This means that humans are smart and capable of learning. A mango tree was at the location where the Buddha showed his supernatural power to eradicate pressure from the outlaws that were against him (A-1-4). The Sala tree was the tree where the Buddha sat. We do not have other trees that relate to the Buddha (B-2-4). The Sala tree is significant because it was the tree that the Prince Siddhartha (Gautama buddha) was born by (B-2-4.1). The Sala tree is important. The Buddha was born at Sala tree. There are many Sala trees here – around ten of them. We just planted them later (B-3-3).

Even parts of Bodhi trees still serve as a symbol of religion.

People worship the Bodhi tree. Even parts of Bodhi trees such as its leaves were considered holy. It is the Thai's belief. When people travelled to Bodh Gaya, they collected the Bodhi leaves for worship. Bodhi trees on the streets are not as holy as the ones in holy places such as temples, houses of priests, meditation schools, etc. (B-6-3).

Besides Bodhi trees, other species related to Buddha are either trees with large and spreading canopies or trees with fragrant flowers. People also recognize species that appeared in significant events in Buddha life as religious symbols.

Sacred trees are trees that relate to the Buddha's life; Bodhi tree, Banyan tree, Kate, Sala, Jik (B-4-3). Trees in the temple garden were planted to be memoirs of the Buddha (B-4-3). Banyan tree, the Indian ficus tree, appeared in the story of the Buddha's life. The Buddha sat there for seven days where he found the goat caretaker. There is a Chinese statue about this story that we put under the Banyan tree in the garden. Kate trees (*Manilkara hexandra*) are also significant. The Buddha sat there where the merchant brothers traveled by (B-4-2).

Even with the wide recognition and universal understanding of religious significance, there are some monks who disagree with the symbolic meanings that trees convey. For them, the value of trees lays merely in their environmental and physical aspects.

We do not have any symbolic tree. There are no holy trees. We do not worship trees. We do not praise irrational things. Trees are national treasure. They do not belong to anyone". [*"Tonmai pen sombat khong chaat, mai chai khong kon dai kon nueng"*] (B-5-1). *Hu krajong* (*Terminalia ivorensis*) and *Hu Kwang* (Sea almond *Terminalia catappa*) – these trees just got popular recently. The full mature trees are spreading in layers and look like the layer of the ceremonial

umbrellas that are used in Royal ceremonies or as a representation of the Royal family. The layers of branches are beautiful (B-2-3.1). There are not any trees that convey religious significance. There are trees that have aesthetic values and are unique but I am not sure if we have any trees that are symbolic of Buddhism (C-1-2).

It is significant because it is the oldest tree in the temple (Chan tree behind kuti kana 1), I think it is the oldest one. But it does not convey any symbolic meaning (B-4-3).

Trees with cultural significance became a site for some special activities. The abbot chose to teach *Dhamma* under the Bodhi tree not only because of its shade, but also because using space with trees that convey religious significance will help emphasize the importance of the trees as a symbol of Buddhism.

8. Origins of the Trees

Besides the holy spirit and symbolic meanings that trees convey, the origins of trees can be important factors in assigning their cultural values. From my empirical study, I found two factors in terms of origins of the trees that made trees become sacred. The first is where the trees came from, and the second is who gave or planted the trees.

Trees from Sacred Sites

Buddhism originated in India and still has many historically significant sites in the country. A Bodhi tree (*Ficus religiosa L.*) that had been grown from a cutting of the original tree in Bodh Gaya, the site where the Buddha found enlightenment, conveys more important meaning than other Bodhi trees (Konijnendijk, 2008: 22). Phra Sri Maha Bodhi tree from Bodh Gaya is the representative of the Buddha.

In 1718, the Buddhist monk ambassadors returned from Lanka with six saplings of the Sri Maha Bodhi. It was the first time there was Sri Maha Bodhi in Rattanakosin (Phlāinōi, 1970: 424). Three saplings were sent to Southern Thailand and planted in two temples. The King received three of the venerable Bodhi saplings from the ambassador. Monks then planted them in three Buddhist temples in Bangkok; Wat Mahathat, Wat Sraket, and Wat Suthat (Ibid.). These Sri Maha Bodhi were carefully planted in specific areas of the temples with special planting borders. The Bodhi trees in two of these temples have restricted accesses with locked gates. They all have some less ostentatious adornments on them. One has an abundance of colorful scarves tied around the tree. Another one has a few colored scarves with more elaborate details. All of them have a large amount of small liturgical objects and sacred statues such as Buddha images, Deities, or statues of former kings put around them.

During the reign of King Rama IV, the King of England collected the leaves and seeds of the Sri Maha Bodhi tree from Bodh Gaya and gave it to the King of Thailand. King Rama IV sowed the seeds and gave away the small Bodhi trees to several temples in Thailand (Ibid., 426). Because Bodhi trees are a religious symbol, Buddhists would do no harm to a Bodhi tree even if it grew at an inappropriate place that might cause damage to a building. Many Bodhi trees sprouted in the wrong places and caused problems with structures, especially in old temples. To solve the problems, King Rama IV ordered all the Bodhi trees that grew on roofs of the *Chedi* and *Ubosot* and other temple structures to be cut down. He said these Bodhi trees were not intentionally planted and just grew from the bird droppings, also called *Pho keenok*,

so they did not convey the same significance as the Bodhi trees that grew from the seeds or saplings of the Sri Maha Bodhi from India or Lanka (Ibid., 427).

Phra Sri Maha Bodhi is a significant tree in the temple garden. It is located next to the Pavilion of the Reclining Buddha. It was brought from Sri Lanka and given to the temple in the King Rama III period (A-2-2).

Bodhi tree. The seeding came from the city of Anuradhapura in Sri Lanka. It was one of 37 saplings from that original tree. Only three saplings came to Thailand during the period of King Rama II. One was planted here at Wat Srales. The other two were at Wat Mahathat and Wat Suthat (B-3-1).

We respect the Bodhi trees at different levels. This Bodhi tree is the original one from Lanka. Even the King shows his respect by sending holy water every year. All Bodhi trees are a symbol. But the one here is more special because it was the heir of the original one from Lanka. It has historical significance (B-3-1).

It was the real Bodhi tree – this is why it is so important. It is a Bodhi tree with precise historical documentation. Some Bodhi trees seem respected because they are old. But they are different from this one. They have different values (B-3-1).

Trees from the King

During the early Rattanakosin period, during the bloom of international relationships, it was a tradition for the King to give Bodhi trees that were received from Sri Lanka or Bodh Gaya, India, to be planted in the Royal temples (National Archives of Thailand). There were also traditions that the King or the Royal family would plant trees at the places, including temples, that they had visited. Those trees conveyed cultural and historical significance because they were recollections of the time when important people came to the places, as well as the trees from the place of origin of Buddhism that have been given to the temples, as they serve as a religious symbol.

King Rama IV brought the seedling of the Sri Maha Bodhi from India. This temple was built by King Rama IV (B-6-4).

The significant tree in this temple is the Bodhi tree that the previous abbot brought back from India (D-1-3.2).

The significant tree is the Bodhi tree. The previous abbot used to teach meditation under the Bodhi tree. It was a sapling from the Sri Maha Bodhi from India (D-1-4).

The Bodhi trees are very significant. They were given to the temple by King Rama II. The Bodhi trees are *Boripoka Chedi* which is one of the four *Chedi* in Buddhism (A-1-1).

There are also trees from other members in the Royal family. I observed many trees in different species planted by the Queen, the Prince, and the Princess. There are also trees planted by other important people such as members of executive boards, politicians, and the abbots. In several temples that I visited, there were trees planted by HM the Queen, the prince, and the princess. Most of these trees have signage with the names and dates that they were planted. Most of them are in healthy condition. There were a few cases of trees that did not have proper care and were not doing well. Origins of the trees give them more significant values. A tree can be more important when it came from a sacred location, given or planted by important person.

9. Social Recognitions and Environmental Awareness

Besides the monastic rules in the conventional Buddhist doctrine to prevent monks from harming trees, modern day Buddhist monks also have their own reasons to protect trees. With modern environmental concerns, Engaged Buddhism and environmentalist monks are able to use cultural strategies of ordaining trees to protect them from being cut down. In many conflicts throughout Thailand on development projects that proposed to cut down big trees, monks used these cultural methods to save the trees. Once trees have assigned cultural values, people hesitate to cut them (Darlington, 1998).

Government has attempted to assign social values to some large old trees in the city. In 1999 and 2009, the Bangkok Big Tree Awards were organized. Using crowd-sourcing methods, the lists of big and old trees were collected, considered, and selected to the final list. In the list of heritage large trees in 1999, there were 96 trees from the total of 298 heritage trees that were located in temple gardens in Bangkok. In 2009, there were 15 trees from a selection of 100 big trees that received the awards. There were eight awarded trees in the selected 15 temples. Out of over 50 interviews, only one monk knew of a tree that had received this award.

Thai Ma plub – Big tree, can live very long. The species is very rare. This *Ma plub* tree received The Princess Sirindhorn Award on big tree preservation about 10 years ago. I do not know much in detail and the monk who nominated the tree already resigned from the Sangha. There is no sign at the tree but I believe there is a certificate for the tree (A-1-2).

Many of the old trees in temple gardens that received awards should have been more publicly recognized and given suitable maintenance. However, the trees were still undervalued and lacked proper care. One of the oldest trees in the city that received the Bangkok Big Tree award in 1999 died after the construction of the new parking lot. From my observation, I found most of the trees were in bad condition with poor maintenance. Even though some monks mentioned that they have heard of the awards after I asked about it, the awards were not at all acknowledged.

In the year 1982 CE (BE 2525), the Botanical section at the BMA organized the Bangkok Big Tree Award. The Chan tree received the second prize award. It was then around 300 years old. The Chan tree died 3-4 years ago (in year 2001) (B-1-1).

[I have the information about the awarded Banyan tree at this temple. Do you know where it is?]

He looked at the list and said “It was later cut down as we built a new building”. Later he added “There is also a very big Banyan tree in the back of the temple. Maybe it was this tree that received the award. I think it is this one” (B-3-3).

I found the Banyan tree but it was severely trimmed. I talked to people who sat under the tree. They said the Banyan tree was three or four times bigger and covered the street. They knew that the tree was cut because of the construction of a new monastic building but they did not know about the Big Tree award.

In what ways can monks communicate the cultural values of trees to the public? If giving awards does not create social recognition, what should effective strategies be to communicate the meanings and significance that trees convey to the public? Should government be more involved and active in the heritage trees preservation?

5.4.2 Patterns of Tree Plantings in Temple Gardens

I analyzed the pattern of locations of significant trees in temple gardens. The significant trees were identified by the monks in the temples. There are patterns of trees in several locations in temple gardens. Some patterns emphasize the significance of trees as one important component of monastic plans. Other patterns utilize trees as landscape elements with their aesthetic and ecological functions.

- Axis with the temple cosmological plan

A Bodhi tree is one significant element placed in the axis of the temple. Sometimes there are structures built surrounding the trees emphasizing the significance of the tree, *Bodhikara* or a Bodhi tree shrine. A Bodhi tree is located in the same axis with *Ubosot*, *Chedi*, and *Viharn*; the three main buildings in Phutthawat section. The Bodhi tree becomes the fourth component completing the axis. Only Bodhi trees are found in this location in temples.

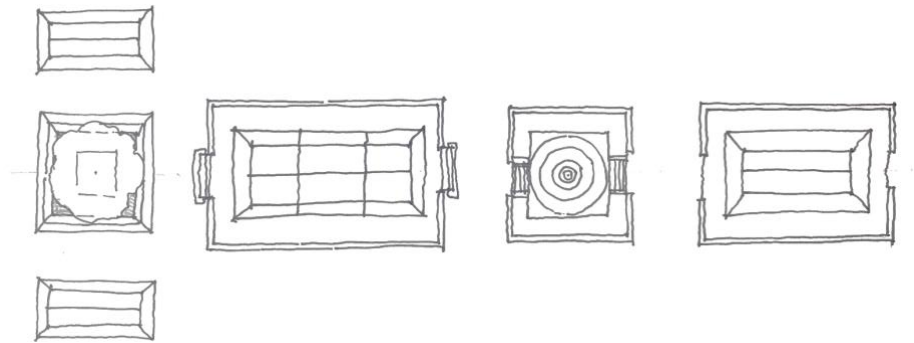


Figure 5.4: A temple tree in the main axis in a temple garden.

- Boundary - Around the ordination hall (*Ubosot*) outside of *Sema* stones

I found lines of trees surrounding an *Ubosot* or ordination hall. *Sema* are stone boundary markers that are put around *Ubosot* to mark sacred boundaries. Trees or any parts of trees cannot be inside of the *sema* boundary because the sacred precinct needs to be free from shadows. I assumed that people assigned this rule as a way in which to prevent conflicts between trees and architecture. The clearance zones protect the elaborate architecture in Buddhist temples from liabilities of trees or falling branches and leaves. I found medium size trees and some fragranced flowering trees planted around *Ubosot*. The species observed in this location are Kaew (*Murraya paniculate*), Pikul (*Mimusops elengi L.*), Soke Narm (*Saraca indica L.*).

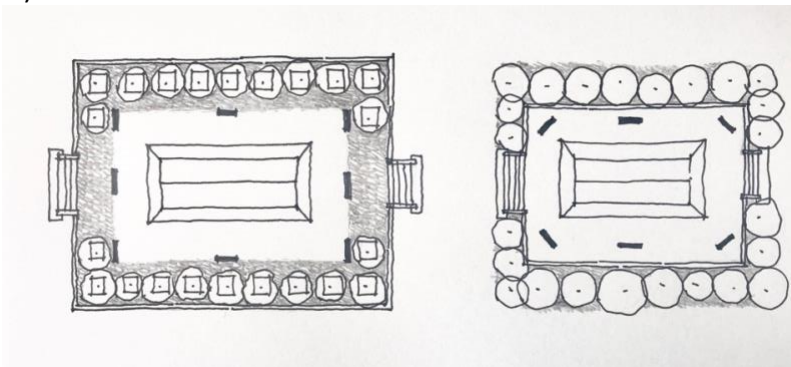


Figure 5.5: Temple trees used to create boundary.

- Meditation spaces

Spaces for meditation usually have a natural atmosphere that allows laypeople to feel calm and collected. It imitates the old practice of forest monks – *Phra Pa*, who dwell in the forest then practice meditation and rest under a tree. Tree species that are found in meditation spaces and used to create natural atmosphere include Rain tree (*Samanea saman*), Bodhi tree, Saii (*Ficus benghalensis*), Krang (*Ficus benghalensis* L.) Rang (*Shorea siamensis* (Miq.) Kurz), Peep (*Millingtonia hortensis*), Teen ped (*Apocynaceae scholaris* (L.) R. Br.), Praduk (*Pterocarpus indicus* Willd.), Hang Nokyoong farang (*Delonix regia*).

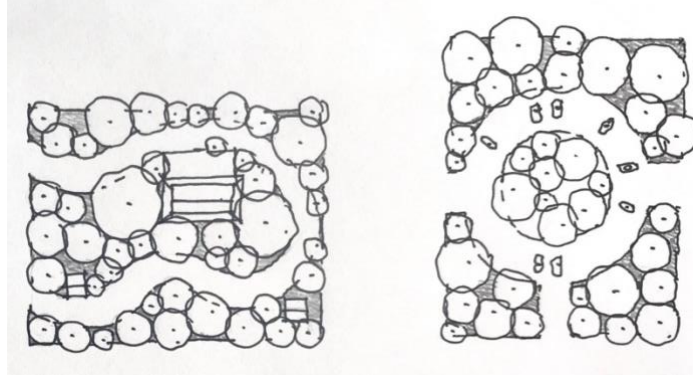


Figure 5.6: Natural atmosphere in meditation spaces in temple gardens.

- Teaching spaces – outdoor classroom

Space under a heritage large tree, usually a Bodhi tree, has a unique atmosphere that is not only shaded but has sacred values and religious meanings. Many senior monks use space under Bodhi trees as their outdoor classroom teaching Buddhism to young monks and laities. Chan trees (*Diospyros decandra*) and Saii (*Ficus benghalensis*) are also found in this landscape setting.

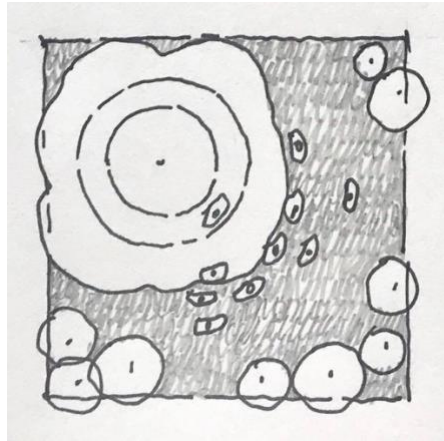


Figure 5.7: A Bodhi tree creates a sacred outdoor room with its large canopy space and its religious meaning.

- Buffer from the roads or parking lot or other unpleasant areas

Despite the walls between public, semi-public, and private zones in the temples, temple trees serve as space boundaries and visual buffers for each temple space.

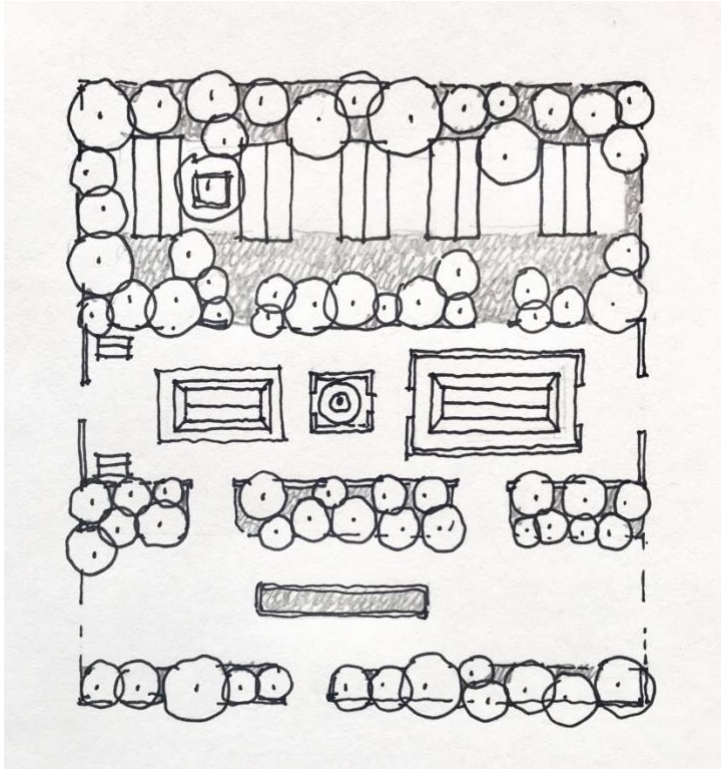


Figure 5.8: Temple trees used as buffers separate spaces between each section in a temple.

- In front of *Ubosot*, *Chedi*, or significant architectures in a temple
Significant trees are planted in front of *Ubosot* or *Chedi*

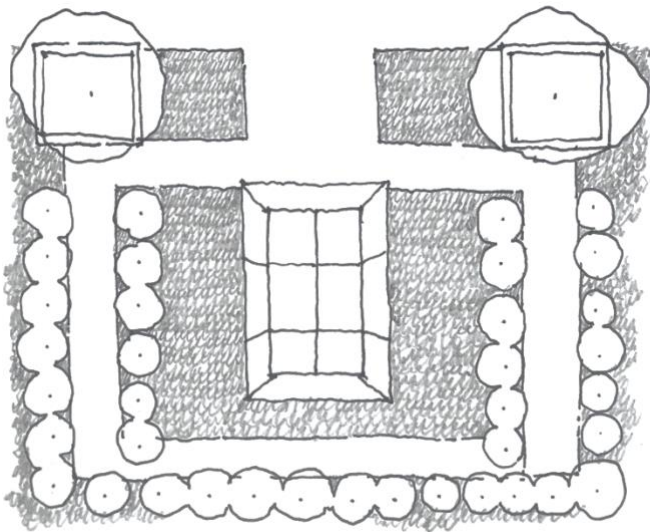


Figure 5.9: Significant trees are usually placed where people can see and have access for religious rituals. Two Bodhi trees from the King are planted in front of Ubosot.

- Visual approach
Lines of trees are planted as visual approaches to a significant temple element such as pagoda or a main entrance of the temple. Trees with sculptural forms are usually found in

this location. The species that I found used for visual approach in temple gardens are Hu Krajong (*Terminalia ivorensis*), Sala (*Couroupita guianensis Aubl.*), Kaew (*Murraya paniculate*), Praduk (*Pterocarpus indicus Willd.*).

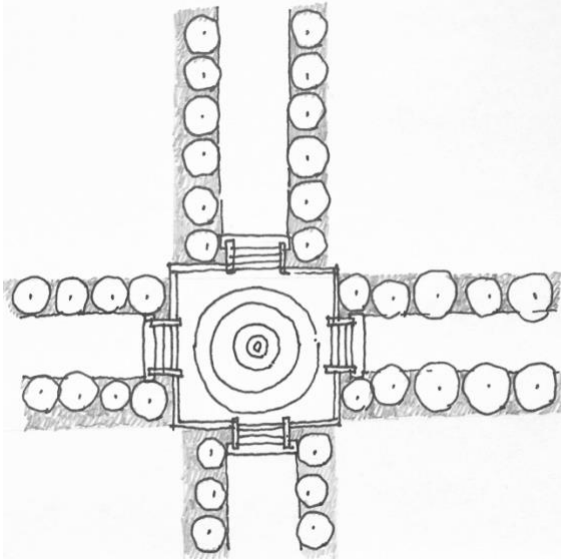


Figure 5.10: Lines of trees approaching important temple architectures.

- Seating areas - rest areas for both monks and laities

Temple trees provide shades and relaxing spaces for temple visitors and monks. There are different types of settings at different locations in temple gardens. Usually there is no seating in formal areas where religious rituals are performed. I observed several species from large trees to small species used for providing shade for seating areas in temple gardens. The tree species I observed are Bodhi, Chan Plumeria (*Plumeria Scop.*), Mok (*Wrightia religiosa*), Soke Narm (*Saraca indica L.*), Praduk (*Pterocarpus indicus Willd.*), Makhm (*Tamarindus indica*), Tabak (*Lagerstroemia floribunda*), Sadao (*Azadirachta indica*), Kakrating (*Calophyllum inophyllum Linn.*).

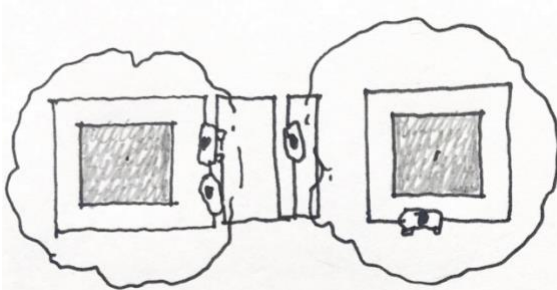


Figure 5.11: Trees provide shade and created comfortable sitting spaces for monks and temple visitors.

- Potted plants – topiary, fragrancd flowers, aquatic plants

Many old temples in old town areas have the same issues of limited soil spaces. They have a variety of potted plants. The potted plant became part of Thai tradition that reflects not only the trainings the shapes of the plants but also the designs of the pots from different historical

periods. Today, it is difficult to find people who know and have expertise in designing and providing proper care for these historic miniature gardens. Species used to grow in potted plants are also not very popular and become more difficult to find and so these factors make the miniature gardens convey more historical and cultural values. Tako (*Diospyros rhodcalyx*), Koi (*Streblus asper* Lour.), Kaew (*Murraya paniculate*) are species commonly found in this form.

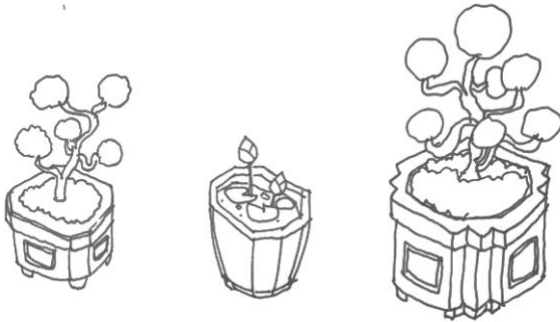


Figure 5.12: Potted plants reflect art and culture of Thai tradition. Some small potted plants can live many decades or hundreds of years.

5.4.3 Significant Trees in Temple Gardens

A list of significant trees is excerpted from the interviews. From the interview responses on significant trees in the temple gardens, there are 184 trees of 61 species mentioned as significant trees in the 15 temples³⁶. The tree species that were mentioned as having a religious significance are Bodhi tree (*Ficus religiosa* L.), Sala Tree (*Couroupita guianensis* Aubl.), Chan tree (*Diospyros decandra*), and Kakrating tree (*Calophyllum inophyllum* Linn.). The species that were most addressed as heritage large trees in temple gardens are Bodhi tree (*Ficus religiosa* L.), Sala Tree (*Couroupita guianensis* Aubl.), Saii (*Ficus benghalensis*), Ma muang (*Mangifera indica*), Pikul (*Mimusops elengi* L.), and Ma kham (*Tamarindus indica*).

Phra Sri Maha Bodhi trees existed in 10 temples. Bodhi trees, the same species as Sri Maha Bodhi trees but do not have the same significant origins, were mentioned to be in 13 temples. There are two temples of the 15 study sites that do not have a Bodhi tree. Sala tree was mentioned to be significant trees in 12 temples. Saii or Banyan tree was addressed in nine temples. Although some monks did not agree that fruit trees should be in temple gardens, Ma muang or Mango tree was mentioned to be significant old trees in nine temples. Pikul or Bullet Wood trees were addressed in seven temples. Pikul trees are rarely found outside monastic precincts. Makham or Tamarind trees were mentioned to be large old trees in seven temples. Makham is one of the sacred and prosperous trees in Thai culture. It used to be commonly found in residential gardens but because of its large size that required large spaces for planting, it was no longer common in private residences. Many tree species that became less popular or require more spaces have disappeared from other land uses in urban areas which affects urban ecosystems. Buddhist temples are places that maintain these large old trees and diversity of tree species in the city.

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5.5 Discussion

I did a preliminary survey and visited all of the temples with the Big Trees awards, but not all of them still have the awarded trees. Many of the temple residents were not aware of these award trees and the trees did not receive proper care. I visited the temples that became my study sites several times and know some people there, yet always felt like an outsider because I cannot be part of the Sangha. Although Buddhist teaching has no limitations in ages, genders, or races, there is still gender bias in Thai society, especially in the Sangha. Participant observation in this context could only be done to a certain level as there were restricted sections for Sangha where temple visitors, especially females, could not gain access.

For the in-depth interviews, I tried to contact the temples and make appointments prior to visits but it was unlikely that I would be able to make appointments with the monks. In the most formal temples, I usually visited with an introduction letter and a short description of my dissertation; then a monk normally contacted me within a week and asked me to meet on the same day. I had letters and consent forms prepared when visiting every temple. In less formal monasteries, the monks allowed me to talk on the same day I sent them the letter. Most monks were willing to talk and did not mind a recorder. One monk asked me to put away the recorder, and that was the only time I heard a monk directly say that he wanted a tree to be removed. There were a few other cases where the monks would have preferred to cut down some big trees for several reasons. Most of the time, the monks I talked to were very kind and happy to answer any questions. They were interested in being part of the research and would like to have their names published. A few times they said that they did not have knowledge in landscape and gardening and hesitated to answer. In the temples where monks take care of the gardens by themselves, they talked with more confidence and knew more details and stories about trees in the temple gardens.

Trees in temple gardens are not different from other trees in the cities that have to struggle to survive in the hostile habitats. The hostile habitats are urban conditions with physical and psychological stresses and extreme temperatures, polluted water and limited soil spaces that can interfere with the health and well-being of urban trees (Spirn, 1984: 175). There are limited numbers of species that can grow in urban context and higher maintenance usually is required to care for these trees; however, the urban areas are the places that trees can most essentially contribute their values in both ecological and cultural aspects. It is crucial to preserve these heritage large trees because they are places of ecological sanctuary and biodiversity of the city.

5.5.1 Causes of the Degradations of Temple Trees

From the observations, in-depth interviews with the Sangha and informal interview with temple visitors and temple staffs, I concluded the causes of temple trees degradations.

- Natural causes

Major flood, storm, and prevailing wind are reasons that cause many trees to fall or be badly broken. Sometimes the damage was not noticeable until several months or years later after the weather event.

- Existing temple soil condition in urban areas

Many old temples especially in the old town areas have limited soil spaces. The soil has not been improved for a long time which degrades the health of temple trees.

- Planting the wrong species at the wrong place

Planting a tree without knowing its mature size can cause problems to the tree and its surroundings. Trees that grow too big in small spaces can cause conflict with the existing structures. Many times, trees are cut down because they are prone to damage architecture or cause accidents. Temple architectures tend to have more elaborate details on the roofs and facades which can be easily damaged by falling leaves, fruits, and branches. Hence, trees that grow closer to the buildings tended to get heavy pruning which cause the tree to be structurally damaged.

- Poor maintenance and management

Many trees are excessively pruned because they are large and occupy a lot of space. Improper tree care can cause long-term damage to the temple trees. Many heritage large trees are not in healthy condition because of the lack of proper care. Bad pruning and poor maintenance lead to risk of trees falling. Trees that receive bad pruning could become liabilities.

- New structures require open spaces

Many temples require new buildings or more parking spaces for temple visitors. Many temple trees are cut down and removed to make spaces for new temple constructions.

- Cultural changes- the new norm of short-term monkhood

With the change of the Sangha culture, many men ordain just to satisfy their families. In the old time, people stayed in the monkhood for life time but nowadays most people who ordain stay in the monkhood only for a short period of time; from one day at a funeral, a week, one month, or one *punsā* (a rainy season which is three months). Not all of them but many of the Buddhist monks I interviewed who stay in the Sangha for less than a year seem to consider the Sangha their temporary status and usually are not fully committed and so do not spend time in temple gardens to appreciate the trees. Short-term monks usually do not have chances to get involve in temple gardens and do not spend long enough time in the temple. They tend to have less knowledge on temple heritage trees and do not appreciate the temple trees.

- Virtual Buddhism

The social and cultural changes on how people reach out for the Dhamma teachings affect the status quo of the Sangha. Virtual Buddhism is the way in which the monks share and teach Buddhism on the online platform which is convenient and effectively reach people in today's society. However, the connection on virtual spaces affects the values and perception of physical monastic spaces. What are the roles of Buddhist temples in the city if laities do not need to come to the temples?

5.5.2 How to Preserve Temple Trees

With the problem of the degradation of temple trees, I conclude with some ameliorative methods used in some temples and propose some concepts that could be effective ways to help preserve temple trees.

- Set back from old architecture

Adequate safety clearance would prevent conflicts between trees and architectures. The notions of Traditional Thai architecture have *Sema*, the stone boulders that define the

clearance around Ubosot which is a way in which to prevent conflict between trees and architecture. The same concept can be reapplied within the monastic precinct with different specifications that would be suitable for the land uses in each section.

- Proper pruning and suitable maintenance

Proper care for heritage large trees and other trees in temple gardens is the priority and one of the most important methods for sustainable preservation for these trees in temple gardens.

- Increase and maintain species diversity

Maintaining diversity of tree species in temple gardens must be a priority. Temple gardens should be places of species diversity in urban areas.

- Replace old trees with the same species

Some old trees died or were removed because of liability issues. Many of them were replaced with ornamental plants and smaller species. To replace the dead trees with the same species or similar ones is the way to preserve old tree species and enhance the quality and cultural values of temple landscape.

- Avoid fruit trees or have them in designated areas

Although fruit trees can provide ecological functions and be a source of the urban food system, having fruit trees in temple grounds could cause problems in both social and maintenance issues. Laities trying to pick the fruits could harm the trees and temple architectures. Fruit trees in temple gardens are important for wildlife habitat and could be a significant contribution to urban food sources for those with less fortune in the city. Having fruit trees in designated areas not only can prevent conflict but increase connections between temples and communities.

- Increase recognition and awareness

Public participation and awareness are the key for sustainable tree care. The existence of Theravāda Buddhism relies greatly on lay supporters. It was the intention of the Buddha to emphasize this connection and dependency that laities physically support the Sangha and so Sangha and temples can be spiritual refuge for people. Not only the monks, temple gardens also need support from laypeople to maintain their status and existence in the society. Many temples have laities working as volunteers to clean and care for temple gardens. The significance of heritage large trees and appreciation for these volunteer workers should be addressed with social recognition which could help support the connection between the Sangha and lay followers.

- Creating a network of temple tree care

Temple trees and gardens have unique characteristics and need special care. Sharing knowledge in temple landscape management and heritage tree care can help reinforce the health and well-being of these urban forests. *Wat Bundan Jai* project³⁷ is another example of a collaboration between temples and the volunteer design teams which is a beginning of the network of landscape design for temple gardens in Thailand.

- Develop a national urban tree preservation ordinance

There is no urban tree preservation ordinance in Thailand which make it difficult to preserve and maintain healthy urban forests in the cities. Temple gardens are places of heritage large trees and have diversity of tree species but now are at risk of declining due to urban

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development and cultural changes. Specific tree preservation ordinance can be another way to help preserve these heritage trees in urban temple gardens.

- Encourage the reinterpretation of the Buddhist monks' precepts

Although the Vinaya prevents Buddhist monks from providing care for the tree, many monks from the interview take care of their gardens very well. Trees in the temples where the monks ignore them and leave the job to temple staffs or district staffs tend to be in bad condition. Many things in Vinaya have been reinterpreted to be more pragmatic and suitable to today's changing society and culture. Reinterpretation of rules regarding the prevention of Buddhist monks from cutting trees has also been applied but not openly discussed. Most of the monks expressed their paradoxical feelings yet they would like to see healthy trees in the temples and agreed that it was the responsibility of the Sangha to maintain the temple landscape and preserve the temple trees because of their cultural, historical, and environmental values. The reinterpretation of the Buddhist monks' precepts that remains the essence of what the Buddha teachings can help the monks to provide better care for heritage trees in temple gardens.

Using only the ecological and economic benefits of urban trees to get people involved in the support of urban forest programs in the long run will not work. Deep psychological connections between humans and urban trees are the key factor that will involve more people in urban forest programs (Dwyer et al., 1994: 137). There are quantitative evidences showing deep emotional ties of the person-tree relationship. For example, yellow ribbons are tied to trees to protect them from being cut down, trees are planted as memorials or symbolic meaning to remind people of their significant ones, and trees are referenced in the names of places. Temples have tried to preserve and replant tree species that are the same as the temples' names. Bodhi trees with colored scarves have been treated with respect because people have emphasized their religious symbolism with the adornment. The symbolic universe of sacredness of Bodhi trees is not limited to liturgical objects, species, origins, or size of the trees. Buddhist temples and heritage large trees support each other. The more time Buddhist monks spend in temples and in the Sangha increases their knowledge and appreciation of temple trees. The deeper understanding of Buddhist doctrine and how the monks reinterpret the Vinaya are important factors affecting whether temple trees receive proper care. It is challenging to alter centuries of beliefs and practices, especially in a country such as Thailand with more conservative Buddhism tradition. However, that social, cultural, political, and economic changes are the drives that push the Sangha to change their ways of thinking and the way in which they use and provide care for monastic precincts and heritage large trees in temple gardens. These changes are significant especially within the rapidly changing urban areas because the image of trees as religious symbols helps secure social status for temples as places of sacredness.

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Chapter 6

Quantifying Canopy Coverage in Temple Gardens as Urban Ecological Infrastructure: Temporal and Spatial Analysis of Urban Forests in Temple Landscapes

Abstract

This chapter addresses the role of temple gardens as urban green infrastructure. From Bangkok's heritage tree inventory in 1999, temple gardens were identified as places of heritage trees in the city. Many of big and old trees were found on temple grounds because their monastic land uses are less likely to be changed by urban development. There are 452 Buddhist temples ranging in age from over 700 years old to less than five years old in the city of 50 districts. I examined areas of canopy coverage at a city scale and then focused on a temple garden scale. Using the Object-Based Image Analysis method and the High-Resolution Imagery from WorldView-2 and WorldView-3 from 2015-2016, I classified the land cover of Bangkok into seven classes. The average tree canopy coverage of the city is 18.5%. The urban tree cover in Bangkok ranges from 6.93% in Yannawa, in the inner district area, to 32.97% in Thaweewattana, on the outskirts of the city. Most districts with more temple gardens have a higher percentage of tree coverage within their administrative boundaries. At the site scale, I used the Line Transect method to quantify the canopy coverage in 15 selected temple gardens. Temporal analysis was also conducted using aerial images from 2001 to 2016. The temples with highest percentage changes in canopy coverage are in the group of new temples that have been built during the past 60 years.

Keywords: canopy coverage, heritage trees, object-based image analysis, temple gardens, transect line, urban forest

6.1 Introduction

Similar to many urban metropolitan areas, the availability of accessible urban green space in Bangkok is limited. Today, temple gardens provide cultural and ecological services that support the well-being of people of all social classes. This is due in part to the wide variety of ages and species of trees grown in temple landscapes that ecologically enhance urban biodiversity, which in turn supports human well-being (Thaiutsa et al., 2008). In their research study entitled *Urban green space, street tree and heritage large tree assessment in Bangkok, Thailand*, Thaiutsa et al. (2008) stated that many large heritage trees are found on temple grounds because it is traditionally prohibited for Buddhist monks to cut down trees. Temple gardens contain more diverse species and larger trees in the city, where they also serve as urban public spaces for many social and cultural events. The monastic areas tend to be relatively undisturbed over the time compared to other land uses in the city because of religious beliefs. In 1999, Bangkok Metropolitan Administration (BMA) organized the city Big Tree Awards and Heritage Tree inventory. Many of the awarded trees were located on the temple grounds. The two oldest and biggest trees in the city were in Buddhist temples. In 2009, the Big Tree group working with BMA organized another Big Tree Awards conducted by crowdsourcing. A list of 100 Bangkok Big trees was published into a book and given to the public to raise awareness of the importance of the preservation of urban big trees. There were 15 big trees from that list located in temple gardens. However, when I visited these big trees in the temples in 2014, many of them were not in a healthy condition, and most were not recognized as the city heritage trees. Due to social, political, and economic constraints, many urban temple sites were shrinking and losing their green space. Many large and old trees in and around the temples were at risk of destruction.

6.2 Background

Thailand is one of 11 sovereign states in Southeast Asia, and according to a survey conducted by Gallup International (Noack, 2015), is claimed to be the most religious country among the 65 nations in the world with a significant Buddhist population. Buddhist Monastery Division has an inventory of 39,481 registered Buddhist temples in 77 provinces in the country. These are 310 Royal temples and 39,171 Private temples. There are also 6,090 abandoned temples, some of which were abandoned during the process of revival (Dhammathai.org, 2015). Over 3,000 temples have been built during the past decade with an average of 344 new temples every year (Thaipublica.org, 2013). Existence of Bodhi trees or any heritage trees has been one of the critical criteria for temple site selection besides the close distance to a community. Because Buddhist monks' precepts prohibit monks from planting trees or digging soil, temples have to be located in vicinity of a community so monks can get daily supports from Laities. The precepts also prevent the monks from cutting or killing trees. For this reason, large trees on temple grounds tend to be preserved (Snyder, 1990).



Figure 6.1: Bangkok 50 districts and locations of 452 Buddhist temples.

There are 452 Buddhist temples in Bangkok. Because of the ambiguous boundaries of these temples due to the social, political, and economic changes over time, there are no definite boundaries of these temple gardens. The National Office of Buddhism (ONB) has the list of properties that each temple owns but in Bangkok’s urban settings, many parts of temple grounds have been used for different functions. Most of the temples in Bangkok, especially

those built before 1906 have parts of their properties as school, residential, and commercial uses. In 1906, King Rama V, Chulalongkorn, announced the abolition of the corvée system³⁸. As a consequence, temple workers were taken back to the military to serve the King. The Royal Family also withdrew funding that had previously supported the temples. The Sangha, the Buddhist community, had to find the way to help with their financial support, thereby turning the temple grounds into other land uses with more monetary benefits. Many temples have larger areas because lay supporters have donated their land adjacent to the temple. Sometimes the land became abandoned because the temples did not have enough funding or labor for maintenance and management. In many cases, these abandoned lands were occupied by informal settlements and became difficult to manage. I also found that some very big trees in the neighborhoods of the temples, which were mentioned in the interviews with local Buddhist monks, lived on the property of the temples outside the temple walls. The discursive history of the religion in Thailand with social, political and economic influences affect the symbolic meaning of the places and physical spaces of these urban Buddhist temples.

There are many factors that affect the existence of trees in urban areas, but the surrounding natural environment and land use type are the two dominant factors (Nowak et al, 1996: 54). It is important to map the distribution of urban forests both inside and outside of temple gardens because these urban green canopies are pivotal elements of city well-being and are important factors that should be taken into account in urban planning. In highly developed urban or industrial areas, urban forests can decrease significantly within a short period of time (Canetti et al. 2017). From preliminary site observations, some trees that received the Big Tree Awards from 1999 and 2009 cannot be located. Buddhist monks, who are the landscape managers, did not know about heritage trees with the Big Tree Awards in their temple gardens. One heritage tree is in a temple in central Bangkok, yet the Buddhist monks who manage the temple landscape have not been informed about the awarded tree in the temple gardens, and some monks even proposed to cut trees down for new buildings or to reduce maintenance costs.

6.3 Research Questions

This research focuses on the relationship between urban forests and temples in the city. The research consists of two parts. The first part focuses on the citywide scale. I examined the ratio of green areas in 50 districts of Bangkok. The hypothesis is that temple gardens are green open spaces of the city with more big and old trees on temple grounds and the districts with more temples will have a higher percentage of canopy coverage. The second part of the study addresses the site scale, where I examined the canopy coverage of selected temple gardens. I quantified canopy coverage in the selected temple gardens and conducted the temporal

³⁸ Corvée system refers to commoners or Phrai in Thai. Corvée labors were the only determinant of power of the King, Royal family, and Lord or nai. Phrai are free men but they must register with nai. There were three kinds of Phrai; Phrai Luange, Phrai som, and Phrai suay. Phrai Luange belonged to the king and required to do corvée labor six months per year. Phrai som belong to royal family and nobles and were not required to help with the government services. Phrai suay did not required to work but instead they must send materials and produces required by government (Onozawa, 2002) (read more in Chapter 3).

analysis by comparing the canopy coverage of the selected temple gardens from the past (2001-2004) with the recent years (2015-2016).

The objective of this study is to quantify urban green coverage in the city to determine whether temple gardens are significant contributors of green vegetation in the city. I examined the urban green spaces at two levels; the city scale and the temple site scale. At the city scale, I classified the percentage of canopy coverage with the premise that the more temples in a district, the higher percentage of tree coverage in that district. Since many big and old trees are found mostly in temple gardens, do districts with higher distributions of temples have a higher percentage of green coverage? At the temple site scale, I focused on the fifteen temple sites where I conducted ethnographic field work. I compared the percentage of canopy coverage of the temple gardens in both temporal and spatial aspects with a presumption that older temples have less change of canopy coverage than newer temples. For spatial analysis, the hypothesis is that temple gardens have more tree coverage than other land uses.

6.4 Study Sites

Within Bangkok's total area of 1,570 sq.km., district areas range from 1.416 sq.km. in Samphantawong to 236.26 sq.km. in Nongjok district, the outermost district in the city. Bangkok (13.7563° N, 100.5018° E) is the capital of Thailand located in the Indochina peninsula in Southeast Asia. The climate is tropical. The average temperature in April, the hottest month, is 31°C (87° F) and in December, the coldest month, is 26°C (79° F). Monsoon season is from mid-May to September with the highest rainfall in September with an average of 220 mm of rain. It is hot and humid almost all year round which makes trees important components because they provide shade protections and improve the microclimate for people in urban area.

6.4.1 Bangkok Districts

Because of the differences in land use, density, and development in each area of the city, I categorized the areas into clusters to compare tree coverage within similar land uses. According to the Department of City Planning, BMA, there are different systems to group these districts.

- **Development Policy:** The City has changed management division from six groups to 12 groups (2004): The existing six development zones are classified into 12 management zones by the development policy which categorized the districts for economic development purposes.
- **Authoritative management:** District offices are divided into six groups for efficiency management (1999).
- **Location:** Environmental Control and Management, Department of Environment, BMA (2001) classifies the districts into three groups; 21 inner districts, 18 middle districts, and 11 outer districts.
- **Community Settlement:** Department of City Planning, BMA (1992) classifies Bangkok into three main areas and five sub areas;
 - Inner City (22 districts) the first settlement in the city and historical preservation areas, government offices, business districts – the highest density area.
 - Urban Fringe – 10-20 km from the city center – urban sprawl – consisting of 14 districts on the East side and 8 districts on the West side of Bangkok.

- Suburb – the outer area of the city, mostly agricultural areas and open spaces-, more than 20 km from the city center, 4 districts on the East and 2 districts on the West side of Bangkok.
- **Land Use:** high, medium, and low-density residential area, commercial, industrial, rural and agricultural, conservation and culture, government and public facilities. These categorized districts are sporadically divided into small land parcels but not accurately categorized with the land cover surfaces.

For this study, Location and Community Settlement are the classifications suitable for the spatial analysis of green coverage areas. Community Settlement also relates to how temples were established in the past but does not reflect the existing temples in the present. I chose the Location classification³⁹ (BMA, GIS Center, 2013) because it was similar to Community Settlement, but with more recent data.

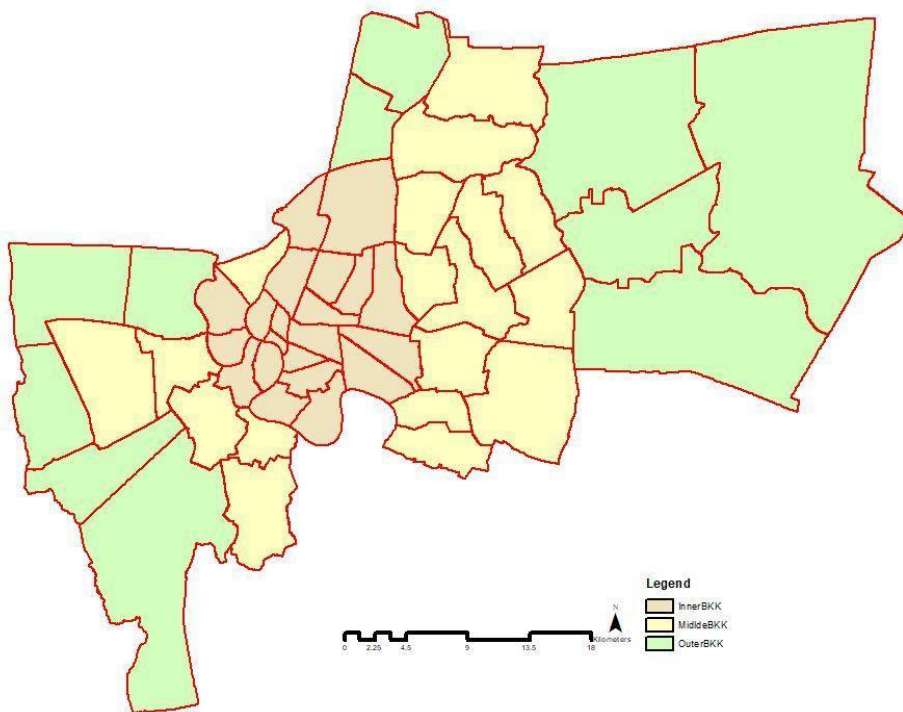


Figure 6.2: Location classification; inner, middle, and outer districts.

I located all 452 temples in the city but could not acquire the exact boundaries of their temple gardens. The change of physical spaces of the city caused by the change of the major

³⁹ 21 inner districts are Chatuchak (D42), Huai Khwang (D1), Yannawa (D28), Khlong Toei (D21), Watthana (D17), Bangkok Noi (D10), Bang Sue (D46), Bang Kho Laem (D30), Dusit (D7), Phayathai (D9), Sathorn (D27), Thonburi (D22), Din Daeng (D5), Pathumwan (D14), Ratchathewi (D11), Bangkok Yai (D18), Khlong San (D23), Bang Rak (D25), Phra Nakorn (D12), Pom Prap Sattru Phai (D13), Samphanthawong (D20); 18 middle districts are Prawet (D24), Thung Khru (D49), Sai Mai (D38), Bang Khae (D15), Bang Khen (D41), Bang Kapi (D48), Saphan Sung (D8), Chom Thong (D29), Khan Na Yao (D43), Bueng Kum (D47), Suan Luang (D16), Lat Phrao (D45), Wang Thonglang (D2), Bang Na (D34), Phasi Charoen (D19), Rat Burana (D32), Phra Khanong (D31), Bang Phlat (D0); and 11 outer districts are Nong Chok (D37), Lad Krabang (D4), Bang Khun Thian (D35), Khlong Sam Wa (D39), Min Buri (D44), Thawi Watthana (D3), Don Mueang (D36), Nong Khaem (D26), Bang Bon (D33), Taling Chan (D6), Lak Si (D40).

mode of transportation, from boats to cars, influence the accessibility of many temples in Bangkok. People cannot regularly visit the local monastery or participate in daily merit making by giving alms like they used to do (Taylor, 1999: 165). With the physical spaces, economic, and cultural change, the boundaries of the temples became blurry as same as their social status. There was a change in the predominant mode of transportation from river and canal transportation to land transportation which greatly impacted the traditional way of people lives. The original designed temple site planning where the temple entrance connected with the river, the major mode of transportation, was no longer practical because the city has changed in many dimensions especially how people commute. Bangkok's physical form has changed from a small port town into the capital city of Thailand. The change of land use influenced from the Western ideas of space and place replaced the ex-urban agricultural lands with residential estates. The downtown had increased the density of uses which also caused limited accesses to the old urban monasteries. These old temples were encapsulated among hotels, commercial, and entertainment complex (Ibid., 166). Social and economic changes also occurred when the abolition of the *cové* system took away labor from the Sangha community. Without available data about the exact boundaries of the temples and a limited field survey, to exclude the temple grounds before calculating the percentage of urban forest coverage would be arbitrary. Hence, without omitting temple gardens from the districts, I used the number of temples to compare with the percentage of canopy coverage quantified from the total area in each district.

6.4.2 Temple Gardens

The selection of temples was based on the year these temples were built, as well as sects, classes, whether they received Bodhi trees from the King, and their recognition by the Big Tree Awards in 1999 and 2009. I classified temples into these categories, then randomly selected the study sites to create a diverse sample set. With different sizes and shapes of temple properties and the political, social, and economic changes in Bangkok, the temple boundaries have been altered and are undefined. I therefore defined the boundaries based on observation and interviews. I started the ethnographic field work at the temple I am most familiar with and have made several visits to each of the 15 selected temples to ground truth them in order to classify the canopy coverage using aerial images. The study sites range from the oldest temple built in 1277, long before Bangkok became the capital city, to the most recent temple built in 2014. The boundaries of the selected temples were defined from site observation and in-depth interviews with the monks in the temples. Some temples have non-contiguous sites because of road construction. For this study, I used the active temple ground where there are either walls or the spaces are used to identify the boundary of monastic functions.

6.5 Materials and Methods

From the macro scale of the entire city of Bangkok to the finer grained scale of an individual temple, I looked at citywide land use to examine the spatial relationship between vegetation areas in temple gardens and ecological features in the city.

6.5.1 Object-Based Image Analysis (OBIA)

I used high resolution imagery from WorldView-2 (0.46m Panchromatic and 1.84m multispectral resolution) and WorldView-3 (0.31m Panchromatic and 1.24m multispectral resolution) obtained from the Digital Globe Foundation covering the area of 1,570 sq.km. (606 sq.mi.) of Bangkok. Land cover classes are pre-defined by selecting from the Land Cover Classification System (LCCS) and the tailoring of classifiers allows them to be more suitable and answer the question of the land cover classification in Bangkok more accurately. From the eight major land cover types, I selected five pre-defined land cover classifications, some of which consisted of two sub-classes. These included: Terrestrial vegetation (Trees (1) and Grassland and lawn (2)), Bare areas (3), Artificial surfaces (Construction – Buildings (4) and Roads, Parking lots, Concrete pavement (5)), and Natural waterbodies (6). I also added a class of Shadow (7) to reduce the error from classification. There are other land cover types such as aquatic vegetation, artificial waterbodies, salt flats, and other objects (cars, boats, trains, containers, and other urban structures) that were not distinguished as they only exist in small areas in a few districts and have no impact on the canopy coverage class which is the main focus in this study.

Object-Based Image Analysis (OBIA) emerged in the 1970s and was developed further in the 1980s, but due to unavailability of high-resolution imagery and the limitation of hardware capacity before the mid-1990s, traditional pixel-based analysis provided more accurate and reasonable results than using the object-based image analysis approach (Flanders et al. 2003). OBIA is considered a Supervised Classification because the knowledge of the user is usually part of the input for the classification results. OBIA has been widely used in land cover classification in recent research with more accessible data (Liu and Xia, 2010; Canetti et al., 2017). Several studies have compared object-based and pixel-based classification (Whiteside et al. 2011, Duro et al. 2012) and found that object-based image analysis can provide higher accuracy compared to standard pixel-based classification (Flanders et al. 2003, Myint et al. 2011). Urban features are classified with significantly higher accuracy with object-based analysis than using pixel-based method (Flanders et al. 2003). OBIA includes other spatial information that is not included in pixel-based classification. OBIA also allows multi-pixel objects with fuzzy logic classifier. Myint et al. (2011) argued that while maximum likelihood classification in pixel-based analysis achieved overall accuracy of 67.60%, an object-based method can reach 90.40% accuracy. In OBIA, segmentation and scale can significantly increase or decrease the degree of accuracy in classification (Liu and Xia, 2010). I conducted segmentation and supervised classification district by district in eCognition due to the heavy dataset. I used scale parameter = 15, shape = 0.5 and scale = 0.8, which was an optimal result for measuring tree canopy. I tried several parameters and found that this measurement provided the most legitimate segmentation for tree coverage.

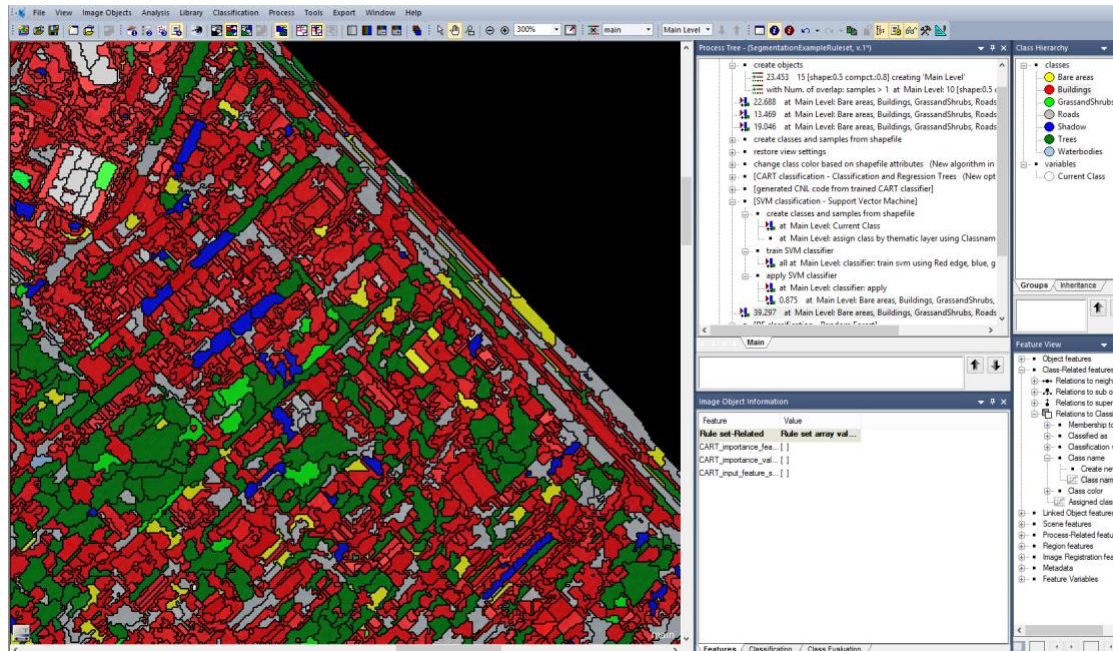


Figure 6.3: Object-based image analysis at scale parameter = 15, shape= 0.5 and scale= 0.8 where more street trees can be classified.

6.5.2 Line Transect

I used a minimum of 10 scaled lines and overlaid on the aerial images of temple gardens. The total length and the tree intercepts of each line were counted to calculate the total percentage of tree coverage in each temple garden. The Line Transect method is useful when the accessibility of high-resolution images is limited. The Line Transect method can provide accurate estimates when conducted with care (Nowak et al., 1996: 50). Using more short lines instead of fewer long lines can increase the accuracy of using the Line Transect. Inaccurate estimates or underestimated results can occur when measuring periodic features such as street trees (Ibid). Prior to obtaining the high-resolution images, I used aerial images from Google Earth to select dates when there were fewer clouds over the city - from December to April in different years for both spatial and temporal analysis. I then used the Line Transect method to estimate the canopy coverage of the selected temple gardens and compared the results with the percentage of total canopy coverage in the district. I also conducted a temporal analysis by comparing canopy coverage of temple gardens from different years (2001-2004 and 2015-2016) to examine the pattern of changes of the urban forest in temple landscapes.

B-4

2004

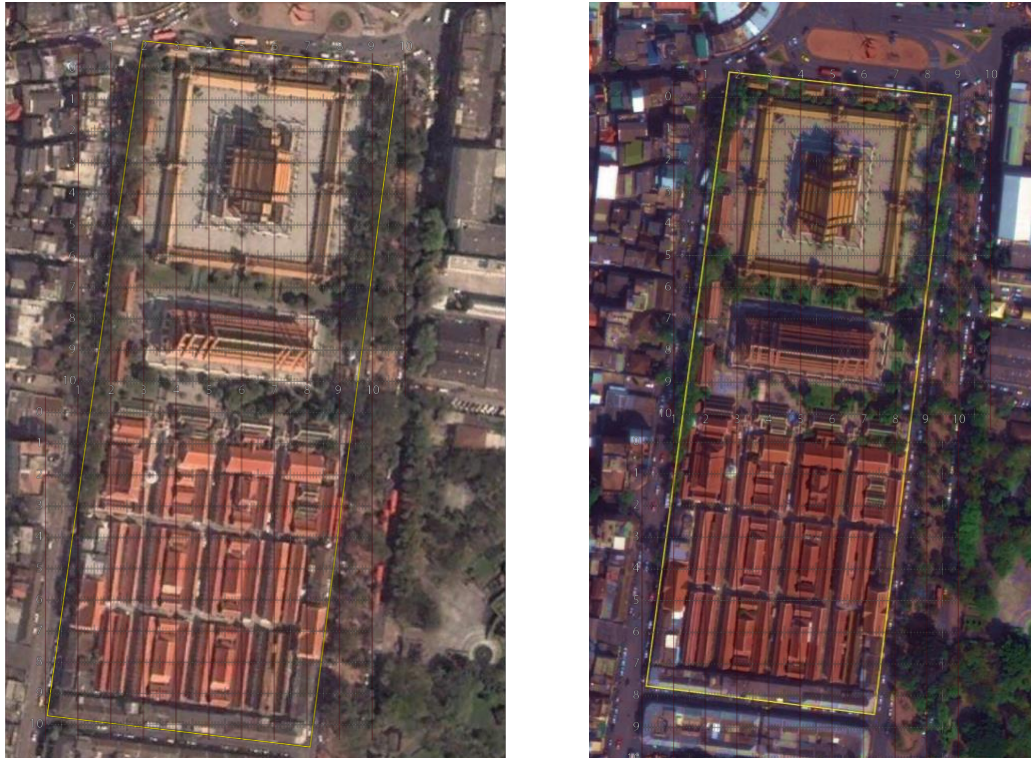


Figure 6.4: Using line transect method on site scale to quantify canopy coverage in temple gardens and compare the percent tree coverage in 2004 and 2015.

For spatial analysis of different land uses, I compared the percentage of canopy coverage on temple gardens with that of the overall land uses in the district. The percentage of canopy coverage in the temples was obtained using the Line Transect method. The canopy coverage of the district was classified using the Supervised Classification of the high-resolution images. For the temporal analysis, I compared the percentage of tree coverage in selected temple gardens in the images from 2001-2004 to the more recent images from 2015-2016. The criteria for choosing images can influence the ease of interpretation and quality of results (Walton et al., 2008: 334). In the tropical climate of Thailand, there is no fall season when deciduous trees are leafless for a long period of time. There are some deciduous species that do not completely lose their leaves and some species that may lose their leaves, but only for a very short time. Leaf-off seasons are not the major concern in obtaining information, but the rainy season can be a significant constraint to obtaining aerial images because of the overcast sky during monsoon season between May and September. Comparing the percentage of canopy coverage over time, some temples lose trees, while the percentage of tree coverage increased at others. My research aimed to answer the following questions: Are the trees increasing or decreasing at temple sites? How do the trajectories of the percentage of canopy coverage at temple sites over time compare with the interview responses? Due to the limitations of space and changes in sites and structures of the temples, are older temples less likely to change or lose their green coverage?

6.6 Results

6.6.1 Urban Forest Canopy Coverage and Urban Green Spaces

The actual percentage of canopy coverage in Bangkok is significantly higher than that listed by BMA for public green spaces because there are large areas of private green space including residential, military bases, palaces, schools and campuses with high density canopy cover that are not counted in the BMA public green spaces. The percentage of public green space is higher in inner districts due to the high population and high density of the areas.

The district tree covers range from 6.93% in Yannawa (D28), the inner district, to 32.97% in Thaweewattana (D3), the outer district. The district with highest percentage of canopy coverage is located in the outer area of the city. However, only two districts (D3, D39) in the top five are in the outer areas. In these top five higher green coverage districts, there is one district from the middle area (D49), and two districts from the inner district areas (D12, D18). The two inner districts have a large number of temples within their boundaries. However, there are several districts with a high number of temples but with a low percentage of green canopy cover (D28, D20, D30).



Figure 6.5: The districts with the highest (D3) (outer district) and lowest percentage of tree cover (D28) (inner district).

Conversely, the percentage of green public space (BMA) is higher in the inner districts where there is more population density. The percentage of green public spaces ranges from 0.42% in Ladkrabang (D4), the suburban area near the airport, to 14.13% in Pomprabsatturpai (D13), the inner district in the Rattanakosin old town area. Four out of five districts with the highest percentage of public spaces are located in Inner Bangkok.

If 452 temples were spread equally in 50 districts, the average per district would be nine temples. However, there are only 18 districts that have nine or more temple gardens. There are three districts with only one temple and four districts with two temples. The district with the most temples is Bangkok-Noi with 32 Buddhist temples within its administrative boundary. There are three districts that each contain only one temple. Although most of the districts with a high number of temples (more than the average of 9 temples) are listed among the group of higher percentage of tree coverage, there are a few districts with more temples that have

relatively low tree coverage (D20, D28, D30). These three districts with a lower percentage of tree cover are located in the inner district areas within the commercial (brown), high density (red) and medium density residential (orange) land use zones.

Districts with large public parks (D42) or the city zoo (D7) were not distinguished by significantly high tree coverage. Districts located in suburban areas tended to have a higher percentage of tree cover while districts within the inner zone of Bangkok mostly have a lower percentage of tree cover. There are some exceptions in those inner districts with a high number of temples (D10 (32 temples), D12 (23 temples), D13 (11 temples), D18 (13 temples)). These districts also have a high percentage of canopy cover which shows a positive correlation between the number of temples and tree cover in the districts.

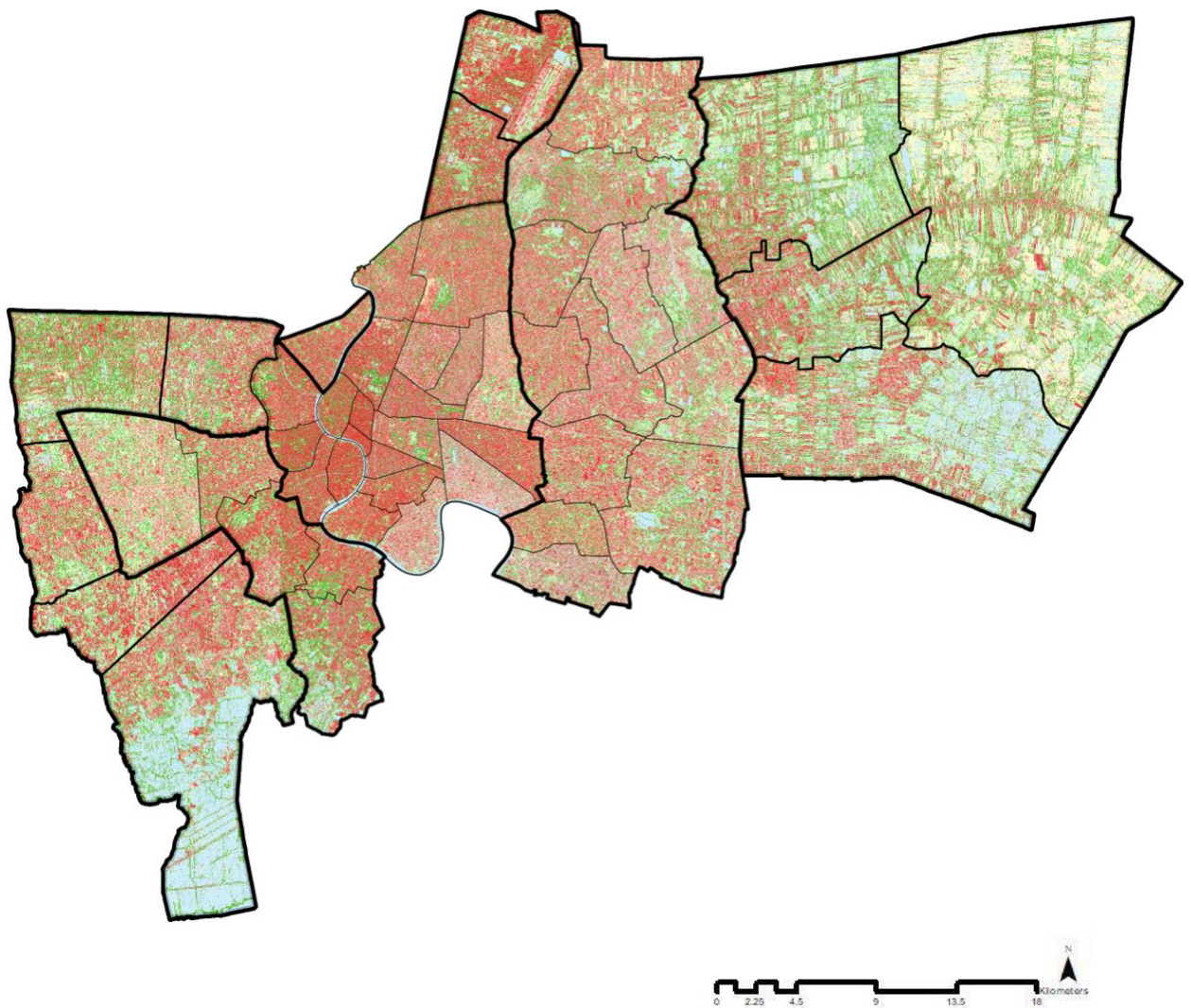


Figure 6.6: Supervised Classification map of Bangkok conducted with Object-Based Image Analysis (OBIA).

Object-Base Image Analysis (eCognition)

Inner Bangkok	Bare Areas	Buildings	Road/parking lots	Grass/shrub	Trees	Waterbodies	Shadow	Total district area (sq.m)
total	8.90%	41.10%	16.60%	5.90%	17.20%	6.60%	3.70%	206411332

Middle Bangkok	Bare Areas	Buildings	Road/parking lots	Grass/shrub	Trees	Waterbodies	Shadow	Total district area (sq.m)
total	7.60%	29.60%	18.00%	16.40%	18.20%	6.80%	3.30%	488032796

Outer Bangkok	Bare Areas	Buildings	Road/parking lots	Grass/shrub	Trees	Waterbodies	Shadow	Total district area (sq.m)
total	12.00%	16.30%	10.50%	22.20%	20.80%	15.60%	2.50%	891201304

	Bare Areas	Buildings	Road/parking lots	Grass/shrub	Trees	Waterbodies	Shadow	Total district area (sq.m)
Total BKK	162764256	374617072	215840064	289956212	309988140	186281768	46197920	1585645432
percentage	10.26%	23.63%	13.61%	18.29%	19.55%	11.75%	2.91%	100.00%

Urban tree canopy in Bangkok = 19.5%

Table 6.1: Percentage of each land use class in Inner Bangkok, Middle Bangkok, and Outer Bangkok and the total percentages of each land use class in the city.

Sort by percentage of tree coverage

District	Area (sq.km.)	Number of Temples	Percentage of Tree coverage (OBIA)
D28	16.662	9	6.93%
D21	13	3	9.67%
D25	5.54	5	10.86%
D30	10.921	10	10.97%
D20	1.416	13	11.68%
D47	24.311	4	12.55%
D48	28.523	5	12.82%
D2	18.905	2	13.00%
D34	18.789	4	13.10%
D1	15.033	3	13.30%
D16	23.678	8	13.70%

D27	9.326	6	13.74%
D17	12.565	2	14.04%
D9	9.595	1	14.14%
D38	44.615	8	14.86%
D33	34.745	3	15.17%
D4	123.859	14	15.56%
D23	6.051	8	16.25%
D8	28.124	1	16.27%
D43	25.98	3	17.16%
D36	36.803	7	17.77%
D24	52.5	6	18.16%
D5	8.4	2	18.44%
D45	21.5	3	18.51%
D32	15.782	7	18.65%
D26	35.825	7	18.80%
D42	32.908	2	18.85%
D15	44.456	5	18.97%
D35	120.687	15	18.99%
D0	11.36	23	19.04%
D11	7.126	4	19.27%
D37	236.261	16	19.48%
D22	8.551	25	19.60%
D31	13.986	4	21.01%
D7	10.7	17	21.15%
D46	11.5	9	21.43%
D29	26.265	17	21.47%
D19	17.834	27	21.49%
D14	8.37	6	21.65%
D41	42.123	4	21.71%
D44	63.645	6	23.56%
D10	11.944	32	23.65%
D6	29.479	31	23.86%
D13	1.931	11	24.32%
D40	22.841	1	24.52%
D18	6.18	13	25.86%
D12	5.536	23	28.41%
D49	30.741	4	28.92%
D39	110.686	10	29.02%
D3	50.219	3	32.97%

Districts with a greater number of temples than average (9 temples)

Outer district

Middle district

Inner district

Table 6.2: Percentage of tree cover, Comparison of the number of temples and the percentage of canopy coverage in 50 districts.

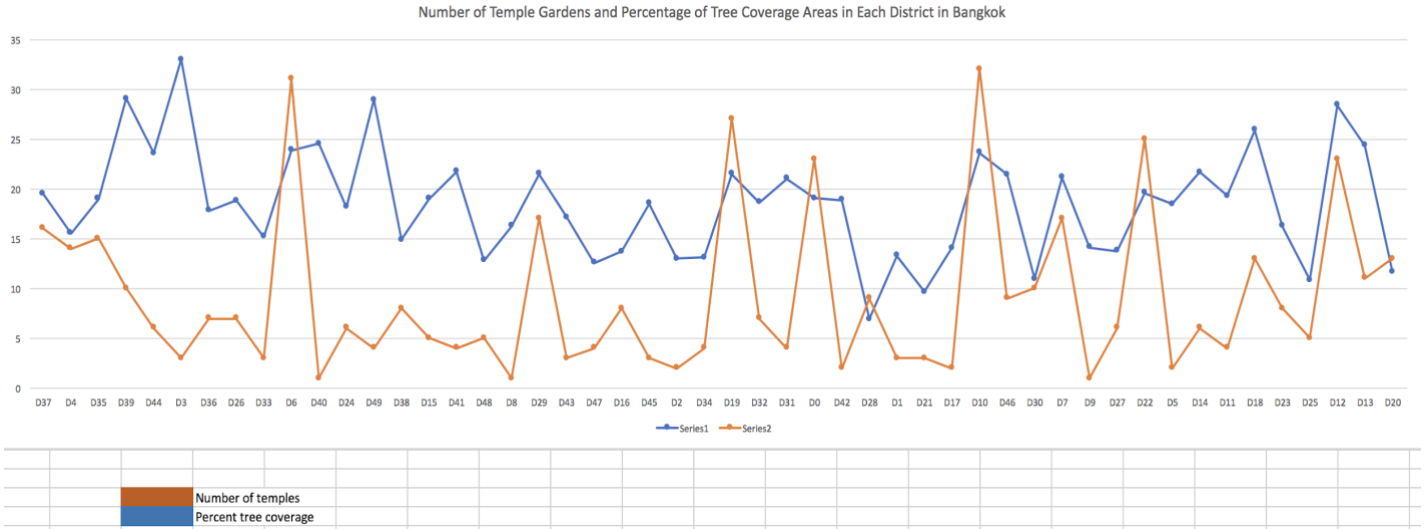


Figure 6.7: Percentage of tree coverage compared with the number of temple gardens in each district.

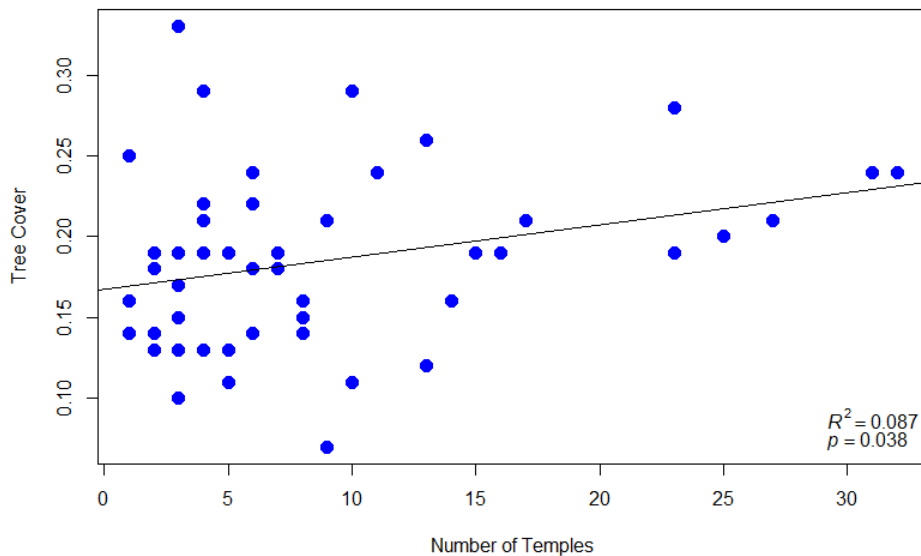


Figure 6.8: Linear regression of numbers of temples and percentage of green coverage in each district.

When comparing the percentage of tree coverage with the number of temples in each of the districts (figure 6.7), only seven out of 50 districts have more temple gardens with lower

areas of canopy coverage. Most districts have the number of temples correlated with the percentage of green coverage within their boundary. I also took into consideration the city parks, the zoo, the large campus, the military bases, and the palace that could cause fluctuation in the correlations. However, from the regression results in linear model (figure 6.8), it seems that the relationship is significant (because the p-value = 0.04), but weak, because the $R^2 = 0.09$, meaning that the number of temples in a district explains roughly nine percent of the variation in tree covers from one district to another. This suggested that there is a weak relationship between numbers of temples and percentage of green coverage in each district.

6.6.2 Trees in temple gardens

6.6.2.1 Temporal analysis

Comparing the percentage of tree coverage within the temple gardens

The canopy coverage in selected temple gardens ranges from 5 percent in the old temples to 45 percent in the recently built temples. The 15 selected temples range by the year of establishment. In table 4.3, A 1-3 are temples built prior to 1782, before Bangkok became the capital city. Temple B 1-6 are temples built during the Early Rattanakosin period, from 1782-1905 when Buddhism flourished in Thai society and the Sangha community received tremendous support from the King. C 1-3, from 1906-1960, during the period of the political change when the King drew back the labor force and budgets that were previously used to support the monastic society. The last group, D 1-3, contains temples built after 1960 when there were political and social movements influenced by Westernization. These changes had a great impact on the physical form of the city, and Buddhist temples, especially the change of the predominant mode of transportation and the reconfigurations of spaces.

temple	2001-2004	2015-2016	%change
A 1	35.4	21.6	-39%
A 2	9	5	-44%
A 3	34.5	19.7	-43%
B 1	21.9	9.2	-58%
B 2	22.4	16.9	-25%
B 3	34	19	-44%
B 4	13.8	9.8	-29%
B 5	16.4	12.9	-21%
B 6	33.8	39.2	16%
C 1	29.6	23.5	-21%
C 2	20.1	14.5	-28%
C 3	38	13	-66%
D 1	9.8	19.6	100%
D 2	29	10.2	-65%

D 3	33	45	36%
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Table 6.3: Percentage of tree coverage in temple gardens from 2001 to 2004 and from 2015 to 2016 and percentage of change of tree coverage in the temple gardens.

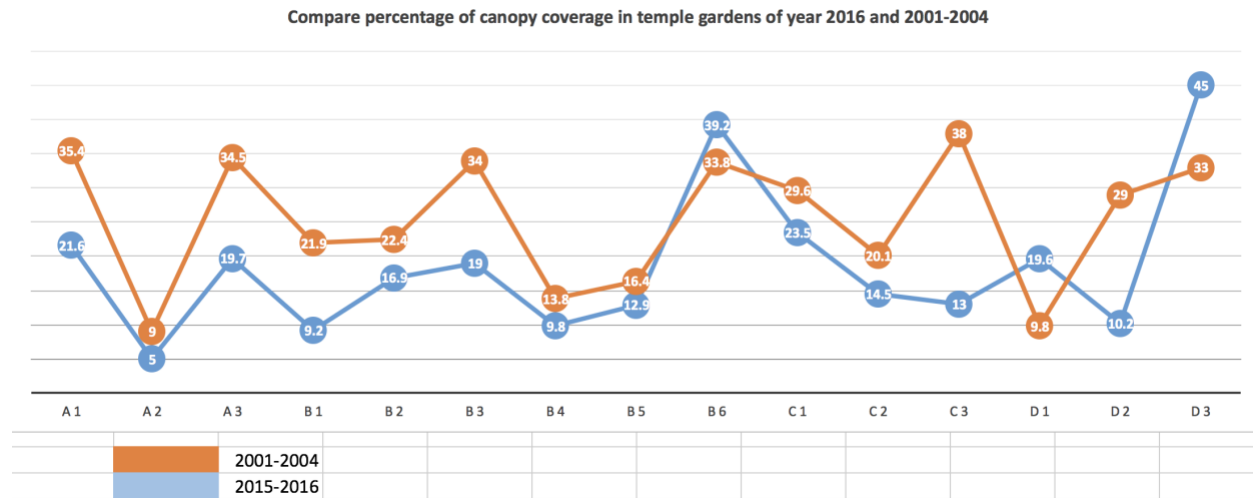


Figure 6.9: Compare percentage of tree coverage in selected temple gardens from 2001 to 2004 and from 2015 to 2016.

In figure 6.9, the graph displays the percentage change of canopy cover in selected temples. Most temples, 12 out of 15 temples, have had their percentage tree coverage decreased significantly in less than a decade. Three temples (B1, C3, D2) have lost more than 50% of their canopy cover.

The temple boundaries have changed due to social, political, and economic changes such as new roads, renting out parts of temple properties for revenue, expanded temples from donated lands and lay supporters. Because the active temple grounds are not the total areas of temple, comparing images of then (2001-2004) and now (2015-2016) has shown that some temples have changed their boundaries. Some get smaller, while some expand.

I used the same boundaries of the 2015-2016 data set to measure the canopy coverage in the 2001-2004 data set. I found that three temples have increased percentage of canopy coverage and 12 temples have decreased percentage of canopy coverage. All of the temples from the older period lost a significant amount of their canopy cover. Their locations are in the inner or middle districts with a high density of land uses. As land values increased and temples had no more space for trees, the monks tended to cut some trees down when they needed more functional space. This process is continuing today. The only temple built before 1906 that has increased tree coverage is Temple B6 where the monk who was a landscape manager assigned an area to be an urban forest and meditation garden. For the temple gardens that have increased tree canopy, the temple with the highest change in canopy coverage is Temple D1 that was built in 1963, the most recent period after the Westernization and major political change in Thailand. It is a Royal temple of the Mahanikaya sect located in middle district area of

the city. Its tree coverage has increased by 100 percent, doubling the area of tree cover on the temple grounds. Although it does not have very large areas of tree coverage, temple D1 has the highest percent increase in the canopy coverage. The temple with the least change in canopy coverage is temple B6, a Royal temple of the Dhammayuttinikaya sect located in the central area of the city. The tree coverage in this temple in 2001 was among the highest percentage of tree cover in the temple gardens, with only four temples that had more than 30 percent tree cover. Although temple B6 did not have the highest percent of tree canopy in the past decade, the landscape manager of the temple mentioned that he planted every tree by himself. The monks and temple visitors regularly use spaces under the trees in the gardens. The temple maintains its greenery and has the highest percentage of canopy coverage when compare with other study sites in 2015. Both temple A1 and A3 that had high percentage of canopy cover in 2001 significantly lost their tree coverage due to an expansion of parking lots.

Among the temple gardens that have lost their green canopy covers, Temple C3 has lost the highest amount - 66 percent of its tree coverage. The temple was built in 1954 in the outer part of the middle district area. It is a private temple of the Dhammayuttinikaya sect. The temple has expanded and there are many new buildings built on the orchard area donated by lay supporters. The second highest decline of canopy cover is Temple D2. The temple has lost 65 percent of its canopy coverage. It is a private temple of the Dhammayuttinikaya sect, which has a more rigid monastic discipline, called Vinaya, that prevents monks from cutting trees. The temple was built in 1987 in the outer district where there was a relatively large amount of vacant land in the vicinity of the temple site. The temple also has an old tree that received a 1999 Bangkok Big Tree award. However, when I visited the temple, the heritage big tree had already been pruned into a relatively small size. From the interviews with the monks, many trees died some years after the major flood in Bangkok. Despite the heritage trees listed in the BMA tree inventory, the temple did not receive sufficient funding to mitigate the flood and protect their heritage large trees.

6.6.2.2 Spatial analysis

Comparing temple gardens with outside land use

With an assumption that temple gardens are greener with a higher percentage of canopy coverage compared to other land uses, I did not find that to be the case. When comparing the percentage of tree coverage in selected temple sites with that of the district overall, only four temple gardens had significantly higher percentage of tree coverage than that of the whole district, and two temples had the same tree coverage as that of the district. There are nine temples with a relatively lower percentage of tree cover compared with the surrounding areas in the district. However, because of the ambiguous boundaries of the temple sites and different number of temples in each district, I did not exclude the temple areas from the district when quantifying the tree coverage. As a result, there may be other temples with more tree cover. In comparing these selected sampling, there are fewer green canopy areas in temple gardens than with other land uses.

district	temple	Percentage of tree cover in a temple garden	Percentage of tree cover in a district
Dusit	A 1	21.6	21.15
Bangkok Noi	A 2	5	23.65
Suan Luang	A 3	19.7	13.70
Sathorn	B 1	9.2	13.74
Khlongsarn	B 2	16.9	16.25
Pomprabsatrupai	B 3	19	24.32
Phra Nakorn	B 4	9.8	28.41
Pomprabsatrupai	B 5	12.9	24.32
Pathumwan	B 6	39.2	21.65
Bangkean	C 1	23.5	21.71
Phra Nakorn	C 2	14.5	28.41
Tungkru	C 3	13	28.92
Phrakanong	D 1	19.6	21.01
Nongkaem	D 2	10.2	18.80
Huaykwang	D 3	45	13.30

Table 6.4: Comparison of percentage of tree coverage in temple gardens and percentage of tree coverage in the districts.

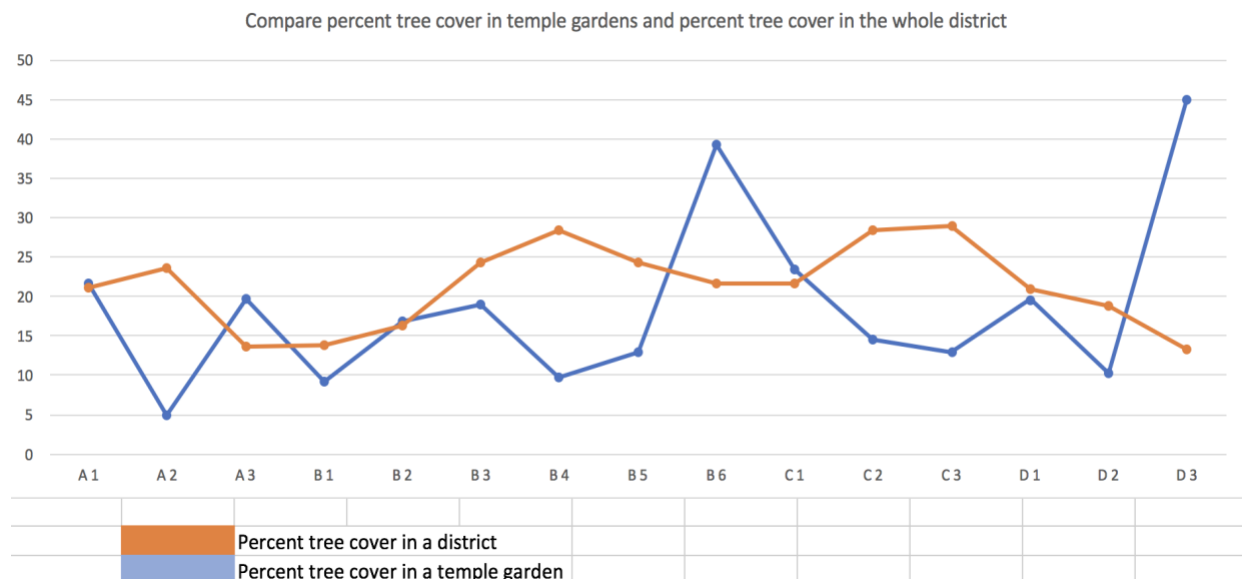


Figure 6.10: Comparison of percentage of tree coverage in temple gardens and percentage of tree coverage in the district.

6.7 Discussion

Even though some districts have fewer temple gardens and a relatively low percentage of green areas, people may visit the temple gardens outside their districts of residence, in adjacent districts, or even travel further. There are other variables influencing how people decide to visit temples including transportation connectivity, cultural diversity, popularity, and other social, political, and economic factors. Using service radius in spatial analysis can reduce the bias toward administrative boundaries, but it cannot capture other subtle reasons that may be intangible yet have more impact on decision-making and behavior. A quantitative approach can display significant numbers and their relationship, but still cannot reveal every aspect of accessible green spaces and how people use them. A relational approach that takes qualitative aspects into consideration can help us understand more of the importance of trees in temple gardens as a significant urban green infrastructure that provides ecological and cultural services.

Even with high resolution imagery, I still cannot prove that temple gardens contain more diverse species and larger trees in the city (Thaiutsa et al., 2008) where they also serve as urban public spaces for many social and cultural events. Classification and quantification of urban tree cover provide us with valuable knowledge and greatly benefit efficiency management of urban forests. However, mixed methods with ethnographic field work and on-site survey are required to make us understand more about the significant role of temple landscapes and the ecological and cultural values of these heritage trees in the city.

Because the data on temple boundaries are not available, it is not possible to examine whether the size of the temple is a variable that affects the existence of the trees or whether larger temples are less likely to lose a percentage of tree cover compared to smaller temples. For the future research, identifying temple boundaries can help to efficiently manage urban forests and preserve valuable heritage trees in the temple gardens. Moreover, expanding the study area to include the surrounding provinces that are now part of the Bangkok Metropolitan Area is a legitimate research direction and would reflect the actual behaviors of city dwellers. A relational approach that sets aside the administrative boundaries of these districts and uses location analysis defining the service radius of temple gardens would be an additional approach to analyze how people from across the districts access and benefit from these religious urban green spaces. Finally, mixed methods including ground truthing, participant observation, and in-depth interviews are still a critical component of this research, especially when there are social and cultural aspects involved. The ethnographic approach with qualitative research methods can help us understand the different values and the spatial dimensions of these urban forests.

6.8 Conclusions

When compare the percentage of canopy coverage in temple gardens from 2001-2004 to 2015-2016, only three temples from the 15 selected temples have higher percentage of tree canopy. Twelve temples have declined canopy coverages. Three of which lost more than half of the canopy cover. This is a change within about a decade. The Bangkok's list of heritage trees that have large trees in temple gardens contributed to more than one third of the list was conducted in 1999. Thaiutsa (2008) argued that monastic landscape are places of large and old

trees and species diversity in the city. However, the findings in this chapter reveal that percentage of large trees in temple gardens have significantly declined.

The older temples do not have less change of canopy coverage than newer temples. Although the temple with the highest change in canopy cover is the one that built after 1960, the older temples also have significant change in their canopy covers. Most of the change in older temple gardens is declining in percent tree covers. The eight oldest temples lost their canopy from 21 to 58%. As a consequence, the hypothesis that temple gardens have more tree coverage than other land uses are accurate only in four temples. The rapidly loss of tree coverage in temple gardens is a timely issue that needed to be considered and processed. Without an effective heritage trees preservation plan, landscape designs that concerns about the significant of these heritage trees, and suitable tree care, these heritage large trees in temple gardens will lost and irreplaceable.

Because Buddhist temples are places unlike other land uses, the temple gardens have the potential to be sites for preserving and enhancing the tree canopy within the city. The gardens in Buddhist temples in Bangkok can be significant green public spaces that provide equal public access to people. Temple gardens can serve as cultural, spiritual, and ecological sanctuaries for city dwellers. The measurement of canopy cover and an inventory of heritage trees provide useful data on the management of these urban trees in temple gardens and can help preserve these heritage trees and provide better management of this element of the city's green infrastructure. The supervised classification using Object-Based Image Analysis allowed us to more accurately understand the land cover pattern, urban forest distribution, and ecological roles of temple gardens in urban landscapes.

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Conclusion

This is the culmination of several years of research; three years of coursework, shaping and reshaping the research proposal, several surveys, nine months in the field, and two years of writing, analyzing, and synthesizing the corpus from both ethnographic fieldwork and quantitative data. I finished the last interview on August 20th, 2016 and did not expect to take this long to write. However, I was granted and acquired a high-resolution imagery of the city of Bangkok from the Digital Globe Foundation. With the data from this source, I spend a few more months figuring out the best methods to quantify the canopy coverage of the city and came up with a set of data of the green coverage of the city and temporal changes in temple landscape canopy coverage.

Trees in temple landscapes are significant cultural and ecological assets of the city. Urban forests in temple landscapes contribute to biological diversity and are critical for human well-being and sustainable urban ecosystems. However, they are in risk of being cut down due to the lack of effective preservation plans and policies. My research will contribute to an understanding of the cultural services of urban forests in the landscape of Buddhist temples. The better informed and proper management of urban heritage trees in these monastic landscapes of over 450 temples in the city will significantly provide sustainable public green spaces for people. This research contribution will also include recommendations for public policy for urban forestry and tree preservation in temple landscapes that can be used in other Buddhist countries.

This is an empirical study, an investigation of religious culture in the biophysical world, an ordinary experience of how humans perceive the cultural values of trees that cannot be captured by scientific methods. This study could be subjective and could be viewed as a mere historical phenomenon. However, it conveys significant contents that other methods cannot capture. Fowles (1979) explained the way in which ethnographic research is conducted: *“Ordinary experience, from walking second to second, is in fact highly synthetic (in the sense of combinative or constructive), and made of a complexity of strands, past memories and present perceptions, times, and places, private and public history, hopelessly beyond science’s power to analyse”* (Fowles, 1979: 36). In ethnographic study, the researcher must be aware of their impact on the subjects and places they have studied. *“The very act of observation changes what is observed”* (Ibid., 32). There is unique culture in the community of Sangha. Specific manners must be maintained while entering Buddhist temples. I attempt to learn about their thoughts, behaviors, and other significant factors influencing religious rituals that are performed on trees and natural elements. However, I am aware of research limitations and tried to be discreet and maintain minimum impacts on the subjects and study sites. But to study ethnographic and human geography one needs to be accepted at a certain level to receive openly feedback and thoughts of the interviewees. I shared my thoughts and study purposes and tried to be open with any responses from the monks. My friend, a PhD fellow from Cologne, Germany, had accompanied me to most of the preliminary observations and several in-depth interviews. She mentioned that after many lengthy comprehensive discussions about urban forest and heritage trees in the city, the way she looks at trees and urban forests has completely changed.

7.1 Researcher Impacts in Ethnographic Research

What Impact I Had Made After the Field Work and In-Depth Interviews with the Monks

The impact by a researcher is one of the most important things of concern in ethnographic research: how I have changed or influenced people I interviewed, places where I conducted the field work, and rituals involving participant observation. Even though Buddhist practices and many religious rituals receive attention from young people, it is not normal to have young folks visiting temple regularly, interrogating, and trying to get insights about the Buddhist monks' precepts, their opinions on temple trees, and how the monks care for temple gardens in both spiritual, theoretical, and physical approaches. Buddhist temples are cultural centers, spiritual spaces, and social sanctuaries for people, especially ones with less opportunities in the society and people with sufferings. In Thailand, monks teach Buddhism but they rarely share theoretical approach or Buddhist doctrine to the general public. They do not discuss the *Vinaya* with temple visitors. There are classes and study groups for people who are interested in learning about Tipitaka, especially Abhidharma Pitaka, or wish to practice meditation. Most laities visit temples to participate in the religious rituals, to make merit and to get blessing from the monks. However, monks also provide other social services by listening to people's problems and taking care of the physical and psychological well-being of laities to help them obtain relief from sufferings. The Thai Sangha was criticized for focusing more on rituals over canonical studies or meditation practice (Darlington, 2012: 246). However, there are different approaches in the Sangha as I discussed in chapter two. The monks must try different *upaya*; skillful means to teach Buddhism and rituals with tangible talismans are efficient methods that many monks use.

Most monks I interviewed showed their hesitation and contemplation when talking about the *Vinaya* and management plans for temple tree care. The paradox of the Buddhist monks' precepts and tree care is obvious. Some monks want to cut some big trees to minimize the cost of maintenance, to prevent liability, or to build new buildings. I disagree with them but I did not say anything against them. Despite disagreeing, I understand their reasons but they seemed to ignore or be unaware of alternative solutions. There is no single best answer for heritage large tree preservation and temple garden maintenance. The tree ordinations are methods used in rural areas that could be useful in some urban situations but sustainable urban trees preservation requires more strategies. Heritage large trees in temple gardens often have evocative values and narratives which enhance their cultural and historical values. Many questions about the Buddhist monks' precepts and temple trees care may cause the monks to rethink their interpretation of the *Vinaya* and their stewardship of temple landscape. A monk from one temple from my study sites contacted me to work as a landscape architect to help the temple conduct a tree inventory in their garden and redesign some parts of the temple landscape. It was a great opportunity but I could not take it. A monk in another temple asked my opinions on planting design. Despite the fact that they were not aware of the existence of heritage trees in the temples, the monks seem eager to learn more and are willing to improve temple gardens and tree care.

7.2 Causes of the Temple Trees Damages

There are many specific details and factors in the study sites, each with its own historical and cultural contexts and characteristics. However, I conclude that there are three main problems about situations of heritage large trees in temple gardens in Bangkok.

7.2.1 The Buddhist Monks' Precepts

The Mahayāna Buddhist monks in East Asia hold fewer precepts; they can eat after midday, run, grow and harvest their own vegetables, and cut trees, while the Theravāda monks in Southeast Asia have more precepts with more meticulous ways in which they practice. Even though the Thai Buddhist monks' precepts seem to be a strict set of moral conducts, there are different interpretations and how the monk practices can be slightly different depending on individual beliefs and cultural backgrounds.

All of the monks I interviewed were aware of the prohibition on trees cutting. Most of them avoided discussing the topic of tree care and said it is laities' responsibilities to help support the monastic gardens and the Sangha. Some temples use the donation money to hire staffs from local district offices or gardeners to maintain the temple gardens. However, some monks said it is the Sangha's duty to provide suitable care for trees and temple gardens. One monk uncomfortably mentioned that he is aware of the monastic rules and understands the inappropriateness if the monks have to do the garden maintenance work in their robes, the only attire monks can wear according to the precepts. It is awkward and inconvenient to climb up a ladder and do the pruning. However, he confidently insisted that the Sangha must be responsible to provide proper care to these heritage large trees and the temple gardens because the temple gardens that are well maintained will invite more temple visitors. Buddhist monks should have connection with the society and give back to the society because they receive financial support, food and offerings from laities. When temple gardens are clean and welcoming people will want to visit; then the monks can teach Buddhism and help people from suffering. The trees in these temple gardens are very well maintained and beautiful.

The two major institutes of the nation are Monarchy and the Buddhist Sangha (Keyes, 1989: 136). Because Buddhism represents Thai culture, making radical changes in the religious doctrine and practice are likely to be against Thai tradition and socially unacceptable. However, with the ultimate goal of Buddhism to be relief from suffering and the roles of Buddhist monks to help laities to show them the path, monks have to adapt their way in which they can get people's attention so people can learn about the four noble truths and the path to escape from suffering. The moral conducts in the Buddhist monks' precepts are flexible enough that they have lasted for over 2,500 years in different times and regions among different cultures. However, many of the rules, with direct translation and old interpretations, could be irrational in the present time and certain contexts. Monks slightly change and adapt some minor rules and ignore some rules to be able to survive in the changing society and globalizations. However, because of the social role of the Sangha as the symbol of the Nation, it is difficult for the Sangha to openly change or introduce the new interpretation against hypernationalism of Buddhism because people are attached to the status quo despite its impracticality.

In 2014, Phra Ajarn Kukrit Sothipalo, the abbot of Wat Na Pah Pong, was accused of violating the Tipitaka with extensively changed monastic rules. He and his disciples denied to recite 227 precepts on *Patimokkha*, Upasatha Day which take place on the full moon and new

moons. He mentioned that only 150 precepts would be sufficient and omitted the irrelevant 100 precepts during the bimonthly religious rituals (Bangkok Post, August 24, 2014). Phra Prajak, an outspoken activist monk, and other environmentalist monks were criticized, opposed, arrested, attacked, or received death threats from their actions on tree preservations (Darlington, 2012: 220). Several monks who were involved in political movement and social and environmental injustice were disrobed, expelled from the monkhood. Darlington (2012) discusses issues between canonical authenticity and religious innovation (Darlington, 2012: 247); in this case, precepts reinterpretation is criticized in many aspects. The tree ordination was also criticized as a shallow ritual without deeper meanings or canonical doctrine support (Ibid.). Environmentalist monks tried to emphasize meanings and association of the ritual with Buddhism and make it as the way people make merit.

7.2.2 Urbanization and Modernization

Urban development not only impacts the physical forms of Buddhist temples but also reshapes and redefines the religious realm of the country. Expansion of new structures changes the ways monks used to live and takes planting spaces and many trees off of temple grounds. Temple land uses produce much less economic benefits compared with other land use in urban context. In some ideal models of city planning such as the Garden City or Neighborhood Unit, land uses with less economic productive - schools and churches, are often eliminated from city centers as they are considered having less profitable functions and do not fit in urban contexts. Universal applicability of city planning models may optimize economic benefit and create livable neighborhoods but obsolescence of social and cultural diversities could increase social and economic segregation (Corburn, 2013: 64). Even though temples do not give much economic benefits, because of strong religious beliefs and deep cultural values in Thailand, Buddhist temples can still remain in their locations in the city. Many old temples have shrunk and lost land for urban development. A lot of monastic properties have turned into commercial land uses so the temples can earn their economic benefits after the state cut down the budget. Some new temples, especially ones in outer Bangkok have increased in size. Temples maintain their physical status by donation money from laities. Buddhist monks are well aware of this fact so they must have religious rituals and other cultural events to invite people to come and make donation. Many temples cut their trees to expand parking space and build new buildings for visitors' convenience. Temple gardens are also decorated to make temples more welcoming. However, most of the species added to the temples are small ornamental plants that do not give much ecological benefits.

To take care of temple gardens and provide proper care to these trees creates a better environment and encourages lay people to visit the temple. Hence, they will come to practice meditation, listen to Dhamma talk, be afraid of doing bad karma, hold the 5 precepts, and eventually learn to find the right path to nirvana, which is the ultimate goal of Buddhism. At the same time, the Sangha needs financial support from laities so more people attending the Sangha the better for both sides. These goals cannot be achieved if lay people do not want to come to temples and participate in religious activities. If a temple is messy, trees are in bad shape and do not provide shade or create a peaceful atmosphere, people will not want to come or stay in the temple. For this reason, keeping temple trees in good condition and taking good

care of temple landscape would be a sustainable way to keep the connection between the Sangha and community.

Another factor impacting temple trees are the Buddhist monastery guidelines from National Office of Buddhism. A temple must have certain architectures and buildings to be registered as a Buddhist temple. Trees and landscape are not in the requirements. Even though forest temples (*Aranyavasi*) are mentioned to have some shady areas in the temples, temples in urban areas (*Kamavasi*) do not have to have any green space at all. There is an old tradition that in a place with heritage large trees would be chosen to be a site for a temple. This criteria is no longer applicable in urban context of Bangkok. Because of urbanization, the significance of urban heritage trees especially ones in temple gardens have been diminished.

7.2.3 Social and Cultural Changes

People committing to be in the Sangha for a short period of time became a new normal (Taylor, 1993:67). Men used to commit to lifelong monkhood. However, the cultural changes initiated short terms for monkhood that connected to different cultural and religious events. There are many one-day monkhoods at funerals where grandsons ordain for their grandparents who pass away. One week, one-month, or three-months Buddhist ordination during Lent, Summer break, New Year holidays, or the King's anniversary are very common and have become a new religious tradition in Thailand. When monks spend less time in a temple, they have less appreciation of the temple spaces and often do not recognize any heritage large trees in temple gardens. From the interviews with Buddhist monks in Bangkok, despite their ages, monks who have less time in the Sangha are not aware of the existence of heritage large trees in the temples. They do not have the appreciation and often do not get involved in using spaces near the trees or provide care for the trees which results in forlorn heritage trees.

Not only has the Sangha culture changed, Buddhist's culture has also changed for laities. People used to support the religion by preparing food for monks and providing basic personal tools and offer to them. Now laities want to make more merit by donating large sum of money because they believe that the more they donate, the more merit they will get which means more prosperity back to them either in this lifetime or for their next life. Many people make merit as a confessing and amendment of their bad karma, morally wrong action they previously did. Sometimes they try to fix the bad karma from the past life that they believed are the causes of unfortunate events in this life. Even though these apotropaic behaviors do not directly relate with the Buddhist canonical, the way in which laities make merit make them rethink about their mistakes and temporarily relieves them from suffering. The old way of making merit besides offering things for monks is to donate time and labor. Laities used to help cleaning temple gardens, bring sand back from the river and canal to the temple yard⁴⁰ (back

⁴⁰ Kon sai khao wat (carry sand back to temples) is a cultural ceremony where laities who believe they take sand out of the temple courtyard every time they visit the temple. Sand stick on cloth, shoes, and feet of visitors which was taken away from the temple and make the courtyard sink. Every year before the rainy season, people would dig sand from the river and canal and carry them back to the temple to fill the courtyard. They usually make sand into small sand pagoda and adorn with flowers and colored papers. In temple gardens in rural areas, I have observed small sand pagodas adorn with small colorful flags, along with food, and flowers under big old trees. This cultural ritual not only help maintain the temple, laities can make merit, the river and canal also channel out and

then temple courtyard was usually filled with sand without impervious pavement), and planting trees. The old way of making merit made people spend more time in the temple which increased their perception of temple garden and appreciation of temple trees.

The social and cultural changes have greatly impact on monastic spaces. This is one of my observation field notes from a site visit; “I stop at the coffee shop that the monk suggested. It hidden in cave-like space under the pagoda. I wondered if it would violate the Vinaya but there was no rule mentioned about temples commercial spaces. The social and cultural change drive most of the urban temples to manage some kinds of commercial spaces in their precincts. I observed markets, coffee shops, souvenir shops (selling Buddha images, holy talismans, and other religious related merchandises), Thai massage parlors, restaurants and food stalls, etc. Some of which are rented by laypeople but some, especially souvenir shops, are managed by the Sangha”.

7.3 Situations of Heritage Trees in Temple Gardens in Bangkok

7.3.1 Modifying Conventional Practices

As the environmentalist monk rethinking and reinterpreting aspects of Buddhist practices to use it as a way for environmental preservations (Darlington, 2009: 184), the idea can expand into more sustainable practice of tree care. Trees in forest can grow and maintain naturally by themselves but trees in urban areas with many constraints require special care, especially the big old trees in high density urban contexts. The difference between tree ordination and tree maintenance is the first one is to protect the trees from being cut down which is accord with a ritual of consecration of the tree and does not cause much conflict with *Vinaya*, the monastic rules. The later one, tree maintenance, would require the caregivers to cut and prune some branches and might have to cut some trees down when they have liability issues. This approach can cause more paradox with the existing rules of the Sangha. Reinterpretation of the *Vinaya* to be more responsive to modern Buddhist temples in urban settings could cause some conflicts yet is necessary for this changing society. All of the monks I interviewed believes, according to *Vinaya*, that monks must refrain from cutting trees or branches of a tree because it is considered killing life (Mahamakut University, 2011: 164). Only a few monks in some temple said they take care of the trees by themselves, including pruning, cutting down, and planting new trees. Some monks even have small vegetable gardens in the temple where they plant and harvest by themselves. The trees in the temples where monks are taking care of the garden by themselves are in much healthier conditions. Their religious and cultural values convey to the next generations through the way in which they provide care and protect these heritage trees as well.

increase volume for the coming rainy season which could prevent river overflow and flooding. Kon sai khao wat are still conducted in rural areas but not in urban temples. The disappearing of this cultural tradition affects the equilibrium of ecosystem of the city.

7.3.2 Above Ground Constraints

One important rule when planting a new tree is to know the mature size of the tree so the right tree can be planted at the right place. However, in the old temple gardens, many old trees were already there before the new temple architecture was built. Sometimes people plant trees without knowing exactly how large they can be. When there are conflicts between trees and architectures, trees often receive heavy pruning. Because the monks want to protect the old architecture, one old monk said that the temple already spent a large amount repairing the old roof tiles after falling branches damaged them. The temples need to preserve valuable heritage buildings so they must get rid of any trees that could cause be prone to destruction. Leaves and branches of big trees can also cause damage to the old architecture and drainage. Proper pruning can help mitigate or prevent some liability issues, However, through close care by the temple stewardship, the Buddhist monks, would be the most effective way to avoid the above ground constraints.

7.3.3 Improving Poor Soil Conditions

Because many temples in Bangkok are dated back several hundred years and have layers of pavements accumulated on their grounds, soil quality has never been enhanced and is in poor condition. One monk mentioned that there are some significant old trees in the temple. The trees were planted by the old King and the temple has been taking very good care of these cultural significant trees. However, the old trees are not very large in size due to the limitation of soil space. The temple gardens especially the ones near the city center have very poor soil condition which causes unhealthy conditions of these trees. Although many temples tried to add more pavement to have more usable spaces, increasing planting space and soil conditions are pivotal before theses heritage trees die.

Besides the lack of nutrients in soil and limited soil spaces that make temples trees weak, I found some heritage large trees have died from heat, seasonal storm, and inundation. Trees in temple schools and the ones near parking lot were also damaged from vandalism. Protection plans should be planned to protect these valuable heritage trees because they provide both cultural values and ecological values for the city.

7.3.4 Engaging Public Involvement

Buddhism can be sustained with mutual supports from four parts; Sangha, Nun, Ubasok (male laities), and Ubasika (female laities) (Gethin, 1998). Similar to the existence of Buddhism, heritage trees in temple gardens can be preserved in a healthy condition with the stewardship of both the Sangha and laities. Public awareness and community participation are the key to sustainable urban forest management. Cultural values and religious belief play critical roles in preserving trees in these monastic gardens. The reinterpretation of how people making merit, by for example preserving trees, is an important way to help preserve temple forests. Heterogenous temple landscape elements are maintained because people find cultural values in these tree species. The belief in spirits in trees makes people give more respect to these heritage large trees as well.

Because successful ecological approaches require support from the public (Mozingo, 1997: 57), ecological spaces in urban areas should be aesthetically appealing so people have positive reactions and motivation to engage and support the landscape projects (Ibid., 48). Culturally based aesthetics are significant in order to get positive reactions and impression from people toward the urban green spaces. Temple gardens in cities are significant urban green spaces and should have aesthetic values to welcome laities. Temples are places of big trees and species biodiversity in the city. Even though Buddhism teaches that everything is impermanent and trees, which is parts of nature, will be aged, weak, and decayed, these heritage large trees and other natural elements in temple gardens should have suitable care to prolong their lives and intrinsic values. Healthy trees can help maintain respectable spaces of monastic institutes. Deeper cultural values and roles as religious symbols of temple trees should be significant additional cultural functions that give value to these heritage trees.

Buddhist monks are the main users of temple spaces. Their knowledge, awareness, and appreciations of these heritage large trees will be an important factor for health and well-being of these trees. Introducing natural components into the cities is the way of urban greening (Jim, 2008: 118). Preserving the existing urban forests that could have been in the cities long before human settlement is also important. Larger trees are more efficient as carbon sinks (Luyssaert et al., 2008). Some believe that older trees decrease their carbon sequestration (Pregitzer and Euskirchen, 2004); however, forests from 15-800 years still have net ecosystem productivity with positive carbon sequestration (Luyssaert et al., 2008). To destroy large old trees will release the carbon back to the atmosphere (Ibid.). Besides their significant ecological functions, these old forests convey historical and cultural values. Large urban heritage trees are a pivotal part of urban life.

7.4 New Interpretations Attitudes Toward Trees

*Temples and forests are related and have strong relationships all along.
Wherever we have temple, we will have forest.*

Interview with a senior monk at a Royal temple in the inner area of Bangkok (June, 2015)

Making merit or *tum boon* by planting or preserving trees had been practiced since the Buddha time as mentioned in Vanaropa Sutta⁴¹. Buddhism and environmentalism have shared intellectual spaces and notions. Environmental ethics in Thailand have been associated with Buddhism since the late 1970s and early 1980s. The non-government organizations (NGOs) and social movement groups inspired and utilized the Buddhist teaching texts written by the late Buddhādāsa Bhikkhu (Keyes, 1989: 136), the famous monk who adopted Zen notions into his teachings.

Replacing the traditional belief and social aspects of human interaction toward trees, in this case through interpretation, the monks' precepts have allowed the Buddhist monks to give

⁴¹ Chapter 3

better care to these heritage trees in temple gardens. Replacing the monks' interactions toward trees that suggested by the *Vinaya*, recited after the Buddha left over 2,500 years ago and had been practicing in different region of the world where cultural aspect and period of times are also greatly different, would be difficult but can lead to a better temple landscape management that more suitable with the culture, time, and context.

Discussing about the precepts with Phra Ajahn Pasanno, the abbot of Wat Abhayakiri, California, after his last talk before he stepped down and retreated for one year, made me understand more of the Buddhist monks' attitude toward the *Vinaya*. He said the monks' precepts are very important. It is not the *Vinaya* itself. Not the texts in the *Vinaya* but the whole thing. To maintain the whole *Vinaya* helps set the boundary. It is essential. However, many of the rules in the Buddhist monks' precepts made sense in India in the old time, over 2,500 years ago. *"I think the Vinaya can be applied in today's culture, in these different places, times, and contexts. These Buddhist precepts that formed very long time ago still make sense today but monks have to read and understand it. The Vinaya cannot literally be translated and applied. It has to be reinterpreted and it is important that we maintain it. It is significant as a whole. It is the spirit of the Vinaya that is important. We maintain the Vinaya but we do not use the rules to punish the monks. It is about 'intention' – Jettana"*.

Many Buddhist monks answered vaguely when being asked about garden maintenance and tree care. The Monastic precepts that were adopted from India when Buddhism entered the region has many rules that do not apply with all places, times, locations, and cultural contexts. East Asian Buddhism is very progressive with a major reduction of these precepts to make the monastic rules more applicable with the current cultural context, locations, lifestyles of the monks who live over 2,000 years after the Buddha's time. However, Theravāda Buddhism in Southeast Asia is more conservative and tries to preserve all of the rules as a significant religious cultural heritage. Even though many rules do not make sense the Sangha still conveys this long traditional culture and is passed on to the next generation. If one looks at the intention, pruning old trees would be one effective way to keep them healthy and prevent liability which create safe and pleasant spaces in Buddhist temples.

Authority and Cultural Constructions

How did the physical sites relate to the ethnographic study of interview? Many monks awkwardly talked about their personal beliefs in tree spirits. Some young monks expressed their beliefs and fears of the tree spirits. Buddhist temples are sacred places. With many big old trees that convey symbolic meanings, the temple grounds became even more sacred. How are religious culture and the biophysical world correlated? Since Thailand is one of the countries with the highest concentration of Buddhists, trees that convey religious meanings also convey sacred values and receive respect from most of the population. The cultural and social values of these temple trees help preserve them from being cut down in the rapidly changing urban areas. However, there are a few cases that the monks are willing to cut the trees for development.

An Interpretation of Trees Care and Dilemma on the Monastic Rules

Buddhism is the religion of nature (*Dhamma* = Buddhism, *Dhammachat* = Nature). Buddhism and nature are closely associated which appeared in Buddhist texts the story of

relationship between man and nature. Trees and forests have strong relationship with the Buddha and his disciples as he emphasized that Buddhist monks should dwell, sit, and rest under trees canopy for their whole Sangha's life (Ackachan, 1996). In the urban settings of present days context, it is more difficult for monks to dwell under a tree canopy. There are still some forest monks practicing and dwelling under trees as meditation practices for a short period of times. Every monk must stay in temples during raining season (*punsa*) which called *Khao Punsa* or Buddhist Lent.

A new interpretation can cause conflict but with the same goal of teaching lay followers the right path to nirvana. Not only can temple gardens have healthier trees, preserve heritage trees, reduce risk of liability, better maintenance, the Buddhist monks, who are landscape stewards, can also be openly engaged, educated and trained with the knowledge of urban trees care. In addition, the monks can be more appreciative of these heritage trees and can combine cultural values and carry on religious significance that the trees convey to the next generations. To preserve the trees that are religious symbols is to preserve and maintain the religion.

7.5 Limitations and Future Directions

There are several criteria for establishing a new Buddhist temple. The minimum size of the land area of 2.37 acres, the minimum valuable assets, site plan of proposed structures in the temples, and the distance from existing temples are the main criteria (ONAB, 2016). Green areas or trees are not parts of the criteria for building a new temple. *Wat Pah* or *Aranyavasi* is required to have parts of the temple shaded with trees but *Kamavasi* or temples in urban areas do not applied to the criteria. People used to build a Buddhist temple where they find a strong large old Bodhi tree. Heritage large trees define the locations for temples. However, heritage trees or natural areas are no longer important factors in building a Buddhist temple anymore.

Buddhist monks who are managers of the temple gardens should be involved and educated about the roles of temple gardens as urban green space. The monks should be aware that the social and cultural values of temple trees contribute to the survival of the trees and promote ecosystem conservation. They must be informed and understand that temple green spaces distributed throughout the green infrastructure at the citywide scale have a great impact on diversity, quantity, and quality of the urban ecosystem.

Even though the temples might not have the best practice of tree maintenance, most of the Buddhist monks from the interviews were willing to preserve the trees in the temple gardens. Public involvement is a key factor. Sacred trees that have more public attention are very likely to be preserved.

7.5.1 Limitations

According to *Vinaya*, the monastic rule, women cannot be alone in private with a Buddhist monk (Mahamakut University, 2011). One time a senior monk assigned a young monk to sit with him outside the building when I interviewed. We were sitting under a grove of trees in the temple. A senior monk asked *Makatayok*⁴² to call a woman who worked on the temple publications to come sit with me while I was interviewing him. He irritatingly asked why I came

⁴² Makatayok is a spiritual guide or a person who guide religious rituals performed in Buddhist temples.

alone as it would be violating the Monastic rule for a monk to be with a female layperson. I apologized but did not tell him that I had tried very hard to have a chaperone every time. Moreover, it is extremely difficult to make an appointment or make any solid plans when interviewing the Sangha. I attempted to make appointments more than 10 times and only 2 times were the monks there. I had to interview all the other monks without appointments. Hence, I cannot have someone come with me every time because I cannot ask other people to spend several hours or a whole day waiting in the temple with me. Although I had five people that take turn accompanying me; my parents and a few friends who live in different parts of the city whom I tried to ask and arrange with them to accompany me during temple visits. However, sometimes it took hours to wait for a chance to interview a monk. They cannot always spend that much time. In many occasions, I was fortunate enough to have regular temple visitors or temple staffs sit with me during the interviews. Most senior monks usually have people working for them and those people always sit in the rooms with them to prevent uncomfortable situations and any risks of reputations that might cause from having female visitors.

Besides the gender issues, the language uses with the Sangha is different and complex. There are specific ways to speak with Buddhist monks in different occasions. It was not only the language of the Sangha that is different and can easily be miscommunicated, the local dialects some monks used made the interviews more complicated. Using mixed methods is challenging because I have to focus and spend a lot of time to work and comprehend in both approaches; qualitative and quantitative researches. The qualitative component using ethnographic methods is new to me. I have seen these kinds of ethnographic research but have been skeptical and thought whether it is too subjective and not sufficiently reflective of the monks' thinking. It was challenging for me to use the methods and convince my readers that they are robust and capture many things that could be overlooked when using other methods in social science research. Ethnographic research methods including content analysis, participant observation, and in-depth interview captures personal reactions and individual aspects with more complexity and insight that I can get more in-depth than just get monks fill the questionnaires. Combining with quantitative component, the findings from ethnographic field work helped answer many questions that I could not have explained without these series of in-depth interviews and participant observations.

The quantitative part is brief yet very powerful. Numbers of percentage of different land surface classes of the city and percentages of canopy coverage in each district capture the image of the city. Temporal analysis was done with available data from Google Earth with aerial photo from 2004 compared with the most recent ones in 2016. The 12 years period in rapidly growing city comprehensibly demonstrated the changes of canopy cover in Buddhist temples in the city. It is very important for urban forest management to have an updated accurate database of the existing urban forest in the city to have an efficiency strategy plan for urban forest management. The data on percentage of green coverage in temple gardens help explain how the monks perceived the values of temple trees and relationships between the outdoor spaces usages and temple tree care. Mixed methods allow researchers to get multi-dimensional approaches and in-depth understanding that one method cannot capture and provide these elaborate explanations of these urban phenomena. For a sustainable urban forest management, not only quantitative data on tree inventory or percentage of urban tree canopy,

but understand how people perceive the values of these urban trees and what are the existing and possibilities of the public involvements are the keys for green infrastructure resilience.

7.5.2 Further Research

Temple forests are not only places of ecological and social values in a human-dominated landscape, they also convey religious and cultural significances. Management, maintenance, and preservation plans for temple gardens must take a holistic aspect to integrate ecological and cultural approach for a suitable and sustainable plan.

- Ecological sensitivity – places for urban wildlife and species diversity.
Wide and scattered locations of temple gardens in the city give these urban forests a potential to be a green network of urban green infrastructure.
- Issues on accessibility, how temples can be inclusive public green spaces in the city? How temples provide urban green spaces for urban dwellers?
- Social inequity, public safety, and security are other topics relating social segregations. One temple I visited had locked metal gates at every small Buddha pavilions. I wondered and asked the monks during the interview. He said the low-income community outside the temple wall steal small Buddha statues so they have to protect the temple properties. Despite serving as a public space, people who live in the temple vicinity are not welcomed in the temple because of their negative social images.

7.6 Conclusion

I grew up in Thailand where our cultural beliefs are based on the spiritual and magical powers of deities and ghosts. Many natural events were not explained in scientific or logical ways; thus Thais are superstitious and believe that there are spiritual powers beyond humans' control. The more I studied the theoretical aspects of Canonical Buddhism, the less I believed in spirits. I do not have less respect for trees or Buddhist monks who believe in tree deities. On the contrary, I admire those who can comprehend complexity, conflict, and coalition and take on the dilemma of local folk culture and Buddhist doctrine in the context of Thai Buddhism. Despite the modern approach, including the environmental preservation movement, and the newly introduced system of assigned values in Thai society, the appreciation of cultural values of large and old trees is still embedded in the traditional Thai beliefs of spirits and supernatural beings. To communicate the cultural values of the trees, these local spiritual beliefs still need to be conveyed as I found that it is the most effective way to preserve heritage large trees in the city. With the growing population and higher demands of commercial and residential land uses, the maintenance of existing green spaces and proposals for new urban green areas is challenging. With more than 450 temple sites in the city, Buddhist temples have the potential to serve as vital components of the urban green space network. The cultural and social values of these temple trees can contribute to overall ecosystem conservation within the city.

The most important thing is to plant trees in man's heart because humans are the causes of deforestation. The awareness can be built by planting seeds of forests in people's mind. First, we should plant trees in man's mind. Then that man will plant trees on land and preserve those trees by himself.

Royal Speech. King Bhumibol Adulyadej. B.E. 2519

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APPENDIX

1. Glossary

2. Interview questions, Field notes, and Interview transcriptions

- a. Questions for the monks with high authority
- b. Questions for the monks who are the temples' landscape managers
- c. Questions for the senior and junior monks

These are field notes from observations, content analysis, and in-depth interviews of 45 Buddhist monks from 15 selected temples in Bangkok.

I conducted in-depth interviews with more than 50 Buddhist monks but the data used in the dissertation analysis came from 45 interviews in selected 15 temples which included: 8 monks with high authority in the Sangha, 10 landscape manager monks, 11 senior monks who have been in the Sangha for more than 10 years (*Thera* and *Maha Thera*), 16 junior monks who has been in the Sangha for less than 10 years (*Nawaka* and *Matchima*). There were 16 monks with less than 10 years experience in the Sangha and 29 monks with longer than 10 years experience in the Sangha. I did not talk to any Novices (usually younger than 20 years old). The monks I interviewed have ages ranging from 20 to 88 years old.

With all data concluded, I am not interested in some personal life but I am interested in a certain formality of the society. I collected the data without presumptions or predetermined of the categories of the answers. As an ethnographer, I tried to record statements as accurate as possible (Boellstorff et al., 2012:83)¹. The appendix includes all the interviews transcribed. In the chapters, I tried to convey the complexity of the problems. Most interviews conducted in or outside of the temple offices or in public areas in the temples. Some interviews took places in the monastic buildings. I did a few walking interviews when the monks preferred to show me the temple trees and spaces in the temple gardens. All of the interviews have done in public with at least one other person presented.

The part in [parenthesis] is the author's opinion. (1) Numbers in parenthesis indicates the question. All of the text is the monks' responses which are transcribed and translated as is. Most of the texts are not in quotation because I organized and put them in order of the questions. During the interview, the monks did not answer many questions right away and usually had other narratives with some implied the answers. Sometimes the answers for the previous questions came later or were added when they remembered. Two monks in the same temple may reply to the same question with completely opposite answers. One could say there is no Takien tree while another one said there is one big Takien tree in the garden. I took notes of all the responses and added this information to my content analysis.

¹ Boellstorff, Tom, Bonnie Nardi, Celia Pearce, and T.L. Taylor. *Ethnography Ans Virtual Worlds. A Handbook of Method*. Princeton and Oxford: Princeton University Press, 2012.

3. Significant and heritage large trees in temple gardens

Tree species listed here are the response from the question on the significant old trees in temple gardens. I summarize the list excerpted the data from the in-depth interviews with 45 monks in 15 temples. I did not observe all trees in the temple gardens but after the interviews I searched for the trees that the monks mentioned then took photo and notes and evaluated their conditions.

The tree species that mentioned as a religious significant are Bodhi tree (*Ficus religiosa L.*) and Sal Tree (*Couroupita guianensis Aubl.*). The species that were most often mentioned as heritage large trees in temple gardens are Bodhi tree (*Ficus religiosa L.*), Sal Tree (*Couroupita guianensis Aubl.*), Banyan tree (*Ficus benghalensis*), Mango tree (*Mangifera indica*), Spanish Cherry tree (*Mimusops elengi L.*), and Tamarind tree (*Tamarindus indica*).

4. Percentage of land cover classification in each district of Bangkok

Using the Object-Based Image Analysis method and the High-Resolution Imagery from WorldView-2 and WorldView-3 from 2015-2016, I classified the land cover of Bangkok into seven classes; Bare area, Buildings, Grass and Shrubs, Roads, Shadow, Trees, Waterbodies.

APPENDIX 1: Glossary

In Thai

- Ajahn** teacher, used to call a senior monk.
- Amissa bucha** making merit by offering things to the monks
- Bodhikara** a foundation for a Bodhi tree which is a part of the main axis in Buddhawas zone. One monk from an interview referred to Bodhikara as a house for the Bodhi tree. Bodhi tree shrine.
- Bot or Ubosot** an ordination hall. It is similar to the church building. Ubosot is normally surrounded by Sema stones. Some temples prohibit women to enter ubosot as it considered a private sacred space where monks conduct religious ceremonies.
- Buod** ordination/ ordain
- Buod tonmai** tree ordination
- Chedi** stupa, pagoda, the most sacred structure in the temple
- Dhammachat** nature
- Kana** monastic section
- Kham pho** supporting a Bodhi tree, is a common ritual practiced in Thailand. People put sticks to support old Bodhi trees' branches as they believe this helps support Buddhism.
- Nen, nayn** novice monks
- Phra** monks
- Phra Ajahn** teacher
- Phra pa** forest monk
- Pho kee nok** *Ficus rumphii* Blume. Pho kee nok is in Moraceae family. It is very similar to Bodhi tree (*Ficus religiosa* L.) but Pho kee nok are naturally grow by bird drops. They are parasite that usually sprout from the cracks of old architecture.
- Phutthawat** semi-public zone in a Buddhist temple.
- Plee kam** a ritual conducted to ask a permission to do things that could be violated to the subject. Plee kam ceremony was conducted at the old tree before cutting it down.
- Punsa** rainy season
- Rukkha-thewada** tree angel, tree spirit
- Sangha** a community of accomplished disciples (Gethin,1998 :34).
The formal recitation of a threefold formula: 'To the Buddha I go for refuge; to the Dharma I go for refuge; to the Sangha I go for refuge'.
A person has to be 20 years old and older to be able to ordain as a monk.
Old monk – *Phra Matchima* (ordain 5-10 years) (not always old), and
Older monk – *Phra Thera* (being in the monkhood more than 10 years).
Later I found *Phra Navaka* can be as old as 70 years old or older and *Phra Thera* can be as young as 30 years old (the youngest age to ordain is 20 years old. Some people ordain as a *Nen* or novice monk (hold fewer monastic rules) before they turn 20 then ordain as a monk when they turn 20). There are also some older people ordain as *Nen* or *Nayn* because they are not ready to maintain 237 monastic monk rules (250 precepts in Theravada order).

neophyte, novice monk (*Nayn* –Thai) Typically ordained before reaching 20 years old. Novice monks contain 10 precepts.

Sangkhawat	a private zone in a Buddhist temple. It is the area where the monks live.
San Pra Pum	a spirit house
Sappāya	beneficial, wholesome, suitable
Sema	stone boundary markers around an ordination hall. Sema stones mark the sacred boundary where evil spirits cannot enter.
Thoranisong	a monastic donated land. It can be adjacent to the temples or located at different locations, sometimes in another province outside Bangkok.
Tumboon	making merit
Ubāsok	male lay follower
Ubāsika	female lay follower
Ubosot	an ordination hall, Bot
Viharn	an assembly hall

In Sanskrit/Pali

bhikṣu/bhikkhu	a Buddhist monk
Dharma/Dhamma	the teaching of the Buddha
dukkha/dukkha	suffering, pain. One of the 4 noble truths.
karma/kamma	good and bad actions of body, speech, and mind that bring about a corresponding result in this and next lives (Gethin,1998 :320).
Nikāya	sect, order, division
nirvana/nibbana	to take his last breath
prātomoksa/pātimokkha	Vinaya, the Buddhist monks' monastic rules, the Buddhist monks' moral conducts. The Sangha recite pātimokkha every 15 days
Rūpa	physical form
Samsāra	the round of rebirth, the wheel of life or the repeating cycle of birth, life, and death.
Sappāya	beneficial, wholesome, suitable
sūtra/sutta	the discourse attributed to the Buddha. One of the three baskets in Tipitaka.
Tripitaka/Tipitaka	Pali canon, the three baskets
Upaya	skillful means
Vinaya	Buddhist monks' precepts, monastic's discipline, one of the three main divisions of Tipitaka

APPENDIX 2: Interview Questions, Field Notes, and Interview Transcriptions

In-depth interview questions

The questions for the monks were as follows:

- How long have you been practicing in the monkhood?
- Are there any particularly large and old trees on these temple grounds? How many are there? Are they treated differently?
- Are there any specific species of trees on temple grounds that have more symbolic meaning than other species? Do different tree species have different religious values?
- Do you think that the same tree species carries the same meaning if the trees are not in temple gardens? If so, do you treat them differently? Are there any special practices with the trees?
- Are there any trees on these temple grounds that have colored scarves, flowers, incense sticks, or offerings? How many of these trees are there? Who performs these actions, and when did they begin?
- As part of Buddhist practice, how have trees on temple grounds affected the duty of Buddhist monks?
- What do you usually do in areas with big trees?
- Does the presence of a large tree in the temple garden increase the holiness of the garden? Why or why not?

For the monks who were landscape managers, there were additional questions about particular trees in temples:

- How old is the tree?
- Who planted the tree?
- Who takes care of the tree? Who is responsible for the maintenance of the big tree (Monks at the temple or private contractors, e.g., professional arborists)?
- What is the relationship between the tree and the temple?
- Do you think there is value in the tree? Are there economic, ecological, socio-cultural, religious meanings or symbolism?
- Do the relics such as colored scarves, shrines, and other talismans, etc. make the tree more holy?
- Are the trees that received the Bangkok Hundred Big Trees Award from the Bangkok Municipal Administration (BMA) in 1999/2009 treated differently?
- Does the presence of a large tree in the temple garden increase the holiness of the garden? Why or why not?
- How does the holiness (or religious significance) of a large tree affect the maintenance of the temple garden?

Additional questions for the abbot:

- How important of trees in temple garden?
- How do you provide care for trees in temple gardens?
- Who take care of the temple garden? Is there specific monk/monks responsible for the trees in temples?

After a few interviews, I have some additional questions:

- In general, how do you think about the ecological values of trees in relation to Buddhism?
- Do you think different tree species convey different religious values?
- Is there anything in the garden that should change or improve? If you can change the landscape in the temple garden, what do you want to change?
- Where is your favorite place in temple gardens?

When asking about their favorite spots in temple gardens, most monk feel comfortable to answer because there is no right or wrong answers and they know their favorite places very well.

A-1

Year of establishment: 1277

Area: 13.7 acres

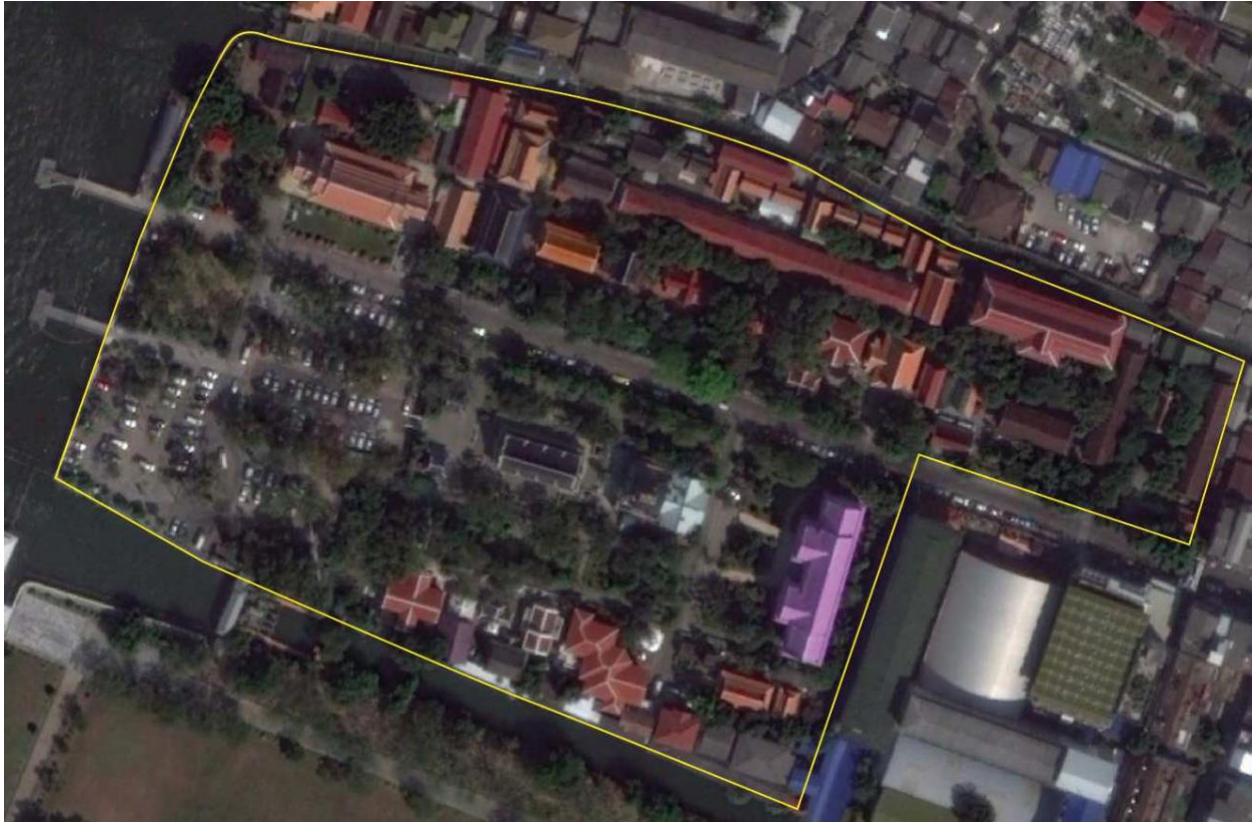
Class: Royal

Sect: Dhammayutthika

Significant trees: a Bodhi tree from King Rama II

Big Tree Awards: 1999

Location: Inner Bangkok



History of the temple

This is a first-class Royal temple which makes it difficult for the temple to change any planning or add any new buildings on the site. The temple was the oldest temple found in Bangkok. Even though it has been renamed and renovated several times throughout its history, the site still maintains existing conditions from the early Rattanakosin period (year 1782-1932). Many trees are claimed to be over 100 or 200 years old.

Observation

I arrived at the temple around 5:50 a.m. (the sunrise was at 5:45 a.m.) expecting a quiet morning hour in the temple at dawn. I anticipated to see an empty parking lot, monks quietly leaving the temple for their morning alms to collect offerings and food from people (*Bintabath*), and some students on their way to school. The traffic before 6 a.m. in Bangkok was not too bad.

It took me about 15 minutes to get there. During rush hour or when the traffic is very bad, the trip usually takes more than an hour.

The temple is located in a small alley similar to many other old temples after the mode of transportation changed and temples had struggled to find a new entrance from the roads. I turned into the soi and saw some monks were on their ways to morning alms. When I turned into the parking lot, I was surprised as it was almost full. I found a few spots available but there were also other cars driving around finding a parking space. Some of the cars had their engines on and I found out an hour later that these cars were parents driving their kids to school and trying to avoid traffic jam. They had to make it to the temple that early (before 6 a.m.) to make sure their kids can get to school before 8 a.m.

I started taking photos of the Bodhi trees right away. I came to this temple several times on a school trip with my class some years ago, and just last year when I came to see the BKK Big Tree Awarded tree- Matoom tree. The two Bodhi trees that were given to the temples by King Rama II had a sign mentioning where the trees came from, the date, and their significances. They were planted on the North side of the church with a concrete planting beds that had just recently been built as one of the monk I later interviewed mentioned.

My very first interview of the research was conducted within the first week I returned to Bangkok. I chose this temple because it is believed to be the oldest temple in Bangkok according to the National Office of Buddhism. Although I had visited this temple several times, I had never met the abbot before. I planned to go there early in the morning to take pictures during the golden hour, start my preliminary observation, and make appointments for interviews. Fortunately, the abbot was there having breakfast and was willing to talk to me on that day.

1) In-depth interview with the priest with high authority (A-1-1)

After two hours of taking photos and walking around the temple, I walked to Sala where the abbot and other monks and nuns were having breakfast. I helped the nuns carry their food and water to their residences in the back. They were quite old and walked very slow. They asked whether I came because I know someone who is a novice monk (a newly ordained monk- as they said). After helping the nuns, I went back to the Sala and asked a man who seemed to be working in the temples whether it was appropriate to ask the abbot for an appointment for interview. There were five monks and five men sitting in the Sala. The monks sat in one line and had breakfast in their own b^àats¹. The men sat in small group and one man sat next to the abbot and talked to him about the parking lot. I entered the Sala and tried to start a conversation with the abbot. I bowed 3 times, a traditional way to pay respect to a monk, then waited until the man finished his conversation. Then I briefly introduced myself to the abbot and asked if I can meet with him for an interview at his convenient time. The abbot was old, probably in his eighties. He did not hear me very well; I also was afraid to sit too close to him as it would not be appropriate, so a man who sat next to him repeated the question for me. The abbot asked me what the interview was about and, without expectation, we continued the conversation for about an hour while he was having breakfast. He did not eat much but mostly put the food into small bags and gave them to people in Sala. The abbot almost did not look at

¹ Black metal bowls monks use to collect alms and use as a rice bowl

me at all. I noticed that he did not look at the man when they talked either. The abbot has been ordained as a Buddhist monk since 1950 (65 years in 2015) which make him 85 years old (a man can be a monk when they are over 20 years old). He moved to this temple since 1960.

My first question was:: Is there any holy or significant trees in the temple?

“What is holiness?” (or “What is sacred?”) He said there is not any holy trees in this temple. The man said – what about the Bodhi tree? The abbot mentioned that the Bodhi trees are very significant but they were not holy. They were given to the temple from the King Rama II. The Bodhi trees are “Boripoka Chedi” which is one of the 4 Chedi in Buddhism. (1) Thad Chedi (the Lord Buddha’s relic), 2) Dhamma Chedi, 3) Boripoka Chedi (all the Buddha’s belonging- clothe, bàat, and Bodhi tree), 4) Uttesikka Chedi.)

Bodhi trees as a respectful senior

During Thai New Year (April 13) every year, it was a tradition that King Rama IX gave holy water to the temple to conduct a ritual and rinses the holy water on these trees,² similar to how we treat our elders on the Thai New Year. In the history of the Buddha life, after the Buddha reached the enlightenment, he stood and stared at the Bodhi tree he had been sitting underneath before he reached the enlightenment. He stared at the Bodhi tree for seven days. Some people interpreted that he felt thankful for the tree for providing him the shade and shelter during his practice. Some believed that he was contemplating and planning on how to teach the new discovered knowledge to people.

The abbot mentioned that King Rama II’s Bodhi trees were not doing very well during the past 2-3 years. The upper leaves got smaller and they bared much fewer fruits compare with the old time. There used to be many flying foxes coming for the sweet Bodhi fruits. However, the past couple years, these Bodhi trees have bared less fruits and there have been fewer flying foxes coming.

There were other Bodhi trees on the temple ground. One of them grew in the middle of the sidewalk. Someone happened to get a lucky number from the tree and won a lotto. After that people came to the temple and asked the tree for the number. They believed the spirit of a famous female country singer- *Pumpueang Duangchan*, was in the tree. The temple became chaotic every 1st and 15th, the days before lotto. The abbot was not so happy about it so he asked the district office to send someone to cut down the tree. They were afraid and refused to do so. They believed that anyone cutting the tree with spirit spirits, that person will face a mortal destiny, until one believer brought a woman dress and hung it on the tree. The abbot told the district officer that all the angel spirits living in the trees were gone since people put the woman dresses on the tree. [sexual discrimination in Thai culture- women were low and dirty and contaminated some holiness in the trees and sacred space – Many temples in Northern Thailand prohibited women from entering some areas of the temples]. Hence, since there was no spirit living in the tree anymore, the officer had courage to cut the Bodhi tree down. I asked whether cutting down the tree was against the Buddhist monks’ rules. The abbot replied: “What if a Bodhi tree grows on the roof of Ubosot or a Chedi?” Bodhi trees were holy

² The Thai New Year tradition is people will rinse the water on elders’ hands to ask for the forgiveness of any misbehaves they have been done the whole year. Then the elder will give a bless to them.

but they had to be in the right places. He mentioned it twice but did not say anything about the rules.

The monk said there were five Bodhi trees in the temple. Two were intentionally planted but the other three were naturally grown. I found many small Bodhi trees. They were about 10 Bodhi trees from 1" to 1.5' height at different corners, especially near the water edge. If they had allowed all these Bodhi trees to grow, the temple would have been covered with the forest and Bodhi trees and most structures would have been destroyed within a few decades.

Place matters

Even though he mentioned several times that Bodhi trees have religious significance and are part of the Boripoka Chedi³, the abbot did not think that Bodhi trees outside temples convey that meaning. Even the one inside the temple that has grown unintentionally grown-should be considered whether they were in the right place. He seemed to respect the Buddhist rules but is more realistic on how to maintain the temple and manage the trees in the temple garden.

- "Bodhi trees are sacred but they have to be in the right place. What if a Bodhi tree grows on the roof of the church? It has to be at the right place".
- "The two Bodhi trees we received from the King are not as healthy as they used to be.
- "We had many big Satue trees. Many of them fell because they did not have taproots. I just planted new trees when those trees fell". He did not even plant the same species.

Maintenance

Significant trees were not treated differently from other trees in the temple garden. There was no specific monk assigned to take care of the temple garden. The abbot made most of the decisions. The maintenance jobs have been done by people who worked for the temple. There were 2-3 people working for the temple. If the job was too complicated, required more equipment, such as cutting the upper part of the trees or removing the whole trees, the temple would request assistance from the Dusit district office.

Currently there is no new landscape plan or major future development projects. Cleaning the canals that go through both parts of the temple was the project they were working on with the district office. The canal was dug in the period of King Rama II. It is also considered as a historical element of the temple.

Significant trees in the temple

Bodhi tree

Pikul

Kabao

Satue

Takien :: is the symbol of the temple

Chan (In-Chan)

Matoom

Praduk

³ the tree where the lord Buddha reached enlightenment

Conclusion:

The significance of the trees is obvious. Locations of trees also define their significance. Bodhi trees in the temple are a symbol of Buddhism – Boripoka Chedi.

2) In-depth interview with a monk with long experience in the monkhood (A-1-3)

My second visit to the temple, I met with the senior monk recommended by the abbot. He was not available during the first day I visited so I made an appointment to meet with him a week after. We had briefly discussed and he recommended that I talk with another monk with longer experience in the north section.

I went to the red Kuti, the resident of the senior monk, on the other side of the temple. It was 10 am so I had about an hour before their lunch time. I walked around to find the place and hesitated to enter as I did not see anyone and the kuti was close. Two monks sat under the adjacent building so I asked them whether the senior monk was in his kuti. The young monk (seemed to be younger than 20 years old so he might be a novice) did not say anything. The older monk who was on the cellphone told me to enter the kuti from the stairs on the opposite side. I went to the other side of the red kuti and walked up stairs then knocked on the door. No one answered so I knocked one more time and heard someone saying something. So I knocked another time and heard an old man's voice shouting – *“No, I'm not going to open!”* So I went down and decided to leave. When I was about to leave, one monk walked past me so I asked whether the senior monk in the red kuti is available. He said yes but I need to enter the building from another side. Then he asked me to follow him and we went to a small entrance in the service area. There were two women in the kitchen. The monk walked upstairs and told me to follow him. He went inside the red kuti. It was a beautiful traditional Thai house and quite spacious. The senior monk was watching television in the next room. He came out with a remote control in his hand which he held during the whole conversation which lasted almost an hour. He was a bit upset and said – *“I'm not gonna open that door. You must enter this way (through the service section??). It is not safe for me to open the front door. I do not know who is coming. They might be thieves so it is not safe for me”*. I introduced myself and asked if I could make an appointment to have an interview with him. He said I can talk to him now but he does not know much about trees. He mumbled a bit which I could not catch what he said. Even though he said he did not have much to say, his interview was very interesting, informative, and to the point. He also knew a lot about fascinating history of the temple.

The senior monk has been in the Sangha since 1956 in Nakorn Srithammarat, South of Thailand. He is 79 years old, 59 punsa. He moved to this temple in 1963 and lived in this temple for 52 years. In the response to my first question, he said – ***“According to the Buddhist principle, there is no holy trees”***. *“We must believe in our own mind. People who believe in holiness of trees, and other objects such as termite mound, mountains, or trees are not Buddhists – they lie to themselves. They are weak. They rely on outside objects, not on their own minds and spirits, which is not the way of Buddhism. Even though there is no such thing like holiness in trees, trees have benefits as they provide shade and create a better environment”*.

Significant trees in the temple

There are some important trees with religious significance such as Bodhi trees which is a tree where the Lord Buddha sat underneath when he reached the enlightenment. Even though the current Bodhi tree is not the original tree⁴ that the Buddha sat, people still perceive it as a significant symbol of Buddhism.

It is a Thai tradition that a Bodhi tree should not be planted in a private residence because it is holy and people must pay respect to the tree. However, personally, he thinks it is okay to have the Bodhi tree in a house. What people believe can change. Some other trees for which people used to have the same beliefs such as Plumeria trees (Frangipani, Leelavadee or Champa khom) used to be culturally prohibited anywhere outside temples but today we found many of them in private residences.

The Bodhi tree that was given to the temple from King Rama II was the one that can be considered sacred. People believe and come to give a vow to the tree and ask the tree to help with their wishes. There were trees that have been planted since the period of King Rama V when the temple was renovated. King Rama V came to do *Katin* ceremony at the temple. Before that time, King Rama II and King Rama IV were ordained at this temple. The temple was still a private forest temple known as Wat Samor Rai⁵. Suan Sunanta palace was accessed via Khlong Tor from the Chao Phraya River. Khlong Tor, the closest access to the palace of Phra Nang Chao Sunandha, a wife of King Rama V, passed through the temple. Back then the temple was not in very good condition. Most of the areas were abandoned and covered with trees. King Rama V renovated and gave the temple the name we still use today. Then he planted some trees and built the new Ubosot, ordination hall. Then he elevated the temple from private to royal temple.

Some significant trees that are believed to be planted during that time are:

- Sa tue trees – plaza in front of the Ubosot and also along the road from the temple to the major road. Most of the tree along soi 9 die when the road expanded. Some Satue trees in front of the Ubosot still exist.
- Takiem trees around the Ubosot.
- Chan (in-chan)
- Samor tree – Samor Thai were planted along the walkways but all died. New Samor trees were planted in front of the Chedi in the south section.
- 2 Praduk trees which are older than 50 years

He expresses some concerns about the temple garden maintenance and be pragmatic about suitable species the temple should plant and preserve; “Upper section used to have many mango trees, but not many now. Fruit trees are not good to plant in temples because they attract people to come and collect fruits. It is disturbing. We, monks, were annoyed by these people so we tended to cut these fruit trees down”.

⁴ The current Bodhi tree in Bodh Gaya, Bihar, India, is the 4th tree since the Buddha time. The previous Bodhi trees died with different reasons but they re-sprouted from the original one several times through the history.

⁵ Samor came from 2 stories: 1) Samor trees 2) derived from Tamor (Kmer word)= rocks. Rai = line which either mean lines of Samor trees or Lines of rocks along the river (used as anchor).

Trees in the life of the Buddha

- Rose apple – “I think there’s one in the temple but as I said trees with edible fruits are not good here”.
- Wa – near the waterfront.
- Sal tree -Sala Lanka – no.
- Pikul – Ancient trees around the church (Ubosot).
- Ficus – grow with some Takien trees. Most Ficus planted by birds.
- Jik- in front of the Sunday school (Buddhist classes on Sunday)
- Matoom – another ancient tree here. Very old and have many fruits.
- Kat – no.
- Thonglang lai- no.

“We do not have any liturgies for the trees in this temple”.

“There is no landscape development project. There are not many trees in this temple. We have to preserve them. People like to build new things. They do not like to preserve the old things”. [Then he slightly changed the topic- I think it is economically related]: “There is no crematory or any funeral pavilions in this temple because the funeral ceremonies with make monks be attached to money (from donations). It will also make the temple disordered. Two dangerous things for the Sangha are money and females”.

Place does not matter

My last question was whether the Bodhi trees, as a religious symbol, still convey this meaning when it grows outside temples. He said it depends on how people perceive. In Lanka and India, Bodhi trees are significant even when there are outside temples because people believe in their cultural values. However, I think it is okay to cut them down. There is no sin in doing so.

During the whole interview, the monk did not put down his TV remote control. He was a bit upset at the beginning and started with negative sentences during the first few minutes. There was a monk sitting with us at the beginning, then the monk left and a man (seems to come regularly because the monk knew him pretty well and asked him “what do you bring today?”) came in with food to offer for lunch. The interview took slightly longer than 30 minutes (10:45 a.m.-11:15 a.m.). Although it was a bit rough at the beginning, I think this interview is one of the most interesting discourses as the old monk talked without preparing and he has a strong belief in what he said. After the first 10 minutes when he said he did not know much about trees, I did not feel any hesitations in any of his answers. He also knows very well about the temple and its history and had some strong statements on his opinions.

3) In-depth interview with the monk who is a landscape manager (Abbot’s secretary) (A-1-2)

The abbot recommended that I meet with his secretary. However, the first day that I visited was a Buddhist day. Hence, all of the monks have to be in Ubosot for *Pātimokkha*, reciting the Vinaya for half a day. After the interview with the abbot during breakfast, I walked around the temple for almost an hour and took a bunch of photos. The man who sat with the abbot showed me the office and told me to go to the ordination hall when they started the ritual. However, when I got there, all monks already were inside and had started the ritual. I waited for a bit then decided to leave and go back there the next day. On my second visit, I

arrived at the temple around 10 a.m. A nun who walked around the temple told me to go to *Kuti Nokpirab* (Pigeon house) to meet with the abbot deputy. It was 10:15 a.m., the woman (who seemed to be not very helpful at all) at the office of Kuti Nok pirab said that he was invited for lunch at 11 am and I had to return the other day. It was only 10.15 am so I asked whether it is ok to meet with him so I can make an appointment. She was unwilling to help but gave me his numbers. While I was writing down the number, the monk came to the office so I introduced myself and talked with him for a little bit. He was very busy and fully booked the whole week so he told me to come back next Thursday. A week after, I revisited the temple on Thursday, the day of the appointment. However, when I arrived the temple, there was no one and when I called he did not answer. The monk called me back after lunch and said he forgot about the appointment and asked me to go there tomorrow (Friday June 19, 2015) at 9 am. So I went back the next day to interview the secretary monk and a young monk.

Interview with the landscape manager:

Although the abbot mentioned that he did not assign any monks to be a landscape manager of the temple, this monk said he was the one who takes care and makes all the decisions on the landscape of the temple garden. The abbot's secretary said he has responsibility to take care of the landscape in the temple. [There are 3 sections and they lived in different sections so I assumed that they take care of gardens in their own section of the temple]. The secretary seemed to know well about the temple garden and has done more recent projects in temple garden.

Significant trees in the temple

He did not know if there is any sacred trees but the two Bodhi trees in front of the church (Ubosot) were significant trees in this temple. When you faced the river, the Bodhi tree on the right was the tree that was planted by King Rama II. There are people from the palace who come every year on the Thai New Year with holy water to pour on the tree. The Bodhi tree on the left did not have record on who planted it. I assume that the location of the tree on the left was the old accommodation of King Rama IV when he was a monk at this temple. Now King Rama IV's old house (when he was a monk) had been moved to the back of the Ubosot. [I later went up there when I had an interview with the young monk. It was a beautiful old wood architecture]. Under the Bodhi tree on the left, there was Phra Tan Sila Bat (seat for giving a Dhamma talk since Ayutthaya period). I did not know whether this one is the copy of the original or the real one. People believe, without any rigid proof, that the real stone seat is at the Grand Palace but this could be the real one.

There were five Bodhi trees – Panja Bodhi on the right and left in front of the Ubosot. One at the open space in front of the Ubosot. Another two were also outside of the Visungkasima (Church area).

- Makam pom – was struck by lightning three times but survived. The branches were broken. The fruits had medicinal quality.
- Satue tree – assumed to be planted at the same time as the construction of the church, around 1907 (2450) by King Rama V at the open space in front of Ubosot. Satue trees used to be along the road entering the temple. All of them were gone because of their ages. Today there are only a few Satue trees at the open space (used as parking lot) in

front of the church next to the river. The most recent one was the one in front of the school. It fell down because of a strong wind around 5-6 years ago.

- Takien – Only one left at the North section near the pavilion. **This is the tallest tree in the temple.** It is almost a hundred years old.
- Pikul – there are 2 different kinds of Pikul trees in this temple. One has flowers with 16 petals which can be found in general pikul tree. Another kind has flowers with 32 petals. This pikul's flower has stronger fragrance. The trees look similar but the flowers are different.
- Thai Maplub – Big tree, can live very long. The species is very rare. "This Maplub tree received The Princess Sirindhorn award on big tree preservation about 10 years ago. I do not know much in details and the monk who nominated the tree already resigned from the Sangha. I do not know much details because the monk who submitted the nomination form already quit the monkhood. There is no sign at the tree but I believe there is a certificate for the tree".
- Other herb and medicinal plants such as Samor Thai – then he talked about the old name of the temple.

This temple used to be called Wat Samor Rai. There are two meanings for this. One is the Samor trees on the temple ground. However, a cluster of Samor trees, that were located at the site where there is a museum now, so they were cut down. About 40 years ago, there was a big Samor tree with lot of fruits and flowers. People all over the city got to try the fruit from this Samor tree. Staffs from the Bureau of the Royal Household (BRH) who brought Katin in November (Month 11th) to the temple always ask for the Samor fruit from this Samor tree. However, it was died because of the concrete at the root. The liquid from the cement damaged the roots. The tree was located in front of the museum. The temple replanted Samor trees three times before they survived. The first two times the trees died. The 3rd planting was about 7-8 years ago. The cost to plant was 12,000 baht (usd 360) each time.

- Tamarind trees used to be in the temple but are all gone now. Most of the damage was caused from the wind. Some were cut down because of the construction in the temple. Many big trees fell because of the wind. At the beginning, there were more trees which helped support each other during the strong wind. However, when some trees were cut down, the rest got weaker and easier to fall.

The South section was replanted with many new trees since 2002 (BE 2545). These trees were planted close to each other to help support each other from prevailing wind.

- Samor Thai, Samor pipek, Samor dee ngu – all herbs
- Takien 47 trees
- Payoong⁶ 45 trees - planted about 1-2 years ago.
- Maka

⁶ This specie has been focused since the last few years as large numbers of Payoong trees in many temples in the Northeast have been stolen. The trees turned into timbers and believed to be sold to China. The Government tried to promote and gave out numbers of Payoong saplings with no cost.

We receive saplings from the government (district office). Sometimes staffs from the office, and sometimes the public, especially people in the local community come join the planting activities. Some saplings were brought in by private companies who normally also brought their staffs to plant the trees [as their CSR]. These activities have to get permit and approval by the temples. Some seedling (Maka) were prepared by the temple itself. The secretary (Chao khun Tep) ordered some Maka seedlings which were planted by temple staffs and monks in the temple.

Maintenance: The old trees did not require much maintenance [I quite disagree with this. I think the maintenance in his term means watering and cleaning. Old trees need more care including pruning and structural evaluation]. Most of the maintenance and pruning has been done by the temple staffs. For big trees that are too large and too tall for the temple staffs to maintain by themselves, the temple asked staffs from district office to help because they have proper equipment. However, sometimes it took a long time before they came. As a consequence, some trees die before the pruning.

All trees have been maintained the same way. Some trees have been tied with colored scarves by people from outside of the temple. The Bodhi tree was the only species that has been tied with colored scarves and has had vows with incense sticks placed on the trees. The temple normally allowed people to do it. Most of the time they did not ask the permission to do so anyway. Then we took the scarves off after a few weeks. This happened not very often, about once every few months. Beside King Rama II's Bodhi trees, another Bodhi tree that has been tied with colored scarves was the Bodhi tree on the sidewalk between Section South and North.

Ficus tree (Banyan) on the South side near the riverfront was another tree that sometimes has colored scarves tied around. He did not know when and who did this. The monk has never seen people doing it.

[This Bodhi tree and Banyan tree are sacred because of its own species. They are located in the middle of the walkway, not in the same axis as the other two Bodhi trees; they still convey cultural values as laypeople adorn the trees with colored scarves and leave other offerings].

Another tree that people might believe in its holiness was Pikul tree near Tumnuk Somdej Phra Punpee Luang. The tree already fell down. There used to be so many people who came to pay respect and rubbed the trees for the lotto numbers. Too many people came while the tree grew so big and needed pruning and maintenance. It was very tall, outstanding, but its canopy spread too much while the root was not growing large enough to balance with the branches. The temple asked the director of the Dusit district office to come take care of it but did not get response soon enough. The tree fell.

Trees as Religious symbols (4) (At this point the monk started to get distracted with his cellphone)

- Bodhi
- Banyan (Ficus)
- Mai Kaakating (Mai Tung) – did not appear in the life of Buddha.
- Bamboo – used to have many bamboos here but they have been taken out because we needed more spaces. People who prune it did not know the proper way to do this so

they cut the major sticks and destroyed the major structures of the bamboo groves. Only small stems exist now.

Other benefits of trees were they provide shading: monks can use the space underneath the trees for walking meditation, sitting and meditating both day and night. The Lord Buddha strongly related with forest. One of the lord Buddha's saying:

"You may cut down the forest but do not cut trees. The forest means messiness so we should cut out the messiness in our mind but not the trees". [V.Vachiramethee also restated this Buddha's statement in his You Tube program. I have heard this statement repeated several times from several monks during my field work].

Trees provide oxygen. Even though they release CO₂ at night, sitting under big trees is peaceful and doing meditation under trees allows you to breath comfortably.

Place does matter

Not only are big trees in temples important. Other trees are also important as they have angels living in them. People who cut down Bodhi trees, no matter where they grow, often have bad things happen to them. As a consequence, people are afraid to cut the Bodhi trees⁷ because we believe that Bodhi trees are symbols of Buddhism. If people have to cut a Bodhi tree, they will pay respect with incense sticks and tell the spirit in the trees- asking permission to trim it or to cut all the messy bread and hair- we called it *"Plee kam"* (refuse the karma). [The monk explained that the ritual is like a role play. The cutter and another person pretending that he is the tree spirit asking permission and giving approval to cut or prune the tree].

Then he started to tell a story of a mayor in one province who ordered to cut down a tree. I did not really understand all the details of the story but the main idea is that bad things happened to the mayor. He fought with other people, both at work and at home. The monk seemed to be uncertain about the story he told. [I think this kind of story is for people who believe things very easily without asking any questions – non scientist- which I was not so persuasive with this kind of story]. He concluded the story that we should not allow trees to grow too big if they grow in improper places (such as places that might damage historic buildings). We must take good care and cut all the small trees that give risk of damaging buildings or bringing troubles. Cut them down or pull them off before they grow too big, have charisma, and people start to pay respect. In this temple, the abbot does not normally cut trees. However, he cut some Bodhi trees that grew on the temple wall. It was about the size of a leg.

(12) Currently there is no policy on landscape development. The temple garden is left in its natural state. Only trimming and pruning the trees to keep things tidy is necessary. The maintenance was only to make sure trees would not damage buildings and other structures.

We used to have people from the Bureau of the Royal Household come regularly to take care of the trees in the temple but they trimmed the trees too small and too formal (like making formal hedge and topiary). They also collected the money from the temple which deployed most of the money the temple had so the temple asked them to stop coming.

Other significant trees (not related with Buddha) in the temple:

⁷ [This is opposite to the abbot's opinion. As the abbot said locations matter; if Bodhi trees grow on an ancient structure, the tree must go].

- Chan – North section- even though the Chan tree got award from the MBA in 1999 and was claimed to be the oldest tree in the city, the monk did not mention it at all until I asked. He also said the Chan tree was not relevant with the Buddha’s life.
- Ching chan
- Takien hin – North section
- Padu baan – vey big in the South section (where he stayed).
- Soke narm – already died because it was in the lower area and got flooded.
- Tabak – North section.

We used to have Jik Done and Tub kai trees (1999) which were cut down for the museum construction.

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (A-1-4). Friday June 19, 2015. 10:40-11:10 a.m. Tamnuk King Rama IV

The young monk was in the Sangha about a year ago. He came from the South of Thailand (Nakorn Srithammarat).

The young monk was informed about my visit by the abbot’s secretary. I interviewed him right after I finished the interview with the secretary at the old kuti of King Rama IV. The young monk said:

- (1) I am not sure whether there were any sacred trees in the temple. But the significant trees in the temple were the two Bodhi trees in front of the Ubosot.
- (2) Pikul was a symbolic tree of the temple. There are many of them here. They are old but not sacred.
- (3) Takien trees – North section
- (4) Pikul – South section. Another Pikul in the parking lot already fell down. Most Pikul trees were over 100 years old and about to expire. Some of these, standing, died then fell. We replaced the dead trees with the same species.

The only trees with colored scarves were the Bodhi trees. I have heard that it is a tradition that during the Thai New Year, the palace sends fragrance water with flowers to the Bodhi tree. People from outside occasionally tied these Bodhi trees with colored scarves. The temple took the fabrics off within 1-2 months.

Trees with religious significance:

- Bodhi
- Ficus
- Jik – 7 trees
- Mango
- I asked about Sal trees. He was not sure if there is one in the temple.
- Kate - not sure.

Anu- Sati trees = trees that have religious meanings as a reminder; Bodhi trees and Sal trees.

- Sal trees – the birth place of the Buddha. Dhamma that announce to be human. Before that in India, people believed and paid respect to Bhrama and gods. The Lord Buddha born with the statement “I am the best in this world”. Humans are the best creatures because humans are animals that can learn, practice, and improve ourselves. (also ref V.

Vachiramethi). Sala trees also appear in the place where the Buddha left (reach nirvana).

- Bodhi trees – The Buddha reached the enlightenment under a Bodhi tree. This means that humans are smart and capable to learn.
- The Buddha born, reach enlightenment, announce his knowledge, teach people, and nirvana in the forest.
- Mango tree – was where the Buddha showed his supernatural power to eradicate pressure from the outlaws that were against him.

These *Anu-sati* trees are symbols that teach and remind us to stay in the present and do not take life for granted. They tell us to be aware of every moment.

- Leelavadee (temple trees) were another species that are often found in temples. He mentioned “According to the traditional Thai knowledge, new monks should be practicing meditation and walk (Jong klom) under the Leelavadee trees. Because it was believed that the fragrance of Leelavadee’s flowers can suppress the sexual desire (reduce *Kamnud*)”. He believed that smelling this flower in a long period of time can cause one to be barren. He was not sure where leelavadee’s trees are located in the temple garden but he was positive that there were some (possibly in the North section).
- Young monks normally walked and meditated around the Ubosot. Some temples make all young monks walk together but at this temple we do it individually. There is no fixed time or location for this activity. However, there were few potential places to do so; around the Ubosot, waterfront promenade, herb garden near the river. That was the abbot’s regular place for walking meditation. Most walks take place either very early in the morning (4 a.m.) or late at night to avoid the heat during the day.

(8) The uses of spaces around big trees:

Students (High school (Saint Gabriel’s College and other) and university (Ratcha bhaj)) attend Buddhist meditation camps or help clean the temple garden. These student visitors, usually coming in groups of 50-60 students, regularly visit the temple several times a month and spend a day, from the morning until 3-4 pm, at the temple.

The maintenance of the garden – tree pruning has been done by the temple gardeners because monks may not cut any trees as it is against the monastic rule. The Buddha taught that we should live with nature. Monks do not normally order the gardeners to cut anything. The gardeners normally water, replant, and prune things with the monks’ consideration. [This is different from what the abbot and older monk said].

Trees have values in their own without having any meanings. In India, people believed in the symbolic meanings of trees and have many actions that show their respect. They pour milk on the Bodhi trees, offer fragrance flowers and other nice things. However, when trees grow in a wrong place such as on a building so that the root will destroy the structure, in small dark alleys, or places where they tended to be ignored, people can feel depressed to see these trees in such locations.

(12) There are newly planted trees around the church. It is the district’s activity. People from the district office come to plant the trees on the King’s birthday, other Royal family’s birthdays, and other Buddhist days. They also brought the seedlings, Teak, Takien thong, Payoong. Last year, there were 50-80 Payoong trees planted.

The temple did not select the species (the district office mostly bring big tree saplings. They had already done this 4-5 times) but only assigned the areas where people can plant trees.

[Socio-economic became a significant factor defining tree species planting in the temple gardens. Payoong trees are considered one of the most expensive timbers and had been stolen from many Buddhist temples in Northeastern rural areas. Chinese merchants offered very high prices for Payoong timbers. The economic values overcome moral and cultural values that people used to be afraid of doing bad karma especially in monastic precincts. Now the government gave Payoong saplings to public and many temples planted these trees even though they do not have religious meanings. Payoong is considered one of a prosperous species because its name “payoong” means “support” which people believe planting these species would help them to have more supports and collaborations].

Significant trees in the temple:

Samor trees– planted since King Rama V when he renovated the temple.

The old name of the temple is Wat Samor Rai has two meanings 1) Samor trees that used to be planted in the temple garden. Chao Khun Tep recently grew some new Samor trees. 2) Samor = Tamor = stone in Mon because there were many stones along the riverfront.

Someone came in to invite the monk for lunch so the conversation ended.

Remarks (good/bad impressions)

- Parking lot

I have visited Wat Racha so many times so it was kind of familiar to me so I felt safe enough to go there very early before 6 am. I was trying to be there before the sunrise to take the photo during the golden hour. I did not expect to see so many cars in the parking lots that early in the morning. There were two schools on the street – Saint Gabriel’s College and Jones of Arc School. Both school students’ parents park their cars and many of them keep the engine on while waiting in the cars with their kids – having breakfast, getting dressed, doing homework, or sleeping. School starts at 8 a.m., when we sing the national anthem so students are required to be in school no later than 7:50 a.m. or so. To avoid the traffic, which usually start after 7ish, these school kids leave their house before dawn and continue their sleep at the temple parking near school for another 1-2 hours. The dense Bangkok traffic not only affects people’s life style but also the land use in this urban temple. The change of modes of transportation has impacted the land use of the temple since 1960 and continues to impact the temples with the rapidly growing population of the city.

- The second oldest tree of Bangkok – the first prize award from Bangkok Big tree in 1999. The Chan tree behind the monastic buildings was the awarded winning tree from the BMA Big Tree competition in 1999. Although it was not the oldest tree in the city, its setting and form gave the aesthetic values to the tree. However, most monks did not mention or recognize this Chan tree as much as the Bodhi tree in front of the Ubosot.

- No funeral – Even I knew that some Royal temples that are also the Royal Charnel house cannot have public funerals; the old monk emphasized that the temple does not provide

public funerals and cremation because it is the way for temple to gain economic benefits (similar to parking lot) from renting space for people to organize the funerals. Also it is the way for monks to earn money as monks that perform rituals at the funeral will receive money from people. He said *“the two things that very dangerous for monks are ‘money and women!’”*

- The old canal – access to the Suan Sunanta palace. There are still canals with fish and turtles going through the temple garden. Although they are not very clean, these water channels help keep the temperature down, create a nice atmosphere, and reflect the historical conditions of the transportation in Siam – the time before land motor vehicles.



Figure 1: Chan tree. The second oldest tree in Bangkok and the first prize award from the BMA Big Tree Competition in 1999.



Figure 2: Maplub tree. The Bangkok Big Tree award 1999.





Figure 3: The Bodhi tree planted by King Rama II in front of the Ordination hall (Ubosot).



Figure 4: A Bodhi tree on the other side of the Ordination hall with *Phra tan sila bat* (seat for giving a Dharma talk since Ayuthaya period) under the tree.



Figure 5: Pho kee nok. Bodhi trees that naturally grow by bird drops. They usually sprout from the cracks of old architecture which could cause damages to the structures. The senior monks said we must remove them before they grow too big. If they grow too big it will be difficult to cut both physical and psychological. People do not think there are tree spirits in small trees or even there are tree spirits, they would not be a strong or sacred ones.

A-2

Year of establishment: 1688

Area: 19.8 acres

Class: Royal

Sect: Mahanikaya

Significant trees: a Bodhi tree from the King

Big Tree Awards: N/A

Location: Inner Bangkok



History of the temple

The temple covers the area of 51 rais or 20 acres. There are 186 monks and novices. It offers Dhamma classes for both monks and laypeople. For monks, the curriculum is about Tipitaka or the Pali Canon. For laypeople, the curriculum only includes one of the three parts of Tipitaka - Abhidharma pitaka. Both schools have three levels. The school is located at Santiworawan building.

Observation:

Friday January 8, 2016

It was a warm January day. This temple is one of the most popular tourist attractions in Bangkok. I always see many foreign visitors and tourists strolling around the garden – many

*Khao Mor*⁸ and around the pavilion of the reclining Buddha. I have visited this temple so many times since I was a kid. It was not my intention at the beginning to select this site as one of the study sites due to the overwhelming amounts of tourists and I thought there would be too little local visitors but I was wrong.

It was just a week after New Year and one day before the National Children day. It was popular among Thais to visit temples – a tradition of visiting nine temples for a good progress in the coming new year, during the New Year for their prosperities and happiness. The temple also organized a Children day event one day before the actual National Children day. It was on Saturday so there were many local visitors when I visited. There were also many tourists. It was overcasting day but not too hot nor too cool. We have a really warm winter this year. I went to the temple with my mother to return things for religious rituals we borrowed for the New Year ceremony at home a week before. It was quite irritating to see one of the big *Khao Mor* decorated with a bright orange sign saying Happy New Year 2016 on top of the waterfall. The National Children day's activity near the Viharn in Phutthawat section was very annoying as the teachers shouted in an amplifier to make sure all the kids could hear her while they played games.

The temple is separated into two sections; Phutthawat and Sangkhawat. The Sangkhawat section is the monastic area, where the monks live. Phutthawat is a ceremonial section that open to public, including tourists. It was quite peaceful in the Sangkhawat area when we visited and returned the things we borrowed at the temple office. The Phutthawat area was quite hot because it is traditionally wrong to plant any big trees adjacent to the church. Phra Sri Maha Bodhi is in this section next to the pavilion of the reclining Buddha.

1) In-depth interview with the priest with high authority (A-2-1)

Although I was able to have an informal conversation with the senior monk, I did not have chances to interview him because he was sick. I have met the senior monk for a few times during the past 2 years. He was the ordaining priest (*Phra Uppatcha*) for my brother. In several occasions, when my family offered the food and personal effects for monks as parts of a religious ceremony, we always invited him. I also came to his anniversary (birthday) last year when many people came to prepare many delicious delicacies for monks and temple visitors.

I was there since 10 a.m. He was still in his room so I talked with his secretary who was very helpful, not only allowed me to interview him but also later took me to the church and introduced me to the monk who was the landscape manager. When I entered the abbot section (resident) (at 10:30 a.m.) with my mother, the secretary monk, along with three other monks was during the ceremony receiving food and stuffs from people. The abbot was still in his private room. Two men who looked very informal, wearing t-shirt and shorts, said the abbot was very busy because of the New Year holidays – people came to visit the temple everyday. I was waiting there and had a chance to interview one of the monks there. Then I went to the church to see the landscape manager monk and returned to see the abbot later in the afternoon.

⁸ Khao Mor is an ancient miniature mountain with Bonsai and normal trees. At this temple, Khao Mor has hermit sculptures in different forms. Most tree species has medicinal qualities. The hermit sculptures are in postures that believed to be a model for Thai massage schools. Some big Khao Mors also have water features and other sculpture dated back to the early Rattanakosin period.

When I returned in the afternoon the same day, the senior monk was holding a remote control watching news. He was a monk at this temple since 1966 (BE 2509) but he was ordained long before and stayed at another temple. On the day I visited the temple for the interview, he was quite sick. He would have liked to be interviewed but his voice did not allow him to talk much. He said I can talk with two other monks who are responsible for the temple garden and art and architecture in the temple.

2) In-depth interview with the monk who is a landscape manager (A-2-2)

The landscape manager monk stayed at this temple for over 20 years. He ordained 26 years ago and had lived in Chachengsao province for three years before moving to Bangkok. He has been assigned to take care of the temple garden since 3-4 years ago. He is working on the temple garden's herbs inventory.

[This temple is very famous for the Khao Mor (Thai Bonsai). there are many Khao mor located in many areas in the temple in Phutthawat section. There are ancient rock sculptures from China (*Ub-chao*) and Hermits statues posing different yoga-like postures in these Khao mor miniature gardens. The monk said that many of the plant species at Khao mor are herbal species with medicinal qualities and he is listing the plant species to conduct a temple garden inventory and try to plant more herbal species at each Khao mor].

1. Significant trees

- a. Sal tree- a symbol of Buddhism as it was the tree where the Buddha was born. This Sal tree came from Sri Lanka a very long time ago.
- b. Phra Sri Maha Bodhi is located next to the Pavilion of the Reclining Buddha. It was brought from Sri Lanka and given to the temple since the King Rama III period.
- c. Decorative plants
- d. Herbal plants – Wat Pho is the original place of herbal medication as recorded in the old letter from the period of the King Rama III. During the past few years, we added more than 100 kinds of herbal plants in the temple garden, mostly on the Khao Mor. The garden can be a place for education where students and public can learn about trees and environment.

2. Very old trees in the temple:

- a. Peep
- b. Praduk
- c. Bodhi
- d. Mango
- e. Wa
- f. Sadao

3. Big and old trees in the temple:

- a. Peep- next to Sala Prasert. Also called Kasalong kum, Soi Klang Wat.
- b. Praduk. There 3-4 Praduk trees at Wiharn Chumporn.
- c. Bodhi tree- Phra Srimahabodhi.
- d. Mango

- e. Wa – At the waterfall in front of the pavilion of the Reclining Buddha. It is gigantic. Its fruits are edible. The tree bares fruit in April. Temple staffs usually pick the fruits and eat them.
 - f. Sadao – 2 locations Viharn na Daeng, Khao Mor kod, Viharn Phra nippan.
 - g. PhayaSattaban – trees on the middle lane (between public section and monastic section) have intrusive roots and will be cut down. We will plant other species.
4. No
 5. N/A
 6. No. Laypeople came pay respect, put incense sticks, tie colored scarf.
Many years ago (2004 (BE 2547)), we had *Kham Pho* ceremony (putting wood stick to support a Bodhi tree) on the occasion for the anniversary of the King's Coronation. We had Sama Mongkon, *Kham Pho* ceremony for the first time in that year.
People put worshipping objects when they beg the deity in the tree to help. Temple cleaning staffs remove these objects, which include flowers and food, when they get rotten.
 7. Trees provide shade and create a cooler microclimate for the very hot weather of Bangkok. Sitting underneath a tree provides comfort for both body and mind.
 8. Monks do not have much chance to use spaces where the big trees are located. Mostly lay followers, the temple visitors, use the spaces. There are students from the Sunday Buddhism schools and students from Naattasilp (practice traditional Thai dancing) who regularly use these shady spaces in the temple. Many traditional Thai dances were practiced underneath the trees in the temple garden.
 9. Monks and novices only sweep the ground around Kuti. We have temple staffs who take regular care of the trees in the temple garden. We sometimes hire staffs from BMA when we have big annual events – which is around 3 times a year.
Topiary (Tako dut, Koi dut), hedge, bonsai, and other shrubs required regular pruning. Some big and old trees also need maintenance. These temple garden maintenance tasks are taken care of by the temple garden staffs.
 10. N/A
 11. Location does not matter. Trees with religious significance have similar values. Because Thais believe that Bodhi trees are related with religion, they are afraid to cut or do any harms to the trees. Even when a Bodhi tree grows in a residential area, people are afraid to cut it. Even when a Bodhi tree grows in a rice field, people do worship it.
Size is a significant factor to make a tree important. In rural areas, when people see a very big tree, there are always people who come with colored scarves and tie around the tree.
Monks do not worship trees. We do not bow to a tree. For Buddhist monks, certain trees can be memoirs of the Lord Buddha, his kindness and sacrifices but monks do not bow or pay respect to a tree.
Laypeople also have a ceremony to ask for forgiveness and permission from a big and old tree when they have to cut the tree down. Buddhist monks must follow the Monastic rules (*Vinaya*) that they may not cut any living green. Monks must help preserve the environment which is a source of many things.

12. Current landscape project. We do have a plan to maintain the existing garden and tidy the place. The road in the middle between two sections – we want to improve the landscape and make it more pedestrian-friendly with more trees. Some old trees have to be removed because they are not healthy and could be a liability that harm temple visitors and tourists. We have limited space. We cannot plant too many trees, especially a big and intrusive species, because the root systems could damage the old architectures in the temple. Last year we cut a Sadao tree; its root damaged the foundation of the chedi (there are many small chedi in the temple) and could have damaged the structures of the chedi. We have temple staffs who cut the trees down.

3) In-depth interview with a monk with long experience in the monkhood (A-2-3)

This senior monk has been in the monkhood for 10 punsa. He came from Chiang Mai.

1. Bodhi trees are significant trees in every temple. Bodhi trees are the symbol of Buddhist temples. More than 90 percent of Buddhist temples have a Bodhi tree in their garden. Not only do they convey religious significance, they also represent the identity of the temples. We have one Indian Bodhi tree near the Reclining Buddha pavilion.
2. There are trees with colored scarves. Three colored scarves – green, red, yellow. People who have bad lucks, are faced with unfortunate events, or have recommendations from fortune tellers, come to the temple and conduct the ritual by tying three colored scarves around a big Bodhi tree or putting a wood stick against the tree trunk as a support. They believe that to do so will bring good luck and prosperity to them because laypeople believe that Bodhi trees are sacred. Other trees do not have this sacredness. The acts of tying colored scarves around trees or putting wood sticks to support a tree branch are believed to be exorcised.
3. I think the Bodhi tree is the oldest tree in the temple. I believe it is over hundred years, supposedly since the period of King Rama III. All the colored scarves, wood sticks, and other liturgical objects that people put under the tree to adorn and worship the deity will be left there until they are decomposed. The temple will not clean it up. [I think that people adorn the tree with their objects and the monks leave these liturgical objects there is a way in which to maintain the cultural values and sacredness of the tree itself].
4. Trees with symbolic meanings:
 - a. Sal tree – There is a belief that Sal trees were trees where the Prince Siddhartha (The Buddha) was born underneath. An Indian Sala tree is located in front of the pavilion.
 - b. Indian gooseberry (Makham pom India) *Phyllanthus emblica* – different from Makham pom Thai. Indian gooseberry is bigger than the Thai species. In the past, we did not have medicine, Makhampom was used as a medicine. There are also other fruits that used as medication such as Samor. Monks can eat these medicinal fruits anytime. [Monks are only allowed to eat no more than two meals per day. The last meal must start before noon].
 - c. Plumeria – temple trees are popular in temple gardens because of its Thai name - Lunthom which means sadness, excruciating. The trees were very popular and later have been given a new name – Leelawadee.

5. N/A
6. People come to *waii* (bow to pay respect).
We take special care and have some rituals around the tree. People put wood sticks to support the tree as a symbol of supporting their life and bringing themselves good fortune. People who have bad luck (as fortune tellers tell them) want to conduct this ritual by putting a wood stick against the Bodhi tree to improve their prosperity. There are different sizes of wood sticks. Some are very small. Some are as big as a column and as long as 10 feet. The very large ones were the ones the people put up for the King and the royal family. The significant tree has special care by laypeople who come and pay respect. Temple staffs take normal care by watering and adding fertilizer once in a while.
7. Trees in the temple garden do not have many things to do with the monks because the temple is separated into two sections. Most of the big trees are in the public section and have temple staffs to take care of them. Monks mostly stay in the monastic section.
8. They usually have activities on Religious significant day at the Bodhi tree court (Laan Ton Pho) by the reclining Buddha pavilion. Monks pour (spray) holy water (*narm mon*) for lay followers. The ritual is conducted under the tree. Thai New Year, or Songkran festival, also have a ritual at the Bodhi tree court.
9. Trees in the temple garden are taken care of by temple staffs.
10. We have an assigned LA manager at this temple.
11. No matter where trees locate, if the trees are species that convey religious significance, they will be significant. Place does not matter. They will be significant everywhere they grow.
12. The temple cannot improve or make any changes in the temple garden. We have to get permission from the Department of Fine Arts when we want to change anything. Now we only maintain what we have because the temple is listed as a World Heritage in Memory of the World from UNESCO.

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (A-2-4)

I found two young monks in the temple. (This is the last interview of the field research – August 20, 2016). I made an appointment with a young monk through a senior monk whom my friend works with on a book project. I met the old monk about three years ago when I attended the meeting and helped with the landscape maintenance part of the book published by the Crown Property Bureau. The senior monk arranged a meeting for me to interview a young monk on Saturday August 20, 2016. The young monk has been in the Sangha for three punsa. He has been a novice since 2008 (BE 2551). During the interview, he recognized that he was once invited to my house with a group of monks for a religious ritual. My family has religious ceremonies when we offer food and personal effects for monks a few times a year in special occasion such as New Year or anniversaries. He also remembered my brother who ordained and stayed at the temple for a week before leaving for a forest temple in Chonburi.

I arrived at the temple and went to the temple office. It was a very hot and sunny day. The traffic is always bad in this area because there are many popular tourist attractions in this

neighborhood and this temple is one of the most famous tourist attractions in Bangkok. There are also many famous temples nearby which draw a huge crowd to this area of the city.

1. Significant tree in the temple garden:

- a. Bodhi tree. It is located on the Phutthawat side (the temple has two sections – Phutthawat (Public section) and Sangkhawat (private monastic section)).

It was a forgotten Bodhi tree. Unlike the Bodhi tree at Wat Srales, the Bodhi tree here did not have enough attention. We did not promote and make people aware of its historical significance. The Bodhi tree was brought here by King Rama III. He brought the sapling from Bodhi Gaya. It was the same tree that the Lord Buddha sat underneath when he reached the enlightenment.

- b. Sal tree is also in the Phutthawat section. It was the tree that the Buddha was born under and reached nirvana. I am not sure since when that we planted the tree. It always has blooming flowers. We put up a sign showing the name of the tree.

- c. Topiaries are the most common plants in this temple. We have many topiaries, bonsai (on the Khao mor – miniature mountain) but not many big trees.

2. Bodhi tree is the tree with colored scarves. Laypeople tied the scarves around the Bodhi tree. We (the temple) leave it as it is. We do not take them off. Once in a while, temple workers take them off. I have seen the colored scarves on the tree for a very long time. But we do not have any rituals there.

3. Praduk tree is another very big tree in the temple garden. It provides a lot of shading for the temple visitors.

4. N/A

5. N/A

6. Significant trees are the Bodhi tree. There are some adornments on the Bodhi tree, the tree with religious significance. There are many *Mai kham king* or *Mai kham pho*, a wood stick supporting the branches. Some of the very big wood sticks are meant to give spiritual supports to the King. Those very big wood sticks were given to the temple from the Royal Bureau. They did not come from laypeople. However, laypeople can also put a piece of wood up to support the tree branches. There are many sizes of wood, large or small. The wood sticks were left there and decomposed over time. Occasionally temple staffs take some old woods off. I have never seen any rituals since I lived here.

The Bodhi tree is in the Phutthawat section. There are gates that open at 8am and close at 6.30 pm. It is not accessible after dark.

7. N/A

8. We rarely use spaces where there are big trees because most of the big trees are in Phutthawat section. Monks mostly stay in Sangkhawat unless we have a task assigned that we have to be in Phutthawat area. There are too many tourists and laypeople in the Phutthawat section.

We have never had activities related to the trees. During Thai New Year, the area at the Bodhi tree was used for preparation and to store stage stuffs. The monks do not go there often because there are so many tourists [Unlike lay followers, these tourists come to see the Reclining Buddha as a historical tourist attraction. Many of them are not Buddhist and do not show any respect to the monks. Although there was a dress

code such as no sleeveless and no shorts, many tourists still dress regardless. The temple provides clothes that they must borrow to cover themselves before entering the Viharn to see the Buddha statue]. Most monks are not required to take care of the gardens on the Phutthawat area. We have temple staffs taking care of the maintenance on that side.

The area with the Bodhi tree was previously a school. (Phra Ong Chao Vasukri) Somdej Krom Poramanuchitchinorot (the son of King Rama I) was the second abbot of Wat Pho and the 7th Supreme Patriarch in Buddhism. He was very expert in Thai language. We assumed that King Rama V studied Thai language with him.

The Demonstration school of Pali was on the same location where the Bodhi tree is located today. The school building had trees surrounding it. The building was torn down and the school was moved to Sangkhawat section.

9. Temple staffs take care of almost everything in the temple. For special events, the district office sent people to help. On the day of *Kratin Phraratchathan*, (given from the Royal palace), we also have district staffs come help. They also help with the pruning on regular basis, especially the trees that have branches go beyond the temple's wall.
10. N/A
11. Bodhi trees are already a symbol [Species is a factor]. It was one of the seven elements in the Lord Buddha *Saha chart*, although some people do not know about it and destroy a Bodhi tree. This totally depends on personal belief.
12. The temple just had a landscape renovation project. We constantly decorated the temple garden. We have a garden department with temple staffs and a monk in charge who is the landscape manager of the temple (I previously interviewed him).



Figure 1: Phra Sri Maha Bodhi tree near the Viharn of the Reclining Buddha. Although there are large crowds visiting Viharn everyday, very few temple visitors come to see or pay respect to the Bodhi tree. Because most temple visitors are not Thai, they do not have the same belief of sacred tree spirits. I observed the Bodhi tree and saw many people walking pass by and none of the foreigners paid attention or pay respect to the Bodhi tree. There were a few Thais who come and conduct a small ritual and pay respect to the tree the same way Buddhists do toward a Buddha statue.



Figure 2: *Kham Pho* at Phra Sri Maha Bodhi



Figure 3: *Khao Mor* is a miniature herb gardens with rock sculpture imitating natural setting. Some trees are overgrown in *Khao Mor* and need maintenance. There are Chinese artifacts from the early Rattanakosin periods used as decoration ornaments in these small gardens.



Figure 4: Despite limited soil space, the old mango tree grows very big and provides shade for temple visitors.



Figure 5: Potted planting. The temple is famous for Traditional Thai topiary. There are some big tree species planted in these small planting containers in the newly planted pots.

A-3

Year of establishment: 1762

Area: 3.8 acres

Numbers of monks/novice: 27/7

Class: Private

Sect: Mahanikaya

Significant trees

Big Tree Awards: N/A

Location: Inner Bangkok



History of the temple

This temple has the strongest spiritual atmosphere I have visited. Because of the famous *Yaa Nakk*, the woman who died when she was pregnant and still waiting, as a ghost, for her husband to come home to see her and their baby, a huge crowd wants to visit and pay respect to her. They also believe that if we pray for *Yaa Naak*, she will give us luck and prosperity, and protect us from all the evil spirits. There is a pavilion dedicated to *Yaa Naak* with three big trees inside. The trees penetrate through the roof but the trunks that were under the roof covered with colored scarves. There were the largest amounts of colored scarves I have ever seen on a tree. The center of the tree trunk had a big ball made of colored scarves – pink, yellow, green,

blue, red. The parts of trees that were not covered were polished with candles and powder. People believe they can see numbers if they rub the trunk correctly. The numbers which will bring them prosperity are the numbers on the winning lotto are announced every two weeks. Every 15th and 30th of the month, people came to search for luck through the numbers that seem to appear on the trunks. Another big piece of wood from *Takien tree* is put on a frame outside of the pavilion. There are also colored scarves, flowers, and incense sticks on the wood. The people's rubbing seems to be more intense here as the dead tree is easier to access and has more open surfaces to rub.

Observation

I called the temple office but the monk who answered the phone call told me to just drop in because the appointment cannot be taken. The monk recommended me to visit the temple on the 15th or before the end of the month, one day before the lotto announcement, to witness a large number of people coming to the temple to get some fortunes right before the lotto day (on the 16th and 31st of each month).

I visited every temple at least a couple of times. I found this temple to be one of the most crowded temples in the list. It was the least peaceful and quiet because of its location and activities that regularly happen in the temple. During the first time, there was a huge market in the temple. The next couple times, which were quiet days (according from the monk I interviewed), there were still many merchants selling small animals such as fish, frogs, and birds. Temple visitors can buy these animals and free them as an action of doing good karma. Different species of fish are assigned for people who were born on different days of the week. Different animals can help in different things. Releasing a certain kind of fish can enhance your health and well-being. Freeing another kind of fish would bring prosperity on your careers. These cultural beliefs make people feel comfortable and conducting these rituals is a way in which laities come and spend more time in the temples. There were also street vendors who sell food, drinks, toys, and clothing. The shacks in front of *Yaa Naak* pavilion sell some liturgical objects which are traditional Thai women's clothes, cosmetics, and toys. These objects were used to worship *Yaa Naak*, the female spirit who died with her unborn son.

Compared with other temples I visited, this temple has many more visitors, although many of them came for *Yaa Naak*, not to meet the Buddhist monks or participate in any religious rituals. The big trees at the pavilion provide shading and convey cultural significance as they are part of the rituals conducted at the place. From several visits, I found that novices at this temple are less respectful compared with other temples.

First visit

First impression:

- Market and commercial Buddhism, Fortune teller
- Community center/ service, Public used for religious/private/ ceremonious spaces?
- *Yaa Naak* shrine
- Surrounding context - slums

The first time I visited the temple was on the Big Buddhist day (There are 4 big Buddhist days/year) and it was on the 30th which was one day before the lotto. There were many people

and also a huge market inside the temple. There were numbers of merchants selling their goods (toys, clothes, household equipment, etc.), food, and beverage. In the back of the temple near the river, there is a big tent full with fortune tellers sitting behind big bamboo groves. I saw some old colored scarves on the bamboo groves. There were also some small shelters with lot of garbage and storage. Many stray cats walked or laid around everywhere.

I left the letter with a novice monk who sat at the registration table. He was inviting people to sign up for the 'Sila 5 Community program' (to encourage people to maintain the 5 precepts during the Buddhist Lent or *Khao Punsá*). The novice monks looked like teenagers from rural areas as they spoke with accents. I was surprised to see one of the novice monks smoke while I talked with an older monk about interviewing the abbot. I returned a few weeks later to conduct the interviews.

Second visit

I chose the date of the second visit with an expectation to see a quiet atmosphere and people practicing meditation. The surrounding community of this temple is quite unique with one of the lowest income neighborhoods in the city. There were still several food stalls, small trucks, small markets, even though it was not a big Buddhist day. There were merchants selling toys, food, drinks, ice cream. Several stalls sold animals such as fish, turtles, and birds for temple visitors to buy and free them for their good fortunes. The fortune teller tent with about 15 tables was in the back. I heard a young pretty woman in a colorful tank top come with her mother talking to a fortune teller about how to be popular and make people love and fall for her. Even it was not the day that many people come for lotto numbers, the temple was still a place people come to find a better fortune. They came to get some spiritual guidance, holy talisman, and bring good fortune back home.

1) In-depth interview with a monk with high authority (A-3-1)

N/A

The monks and temple staff informed me that the abbot will not be able to meet or give an interview because he is very old, over 80 years old. I visited the temple several times in different hours and have never met the abbot.

2) In-depth interview with the monk who is a landscape manager (A-3-2)

I asked if I can talk with the monk who is a landscape manager of the temple. I was asked to wait so I walked in front of Sala and took some pictures. The monk, in his middle age (45 years old, big figure), came with a young novice monk, probably in his early twenty (thin). The older monk said we would go sit under the trees if we will be talking about trees. We were walking from the Sala to the small plaza not far from the Sala. I noticed many ants and insects on the ground because there were many food and snack carts and shelters around. This place was more like a market than a temple because there seem to be more vendors than monks. There were two tents with many small Buddha Statues lined on the tables with a line of donation boxes also along the line for people to pay respect and put donation money there. Both the monk who takes care of the temple garden and the young monk came at the same time. The situation was quite similar to others in which the older monk answered mostly everything and had some authority control over the young monk. I just realized that the seniority and hierarchy

in the Sangha system is strictly strong. As they practice in everyday life, despite their age, monks with longer monkhood experience have to sit at the beginning of the row of monks when they eat, pray, walk, or engage in any activities. I do not think I get much information when interviewing young monks with the older monks present so I tried to avoid the situation but sometimes it was too complicated as it was against the Sangha rule that a monk is not supposed to be with a woman alone without any male accompanying her.

The monk who was the landscape manager and the young novice monk walked barefoot to the small interlocking block plaza. Although he did not look that old, he has been ordained for 21 years. The young novice monk has only been ordained for 2 years.

1. Any holy trees in the temple?

- Bodhi trees. There are several of them. Some were naturally grown by themselves. The Bodhi tree in front of the pavilion was the one we intended to plant. They are close to the Grandma *Naak* (*Yaa Nakk*). There were seven colored scarves tied around it. Temple visitors who came to the temple were the ones who tied these colored scarves. Once other people see it, they do the same thing and continue the ritual. It probably started 30-40 years ago (He has lived here for 21 years). Staffs at the temples take the colored fabrics down sometimes because the tree trunks and the fabrics were getting too big. The trunks got bigger and bigger very fast with accumulated layers of colored scarves from temple visitors. (These were actually small scarves compared with some scarves in other places I have seen. But the amount of temple visitors coming to this temple to do this ritual made the trunks become so big).

Near Sala *Yaa Naak*, there were 5-6 big Bodhi trees. Some of them had been cut down because we needed space to build some shops. Now there were two Bodhi trees left.

- Takien. We no longer have it. We also cut it down and paved the space with concrete and made a commercial plaza and fortune teller tent. It was the plaza by the river behind the temple.
- Pradu. There is a big Pradu, 30-40 years old. It is located in front of the grand pavilion.
- Banyan tree. I planted it myself around 10 years ago at Laan Klang Wat/ Laan Na Main.
- Jackfruit tree. With colored scarves.

We do not have any special maintenance for any trees, even the one with the color scarfs.

- Jik. I also planted it by myself about 10 years ago. Temple visitor offered the trees for us. It has red weeping flowers with very strong fragrance.
- Bamboo grove

2. There are several trees with colored scarves. I do not know how many of them have the colored fabrics tied around its trunk. I know that the Pikul tree has the colored scarves. It reflects both faith and credulity.

3. Trees with colored scarves or other holy relics

- Pikul tree (Bullet Wood. *Mimusops elengi*)
- Bamboo grove near the river
- Takien Thong tree near the *Yaa Naak* pavilion- this one was struck by the lightening and we replanted with its seedling. The monks in this temple seeded 200-300 Takien saplings and the people at the *Yaa Naak* pavilion gave away these saplings to many temples.

Takien tree has some being residing in it. This is the Thai belief that there is a ghost (*Phii* or *Praii*), deity, or a non-human being in the trees.

There are many big trees in the temple. Many of them are older than 10 years. When I said 'trees' I mean plants with a core trunk. Tanya bananas (Kloy Tanee) growing by itself can become holy. When people plant it, the belief that it has holiness is reduced.

6. There is no special maintenance for any particular trees.

7. Before, monks and novice monks were responsible for taking care of the trees in the temple garden. Now some temple visitors who use temple spaces for their living help the temple in many ways such as:

- Merchants help clean the leaves.
- College and high school students in a group of 3-5-8 or more than 10 students come to temple to do the volunteering activity (Jit Arsa).
- Maids at the condominium near here come every Saturday – at least 4 people, help rub and clean the area.

For trees maintenance, the monks take care of pruning by ourselves. If the tree is too high, we ask the temple visitors to help.

[The landscape manager monk has a strong belief that trees have spirits or beings living in them. To cut a tree or parts of it is to hurt the beings living in the tree].

Not to cut any living greens is one of the *Sikka Bot* 227 rules of Sangha. This rule derived from one of the Buddhist stories when *Rukkha thewada* or tree's angel who resides in a tree guards the tree. A monk was going to cut the tree so *Rukkha thewada* asked him to refrain. But the monk accidentally cut the small tree which was the son (seed) of the big tree which caused the tree's son to lose his arm. The *Rukkha thewada* was very upset and told the Lord Buddha about what happened. For this reason, the Buddha give the monk a rule of 'Not to cut any living greens, not even parts of it'.

However, at the temple these days we need to cut some branches for aesthetic reasons to make the temple garden more approachable and accessible. We have many visitors. [He used the words '*Yad yom*' or relatives of the temple]. If we do not take care of these trees and make them tidy the temple visitors would not be coming. Some trees are special than the other trees such as Bodhi tree. Monks have to perform a religious ceremony before cutting a Bodhi tree otherwise laypeople are afraid to cut it.

Locations of Bodhi trees in the temples:

- By the canal next to the bell tower
- Laan Klang Wat (where we had the interview)
- *Yaa Naak* shrine

There are also bamboo grove and Takian Thong tree at *Yaa Naak* shrine.

The three trees with the most colored scarves tied around them are the two Bodhi trees in the front of the shrine and the Takien Thong tree on the side at *Yaa Naak* shrine. After 5 to 10 years, depending on how many colored fabrics were tied around, monks will perform a ritual before taking down some of the colored scarves, and burn (cremate) them.

[They were small pieces of colored scarves compared with what I saw at other places. Most places have several big scarves that are tied around the trunk of the trees. But what people do at this temple is tie a small piece of colored fabric, about 8 inches by 2 inches, onto the previous

fabrics. It has been a continuation of rituals that became culture and form people's behaviors and shape what they believe].

Behind the *Yaa Naak* shrine was a big shady Rain tree that was very scary at night. [I was not sure what the monk was scared of, maybe ghosts or spirits living in the big tree].

8. Spaces under the trees are used for recreational purposes for temple visitors. Monks do not use these spaces. The old monk mentioned several times - we planted these trees to provide a comfortable place for people who visit the temple. These green spaces are not for the monks. Monks mostly practice inside the buildings. Regular maintenance of the temple gardens was done by monks and regular temple visitors who make benefits for the temple grounds. Sometimes the temple sent a request to the district office when we have some difficult cases such as cutting bigger or higher branches of a trees.

On the weekdays we have approximately 7-8 hawkers (Haap Rae – food vendors) but many more during weekends. There are temporary shops set up and take up the whole street (the main street/walkway from the front pavilion to the church. There are about 30-40 stalls. The temple collects 20 bath (usd 0.75) per each stall per day. On Buddha days or some days with special religious events, many more vendors come. They are just too many and very inappropriate. There is a monk who takes care of this public market and laypeople who work for the temple.

I am the landscape manager of this temple. I have planted many trees during my past 10 years and have taken care of trees in this temple garden. However, anyone can plant any trees without getting any permissions from me. It would be good to plant more trees so we will have more shady areas for temple visitors. No one needs a permission to plant but if anyone wants to cut any trees down they need to ask for a permission from me, who planted those trees. We used to have only small ornamental plants – Bougainville, Koson, etc. There were some old mango trees that the abbot planted long ago. Any trees that do not jeopardize the architectures or any structures in the temple should not be cut. I also seeded many trees and they are ready to be planted.

There are some community activities but none of them related to gardens or temple trees. We have Khao Pansa, Sila 5 community, etc.

The temple property was 24 rai including the school. The temple area is 19 rai. We just got an extension for the parking for two rai. [I later looked at the aerial photo from 2004 and 2014 and found that the parking area were covered with green vegetation before the temple used it as a parking space and removed all the trees from the area]. On the other side of the canal we just bought another seven plots which is several rai. We plan to build a Buddhist meditation area [They currently do not have a proper mediation area. I went to the main pavilion and about 20-30 people in white outfits meditated, rested and slept there. It was not private or separate from the day visitors' area. It did not have any peaceful atmosphere at all].

Once we finish the formal in-depth interview, we walked to the main pavilion where there were a group of people who had come for meditation. I saw an old aerial photo of the temple. We walked outside and before I left, the landscape manager monk said something that might be his concern. He was well aware of the unsafe environment around the temple.

“Another issues that temple is facing now is the informal settlement taken over some areas of the temple properties. A large area in the front along the entrance of the temple was taken by this informal temporary housing. Also some small areas along the canal in the back of the temple has been taken by some fortune tellers and other people who take benefits from the temple. The slum near the entrance was there for 40-50 years. They did not pay anything to the temple. We only collect the cost for electricity and water from them. Sometimes unemployed or drug addict guys in this slum have walked into the temple and grabbed a Buddha statue, hid in their shirts and walk away. They sell the Buddha statue to get money to buy more drugs. I feel really sorry for the temple.

3) In-depth interview with a monk with long experience in the monkhood (A-3-3)

N/A

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (A-3-4)

The first young monk I met was there at the same time I interviewed the old monk. He rarely spoke when his senior answered most of the questions. So I revisited the temple in Summer 2016 (August 9, 2016) to interview a young monk (not the same person this time). I found a young monk at a small pavilion in the front part of the temple. He has been in the monkhood for 4 punsa. The small pavilion was the place for lay followers to come and offer things for monks. There were 2-3 monks and a few temple workers sitting there. I asked a permission to interview. The monk allowed but there were people entering the pavilion to offer things for the monk so I stepped back and waited. The first group had not even finished the ritual when the second group and the third group of people came in. It normally takes about 10-15 minutes to complete the small ceremony of offering. When more people walked in, the monk stood up and went inside to ask another monk to continue the ritual for him. Then he told me to start the interview.

It was midday on Tuesday so I did not expect to see so many temple visitors but this temple seems to be very popular since there were always many visitors everytime I came.

I asked about the abbot. The monk said the abbot moved to the building in the back because his *kuti* had caught on fire and now was under renovation. His previous *kuti* was in front of the temple, in the same building with the temple office. I was there last time when I submitted the letter but did not meet the abbot. They said the abbot was very sick and does not meet visitors or present in public.

1. Bodhi tree and Takien tree at the shrine.

These trees are important because laypeople came and worship them. Every tree has spirit (*Thevada* or angel). Almost every tree has a spirit but only a few trees, for example the very big ones, that people pay respect and bow.

2. Trees with colored scarves are at *Yaa Naak* shrine in the pavilion – Bodhi tree and Takien tree. (The spirit of) *Yaa Naak* is in the statue situated in the shrine. Besides the

trees at *Yaa Naak* shrine, I am not sure if there are any other trees with colored scarf or any trees that convey spiritual meanings. The two trees at the shrine were tied with the colored scarves by temple visitors. The lay followers came to the temple to make merit and then went to the shrine and tied a small piece of colored fabric. The ritual has been conducted for a very long time. The temple has never taken these colored scarves off of the trees. [I talked with an old monk and there was a ceremony to take the colored scarves off the trees. The young monk might not participate in that ritual so he did not know about it].

3. I do not know if there are any other big and old trees besides the trees at *Yaa Naak* shrine. The old and big trees at the shrine do not require any special maintenance because they have already grown so big. Other small shrubs and trees required more maintenance and pruning. We let the temple visitors bow and worship the old trees.
4. Religious significant trees – Bodhi tree
5. N/A
6. Lay followers can bow and pay respect to trees. Monk do not bow to a tree.
7. Trees in the temple garden provide shading and cool the atmosphere. They also calm our minds.
8. We use the areas with big trees in the garden. We sit there to conduct a ritual when lay followers offer things for us (The temple garden and areas with big trees are public which is considered appropriate for monks to talk with people). Most of the ceremony takes place in the pavilion or in the abbot's monastic buildings. However, there is a monthly ritual we do at a big tree.
We conduct a ritual to offers things for deity in a tree because people believe that there are spirits or some angels or beings living in trees. We (monks) conduct the ritual including the process of offering the 3 piece of saffron color ropes (monk's regular outfits) to the trees. The ritual called *Bang Sukun Anitja*, is to dedicate the merits that we made to the angels, ghosts, and other spirits, and especially *Yaa Naak*. There were four monks praying for *Yaan Naak*. And we contributed the good deeds we made to these nomad spirits. This *Bang Sukun Anitja* was believed in dedicating to these nomad deities. We, four monks conducted the ritual on the 20th of each month at around 6 p.m. They were always crowded.
9. Monks take care of the trees in the temple garden. We sweep the ground every day. Once in a while we prune the trees. There are 27 monks and about 7 novices here. We, both monks and novices, help on the regular cleaning of the temple garden.
10. N/A
11. N/A
12. Landscape improvement projects – We regularly improve and redesign landscape and trees in the temple. We add more trees all the time. None of the big trees were cut (since he moved here). Monks buy trees by themselves.

After the interview, I went to the abbot's *kuti* again. It was closed (the first few times I came here, I found *kuti* and the outside area is more like a pray room with many Buddha images. This time the abbot's cell was closed and a group of monks who sat in the temporary tent (shelter) outside mentioned that the abbot was very sick and would not meet with anyone.



Figure 1: A tree grown over an overhead structure and creating canopy cover for an informal commercial area in the temple. Colored scarves are observed but not liturgical objects or worshipping activities found at this tree.



Figure 2: Rubbing the dead wood with powder to find numbers for lotto

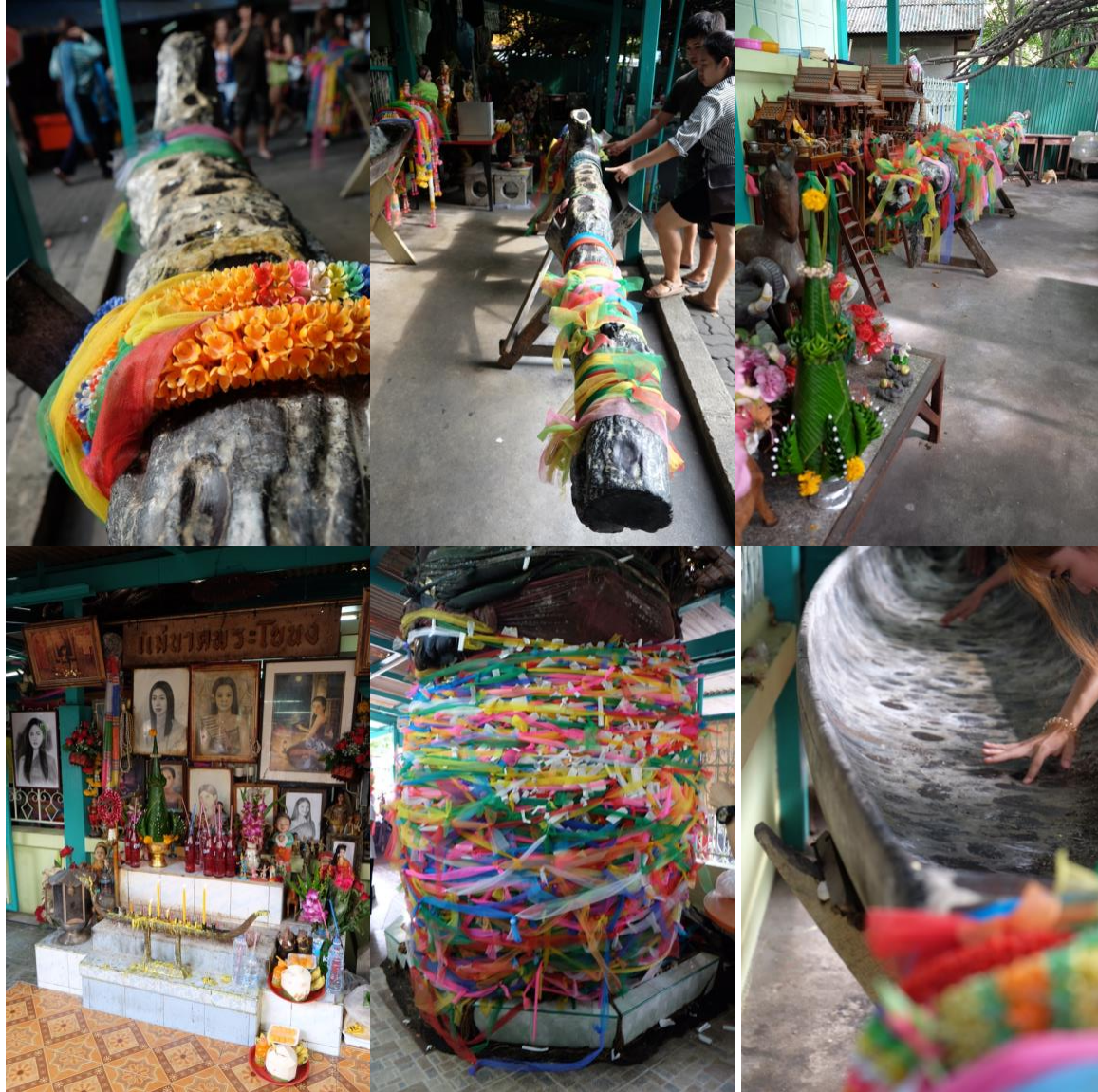


Figure 3: Dead or alive, holy trees still convey their sacredness even when they change forms into a log or a boat. There are more than 10 trees in this temple that have colored scarves tied around. The most significant ones are the trees in *Sala Yanaak*.



Figure 4: The most significant trees in the temple. Temple visitors come to worship the spirit in the trees. In other temples the colored scarves would be tied around old large tree on a special occasion but at this temple it is almost a daily ritual for laities to tie colored scarves around these trees. Access to the tree's roots by sunlight and water is stopped by concrete flooring and iron roofs, although the trees grow through holes in the roof; this is not healthy for the trees.



Figure 5: Market areas and a big tent for fortune teller tables.



Figure 6: A bodhi tree in the temple was wrapped with colored scarves and a wide variety of small sacred statues; Buddha images, a hermit, *Rak-Yom*, *Nang kwak*. There were also liturgical objects, fruits, and water for the holy spirits. Sometimes people leave broken statues, old shrine (spirit house), and other broken holy objects under Bodhi trees. They are afraid to throw these spiritual objects away so leaving them with holy trees became normal practice as they feel less guilty than if they were to throw these objects into trash.

B-1

Year of establishment: 1782

Area: 9.1 acres

Class: Royal

Sect: Mahanikaya

Significant trees: N/A

Big Tree Awards: 1999 Chan tree, Krang tree

Location: Inner Bangkok



History of the temple

This temple is a third-class Royal temple established in the same year Bangkok became the capital city of Thailand. It was an ancient temple since Ayutthaya period but it was a private temple with the old name "*Wat Kok Kwai*" meaning 'a buffalo stall'. During the Thonburi period, this private temple was elevated in its status to Royal temple and officially became a Royal temple in 1782. In 1844, King Rama III renovated the temple and built a pagoda with a vessel shaped foundation behind the Ubosot and two new monastic buildings. The purpose of building a barge-shaped architecture '*Rua Samphao*' is that the King wished to preserve this cultural tradition of these old barges used in the river before they were replaced with Western style vessels. There is a big Chinese shrine with Bodhisattva Guanyin built by Chinese and Thais

who have Chinese ancestors. One professor at my university called it the Chinese temple. This temple is a multi-cultural religious place as their visitors are Thai, local Chinese, and tourists.

Observation

- The disappearing of the oldest tree of Bangkok after it received the second prize award in from Bangkok Big Tree in 1999.
- Many Chinese tourists. One of my professors at Chulalongkorn university said “ah, that Chinese temple”, when I told her about my field work.
- Barge-shaped architecture
- Riverfront and big Bodhi trees

Date: 1/30/2016

Time: 6:35 p.m.

I had visited the temple several times but did not receive sufficient assistance from the temple office. After a year of several visits and many phone calls (a few times during winter break 2015, summer 2015, then winter 2016), I finally was able to set up a meeting in January 2016 with the old monk who worked closely on the tree ceremony for the oldest tree of Bangkok when it died.

1) In-depth interview with the priest with high authority (B-1-1)

I met with the abbot’s representative – his assistance, a senior monk who has been ordained for 39 punsa. He was a part of the team who made the book about the late Chan tree, titled “*Phra Mai (wooden Buddha statue)*”.

It was 6:35p.m. I went there with a White female friend from Germany and a Thai male friend. The male friend arrived before and went upstairs to pray and meditate so he did not come join us during the interview. The monk was well prepared to avoid any inappropriate Sangha manners as he led us to the building where the nuns stay. It was a shrine located opposite from the temple office, on the other side of the Barge. There was still a few nuns there and the building still open to public. The room was air-conditioned with red carpet filling the whole room. Many Buddha images were put along both walls. There are many donation boxes that temple visitors can make donation. The nuns sat at the table near the entrance and sold holy talismans which people buy to protect themselves and bring them good luck. I was sitting on the floor with my friend and started talking to the landscape manager monk. During the interview, there were a few people coming in to the shrine.

1. Holy trees:

We used to have sacred trees in the temple. Since the late Ayutthaya period, the temple property was once a forest area, filled with trees. The temple wall was a line of tamarind trees along the road. There were lawn and open space inside the temple. There were also many vacant open spaces and big trees.

It was tea tree forest. There were many big trees- Bodhi and ficus. There was an old Rain tree – 50-60 years old.

We used to have more significant and old trees. Now we have only Bodhi trees. They are over 100 years old. We are about to take these Bodhi trees down because their location (at the riverfront) is the site for the new riverfront pavilion.

- a. Tamarind tree – Today there is only one tamarind tree left. It is over 50 years old. It was quite big since I first saw it in 1977 (2520).
- b. Bodhi tree
- c. Praduk tree
- d. Rain tree
- e. The late Chan tree

The Chan tree near kuti was the symbol of the temple. The tree was so big. It needed 5 people to put their arms around the tree. It was there since Ayutthaya period (1351-1767). In the year 1982 (2525), the Botanical section at BMA organized the Bangkok Big Tree Award. The Chan tree received the second prize award. It was then around 300 years old. Today, as a matter of time, the Chan tree was died 3-4 years ago (in year 2001 (2555)). It was standing dead. It was as tall as a four-story building.

[I later read in the book *Phra Mai*, and found that the tree was the oldest tree in Bangkok. It was situated between two monastic buildings. Despite very narrow space, the tree can grow very well and look beautiful. However, the judge at the 1999 BMA Big Tree award gave this oldest tree the second prize with the reason that the three-stories-monastic buildings were visual obstacles and made the tree look less important. Later after that, the temple took down one building on the West side to let the tree be visually open to the public. Asphalt was paved on the area that was once the monastic building. The further lawn area was also paved to provide more multi-purpose and parking space. Even though the Chan tree was revealed to the public, the change of the microclimate had critically impacted its health. The disappearance of the building and its shade that it was once provided, the heat from the new asphalt surface, and the loss of the rain infiltration on the ground caused negative impact on the tree. As a consequence, the tree started to die. It had completely died in 2012 (BE 2555) (*Phra Mai*, 2012)].

There was a ritual to cut the Chan tree. Thai people in the old time believed that it was obligated to asked for forgiveness from the tree and conduct a ritual before cutting down an old tree. After cutting down the dead Chan tree, the abbot used the timber to made one big Buddha statue and kept it in the Ubosot. He also requested to make 2 more medium Buddha statues and put them in the ceremonial hall on the top floor of meditation buildings. The medium Buddha statues were the Buddha figures that were assigned for the birthdays of the King (Monday) and Queen (Friday). [The rest of the wood was used to make small wooden Buddha coins which were sold to public].

2. N/A
3. N/A
4. Phra Sri Maha Bodhi – is the name that every tree was called that the Buddha sit underneath when he reached enlightenment. For this Buddha, Phra Sri Maha Bodhi is a Bodhi tree. For the next Buddha, Phra Sri Maha Bodhi is a Chan tree. Many of large species trees in many periods and different times used to be or will be the place the Buddha sit under, including chan tree, Bodhi tree, ficus (banyan) tree, indian almond (Hu Kwang) tree.
You can read about this story in Phra Sutantrapidok (Sutantra Sutta).
5. N/A

6. There is a ceremony to cut a big and old tree. There are also other ceremonies related to old trees. In the old times, Thais had an auspicious ceremony to ask for forgiveness from the trees and mother-nature and bring fortunes to people who conduct the ritual. There was also a book that we published to tell the story of the old Chan tree.

When the old Chan tree, the oldest tree in the city of Bangkok, died, we had a ceremony to cut the dead trunk down. The abbot proposed that we used the wood to craft Buddha statues. We made three big Buddha statues. The largest one was put in the *Ubosot* (the Ordination hall) and the other two were put on the third floor of *Jessadabodin* building. The two Buddha images in the ceremony room on the third floor were crafted in the Buddha of the birthdays of the King (Monday) and the Queen (Friday).

In the old time, the back area of the temple was garden. Now we have many changes and development. We only have the landscape area in front of the Bark (the ship-like building), King Rama III plaza. This plaza is the only lawn area with more decorative plants. We have already changed and redesigned this plaza 3-4 times. We have a garden design firm came and helped. The district office sent staff to take care of the maintenance such as watering the plants. There was also a ceremony when we planted the new trees to replace the old Chan tree. We conducted a ritual and had a sign put where the new Chan trees planted.

7. There are not many big trees in the temple garden.
8. Spaces with big trees? We no longer have spaces with big trees in the temples. There are still a few places – in the parking lot and at the riverfront near the shipyard and workers' shelters. However, the spaces are not suitable for the uses of sangha. The space with the largest tree in the temple is the courtyard where the Chan tree was. The tree died so we replanted with two small Chan trees and tried to plant other shrubs and trees to make the space more natural, like a mini forest. However, we cannot really use it because the space was too small [and it is right next to the parking lot]. The two Chan trees were planted to replace the old one about three years ago. They were about 2-3 meters-height. The trunks were about the arm size.
9. Temple staffs and other monks take care of the Ubosot and temple spaces. At 5 a.m. every day, the BMA staffs (Sathorn district office) water the trees in the temple garden (the same team that watering the street trees). Every 2-4 weeks, the BMA staffs give pruning to the trees and shrubs.
10. The monks who are assigned to take care of the garden spend the whole day watering and taking care of plants.
11. The same trees convey the same meanings wherever they are. No matter if they located in a temple or a house. However, only Bodhi and banyan trees are symbolic of Buddhism. [Place does not matter. Species does matter].
12. We are about to cut down the big Bodhi trees by the river. The "5th December foundation" is proposed to build a pavilion to honor the King. The biggest Bodhi tree is the size of 5-6 people embraced. The temple workers refused to cut it because the tree is big and old. [The temple labor workers built their temporary shelters underneath the Bodhi tree, by the river where the new construction will take place. [I was tempted to report the senior monk's attempt to cut the tree to the Bangkok Big Tree group and/or the Department of Fine Art but because the interviewee gave me

trust and told me the story so I cannot inform on him. I only wish the Bodhi tree will survive].

People are afraid of the Bodhi tree. They do not dare to cut it. There is a big Bodhi tree next to the shipyard. They believe that there is *Rukkha thewada*, a tree deity, living in the tree. To cut the tree, a ritual to invite the deity to leave need to be conducted. We (monks) already conducted the ritual but the workers are still afraid to cut it down because of its **size and the colored scarves**. I do not know where the colored scarves came from. There are also incense sticks but no flowers. There are big Bodhi trees and ficus trees in the temples. The sizes are about 2-3 people embracing. Because of the colored scarves, they (the workers) became scared and refused to cut those trees.

2) In-depth interview with a monk with long experience in the monkhood (B-1-3)

3) In-depth interview with the monk who is a landscape manager (B-1-2)

N/A

There is no landscape manager monk at the temple. Monks are assigned for maintenance in some area and some special occasions (cutting down old trees, planting special trees).

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (B-1-4)

12/2/15 at temple office:

- The manager (a woman in mid 30s not so friendly nor helpful. Kept saying I don't know).
- Yai Noi -An old woman in her 70-80s (She might be younger but her hair was all white and she had lost some teeth). She was sitting on the floor, a small brown dog leaned on her lap, her left hands held 10-20 1000 bath bills. She has been living in the temple for the past 40 years. She remembered the old Chan tree very well. It was there and was very big and old when she first came to the temple. The tree stand died (*Tai prai*) a few years before the big flood in 2011. Then there was a **ritual** conducted by the monks before the cutting down of the Chan tree. The ritual had to be done because they wanted to use the wood from the tree to make Buddha statues. Before the tree died, old monastic buildings were on both sides of the tree. The abbot took the West building down and paved the site to provide more parking spaces. A few years later, the tree died.

7pm. January 30, 2016.

The two junior monks, with less experience in Sangha, were sitting together and answered the questions at the same time so I did not get much diverse response. However, it has been very difficult to have this appointment and it was also Monastic rules that discourage monks to talk to female for too long. I did not have much choices even when I had a friend or two accompanied me. They cannot come with me every single time and I cannot set a precise appointment with a monk as well.

I did not have a chance to interview monks at this temple until after over a year, many phone calls, and several visits. I interviewed the young monks on the same date that I got to interview the abbot representative. The two monks with less experience in the monkhood waited at the office. I met with them after the interview with the senior monk. Both of them

ordained as novices 7 years ago. One of them ordained as a monk 4 years ago and another one has been in the monkhood for 7 years.

1. There was the old Chan tree. It was several hundred years old. I think it was more than 300 years old. Then one day it died and we used the wood to make Buddha images and auspicious objects.

Another old tree was the big Bodhi tree at the end of the barge. The space near that Bodhi tree, at the other side of the Bark, in front of the Chinese pavilion, we just redecorate the space under the Bodhi tree to use as a sitting and recreating space. We also have Banyan tree in the temple too.

2. Behind Pariyat school by the riverfront, there was a big Bodhi tree. There were colored scarves but I have not seen anyone worship the tree. There were colored scarves but no one came to ask for lotto number.

[Who tied the colored scarves?]

We do not know. You might have to ask *ajarn* (teacher or the senior monk). Monks, (chuckles) monks and laypeople did it. People tied the colored scarves because they believed that there is a deity at the tree. Both monks and lay supporters tied colored scarves around the tree and conducted a ritual. I have not noticed before. Maybe because there is a monastic cell (*kuti*) right by the banyan tree. The colored scarves might come from the monk who stays in the closest *kuti*. Both Buddhist monks and laypeople conduct the ritual and tied the scarfs around the tree.

3. N/A
4. N/A
5. N/A
6. All the trees have the same maintenance. Besides watering the plants, the staffs from District office come help regularly with pruning, cleaning, and decorating the temple garden.
7. Monks in the temple who take regular care of trees in temple garden – watering and sweeping ground.
8. We do not use spaces with big trees. Most activities take place in the buildings. We planted trees at temples outside Bangkok. When the old Chan tree died, we replaced it with new Chan trees. The abbot planted the new Chan tree by himself. We replaced the sacred Chan tree that died. Woods of the dead tree were used to make holy objects. [Besides the large three Buddha images in the Ubosot and prey room, the wood was used to make small Buddha coins. There were seven different Buddha coins which were assigned for each day of the week. I bought some of them. When Thais buy Buddha images, we use the word “rent” instead of “buy”. I think because the Buddha images should not be interpreted as part of monastery values].
9. There are lay followers and district officers (by request) who come help with pruning. They take care of the Sal tree in front of the abbot’s *kuti*, trees around the ubosot, and waterlilies bowls in front of *kuti*.
10. We do not have a landscape manager. Monks will be assigned by projects or spaces. However, there are some monks who work on the temple garden more often than

others. There are two monks who take care of mostly every landscape project in the temple.

11. Only Bodhi tree conveys meaning as it is a symbol that the Buddha reached enlightenment underneath the Bodhi tree. Sal trees are not as known as a religious symbol. In the rural area, people rarely recognized or knew about Sal tree in Buddhism.

12. Development in temple garden:

We already have sufficient decorative plants and garden. However, we are still lacking big trees. We have a lot of parking spaces but to arrange seating and recreational areas for people to rest and relax is quite difficult. There are some spaces we can arrange for people – inside and around the ubosot. We should add shady trees in that area.

[He did not mention how the surrounding areas of ubosot outside a certain boundary have to be open as the traditional concept of Buddhist temple in Thai architecture. The open space follows the beliefs – no leaves or branches touch the building or lay their shadow on ubosot. There are also sacred stone leaves, Sima, at each corner of ubosot. I also found that if there are too large trees planted too close to ubosot, the trees can cause troubles on the roof of ubosot which usually is decorated with very elaborated elements and delicate roof tiles].

After the death of the Chan tree, probably five years ago, we documented and published a book about the making of the Buddha images from the Chan wood. Before it died, there was a survey and the Chan tree was recognized as the biggest tree in Bangkok. There were journalists came to interview about the biggest tree in the city. I think the second largest tree was in Suan Rodfai park.

The first junior monk: My favorite spaces in the temple garden for me is the plaza (lawn and small garden, also called Rama III plaza) in front of the bark. Another monk said his favorite spaces in the temple would be inside the ubosot and at the pier. There are a few big trees and a small garden – kind of like a parklet for relaxation, at the pier.



Figure 1: The temple is surrounded with high-rise buildings in a high density part of the city.



Figure 2: Chan tree is the most important tree in this temple. The two small Chan trees were planted to replace the old one.



Figure 3: Parking lot next to the Chan trees. There are also electricity poles and wires which could cause damage to the trees and could be a liability issue if no proper pruning provided. Electricity is an obvious problem.



Figure 4: There are several Bodhi trees on temple grounds. Some are over maintenance while others are forlorn. Because of their locations, some very big Bodhi trees are subject to be cut down because of a new building proposal. Bodhi trees in undesirable locations tended to get cut down.





Figure 5: Maintenance seems to be an issue in temples with many visitors. I observed many forlorn areas. Trash and unused construction materials are left under big trees. Pavements right against the tree trunks prevent air ventilation and water infiltration into the soil. These could cause negative impact on health and well-being of the trees.





Figure 6: *Phra Mai* – the wooden Buddha statues. Buddha images, statues, and coils crafted from the wood of the heritage Chan tree.



Figure 7: Cultural diversity. The Chinese shrine in Buddhist temple.

B-2

Year of establishment: 1782

Area: 3.2 acres

Numbers of monks/Novices: 20/0

Class: Privatea

Sect: Mahanikaya

Significant trees: N/A

Big Tree Awards: 2009 Banyan tree

Location: Inner Bangkok



History of the temple

The temple was built in the same year Bangkok became the capital city. It was assumed to be built by Chinese immigrants in Thailand because the old Ubosot was built in Chinese style. The beautiful famous principal Buddha image in the Ubosot was brought from Sukhothai. There are two shrines on both sides of the Ubosot. The statue of Avalokitesvara Bodhisattva was situated in one shrine. An asceticism Buddha image was situated in another shrine. Located in the city center, the temple has one big Banyan tree on the other side of the street. The temple boundary used to be much larger and covered all the way to the river which was once the main access to the temple. The road cut through the temple and temple lands on the opposite side of

the street are rented out. It is also property of the temple but has been separated by the new road.

Observation

There are many temples with similar names so it was confusing and difficult to locate the temple at first. There are at least four Buddhist temples in the same district that have similar names with slightly different details. There are also local or old names that people called the temples and formal names that the temples registered. There are also some temples outside Bangkok that share the similar name as well. I expected to find the tree that received the 2009 Big Tree Awards; however, I could not find it. An old senior monk I talked to did not know about the heritage Bodhi tree as well.

The temple is accessible from the Chao Phraya River. However, the land plot that connected to the river has been rented out to the neighborhood. The active temple ground is on the other side of the street. In the residential renting plat, there are two very big trees; Banyan tree and Indian almond tree. The Banyan tree is spread out and covers a land plot of one small house which has now become a shrine for the Banyan tree. There is a full table set with a Buddha statue in the small building that the tree covered. Its root took over half of the space and grows along the entrance and the door frame crated a ceiling and walls. People put flowers and perform religious rituals inside the room where the Banyan's roots have grown into. A gigantic Indian almond tree is on one side of the small alley that lead to the pier. There were some dried flower garlands, food, and water on a small table under the tree.

There were not many big trees in the active temple boundary. Most trees around the ubosot were badly pruned. I saw a humming bird when I was waiting for the monk for an interview. It was the first time I had seen a humming bird in Bangkok. There was a military base in the temple – Artillery Battalion 19 (*Kongpan 19 Taharn Peun yai*). I talked with a landscape architect friend who volunteers working on designing a temple garden in the “9 inspiring temples” project¹. He mentioned some temples that have the military authority control over. At this temple, there were approximately 60 soldiers and 20 monks and no novice monks. The soldiers smoked, chatted and walked around the place. The monks said the soldiers help taking care of the temple [which I do not think they do very well]. They are also responsible for the care of temple garden, including pruning (very bad pruning).

The temple boundary was much larger and covered the area across the street and went all the way to the river. They rent out the land for residential and commercial uses. Also the street divided the temple grounds into two pieces. There are a few very large and old trees on the other side of the street. People in the community know very well about these big trees. There is a small building that serves as a shrine at the big tree. The old monk who has been just ordained for less than a year did not mention these big trees outside the active temple ground at all.

Wednesday February 3, 2016 at 10.30am

1) In-depth interview with the priest with high authority (B-2-1)

¹ Chapter 2

The abbot assigned a monk to be his representative. He was busy taking care of the furniture renovation projects. He looks much younger than other abbots I have met at other temples. He was talking on the phone while walking down his *kuti*, the monastic building. He avoided talking to me and only said “I am not convenient for an interview” and told me to talk with the old monk who was only ordained 1 year ago and did not know much about the temple.

2) In-depth interview with a monk with long experience in the monkhood (B-2-3)

11:45 a.m. Wednesday February 3, 2016.

There were two senior monks coming to talk with me. They are much younger than Luang Ta, the old monk, but they had much longer experience in the sangha - one is 24 punsa, another one is 14 punsa. The first monk was in his mid 40s and was ordained in 1991 (BE 2534) or 1994, he was not sure. He is 24 punsa. He came from Saraburi, where he ordained as a novice at Wat Mittraphab, Pakchong. Prior to coming to this temple, he stayed at Wat Sang Santi, Rangsit (suburb of Bangkok) then moved to thiBs temple in 1997 (2540). He moved to Bangkok to study Pali and first class dhamma (Naktham Eak).

1. There are not many big trees in the temple.

The Sal tree near the ubosot is a big tree in the temple. The tip of the crown was cut because it was too high and it was located too close to the ubosot. This Sal tree was planted in BE 2542 since I just first moved here. Now it is more than 15 years old.

(Later, he added-

There is a Banyan tree in the property of the temple but it is outside of the temple wall. The Banyan tree overgrew the Buddha hall on the opposite side of the street. It is in Soi 9 (alley 9). We had much larger land but the temple did not use all of the space so laypeople came and settled their houses. We asked them to submit petition to rent the place. We charged them three Thai baht per sq.wa. [\$91.95 per acre]. They have been living there for very long time. People rent the lands to build their houses. The existing site of the temple covers the area up to the bank of the Chao Phraya River.

2. We do not have holy trees. We also do not have big trees because the temple property is not large enough.

3. N/A

4. Sal tree

Hu krajong (this one is not the old symbolic trees) *Hu Kwang* (Sea almond) – these trees just got popular recently. The full mature trees are spreading in layers and look like the layer of the ceremonious umbrellas that were used in Royal ceremonies or as a representative of the Royal family. The layers of branches are beautiful.

5. N/A

6. There is nothing much on the maintenance of important trees in the garden. We keep the area clean. Occasionally, there are people who come came with incense sticks. However, because the trees in the temple garden are not very big, no one bows at them.

7. Monks and novices are responsible for keeping the areas around their monastic cells clean. We do not have many activities in the areas with trees in the temple garden. Monks used to help take care of the topiary by doing the pruning. Now the soldiers are responsible for that.

8. We decorated the trees in the garden with lights during New Year when many lay followers attended the chanting ceremony. Apart from that we do not have many activities in the garden.
9. The public areas in the temple are taken care of by temple staffs.
There is a big group of military staying at the temple. They took over the large pavilion in the front of the temple. The military came here 2 years ago before the election. It was during the political conflict so the military came and monitored when people came to vote. However, they did not leave after the vote. Now they stay here and help with cleaning the areas, sweeping the ground, pruning the trees.
[I walked around before the interview. I noticed very poor pruning and bad maintenance].
Artillery Battalion takes care of pruning instead of monks. Monks used to do it by themselves. When we needed to cut or prune any high branches, the abbot calls the Khlongsan District for help.
10. Sacredness of a tree depends on people who plant it. When people plant a tree in their house, if they believe and respect, place does not matter. Bodhi trees or Banyan trees that grow outside temples still have respect and people are afraid to cut them down because they are afraid of bad karma. To cut these holy trees can bring themselves fatality. Some people do not care.
When we have an ordination ceremony, we have a ceremony of cutting hair outside of ubosot then we collect hair and bring them to the river to throw away or put the hair at the soil under a big tree.
11. We do not have much spaces for development. Only areas around the ubosot. The temple takes care of the trees around ubosot. We plant more when the old one die. Because most area in the temple are paved, if we want to plant or add more tree, we need to break the concrete and penetrate through the pavement.
During the past 10 years, there is no new tree.
 - An area that should be improved is the Indian almond trees (Hu krajong) that plant in the plaza. The trees are not very healthy and do not grow properly because there are limited soil spaces underneath.
 - An area that should be preserved is the space surrounded the ubosot. There were Pikul trees around the ubosot but they were all dead because of diseases and pest.
 - A Rose apple tree outside the temple. Bodhi tree and Banyan tree that are naturally grew behind the cemetery (They grew above the cremation boxes. The trees were on the wall between the temple and the neighbor's fence. If they grow too big and start to cause troubles, we have to take some parts out.

3) In-depth interview with the monk who is a landscape manager (B-2-2)

N/A

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (B-2-4.1)

Wednesday February 3, 2016. 10:30 a.m.

This is the oldest junior monk (with less experience in the monkhood) I have interviewed. Other monk called him Luang Pu (Grandpa). He looks a bit older than 70 years old but only been in the

monkhood for 1 punsa (8 month). He has a big figure with a long thin white goatee from one side of his chin. He came from Ubonratchathani, a province in Southern part of Northeastern Thailand. He worked as a policeman until he retired at 60.

1. I do not know about any significant or holy trees in the temple.
 2. No. I do not think there are any trees with colored scarves. There is a Sala tree behind the Bot. It is big but not tall. It does not have colored scarves though.
 3. We do not have any big and old trees in the temple. There is Sala tree which is believed to be prosperous but I do not think it is very old. We plant trees to decorate the temple. The temple gradually developed and we bring more trees to plant. There are Rajapruk trees, very easy to grow but also very easy to die. We used to have Payom tree. It was about the size of an arm (the trunk size) but when we tried to beautify the temple, constructed the new pavement, we accidentally cut the main root of the Payom tree so it died. We are looking for a new Payom to replace that one.
 4. Symbolic trees: Sala tree was the tree the Buddha sat. We do not have other trees that related with the Buddha.
 5. N/A
 6. We provide similar cares for every tree. If the trees grow big enough, their roots will go far.
 7. Trees do not affect the monks' activities. I do not use any spaces around the big trees. We, monks, only sweep the ground.
 8. We do not use the outdoor spaces. Monks help take care cleaning the falling leaves. We practice meditation inside of Ubosot.
 9. There is a military based inside the temple so these soldiers take care of the temple gardens. They were responsible for cleaning and pruning. Monks sometimes help sweep the ground as part of the exercise. The abbot assigned tasks for them. Monks does not do much in the temple maintenance. It will be violating the Vinaya if we cut trees so the abbot managed to have the soldiers take care of it.
- [I walked around before and after the interviews; the trees in the temple had very bad cuts. They did not do a very good job in taking care of the trees and temple landscape.]
10. N/A
 11. I used to see trees outside the temple that still have meanings. Trees in some government offices. Sala trees. People do not cut them down. When they built new buildings, they keep the Sala trees. Then someone brought colored scarves and tied around the trees. There was a Sala tree at the Police hospital. It was not in a temple but people tied colored scarves around them and with this assigned values, the trees were protected.
 12. We are renovating the crematorium. We do not have any projects in the garden. There are many areas in the temple that need improvement. More trees should be added to make it more shady. Cars can park in the shades.

(B-2-4.2)

A monk with sunglasses was the second monk with less experience I interviewed at the temple. He attended the Sangha as a novice for 8 years and as a monk for 6 years (14 punsa). He lived in Yasothorn, a province in North eastern Thailand, and moved to this temple in Bangkok in 2007

(BE 2550). He was much younger than the Grand pa monk but had longer experience in the Sangha (6 punsa). I still feel that he did not know much about the trees in the temple garden.

1. No.

Sala tree was the tree the Prince Siddhartha was born.

2. No.

3. There are no big and old trees in the temple.

4. Only Sala tree.

5. N/A

6. There was no special treatment. We plant and water every tree the same way.

7. Trees are decorations in temple gardens. Trees provide shade and cool the climate.

During New Year or other religious ceremonies and social events, we have some lighting decorations in the temple gardens. We just had an event in February.

8. We (monks) do not use spaces with big trees. In some special occasions, we buy some ornamental plants to decorate the temple garden. We do not have any chances to used spaces under big trees.

9. Monks take care of the trees in the temple garden. We (monks) sweep the leaves, water the trees, clean the ground, fill fertilizers in for trees, replace when the old trees die. We buy new plants by ourselves, from Rama II or Phutthamonthon areas. The abbot mostly decides which trees to plant.

In 2010 (BE 2553), I planted those Hu Krajong trees to replace the dying Hu Krajong.

10. Significant trees are significant even when they are outside of a temple. Trees are significant because they are related to Buddhism. Size does not matter. Location also does not matter. [Only species define the significance of trees].

11. Landscape development projects in the temple: Last year we made the new pavement in the temple. The previous one was also concrete but we elevated the level from the existing ground for about a foot.

- Areas that I think we should preserve: courtyard around ubosot. There are trees around the ubosot, topiary (*Cha dud Carmonretusa (Vahl) Masam.*), ornamental plants. We used to have bamboo as a hedge but the bamboo died so we replaced with red ficus plants.
- Areas that should be improved: drainage canal. It is difficult to improve because the canal also belongs to the community. It is hard for us to keep it clean. Laypeople dump trash, plastic bags, and many things. The temple put iron mesh to sieve the garbage along the canal before the water flows into the river. We use water for irrigation – to water trees in temple garden. We do not have flood issues. If there is very heavy rain, we might have a flash flood for a short period of time but we do not have any big or long flooding problems.

Most of the trees in the temple are Hu Krajong (*Terminalia ivorensis A. Chev. Combretaceae*. Black Afara). They were planted for over 10 years. There were 2 big ones behind the pavilion next to the canal. The abbot ordered to cut the two big trees down because they were too large and overgrew the pavilion. They were about 20 years old. The district office sent someone to take care of the cutting and removing stems and roots. We paved the ground after the trees gone.

There used to be many birds here. We installed metal fences to prevent the birds from sitting on the columns of the ubosot. We just renovated the ubosot and these birds drops made it dirty so we had to prevent them. There are many cars in the temple (despite its small size). They are people renting the parking spaces. We collect 20 Thai Baht per day from them (60 cents). Many people park here then walk across the street to the pier to take a boat to the other side of the river. The pier is at the end of Soi 9. It is only 300-400 meters from the main road.

There are some Buddha images in the old Buddha hall in soi 9 (Soi Wat Suwan school- also parts of the property of the temple). We (monks) do not go there often. Mostly laypeople go to worship the Buddha images. Occasionally, people who live there invite the monks to conduct a ritual at the old Buddha hall. School kids from Wat Suwan school come to the temple on religious significant days. We have 20 monks and no novices here. (There are more than 60 soldiers living at the temple).



Figure 1: A new road cut through the temple and divided it into two section. The temple rented out the land for laypeople and it became temple school, residential and commercial areas and is no longer recognized as a temple ground.



Figure 2: Military base occupied spaces in front of the temple since the last election in Bangkok. Now the soldiers are responsible for taking care of temple trees.



Figure 3: Bad pruning can cause long-term health degradation for temple trees



Figure 4: The Avalokitesvara Bodhisattva shrine in front of the Ubosot.



Figure 5: Sal tree near the Ubosot is the only sacred tree in the temple according to the interviews. The ordination ceremonies performed under this tree.



Figure 6: Bodhi tree was naturally grew on top of the crematorium in the back of the temple. None of the monk mentioned it.

Figure 7: The big Banyan tree outside of the active temple ground. It outgrew the building and became a shrine.

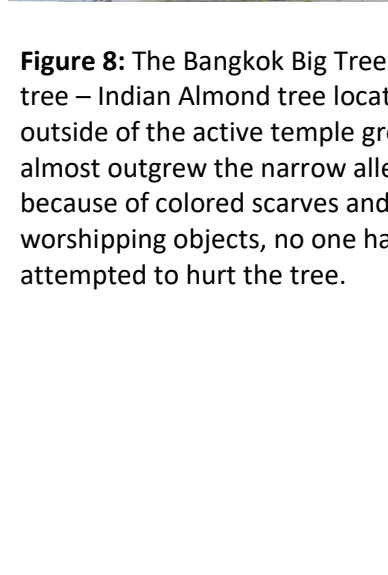


Figure 8: The Bangkok Big Tree awarded tree – Indian Almond tree located outside of the active temple ground. It almost outgrew the narrow alley but because of colored scarves and worshipping objects, no one has attempted to hurt the tree.

B-3

Year of establishment: 1783

Area:

Class: Royal

Sect: Mahanikaya

Significant trees: Phra Sri Maha Bodhi from the King

Big Tree Awards: N/A

Location: Inner Bangkok



History of the temple:

This temple is an ancient temple since Ayutthaya period with the old name of 'Wat Sra kae'. The current name was given by King Rama I when the city of Bangkok was founded. The canals around the temple were dug during the time of King Rama I (1782-1809). The city moats (*Khlong khu moeng*) connects from *Bang Lamphu* to the Chao Phraya River and *Khlong Lod* connects to the temple. *Khlong Mahanak* was dug in the north boundary of the temple and was used for people to play and convey the ceremony during the high tide similar to the ceremony

in Ayutthaya period. Other architectures in the temples were also renovated and rebuilt during this time.

The name of the temple means 'wash or clean hair'. It came from an old story about King Rama I once while travelling back from Kmer (Cambodia) stopped and rested at this temple for three days and performed the washing ceremony (*Maruthapisek*) that the prospective king would do before the beginning of his reign. The pond that King Rama I used has already been buried and a sermon hall (*Sala kan Parien*) was built on top of it. It was on the east side of the big monastic building where *Phra racha kana*, the high ecclesiastical dignitary monk lives these days. The Golden Mountain (*Phra Barommabanpot* or *Phra Chedi Phukhao thong* – a manmade hill with a golden pagoda on top of it) was built during the period of King Rama III (1824-1851).

Observation:

- Accessibility to Phra Sri Maha Bodhi
- The Bodhi tree – holy water from the Bureau of the Royal House Hold
- Banyan tree and the noodle pushcart

Observation: First impression

Date: Tuesday June 30, 2015

Time: 6:45-9:45 a.m.

The Golden Mountain can be seen from afar serving its purpose as a landmark of the city. The gold part of it is only the pagoda on top of the hill. The Golden Mountain is the only mountain in Bangkok. This manmade hill is a popular viewpoint for tourists and locals. The hill is surrounded with dense groves of old trees. I tried to get to the temple very early in the morning. I was driving around the block (not so much like a block as the streets in this area were integrated between the old town and new section of Bangkok with some canals along or perpendicular with some roads) trying to find the entrance to the temple. Parts of the temple ground that are adjacent to the main road is a school. I entered the driveway that lined with palm trees (The landscape manger monk told me later that these palm trees were over 4 decades old). The temple school was on my left and the monastic precinct was on the right. The Golden Mountain appeared above a dense green belt of forest that surrounded it. The Golden pagoda can be seen on the far right, visible among the foreground of the palm trees. A few groups of monks (2-6 monks in each group) on their way back to the temple after their morning alms were walking around the neighborhood (sometimes they go as far as 10 km. to collect food from people while the monks bless them in return). There were a few cars parked on the driveway along the 'no parking' sign. They came to offer food for monks so they stand close to their cars, waiting for the monks to walk past by. I did not want to park where it was obviously prohibited since I would be spending more time and wanted to walk around the temple for the preliminary observation before meeting with the monks for interviews. I drove around the base of the Golden Mount then followed the sign saying 'parking lot'. I could not find a parking lot so I stopped to ask two people who came for morning alms. They told me to go inside again but I still could not find the parking because it was not open yet. Hence I drove to the entrance and took a few photos of the Golden Mount then drove back to the parking lot and found that it still was not open. I asked a man, wearing blue uniform, who seemed like a temple staff for the

parking. He said the parking is normally open around 8 am (it was 7ish a.m.) and he recommended that I should drive further to the back of the temple and park near the abbot's resident at Kana 12. I finally found a parking space behind the monastic buildings and decided to walk around the temple before going to see the monks for an interview. I walked to the Viharn (an assembly hall where they keep an important Buddha statue). Then I walked to the church area (Ordination hall or Convocation hall with *Viharn Kot* surrounded the Ubosot) but it closed. I went to the Golden Mountain to see if the office was open. I saw a monk walking past by so I asked about the Bodhi tree. He said it was on the east side near the temple's front entrance so I went outside and walked along the road on the north side of the temple toward the main street. I found two big Bodhi trees close to the fence, one outside and one inside the fence. They were about the same size. The one outside the fence was covered with colored scarves, with a small spirit house right at its root and a small table with beverage and flowers. The one inside the fence- with no public access- did not have any relic worship objects. Then I saw the big Bodhi tree. It was in the center of the plaza – the front plaza right by the entrance and adjacent to the main road. It was quite far from the street and there were many trees in the area so I did not see very clear. I tried to get in there but there was no gate on this side and the gates on the other sides were closed. Hence, I walked to another gate on the east side, the main entrance of the temple. There was another small gate, and as I expected, it was locked as well. So I walked around perimeter of the north, east and south side of the temple and came back to the Golden Mountain.

When I came back to Viharn, I found the parking lot which is actually the plaza around the Viharn. The gate is a sliding gate that is designed as if it was part of the old wall. I found some cars parked in the lot. Some school kids and parents. One parent who looked like he lived in the temple was washing his car while his daughter in a school uniform was sitting under a tree. Three old women and one old man on his bike came back from morning exercise. There were only a few trees, one on each corner of the plaza, far from the architecture. I heard birds singing which is unusual for temples in Bangkok. The base of the Golden Mountain was covered with trees so there must be many wildlife there. I went to the office at the base of the Golden Mountain and met a monk who was the abbot's secretary.

Thursday July 23, 2015

Second visit to the temple:

My first visit was early in the morning so there were not many people. Only about 10-15 people were there for morning alms. They came with food prepared to give to the monks. There were some people taking their kids to school who parked in the temple parking lot. But compared with other temples, there was much fewer parents' cars here.

Today I arrived at the temple around 2 p.m. It was very hot and sunny. There were numbers of tourists, both Asians and Westerners, in the temple, especially in the Golden Mountain area. The tourists were in small group- 3-6 people. I went to the office to meet with a landscape manager monk as he set appointments.

I found one Banyan tree (figus) at the back door and a Bodhi tree at the front side of the temple. The Bodhi tree located in the same axis with the Ubosot and Viharn. It was in the restricted area with gated fence at all times.

1) In-depth interview with the abbot (B-3-1)

N/A. I interviewed the abbot representative.

Abbot representative – the abbot’s secretary has been in the monkhood for 13 years. The abbot is the landscape manager of this temple. However, he was not available for the interview. The abbot’s secretary came to meet with me for an interview. He was white – like Chinese-Thai growing up in a wealthy family, unlike many monks in Thailand. [I learned later from a friend who has been ordained several times that this temple is a place for monks who come from wealthy and well-educated family]. He was in his mid-thirties, wearing glasses. He asked me to meet in the temple office. It was a small room with automatic sliding glass door covered with big stickers of a colorful view of Bangkok and the Golden Mountain. We sat at the round table.

I introduced myself. Then he introduced himself and gave me his name card [I would say business card but it would be kind of weird because monks should not do any businesses?]. He was very polite and very interested in my research. When he learned that I go to school in the US he said he just came back from Los Angeles. “Do you want some coffee?” He asked so I asked him if he wanted me to go get coffee for him because laities usually prepare meals and drinks for monks but he just called someone to get him an iced coffee. I do not drink coffee. It is very hot in Bangkok most of the time so people normally drink iced cold beverage, including iced coffee. There was a big panoramic bird’s eye view photo of the temple on the wall so I took a photo and asked him about the temple’s boundary.

The temple’s property was surrounded by four canals on four sides. Now there were community settlements between the temple and canals. They lived in the temple’s properties. He does not know the exact area of the temple.

1. Big and holy trees:

Bodhi tree. The seeding came from Anutharapura city in Sri Lanka. It was one of 37 saplings from that original tree. Only three saplings came to Thailand during the period of King Rama II. One was planted here at this temple. The other two were at Wat Mahathat and Wat Suthat. This Bodhi tree has been here since King Rama II period.

Special ceremony:

Every year on the Thai New Year (*Song Kran* festival), the King (Rama IX) send the holy water to pour on the Bodhi tree. It was part of the ritual similar to the water ceremony performed with the elderly in which the elderly are asked for forgiveness and to bless them with long life, good health, and prosperity. The holy water has been given to the Bodhi tree at the temple since the period of King Rama II. Every monk in the temple attends this ceremony starting in the evening around 5 p.m. on April 15th every year. You can check the photo of the event on the temple facebook page- we have the events photo that was taken on April 15th.

[I saw the Bodhi tree behind the locked gate in the courtyard in front of the temple?]

The area will be open a little later of the day then closed again in the afternoon. **We do not have any colored scarves around the tree.** This is a Royal temple so we do not tie any trees with messy colored scarves. We do not need colored scarves to be respectful and recognize the important of the trees in the temple.

The Bodhi tree is the only holy/significant tree in this temple.

We respect the Bodhi trees in different levels. This Bodhi tree is the original one from Lanka. Even the King shows his respect by sending the holy water for the ritual every year. All Bodhi trees are symbols. But the one here is more special because it was the heir of the original one from Lanka. It has historical significance.

It was the same Bodhi tree since the Buddha's time. The City of Anurapura in Lanka gave out 37 seedlings. Three seedlings had been brought to Thailand by King Rama II. **It was the real Bodhi tree** – this is why it is so important. It is a Bodhi tree with a precise historical documentation. Some Bodhi trees seem respected because they are old. But they are different from this one. They have different values [because of the originality – where the Bodhi tree came from]. Locations also matter. In Lanka, Bodhi trees grow in every intersection. The Bodhi tree here at this temple was planted in the same axis as the church, viharn, and the stupa – the Golden Mountain. It was one of the significant elements of the temple.

Places matter. A place that a Bodhi tree grew can impact their significance. The Bodhi tree in this temple is very special. We control the access. We intend to plant on the same axis as the Ubosot (and Viharn and the pagoda (Golden Mountain)) in front of the Ubosot in the locked area. We do not allow people to go there and pour any water on it.

1. Maintenance:

We provide similar maintenance to every tree. The only special treatment for the Bodhi tree is restricted access. We control the access as it is located in a crucial location, part of the axis of the temple. **Location matters.** Besides that, we clean the area and water the tree as normal. Unlike in Lanka, the significant Bodhi tree has special treatments; even the water used must be examined.

Trees in the temple provide shade. They are also decorative components. We have some newly planted trees. Monks in the temple helped with planting new trees. Trees that have just been planted here include Banyan tree, Bougainville, orchid, Huu Kajong, Maan Bali, Bai rabat [Most of the species are ornamental potted plants, shrubs and vines].

We still have a very good ecosystem. You will not find birds and many animals in other places in Bangkok. We still have many of the animals because we have many big trees.

2. Trees with religious significance:

Bodhi tree and Sal trees are the trees with religious significance in the temple. Other trees that have historical significances are Sakae.

- Sakae tree:

Trees with historical significance are Sakae trees. It is native here. The previous name of the temple was Wat Sakae. We used to be a temple outside the city, used to be quite far from the Royal palace and the city center. We used to have the Royal cremation. It had moved to Wat Thepsirin since the period of King Rama V.

“Rang (vulture) Wat Sraes, Pret (Hungry ghost) Wat Suthat”

[Disease in the period of King Rama II caused 30,000 people to die in 15 days. There was no way to take care of the dead bodies so they buried them here at Wat Sraes and that is when many vultures came].

Sakae trees were mostly cut down to be used as wood for cremations. We might still have some of them left but I do not know which ones are Sakae trees.

- Jik tree- near the Bodhi tree, there was a big Jik tree.

7. Trees in the temple garden created natural atmosphere. It was one of the Monks' duties to sweep the floor of viharn, laan (plaza), Chedi. In temples outside Bangkok monks have more time to take care of the temple gardens. In Bangkok, there were temple visitors (*look sit wat* – disciples who came to the temple to learn Buddhism or work for the Sangha) help maintaining things [I saw a few women and men working and servicing the monks].

Trees in temple gardens were given care by monks, lay supporters, and temple staffs. We water, clean, and prune the trees. There were no specific assignments to individual monks. Outside Bangkok, monks were mostly responsible for taking care of the trees in the temple gardens. But in Bangkok we have more help. Even though it was against the Monastic rules to cut trees, in order to keep monks' residences (*Sena sana*) and the temple area in order and clean, monks can ask or request temple workers to cut or prune trees. Even though monks are not supposed to cut any living greens, the branches that grow into the monastic's window have to be cut to maintain the tidiness. We have to do things appropriately to keep things in proper forms and places.

12. We do not have any new landscape projects in the temple right now. We only have some small garden decorations. We just planted (added) some palm trees along the street of the entrance. There was a line of palm trees that were planted since BE 2517 (1974). [It was very peacefully beautiful when I entered the temple at 6 a.m. in the morning. The line of Palm trees was the foreground of the Golden Mountain with beautiful light blue sky at the dawn. Monks in saffron-colored robes walking in lines to collect alms in the morning. It made me feel like living in Bangkok 50 years ago].

The interview ended. The monks encourage me to walk up the Golden Mountain. "Please take some time and walk up the Golden Mount. At least go to the coffee shop up there. There was a temple in Saraburi – *Wat Khao Wong* (Narai mountain) in Amphoe Phra Phutthabat, Saraburi. There were lots of trees. You might want to check it out".

[I went up the Golden Mountain in the afternoon. It was not very hot because there was a waterfall and fog (water spray) along the way. I stopped at the coffee shop that the monk suggested. It was hidden in cave-like space under the pagoda. I wondered if it would violate the Vinaya but there was no rule mentioned about temples' commercial spaces and many old temples especially ones in the cities had parts of their properties rented out for commercial. This one is a little different because the shop is not at the outer areas or in front of the temple but the café is located right under the Chedi, the main axis of the Phutthawat section. The social and cultural changes have driven most of the urban temples to manage some kinds of commercial spaces in their precincts. I observed markets, coffee shops, souvenir shops (selling Buddha images, holy talismans, and other religious related merchandises), Thai massage parlors, restaurants and food stalls, etc., some of which are rented by laypeople but some, especially souvenir shops, are managed by the Sangha].

2) In-depth interview with a monk with long experience in the monkhood (B-3-3)

Thursday July 23, 2015

Second visit to the temple: 2:30-2:55 p.m.

He has been in the monkhood since 1974 (BE 2517). He has been spending 41 years in the monkhood. After the first 10 years as a novice monk, he ordained as a monk in 1984 (BE 2527). He moved to this temple in 1982 (BE 2525).

I was referred by the abbot's secretary. I went to the old monk's monastic building, which is behind the *Tamnak*² where the abbot and older monks usually have lunch. The building was quite large with an old beautiful colonnade walkway. There were a few doors along the corridor with no sign so I had no idea which one was his room. It was quiet. There were three women working on making incense sticks so I talked to them and asked them if I can meet with the senior monk. An old man who sat inside the room behind those women got up and walked to the door to call the monk. He came out and told me to go to the glass pavilion on the west side of *Tamnak*. It was a very new beautiful building in traditional Thai style. It had white columns with small orange and green roof tiles, similar to the old temple's roof tiles. Normally a living pavilion in traditional Thai architecture will have only one wall and all open for air ventilation but this pavilion was enclosed with sliding glass doors and had air-conditioned inside. The monk turned on the AC in the very hot glass room.

1. Significant trees in the temple:

Bodhi tree, Sala tree- These trees relate with the Buddha.

- Bodhi tree – the seedling was brought from Sri Lanka. It has been here for over 100 years since King Rama II reign.
- Sala tree – The Buddha was born at a Sala tree. There are many Sala trees here – around 10 of them. We just planted them later.

Monks are not part of the decision making on the tree species selections. The abbot is the one who decides and chooses the trees to plant in the temple. Sometimes monks and novice monks help plant the trees. Sometimes temple staffs do that.

For maintenance, the abbot is also the one who orders if any trees have to be cut, lowered, trimmed, or pruned. If any trees touch the old roof tiles or damage the structures and the antique roof tiles (then he talked about the ancient- style fish scaled roof tiles that is very fragile and very expensive for maintenance). For other trees in the temple garden especially area around the Golden Mountain, we have a team of gardeners taking regular care for those trees. The district office occasionally sends people to help on major pruning and other larger maintenance that require more equipment. Sometimes the abbot assigns some old monks to take care of the garden maintenance.

2. There are several Bodhi trees. Bodhi trees that grow in a temple are more sacred. Most people believe that they are holy. However, if the trees grow in a wrong place we have to cut them.
3. Chan tree – there are several Chan trees around the Golden Mountain but many of them are already dead. They are standing stood dead (Trees that die but still not falling). They were here even before I came to the temple.
- Nonsi
 - Tabak

² *Tamnak* is a palace. This Royal temple used to be a monastic residence for two former kings. The kings' old residences when they were Buddhist monks are called *Tamnak* and have been using for different functions but still are historical significant architecture.

- Pradu daeng
- Sarapi

Compared with many other places in Bangkok, there are more trees in the temple. There is also a wide diversity of tree species in the temple garden. Many of them were here for a very long time. But many also have died and the trees that still live are not in very good condition. They are not very healthy. We take care of them by ourselves.

4. N/A
5. N/A
6. We planted the Bodhi tree in front of the church to show our respect and emphasize the significance of the Bodhi tree.
Sala trees were planted around Viharn. They were in containers [The containers were quite big as they were built after the trees grew pretty large. Areas around Viharn were paved with concrete and old big pebble stones and used as a parking lot]. There were four of them at the four corners of Viharn. We built containers around these Sala trees. [They are also used as seating areas as I saw people sitting at the curbs of the containers underneath the trees].
7. Trees in the temple garden do not have any thing relevant to the monks' activities. Monks only take care of trees in their private areas, in the monastic sections. They can also plant any trees in their monastic sections. For the public areas, we have temple staffs taking care of the maintenance issues.
8. Bodhi tree area (*Laan Pho*): Monks use this area to practice walking meditation (*Dern jong klom*), or sitting meditation. New monks and novice monks were usually brought there (the Bodhi tree area or *Laan Pho*) to learn about the Bodhi tree.
9. **Location does not matter.** Bodhi trees are significant no matter where they are because there are *Rukka Thevada* (Tree's angel) which make them holy.
Trees in temple gardens have more chances to survive. There are more trees in the temple garden.
10. We constantly develop and improve many areas in the temple because this temple is one of the tourist destinations. We do not cut trees. We only trim them.

[I have the information about the Awarded Banyan tree at this temple. Do you know where it is?]

He looked at the list and said "It was later cut down as we built a new building". Later he added "There is also a very big Banyan tree in the back of the temple. Maybe it was this tree that received the award. I think it is this one". As if he felt guilty that the temple cut the big tree, so he mentioned some trees that died due to natural causes and explained the reasons why the temple had to cut some trees down. He talked about three coconut trees that were just cut down because they were struck by lightning. There were just right outside of the pavilion where we sat. It was very hot and no shade in the afternoon. The monk said the dead trees were removed and one coconut tree just planted to replaced it. "We used to have coconut trees here. They were struck by the lightning and all dead. We replant one coconut tree. The previous three coconut trees die. We replanted with the same species. It was many years ago. We regularly prune it so it grows quite fast".

The room was heated by the afternoon sun. He said one tree that gave the shade to the pavilion was just cut down because the branches were damaging the old roof tiles. Cutting down that tree make the pavilion very hot. “We need to cut the tree because if the branch damages only one small tile the roof will leak. The cost of fixing the roof is not small. Only one roof tile could cost more than 10,000 baht (\$300) to fix. It was an old building, over 100 years. We renovated the finishing, the exterior. The roof tiles are original but we renovated the roof structure. Fixing this old roof of the old architecture cost more than 10 million baht (approx. \$300,000). We must preserve and take good care of the old architectures. We must be careful when planting a tree too close to the building”.

There was also a very big banyan tree behind the temple [I walked there later after the interview and found that it was the Banyan tree that received the award from BMA]. There are also some banyan trees near Sala luange por Duang Dee. There is also a very old mango tree. Wa (*Syzygium cumini*) and Saraphi tree (*Mammea siamensis*) are also old trees in the temple.

After around 30 minutes of the interview, the glass pavilion with an air-conditioning was still very warm compared with the sitting space under the trees outside. The old monk implied **“The interview is over but the room is still very warm”**. I could not agree more. When I was waiting outside, there were some mosquito but the climate was nice. It was not that comfortable but it was not hot and stuffy like in the glass room that heated with afternoon sun. The glass pavilion looks very nice – formal and proper. But maybe not appropriate for the climate in Bangkok. Even though it was so sunny and hot with the heat in the afternoon, it was still much nicer outside with the shade from trees and buildings and the cool breeze. The monks have adapted themselves into this new setting that temple visitors provide to them; a proper formal space in a pavilion for temple visitor. However, it is not well associated with the climate of the city. I rarely see monks without a cellphone. In the monastic room, monks have televisions and computers. In some visits, I saw a monk hold a television remote control the whole time of the interview. They connect themselves with the stories and events outside themselves and outside the temples. Technologies and globalizations in this rapid changing world have a huge impact on the Sangha in this urban setting.

Informal interview with the temple visitors: The Noodle pushcart under the Banyan tree. I went back the next day early in the morning to take the photo at the golden hour. It was my second time to visit the temple this early. I walked to the back of the temple and found the Banyan tree growing by the back gate of the temple. There was a noodle pushcart parked under the tree. The noodle shop had just opened and they just started to set up colorful plastic chairs on the sidewalk. The woman (mid 40s) was bowing toward the Banyan tree. She was praying then put a small flower garland of jasmine, red roses and yellow ribbon on the tree’s trunk. Then she put both hands on the tree’s trunk and continued to pray. After she finished the ritual, I asked her about the tree and ordered a bowl of noodle and wonton. An old man who was also the noodle seller told me that the Banyan tree was much bigger a few years ago. It was so big and covered the whole street. The canopy spread to the other side of the street and provided all the shading on both sides of the sidewalk. The canopy touched the second floor of the building on the other side of the street. They do not know if the tree got the Big Tree Award from BMA but they work here so they pay respect to the tree. To them, this old Banyan tree was like an old respectful man. When the temple built a new pavilion, the Banyan tree was

trimmed down to allow some open space for the new Sala. It was trimmed quite badly as I can see it was much smaller now. The canopy did not cover even half of the street. The noodle guy said it was good for the tree because now they re-sprout and became as thick as before, only not as tall and spread like it used to be.

I looked at the tree and saw how bad the pruning was. Many small water sprouts were not in good places. The tree did not look healthy nor happy. It still provided shades but it lost its charismatic and aesthetic values that had been accumulated for many decades. The noodle man said the tree was still good. It was healthy and still provided shade for us. He was certain that it will regrow to be as big and as beautiful as it used to be.

The old Bodhi tree

Bodhi tree and its limited access:

After talking with the noodle seller at the back gate, I went to the entrance of the temple where I can see the Bodhi tree. It was around 8:30 a.m. and the gate was still locked. I saw a man sweeping the leaves. I took photos from outside of the fence. The gardener saw me taking photos so he asked if I want to go inside the gate to take photos. I was so happy and excited to get to go in there because the day before when I came for the interview of the abbot's secretary, he said it was difficult to open the gate. The gardener in his dirty shorts and old shirt opened the gate and let me enter the Bodhi tree area. I walked around, took photos, and measured the size of the broken concrete container around the Bodhi tree and did some sketches and took notes. It was quite difficult to take the photo because the tree was so big with a very wide spread canopy. There were 2 lines of newly planted Huu krajong trees on both sides of the Bodhi trees. A few weeks ago when I came here these Huu Krajong trees were not here.

Then there was a group of kindergarten kids outside of the west gate that led to the church. (I was outside the gate on the south side of the Bodhi tree area. It was on Chakkraphatdiphong alley – the current main entrance of the temple next to the temple school). A group of 30 small kids in their uniforms tried to squeeze themselves closer to the small black iron gate to see the Bodhi tree and what is behind the wall. The gardener who sweeps the floor talked to the children and told them to see the heritage large tree. Then he asked if the kids wanted to come in and they said yes! So the gardener open the small gate and let the group of kindergarten kids to come in. They were assisted by three teachers. The teacher told the kids to bow toward the Bodhi tree while saying that the tree is very old, over a hundred years old. I took some photo and observed them a bit then I left.

The temple staff who is responsible of keeping the area clean seems to have more authority than any monks in allowing people to access the Bodhi tree. From the interview with the abbot's secretary, he mentioned that there were no colored scarves around the Bodhi tree or any trees in this temple because it is a royal temple so they tried to keep things tidy and formal. However, the Bodhi tree has color fabrics tied around it. There were different kinds of fabrics, not like the vivid colored scarves I saw on trees on the street. These scarves seemed to be a nice quality Thai traditional fabric with some gold lace patterns. The tree was so big and the concrete container was broken. The trunk was much bigger than the other two Bodhi trees nearby. Since the area was controlled and public cannot access, the only people who can tie these colored scarves might be the monks despite their denying.

3) In-depth interview with the monk who is a landscape manager (Abbot's secretary) (B-3-2)

The abbot is the landscape manager of this temple. However, he is not available for the interview.

4) In-depth interview with a monk with less experience in the monkhood (B-3-4)

Thursday July 23, 2015 Time: 2-2:20 p.m.

Second visit to the temple:

He has been in the monkhood for 13 years (As a novice monk for 5 years then a monk for 8 years). He was originally from Singburi but moved to Bangkok about 10 years ago.

1) Holy trees or significant trees in the temple:

The Bodhi tree is one of the seven elements that occurred during the Buddha's lifetime. The Buddha reached enlightenment under the Bodhi tree. This Bodhi tree was brought to the temple by King Rama II from Lanka. It was the sapling of Phra Sri Mahabhodi. Only three locations in Thailand that have these Bodhi trees (the saplings that were brought at that time) were Wat Srales, Wat Suthat, Wat Mahathat.

Other trees do not have the values as a symbol as clear and as much as Bodhi tree. Only Bodhi trees have worship principle (*kati bucha*) in Buddhism. Other trees have other values such as provide shading such as Tamarind trees and other trees around the Golden Mountain. They regularly required pruning. Bodhi trees that naturally grow by themselves without human intentions to plant them do not have values to worship as much as the Bodhi trees that we plan to plant. But we still try to preserve them all.

2) There is no tree with colored scarves in the temple. We do not encourage people to do so. It was the abbot's policy that we only worship Phra Sri Maha Bodhi. Laypeople are naïve and believe in this superstition that trees can grant their wishes [it was actually local Thai culture before Buddhism- belief in *Phii* – spirits in nature that have supernatural power to help them]. People believe in spirits in trees and worship the trees with food and flowers. The temple does not allow people to do it. We, monks, have to warn the temple visitors when we see this behavior otherwise it will make temple garden very dirty.

3) We do not have many outdoor spaces because most of the open spaces have been used for buildings. Only open spaces that we can preserve is around the Golden Mountain. It has been here for over 100 years with many old trees such as Pikul, Takien. The mountain and pagoda was built during King Rama II period, about 116 years ago.

4) Bodhi tree is not a symbol of religion.

Bodhi tree is a memoir of the place that the Buddha once sat underneath, used the shadow from the tree canopy, and reached the enlightenment. Bodhi tree reminded us about the place so we can be grateful to the place and the Bodhi tree that was an important component supporting the Buddha to reach the enlightenment and the nirvana.

5) Trees in the Buddha life – we only have Bodhi tree in this temple.

- 6) There is a ritual every year. There is a holy water given from the palace to pour on this Bodhi tree during the ritual on the Thai New Year. We have been doing it every year since the period of King Rama II.
There is also a Royal ceremony (*Chalong Somphot*) that the temple co-organized with the Royal bureau in April. It is a big event that public can come pour the water on the tree, then adorn and worship the tree with flowers. On these days we have a special maintenance and decoration for the temple garden. Other days we have regular cares such as minor trimming, cleaning and watering the trees.
- 7) Management
The temple needs to take care of dead trees or branching that obstruct traffics and could be cause of liability. Trees in the temple required regular cares. We must have millions baht for the landscape maintenance. It requires quite a lot of money, which needs to be very well managed. We do not use any spaces under the trees.
- 8) No particular activities in the areas with big trees. Monks practice meditation and perform other activities inside their monastic cells or in the Ubosot. It is not very convenient to practice in the garden because this temple has a lot of tourists visiting all the time. Trees provide shades for laypeople visiting the temple.
- 9) Landscape maintenance. There are temple staffs taking care of the garden. We also hire outsource and the BMA staffs for some pruning and taking out the garbage. The BMA staffs also help with garden decoration.
- 10) Place does not matter. Bodhi trees still convey the meanings no matter where they are. Bodhi trees remind people of the Buddha. It also depends on each person and their own beliefs. In the temple, trees have more chances to grow bigger and older because we do not lead by economic incentive. We do not need to cut trees and sell them. If trees are not located in the areas where we plan for new buildings, we tend to keep all of the trees in the temple. Any change making in the areas around the Golden Mountain have to receive permission. Other parts in the temple are ok to make any minor changes.
- 11) We do not have any new projects. The last one was four months ago. We planted some new trees and redesigned parts of the temple garden. Mostly we added potted plants and new waterfall along the stairways up the Golden Mountain. We also planted some Banyan trees around the Viharn Luang Pho Dam. The area around Viharn is fine to plant trees but spaces around Ubosot (church or ordination hall) is called *Sima* which need to be open and clear from any shadows so we do not have any trees around the Ubosot.

Then he talked about the existing boundary of the temple that went all the way to Khlong Mahanak (Mahanak canal), Tha Phan fah (Phan fah pier), Saphan Ronghai (Ronghai bridge), Saphan Dam Na Wat (Dam Na Wat bridge).

This is a Royal temple that seems to have plenty of donations because I saw more temple staffs and gardeners than in other temples. The areas were also tidy and clean. I talked with a food cart noodle seller outside of the back gate of the temple. She was bowing to the big Banyan tree that grew on the temple wall. She put a flower garland on the tree then talked to me about the Banyan tree. She said the Banyan tree used to be so big and spread its canopy cover the whole street to the sidewalk across the street. However, a few years ago, the temple had a new building and during the construction period, the big Banyan tree was pruned so badly and improperly that it

became unhealthy. People who live around the temple seem to have environmental awareness and respect the heritage trees in the temple garden.



Figure 1: Lines of trees around the Pagoda and the line of palm trees approaching from the entrance.





Figure 2: Morning alms.

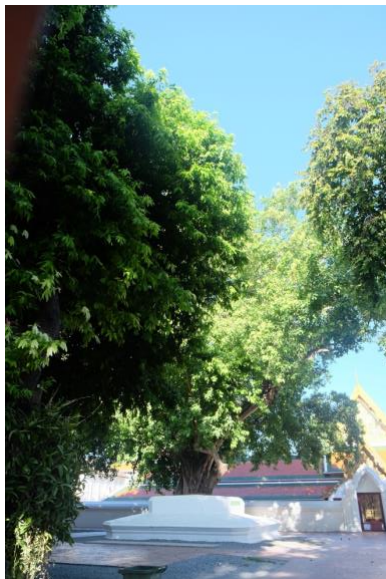


Figure 3: Phra Sri Maha Bodhi inside the locked gate in front of the temple.



Figure 4: A sign said “Do not cut trees in the Golden Mountain Area” Violation will be charged 2,000 baht.



Figure 5: Golden Bodhi leaves on a manmade tree that used as a donation box. There are different shapes and forms of donation boxes around the Phutthawat area.



Figure 6: Parking issues inside the temple. Laypeople park their cars over nights and sometimes leave their cars there for several days. This is a problem for many temples especially ones in the old town districts where street parking is scarce.



Figure 7: Bodhi tree outside of the active temple ground tied with colored scarves.

Figure 8: One canal on the north side of the temple. It used to be a temple boundary but now there is a road and row houses between the canal and the temple.

B-4

Year of establishment: 1807

Area: 10.1 acres

Class: Royal

Sect: Mahanikaya

Significant trees: Phra Sri Maha Bodhi from the King

Big Tree Awards: N/A

Location: Inner Bangkok



History of the temple

This temple is a first-class Royal temple. It is located in the inner section of the Rattanakosin island. This temple is located right across from the Bangkok City Hall. The Giant Swing, one of the significant heritage landmarks of Bangkok, is right next to the temple. Hence, sometimes people call the temple “*Wat Sao Ching Cha*” (Temple of the Giant Swing). The

temple has the longest Ubosot in Thailand built during the period of King Rama III. There is a legend about 'Hungry Ghosts' or *petti-visaya*¹(Pali) or *Prēt* (Thai). There were several stories about the Hungry Ghost at this temple. First is about the painting in the Ubosot. A famous painting on one wall inside of the Ubosot is a painting of Buddhist monks and a dying *Prēt*. Temple visitors come to see the painting and it became one symbol of the temple. Another narrative was that laypeople around the temple often see *Prēt* at night. The abbot during that time decided to talk to the *Prēt* that we should live in peace and not cause problems to laities. After that people no longer see *Prēt* around the temple. Another story is about the story written by King Rama VI. He compared beggars at *Saphan Hun* to hungry ghosts. People who read the story related it with beggars in front of the shrine near the temple. There is also the possibility that visions of *Prēt* at this temple could be a misunderstanding when people see the legs of the Giant Swing outside the temple and think they are *Prēt*'s legs because of the thick morning fog. I have heard variations of this story in elementary school even before I saw the real Giant Swing. This narrative has been repeated at different times and occasions in my life.

Observation

Similar to many Royal temples, the planning of this temple applied a Hindu cosmic order that emphasized the centrality of the Viharn or pagoda. The temple's most important Buddha image is located at the center of the cosmic plan inside the Ordination hall or shrine (Tantinipankul, 2007: 140). This temple is known for its well-designed cosmic plan and preservation of original atmosphere. It was referred to many times in the Thai architecture class I attended in my undergrad years.

Because it is located in the old town area of inner Rattanakosin island where the building codes are very strict, there are no new high-rise buildings on the skyline in the sight when walking around the temple. There are lines of street trees on the sides of the temple but because of the narrow roads and very narrow sidewalks, the trees are not very big. Despite their old ages, the limited soil space is the constraint that limit the size of these trees. The temple is very well maintained. In contrary with chaotic traffic, nearby markets, and street food vendors in the street nearby, the monastic precinct was peaceful and quiet. I saw some traditional Thai architectural components put on the lawn near the Ubosot. They were renovating and maintaining the place, both buildings and gardens very well. Some areas were closed with temporary galvanized partitions to keep people away from the construction areas. Very narrow sidewalk and busy streets limited the food vendors along the temple wall. The neighborhood around the temple still conveys the charms of early Rattanakosin period.

1) In-depth interview with the abbot (B-4-1)

N/A

2) In-depth interview with a monk with long experience in the monkhood (B-4-3)

¹ Hungry Ghost or *petti-visaya* or *Prēt* is one of the lower realms below human Beings. Humans may descend and be reborn in this realm when they conduct unwholesome karma and are motivated by attachment (Gethin, 1998: 117). *Petti-visaya* are skinny, tall hungry ghosts with a mouth as small as a needle hole so they cannot eat or drink enough to satisfy their hungriness.

The senior monk has been in the Sangha for 19 punsa. I met him at a corner of the ubosot. Today he was assigned to wait for temple visitors to come for the ritual of offering things for monks as a part of making merit (*Tum Sangkhathan*). Laypeople usually make merit on their birthday or some special holidays during which temples are always very crowded for example the Thai New Year (April 13th) and New Year day (January 1st). I met a senior monk at a small sala at the corner of the ubosot with small low table, storage boxes, Buddha images, and some liturgical elements. He was sitting behind a small book shelf that provided shading for him from the afternoon sun. It was very peaceful as the ubosot was situated further from the main road and surrounded with several walls. It was the central part of the temple.

Significant trees are trees that relate with the Buddha's life.

1. Sacred trees are trees that related with the Buddha life; Bodhi tree, Banyan tree, Kate, Sala, Jik. Also other trees that are considered as medicines such as Makhm pom, Samor. Monks can use them for their herbal qualities. In the old time, monks picked the falling fruits. Today, these trees are quite rare (especially in Bangkok). Monks are not allowed to pick the fruits from the trees.

The Bodhi tree was planted by the King Rama II. We do not have any rituals but we built a wall and signage around the tree as a **memoir** of the Buddha life that once he was enlightened and sat under a Bodhi tree.

We can no longer add more trees as the temple has very limited spaces.

We do not have any rituals on the Bodhi tree. We only built it (the Bodhi tree and space around it) to be a reminder of the Buddha. During King Rama V period, he came and performed the ritual. We no longer do it.

2. There are no colored scarves in the temple. We have limited numbers of big trees. Heritage large trees are very rare here because we cannot plant many trees. We only have ubosot and monastic buildings (and other architectures). We do not have spaces. I know some temples with many trees- Wat Racha, Wat Bavornniwes – they have many trees.

Underground is bricks. Hundreds of layers of old bricks are underneath the temple ground. For this reason, it is difficult to plant some species. We plant some Koi, Takoe, or species that do not require much soil.

3. Old trees in the temple garden:
 - Pikul tree - I think it is less than a hundred years old.
 - Chan tree behind the kuti Kana 1. That Chan tree is probably over a hundred years old. I think it is the oldest tree in the temple. It is significant because it is the oldest tree in the temple, I think it is the oldest one. But it does not convey any symbolic meaning.

4. N/A

5. N/A

6. No. Significant trees receive the same treatment as other trees. We do not have any special cares for them.

7. No. Trees in temple garden do not affect the monks' routine.

We do not use spaces around the trees because they are not very convenient. We do not have plenty of spaces like other temples such as Wat Racha or Wat Bavorn. They

have larger spaces and more trees. [Wat Racha is double in size compared with this temple].

Most trees in the temple are decorative components. We do not have many shady trees like Wat Racha or Wat Bavorn. We mostly prune them to control the shapes (of the canopy) to prevent structural damage. As a consequence, we do not use spaces around the trees.

8. Most trees in the temple are decorative plants which do not provide much shading. We (monks) do not use spaces with trees much. Most trees are pruned to control the sizes and shapes. We do not use spaces with trees much because they were not properly designed for any functions. Trees in the temple garden were planted to be **memoirs of the Buddha**. King Rama V came for a ritual (hold a candle, prey, and walked around ubosot). Today, the spaces in the garden were improper to use.
9. Tree maintenance:
The staffs from the BMA (district office) take care of the pruning which depends on the context and times. The temple also has staffs taking care of small pruning and other garden maintenances.
10. N/A
11. No new landscape projects. Because the temple is an archaeological site and national heritage, it was already well designed and we are not supposed to change anything. We maintain and preserve what we have. Only small maintenance is required. We cannot expand anything.

3) In-depth interview with the monk who is a landscape manager (B-4-2)

The landscape manager monk is also the abbot assistant. He is the temple secretary and the abbot assistant. The monk has been in the monkhood since he was 11 years old, ordained as a novice monk for 9 years then ordained as a monk for 36 years. He lived in the rural area and moved to this temple 19 years ago.

He was having a meeting with people from the district office so I was walking around the temple waiting to meet with him. When I returned, he asked someone to bring me water and also asked the same person to take a photo of the interview. He seemed to be familiar with social events and collaborative works as he was meeting with people from district offices and other organizations outside the temple and was ready to talk to me without any hesitation. He seems to be very kind and attentive. He was keen to answer everything extensively with insights. I was impressed with his point of view on the holistic view of city development by looking at the temple as part of the urban fabric. He also mentioned several times during the interview that temples can be places that provide green spaces for urbanites.

1. Significant trees in the temple are trees in the Buddha's life. They are the oldest trees in the temple and were here since the period of King Rama II and King Rama III:
 - a. Bodhi trees – Couple of Bodhi trees – Pho India, Pho Lanka
 - b. Banyan tree – Indian ficus tree. The Buddha sat there for 7 days where he found the goat caretaker. There is a Chinese statue that is demonstrates the story that we put under the banyan tree in the garden.
 - c. Jik tree – The great serpent.
 - d. Kate tree – The Buddha sat there where the merchant brothers traveled by.

These four trees are the oldest trees in the temple.

The new trees that we planted more are:

- e. Samor – The Buddha ate a Samor fruit as medicine for the first time. The fruit of Samor tree became an excepted fruit that monk can eat after midday (Theravāda monks are prohibited from eat anything after midday).
- f. Mango tree – The Buddha showed the spiritual power to his mother at the Daowadung heaven.

Other significant trees (not related with Buddha):

- g. Sakae –Opposite from Kate tree, this Sakae related to the history of the temple. The existing area where the temple is located was once Sakae forest. It was freshwater lowland.
- h. Chan tree – planted in many big temples. There are also Chan kapor trees. Some temples have it but we do not have it here because we do not have enough water.
- i. Champa (Lao), Lanthom, Leelavadee trees. We just plant these trees as a worshipping tree. It is a tree for losing desires as its fragrance calms your mind. Other trees are Saraphi, Yiikhang, Pikul, Boonnak.

The skin of the tree trunk tells its age, not its size. For example, Takoe or Koi tree. The thickness of the trunk and the form of the trees, especially the topiary. We can look up on the old Chinese or Japanese text books on topiary. We plant some new topiaries but they are not as beautiful and valuable as the old ones.

- Fruit trees. Big temples do not like to plant fruit trees close to the architectures because kids will come and try to collect the fruits. They might climb the trees or throw rocks at the trees to get the fruits which can damage the architecture.

- Flowering plants. Trees with fragrance flowers such as Saraphi, Yisun, Pikul, Boonnak (did not grow well). The fragrance flowering plants are commonly planted around the ubosot and Viharn.

- Topiary. (Thai decorative plants) such as Koi, Takoe are planted to make the landscape fit with the archaeological sites. Almost every old, big, royal temples have these Thai topiaries. The shapes and forms of the topiary followed the book from Japan and China.

** - The skins of the trunks tell the ages of the trees (Takoe, Koi, etc). Sometimes the height and sizes of the tree cannot really represent the age of the tree. Some very old trees may be small because of the characters of their species. The textures of its trunk can tell the ages. At this temple, we have many old ancient topiary Koi trees. We occasionally take care, maintain, and prune them. Today it is very difficult to find people who have knowledge about the traditional Thai topiary (*Mai Dut*). We have some new Thai topiary. They are not expensive and not as valuable as the ancient ones.

- This temple is a royal temple. We do not have many open spaces. We have to be careful of the intrusive tree root systems that might damage the old architectures. We do have a nursery for plants but because of pollution, it is hard to maintain the nursery. The newest tree that we planted was about 10 years ago.

- We have four gardens – *Khao mor* (miniature mountain) located around Viharn (Assembly hall). There are Chinese pavilion, topiary gardens, four heaven gardens.
 - 1) In front of the Viharn, there is Suan Jitlada. There are Takoe, Koi dut (topiary) and Golden pagoda.
 - 2) Three gardens on the West side of the Viharn are named after the heaven in Dao wadung- Sunanta, Parutsakawan, Misakawan gardens. These gardens were built since the King Rama III period. Stones were put to represent the clouds in heaven. Bamboo and pomegranate trees were planted to provided shading and create a nice atmosphere.
- 2. Yellow fabric, pink fabric, laypeople came to beg for things. When their wish was granted, they came back with colored scarves and tied them on the two Bodhi trees. The temple did not tie the scarves. Temple visitors did it. The temple did not prohibit them from doing so but after a while, we took them off because they started to get moldy.

Temples in rural areas normally do things differently. In the North and Northeastern Thailand, people use wood sticks to put against the trunk and branches of a Bodhi tree. They also use saffron color monk's robe to tie around a tree as if the tree is ordained.

In Ayutthaya, at Amphoe Sena, there is Wat Taku and Taku trees, Wat Kratoom with Kratoom trees, Wat Bang Sakae and Sakae trees, Wat Satue and Satue trees, Wat Samor at Khok Samor (Khok=small mountain).

In old temples we usually have four worshipped trees – *Saraphi, Yisoon, Pikul, Boonnak*. These trees do not have invasive root structures so they do not harm any temple architectures. [These are old tree species that I do not see much outside temple gardens].

Praduk, Hu Kwang, Hu Krajong trees [There trees are quite new in landscape uses in Thailand and are rarely seen in old temples but I found many of them recently planted in many temple gardens] have large root systems and tend to damage roads and structures around them. The taller the tree is, the longer the main roots are. When the top of the crown was cut, the fibrous roots spread out.

There was a story of Wa trees in Jampu Dwipa (India). It was the story of the beginning of alcohol consumption. The beginning of drinking came from a bird. A bird ate the fruits from a Wa tree and got drunk. A hunter found out about it so he collected the fruit and fermented them to make wine. It was an ancient Indian wine.

Compared with other large royal temples, we have the most trees.

[I doubted that. But if we do not talk about the sizes but talk about the numbers of ancient trees, the monk was probably right. He was trying to introduce the factors to defines old and significant trees, then mentioned how an old tree with historical and cultural significance may not be a big and tall one. With these factors, this temple might have the most trees in numbers. It has the most historically significant trees with that are well maintained and well documented but definitely does not have the highest percentage of canopy coverage].

We maintain the trees so they do not take advantage of other things, damage things, or be a visual obstacle of the architectures. Without trees, it will be hot and uncomfortable. Temples should have trees but the trees need to have proper pruning and cleaning.

3. There are four trees from the Buddha's life. [He did not mention but I assumed that the trees that King Rama II gave to the temple and other trees that planted in the same area on the East side of the temple and have signage and a wall-liked structures built around them defined the significance of heritage old trees in the temple garden]. Other old trees in the temple are Takoe trees that surrounded the Ubosot and Koi in front of the Viharn (Both are traditional Thai topiary). Only three Koi trees are the old ones. Besides that, there are new ones which were just planted about 30 years ago. [I asked how old the three old Koi are but he did not know about it].
4. N/A
5. N/A
6. Stable. Significant trees are taken care of like other trees. We keep the areas clean from dried leaves, ashes, and other trashes. We do not allow people to put incense sticks on the trees to avoid fire hazard. Temples in the rural are different from the temples in the city.
7. Trees in the temple garden provide shade and peace of mind. They also help lower people's stress and clean the air. Temple gardens serve as the lung of the city. **Temple trees provide fresh air, lively place, and spiritual components to the city.** Trees in temple gardens have to be diverse. Some species can be poisonous. Some trees may have medicinal qualities. The air will have good quality only when there are diversities in tree species. The varieties of trees species can improve physical health and minds. **The key is diversity.**
It may be cool in air-conditioned rooms but it will not be as comfortable. It is stuffy in the room despite the cool temperature. In temples with bad trees (not diverse), monks may not have good health. When temple gardens have diversity of tree species, monks and novices seem to be healthy, as well as temple visitors. People who stay in places with trees will have beautiful minds as they can inhale fully. They can fully fill their lungs with clean air. In a place with many trees, especially trees with fragrance flowers, humans and animals will not fight. It is also good for our spirits and our tempers. When we go to temples, we have better health and can breathe better. Quality air is a good medicine and affect a good breath.
8. Areas with big trees are open for public. The temple visitors can sit and rest here. The temple is one of the famous tourist attractions but we do not allow anyone to sell souvenirs. We do not do commercial in the temples, no gift shops. Temple visitors and tourists should not be disturbed by street sellers. We have an entrance that sells tickets but we open every gate. [There was no souvenir shops or food stalls in and around the temple. There was a market and some street food in a short distance but the area in and on the sidewalks around the temple wall are not occupied with vendors].
9. We have about 20 temple workers sweeping ground [leaves and dog poop – the first time I heard a monk mention it. This makes it sounded real because there are always many animals at temples]. There are 10 workers in the morning and another 10 in the

afternoon. Temple workers also cleaned the courtyard everyday. Staffs from the district office came to prune the topiary twice a month. The temple gave them some rewards every time.

10. Bodhi trees must be in the temple to convey their religious significance. A Bodhi tree that grows outside usually is less significant and have fewer people worshipping them. The Bodhi tree in this temple has Buddha images.
11. N/A
12. Landscape improvement in the temple:
 - a. Replace the dead trees
 - b. Maintain the existing trees
 - c. Old trees that are not so healthy needed experts to take care of them, to get rid of the mold and pests, and prevent them from animals that destroy the trees (squirrel and chipmunk bite the barks and kill the trees). We hired some workers to trap these rodents and paid 300 bath per one then we took the animals to the countryside and freed them. There are rats, squirrels, chipmunks, and otters.

Then I asked him if I can interview a monk with less experience in the Sangha, someone who has been in the Sangha for 5 years or less. He said –
“The new generation of monks are more difficult. Some of them have been in the Sangha for 5 years but still have not even walked around the temple. New monks do not know the values (of the old trees in temple garden). Different from forest temples, monks in forest temples learn about the values of trees. They know that fruits and leaves are useful as they can be used as medicines”.

[The monk knows a lot about the temple garden and is aware of the constraints of the garden at the temple. He was a story teller and manager of the temple garden. He emphasized many times that the temple is very old and cannot plant more trees. There are also not many big trees here but there are many very old trees that convey historical, cultural, and religious significance. He mentioned that sizes of the tree do not matter. A tree can be very old and very important despite its size]. **

4) In-depth interview with a monk with less experience in the monkhood (B-4-4)

I interviewed the two young monks after the interview with the landscape manager. The landscape manager monk requested the senior monk to invite a monk with about 5-10 years of experience so they know better about the temple garden but the senior monk talked to me and mentioned that maybe he should get some monks who better suit the category of ‘a monk with short experience in the monkhood’ who has been in the Sangha for less than five years. So he introduced me to the two young monks. They were relatively young. One has been ordained for six months and another on just for one month and nine days. Both of them were about to leave the Sangha within a month. This is one of the least informative and the most disappointing interviews I conducted during the two years, although it revealed another perspective of the Sangha. I was not happy with the behavior of one of the monks nor their lack of knowledge and concentration on my interview. One of them acted as if he was no longer a monk because he was about to leave the Sangha in less than a month. We talked outside the

temple office on the lawn under the trees. Temple staff brought two chairs for them and I sat on the ground. I bow like normal but one of the monk made an ironic acclamation which was quite annoying. He said something that the way I pay respect to him was exaggerated. I felt a bit intimidated and harassed and wondered if I should continue the conversation but another monk, who was younger, was still being polite and quite eager to talk with me about my research. It was during the daytime and we were in a public area which should be safe so I continued the interview. They sat together and answered everything similarly.

I did not get a good response for most of the question. They either did not know or hesitated to reply. Most of the answers were “I am not sure. I do not know. No, I do not have enough knowledge to answer this question. I only ordained for a short period of time and do not know what to answer”. Many of the responses were very vague and I did not feel sincerity in the answers. I was quite upset but tried to continue the interview until the end.

1. Significant trees in the temple garden:

Every tree is important. Vinaya that Buddhist monks may not cut any living greens. We are prohibited from pulling, stepping on, or cutting any living parts of greens. We do not have a holy tree. We do not bow at any trees here.

[What about trees with religious meanings? Or trees that are symbols of Buddhism?]

I am not sure if there are any trees with symbolic meanings in this temple.

2. Trees with colored scarves:

I am not sure. I have not seen any trees with colored scarves.

3. I do not know.

4. N/A

5. N/A

6. N/A

7. Trees in the temple garden help us practice being merciful. Trees are living things because they can grow like animals. The Vinaya also mentioned that monks may not cut or damage living trees.

[I asked about the Vinaya he mentioned. He answered:]

We are new monks so we cannot answer any deep questions.

8. Monks can sit and meditate under the trees. Trees can calm our minds.

9. The monks' duty is to water the plants, sweep the ground. Whoever has free time can help with any tasks in the temple garden. Each monastic section (*kana*) takes care of their own areas.

10. There is no difference in perception. Bodhi trees are symbols of the enlightenment. In this garden, monks pay respect to the Bodhi tree because it is a symbol of the enlightenment. No matter where they grow, (the Bodhi tree) still is important.

I have never seen a Bodhi tree in the temple garden. Sala tree is also symbolic of religion as it was the tree where the Buddha was born. There is Sara (Thai means 'substance') but there is no Sala tree here (laughing out loud).

[I did not find it funny at all so I did not say anything. The monk started to be rude by saying improper statements criticizing how I was not laughing at his joke. I felt very uncomfortable so I said thank you, bowed, and finished the interview].

- Do not interview more than one person at a time because even though they are not much different in age, there is always a dominant person who controls most of the conversation and dominates the response.
- A person who is only ordained for a few months or one who almost at the end of his Sangha period might not consider himself as a monk. As a consequence, it is difficult to get a perspective of the Sangha from him.
- The landscape manager monk was one of the most active monks in terms of community reaching and maintaining the temple gardens. I met him right after he had a meeting with government officers from district office and BMA and was impressed with his perspective and knowledge.
- All the interviews at this temple reminds me that Buddhist monks are also humans. They are in different roles and have different life styles and sets of moral conducts. Although some monks have flaws and the society may define and stereotype the Sangha, Thai culture, monks are a symbol of pureness and goodness who refrain themselves from conducting any bad karma. They practice Buddhism to be ethical and spiritual role models for the society. However, they have more responsibilities to take care of the temples and have to adopt themselves to survive in the changing society. Not every monk has the same moral conducts, especially ones who ordain not to learn about Buddhism or practice meditation. The new norm of a short-term monkhood who ordain for cultural reasons causes many bad reputations for the Sangha because many monks do not consider themselves as part of the Sangha and do not behave accordingly. Despite the unusual provocative behavior I confronted during the interviews, I still have no bias and have respect for every monk.



Figure 1: The heritage Bodhi tree, other heritage trees, and notable Buddha images were located in designed areas along the East side of the temple with elaborated foundations emphasized their historical and religious significances.

Figure 2: A serene atmosphere in the inner part of the temple.

Figure 3: Staffs from the district office regularly come to take care of temple trees. They came to prune the topiaries twice a month. The temple gave them some rewards every time.

B-5

Year of establishment: 1853

Area: 12.3 acres

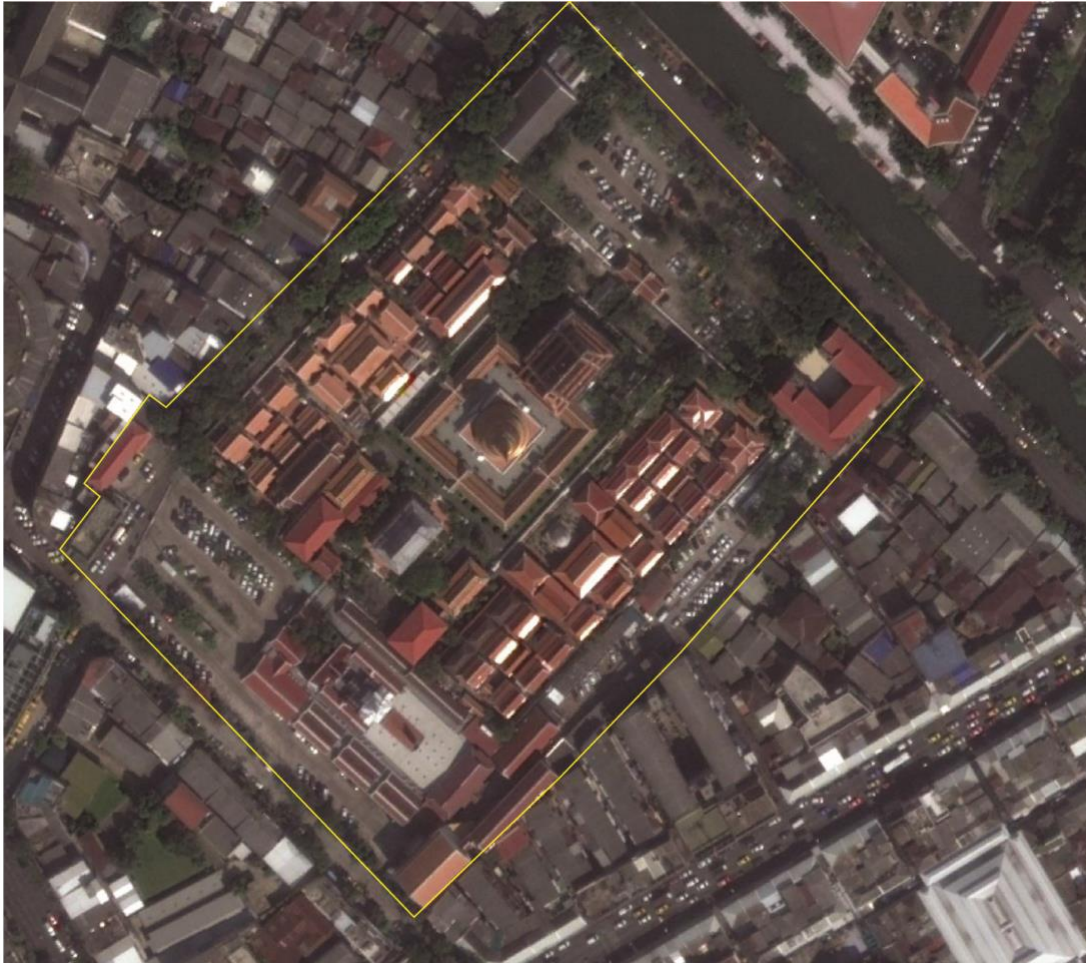
Class: Royal

Sect: Dhammayutika

Significant trees: N/A

Big Tree Awards: 1999

Location: Inner Bangkok



History of the temple

The temple was built during the period of King Rama IV. It is located by Khlong Padung Krung Kasem, the city moat, that was also dug during the time of King Rama IV. There are two pagodas in the temple, the large golden Lanka style pagoda and a small Mon pagoda. The small pagoda was built in the same manner as the Nibbanic stupa in India. There are only two pagodas in this style in Thailand. The canal used to be the temple boundary but there was a new road cut between the temple and canal. There used to be trees and an old pavilion as an entrance from the canal to the temple. However, the City asked for an approval from the temple to remove the pavilion and cut down all the trees along the canal to built a dam along

the waterfront as part of the city development. This changed the active boundary of the temple but during that time the temple boundary was still considered to the edge of the canal (watsomanas.com, 2004). Many parts of the temple's properties had changed uses responding to the social, cultural, and economic changes in the city. There is a military cemetery, a funeral section, and a temple school outside of the monastic section.

Observation:

Date: Thursday June 18, 2015

Time: 2-4 p.m.

I visited the temple on Thursday in the afternoon. It was June 18, at 2 p.m. It was very hot and sunny despite it being the rainy season. The architecture in the temple was very impressive and unusual. They were unique and there were many shaded trees in the front part of the temple. There were fewer trees and less shade when I walked to the interior of the Phutthawat section as the architecture and spaces are supposed to be clear from any shadows. I walked around a little bit then went to the office of the temple.

I have visited this temple several times before but only to attend funerals in the evening and only stay in the funeral section, which is separate from the Sangha section. The public service section has a separate entrance which keeps the temple peaceful from the funeral crowd and students. I do not remember much about the Phutthawat and Sangkhawat areas but remember convenient parking spaces for temple visitors. This is the first time I visit the temple during the day. Architectural wise, the temple is very beautiful and special. There is a large Chedi (stupa) I did not remember seeing this large and tall Chedi very often in Buddhist temples in Bangkok. Other elements in the garden were the white round forts at different corners of the temple. It was quite hot in the afternoon. There were not many people in the temple compared with other temples in the tourist areas that are always crowded with visitors and street vendors. Not too many signages which made the atmosphere more restful and calm. Some temples have unnecessarily large and too much signage for information and directions at every corner which has negative impact on the visual perception. I saw 5-6 local people sitting and laying down individually under trees in the temple garden. There were a few tourists both Asians and Caucasians. I walked around the Viharn lai, a colonnade surrounding the Viharn. Most of the gate on Viharn Lai was closed. Then I saw a medium sized Bodhi tree at the end of the walkway. I approached the tree and saw the temple office. I went into the office. There was a woman, who might be a cleaning lady, sitting in front of the office with a broomstick on her table. I asked about the abbot and she said he was in the office. So I went into the office – glassed door and wall so they saw me even before I entered.

In the cool air-cond. office, there were two monks, another man, and a woman. The older monk, in his mid 40s, was a teacher of the younger monk who seemed to be in his early 20s. I introduced myself and asked if I can make an appointment to meet with the abbot and also interview a monk who takes care of the landscape, a senior monk, and a young monk. The abbot was not there. The older monk who was in the office said I can interview a young monk, who is his student, then I can interview him as well. They were available now. So I talked to the novice monk and his teacher, the old monk who also claimed to be the landscape manager of the temple. After over an hour talking to the two monks, the woman at the office asked if I wanted to go inside the Ubosot. They open the Ubosot for public only twice a month so I was very

fortunate to come on that day. I went in there to see very old paintings on the wall. There was a group of Thais (3-4 people) and two tourists. Medium sized white fragrance flowers *Murraya* trees (*Kaew*) surrounded the Ubosot. Although they were not very tall, they provided enough shade for the afternoon heat. They were in their peak bloom, small white petals and inflorescences falling like a light yellow-white carpet on the white marble ground. I feel relaxed to see and breathe in the fresh air with the light fragrances from the lines of *Murraya* trees.

I went to the funeral section to see the Bodhi tree. The tree was captured in a concrete container with a gold and white shrine and signage which might have been built after the tree gained its social and cultural significance. The Bodhi roots were overgrown and had started to break the concrete container. The shrine and image of the spirit believed to live in the Bodhi tree were adorned with colored scarves and flowers. I walked around the temple but did not find any big trees that the monks mentioned during the interview. There was a large Canonball tree, a big *Hu kwang* (Deer's ear) tree, a very big unidentified tree that looked like a tamarind tree in front of the Assembly hall very close to the entrance. There were some trees that were old and big but broken and had become quite small and did not have proper maintenance.

1) In-depth interview with the priest with high authority (B-5-1)

Saturday June 20, 2015, 10.30 am – office.

Interview with the monk with high authority: 11.15-11.45 am.

It was my second time visiting the temple for the field work. I went to the temple office. The *vaiyavajjakorn*, the lay ministry of the temple office, whom I met the other day told me to wait at the office while he contacted the abbot. He checked my letter and commented that the font was too small and some wordings needed to be revised. He called the abbot's secretary and told me that the abbot is having lunch. I told him that the monk whom I interviewed the other day told me that the old monk only eats one meal per day in the morning. I did not feel comfortable waiting in the office with him because he seemed to ask me too many private questions. This was the second time I felt uncomfortable during the field work, even though there was a woman sitting in the table next to him and a cleaning lady sitting outside the office. It was a bit annoying that he tried to show that he has authority to allow me to meet with the monk and spent so much time fixing the letter. I met a few *vaiyavajjakorns* before. Some of them are very old and look like old college professors in the Department of History who know a great deal about the temple and its history. They are informative and truly enthusiastic about their work in the temple. I was excited talking with them while they humbly showed me the old books, maps and documents about the temple. Some *vaiyavajjakorn* just work on administration, collecting rents from people who use the temple spaces, and are somewhat ignorant. This one fell into the second category.

After waiting at the temple office for a while, I walked across the small open space in front of the Ubosot to a three-story building next to the school admin office (Sunday Buddhist school). The *vaiyavajjakorn* showed me where I can sit and wait. There were a few women working on organizing Dhamma books there. Someone let me know that the old monk was ready to meet and told me to go into the next room. It was quite a large room with a red Persian style carpet, similar to what we might find in many fancy guest rooms in many temples. The room was full of Buddha statues and Buddha images. They were in several sizes and styles. There were shelves with books, relics, images, and talismanic objects. Large images of the

previous abbots were hung on the wall. The old monk was not as old as the one I interviewed in other temples.

I was there with the viyavajjakorn but the monk still unhappy at the beginning because of the Vinaya (monastic rule) that Buddhist monks may not to be in a room with women. The first thing he said to me is “Don’t you know that you should not be here by yourself?” However, it was difficult for me to have people coming with me everytime because sometimes they do not give a specific time for the meeting and I have to be there and wait to see if I can have chances to meet and interview with anyone. In this case, the viyavajjakorn tried to keep me at the temple office for hours before I could meet with the old monk which was upsetting me a bit. The monk seemed a bit upset at the beginning but at the end, after almost an hour of the interview, he was happy and taught me how to bow (*kraab*) correctly. I was thinking I did it the correct way already. He also gave me a small image of a senior monk with a Buddhist verse. The old monk started with an interesting history of the temple:

The temple was built in 1856 (BE 2399). Bangkok had only 700,000 population back then. [Today unofficial population is more than 10 million]. The temple property covered the area of over 100 rais (around 40 acres), which now has a market and boxing rings on property rented from the temple and this is how the temple earns money for maintenance after King Rama V aborted the covee system and diminished the funding support to the temples. Today, the temple boundary covers the area of 13 rais (5 acres). There were 12 gates, which is very special and unique. The abbot emphasized this point, “there is no other temples in Bangkok with these many entrances – 12 open gates”. These 12 gates are also open for 24 hours. Communities can use spaces in the temple at all time. I saw a few tourists there when I visited. They came in small groups, unlike the Royal temple of the Emerald Buddha (Wat Phra kaew), the Reclining Buddha (Wat Pho), or the Golden Mountain (Wat Srakes), where they attract many more tourists and people come in larger groups. This temple was much peaceful.

The old monk has been in the monkhood as a novice monk since 1950 (BE 2496). He moved to this temple in BE 2496 and became a monk in BE 2499. He came from Song khla, a big province in Southern Thailand. The first thing he mentioned about the temple garden when I asked about the trees and species selection was a lotus garden (*phu lian*) – which is his mother’s name. Lotus is one of the symbols of Buddhism as we usually use lotus to worship the Buddha. Some of the Buddhist taught compare lotus with people. Lotus sutta, 4 stages of lotuses compare with four stages of people with different knowledge- under the mud, under water, at the water surface, and above water – how people clear their mind with self-awareness and how close they are to the freedom from the samsara. However, the lotus garden in this temple was inspired from the old monk’s mother’s name. He did not mention a word about the relationship of the lotus and Buddhist canonical.

1. There are not any holy trees in the temple.

Koi tree (topiary)

There are more than 20 big trees in the temple garden; Bodhi tree, Chan tree, Tamarind tree, and so on. There are many more trees that I cannot remember the names.

These big trees are located around the Ubosot and Viharn. There are also seating areas under these trees. We have these old rock seating, flower gardens, and lawn areas.

2. The temple has never asked for donation ever since it was built. (He replied about the economic stresses and how the temple managed to be sustained on its own and never

asked money from temple visitors. Some temples collect money from people – either by donations (most common) or selling tickets for visitors to access some restricted areas (National Heritages temples)

3. The military rents a space of two rai (0.8 acres) to build a funeral Cemetery Pavilion and crematorium.
4. We do not allow people to tie colored scarves around trees in the temple garden because it was credulous behavior. We worship the Buddha but we do not worship other things.
5. The first abbot of the temple came from kana 5 (other section in the temple) but practiced meditation here (in the current abbot's residence).
6. Garden maintenance was supervised by the abbot. The cleaning staffs and other maintenance teams were an outsource. Monks and novices help a bit but mostly the garden was well taken care of by the professional maintenance team.

"We do not have any symbolic tree. There are no holy trees. We do not worship trees. We do not worship credulous objects". [*"Mai bucha tonmai. Rao bucha phra putta chao, mai bucha khong ngom ngai"*]

"Trees are national treasure. They do not belong to anyone." [*"Tonmai pen sombat khong chaat, mai chai khong kon dai kon nueng"*]

I protect all the trees in the temple. No one will cut them down. We keep the trees because they provide good atmosphere and shade. I planted the Bodhi tree by myself. It is just another tree that provides shade for our temple garden. We do not have any special treatment for the Bodhi tree.

The old monk pointed to the image of the first abbot, a frame with one large Bodhi leaf which he informed me that the leaf was collected from Lanka, the leaf of the Sri Maha Bodhi, the tree where the Buddha sat underneath when he reached enlightenment.

Trees do not have anything to do with the practice of the Sangha but they definitely provide shade and a better atmosphere and microclimate to the temple. The air in the temple garden was fresh and cool compared with air outside of the temple. There are some big trees outside the temple boundary too. They are still on the temple properties but some streets and public spaces already are taken care by BMA or district office. Khlong Padung Krung Kasem (canal) was built after the temple. There were 4-5 sala on the canal but now they are all gone. I saw a big Bodhi tree outside the temple in the middle of the small street that go along the temple wall.

I walked to the funeral area – through a small gate (there was a solid white concrete wall between the Sangha and funeral area) and found a big Bodhi tree with a small shrine and colored scarves in the funeral area.

2) In-depth interview with a monk with long experience in the monkhood (B-5-3)

3) In-depth interview with the monk who is a landscape manager (B-5-2)

The landscape manager monk has been in the monkhood for 32 years.

Another monk sitting with him had been in the monkhood for 3 years. He ordained 11 years ago as a novice monk for 8 years and monk for 3 years.

1. Trees in Buddha's life:

- Bodhi tree
- Jik mujalin
- Racha yatana (Kate)
- Sala

Those trees (above) are in front of the temple office.

- Chan – in front of the temple

We have special maintenance for them. There are signs explaining about Buddha's life at the trees. The abbot planted these trees on special occasions such as his anniversary (birthday), a Buddha day, Tumboon day, etc.

Other big trees:

- Pikul – by the church, at kana 1 (the biggest one) – It was so old and might have been there since the beginning of the temple.
- Tamarind - kana 6, kana 4 – The tamarind trees were here for a very long time. They are enormous.

The other monk (11 years ordained at the temple) who also sat in the office added:

- Samor dee ngu – kana 4 – Samor trees are the trees that came with the temple.
- Samor pipek – Is it still there? I am not sure. It was at kana 4. The trunk is white. It fell when there was a big storm. We did not do anything. It recovered by itself.
- Parichart – Do we have Parichart? (they asked each other). Then they asked me: Have you ever heard of Parichart. We have it near the toilet. It was quite old but not that big. (Parichart is a small-medium size climber not a tree so it cannot grow that big).
- Rachapruk (yellow flowers) right by the Viharn. This one is a special variety. It is different from other Rachapruk tree you see outside. (Ficus – Sai Sok, Wat Bavorn, Samor lai – Wat Racha)
- Murraya (Kaew) around the Ubosot (church). We used this open space around the Ubosot for meditating walk in the morning. The murraya trees have very fragrance flowers that create coolness and serenity. The atmosphere is very peaceful with the white flower and their cool fragrance. The abbot regularly walks around the Ubosot for meditation.
- Another big and old tree is the Bodhi tree. It was here since King Rama V brought it back from India. It was near the crematorium in the funeral section (sala 1). **This Bodhi tree is a holy tree.** There are many people who worship it. I believe there are some colored scarves around the tree. The temple gave the property to build the Crematorium for public. The military rents the space and organizes the funeral service there since 1964 (52 years). The military takes care of the trees and landscape in the funeral area. They are not allowed to cut any trees.

Maintenance:

We have temple staffs take care of the cleaning and pruning. Monks do not have to order anything. Koi (topiary) are the trees (small-medium size shrub - bonsai) that requires more maintenance and regular pruning. We have Kois around the viharn.

11. Location does not matter. Trees can be a symbol of religion if people recognize them. However, most people do not know trees and their meanings.

Bodhi tree is widely known because it is the tree that the Buddha sat underneath when he reached an enlightenment.

12. The areas in the temple are mostly occupied so we do not have available space for new trees. We only try to take good care of the existing old ones. We do not plant any new trees but also do not cut any old trees down.

Big trees help increase the sacredness of the place.

Temple is a peaceful forest. Religious/spiritual atmosphere was created by trees.

The temple is 80 years old. On the Abbot's anniversary (June 24), we will have philanthropy (promote the welfare of other, generous donation of money to good causes) ceremony from 8.30 am-12pm.

I finished the interview with the old monk. He said he has to go teach at mor mor ror² almost everyday.

4) In-depth interview with a monk with less experience in the monkhood (B-5-4)

Time: 2:05-2:20 p.m. at the temple office.

The young monk has been in the monkhood for 1 year. The older monk in the office asked a young monk to talk to me first. However, he occasionally interrupted and informally added to what the young monk answered. The young monk started answering with little confidence then had more hesitation after being added by his teacher. Then he turned to ask for approval from the senior monk for the whole conversation. The young monk seemed to know very little about the temple or he hesitated to reply. He did not even mention the Bodhi tree until half of the questions have been asked.

1. There were not many big trees in this temple, only a few. None of them were very significant. Big trees in this temple was the Pong pong tree (Teen Ped) near the office. [I was surprised because most of the interview, monks started with Bodhi tree. Possibly that there were not any big Bodhi trees in this temple].

At Kana 4 near the 200-years building, there was another big tree. I don't know the name. There is not any tree with colored scarves [There is a Bodhi tree with color scarves and a small shrine in the funeral section that was rented and managed by the military. Maybe he did not consider the funeral area as part of the temple]. There is no tree that people come and pay respect or do any ceremonies in this temple garden.

For maintenance, there were staffs in the temple taking care of the landscape and trees. The abbot is in charge of everything. I do not see any newly planted trees or have been planting any new trees since I came here. Monks and novice monks do not have any responsibility for taking care of the temple garden. We might sweep the ground sometimes. The Bodhi tree in front of the office was planted by the abbot. He got the seeding from India. I do not remember when it was planted but there was a sign at the tree.

² Mor Mor Ror. Maha Mongkut Rachawitthayalai University. It is one of the two Buddhist Universities in Thailand. This one is Dhammayutthika order. Its previous location was at Wat Bavorn, now moved to Mahidol Salaya. Another Buddhist University is Mahachulalongkorn University. It is Mahanikaya Order with two 2 locations, Wat Mahathat and Ayutthaya.

Trees that serve as a symbol of religion:

- Bodhi
- Sala – where the Buddha was born – there is one Sala tree right by the abbot’s building, umm, I think it is in front of the building.

[The novice monk was not sure about the trees’ names and locations. and while he stopped to think about it the old monk interrupted “We have every tree in the Buddha’s life. We have all of them here”].

- Kate

[Then the novice monk stopped answering this question so I moved on to the next one].

There were no special uses of spaces around the trees. We normally perform every ceremony in the Viharn. Trees in the temple garden do not have any impacts on the monks’ behaviors.

11. Trees that serve as a symbol of religion can serve their function no matter they are in a temple or grow outside temples.

12. We do not have any projects on temple gardens now. Everything depends on the Department of Fine Art because this is the institute that is responsible for taking care of all the architectures in the temple. We only try to maintain and preserve the existing condition of the temple. Any renovation projects have purposes to keep things back as it was.

[I learned from Research method class about putting young and old people or men and women in the same room while conducting interviews that one group with less authority will not be able to answer freely so I tried very hard to avoid this situation. What I have learned here was - do not put a teacher and young students in the same room. Teacher tends to talk more with confidence while student hesitated to answer the question, especially in front of the teacher. The teacher talks more, adds the answer, and interrupts the interview of the young monk. I was trying to interview them one by one. We were sitting in the same office but at different tables – about 10 feet apart. The old monk listened to us (it was a monastic rule to have people hear your conversation – nothing can be private) and interrupting almost at every question. Even though I tried to have a more private conversation, it was almost impossible because it would be against the Sangha’s precepts. Many of my interviews, I had a one or two persons coming with me which was really helpful and made the monks feel more comfortable].



Figure 1: Murraya trees surrounded the Ubosot creating a peaceful atmosphere for walking meditation.

Figure 2: Limited soil spaces for temple trees



Figure 3: Sema leaf. Stone boundary markers located around the Ubosot to define holy spaces inside the boundary where no trees can be planted.



Figure 4: Tree name tag



Figure 5: Significant trees planted by the former abbot.



Figure 6: Heritage large trees at the entrance around the Assembly hall.





Figure 7: The sacred Bodhi tree in the military funeral area is the only tree in the temple that has colored scarves tied around it.

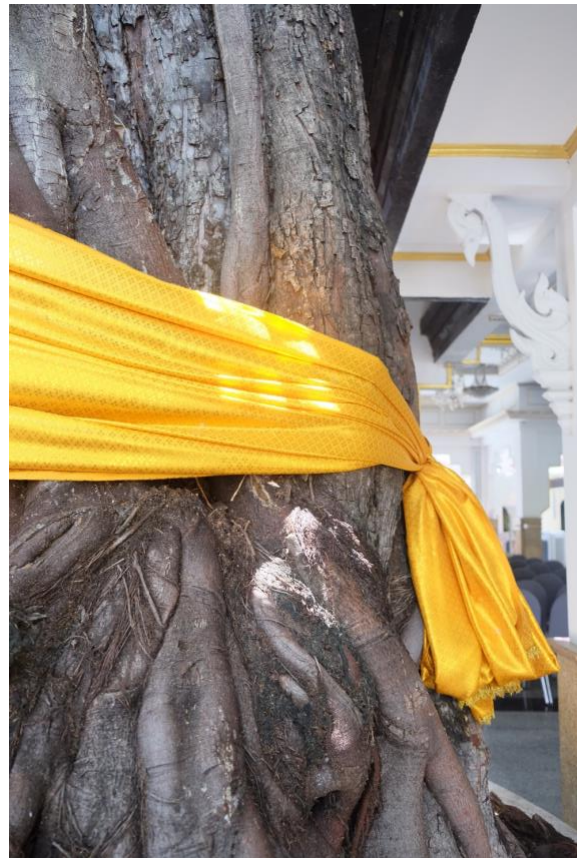
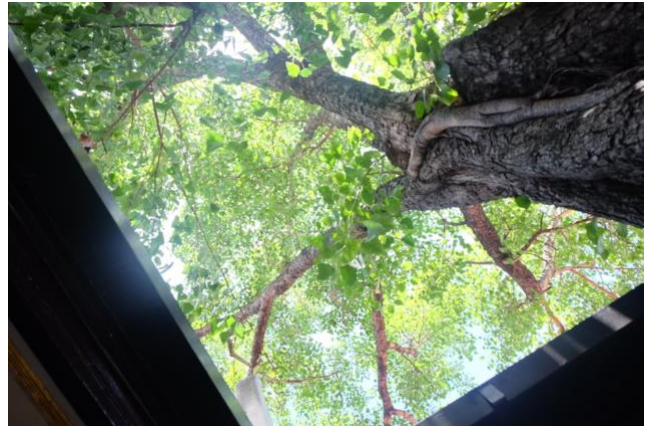
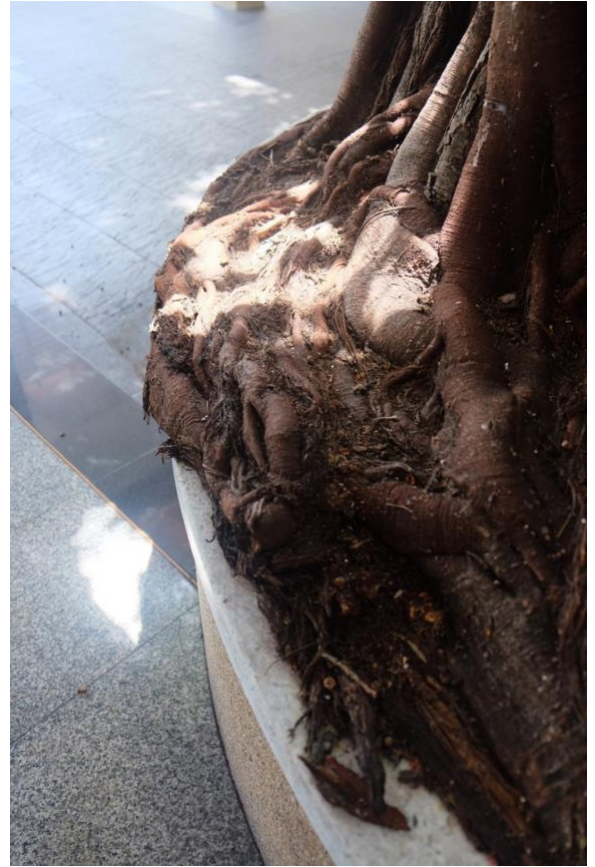




Figure 8: The Bodhi tree outgrew the concrete boulder.



B-6

Year of establishment: 1875

Area: 7.1 acres

Numbers of monks/novices: 75/0

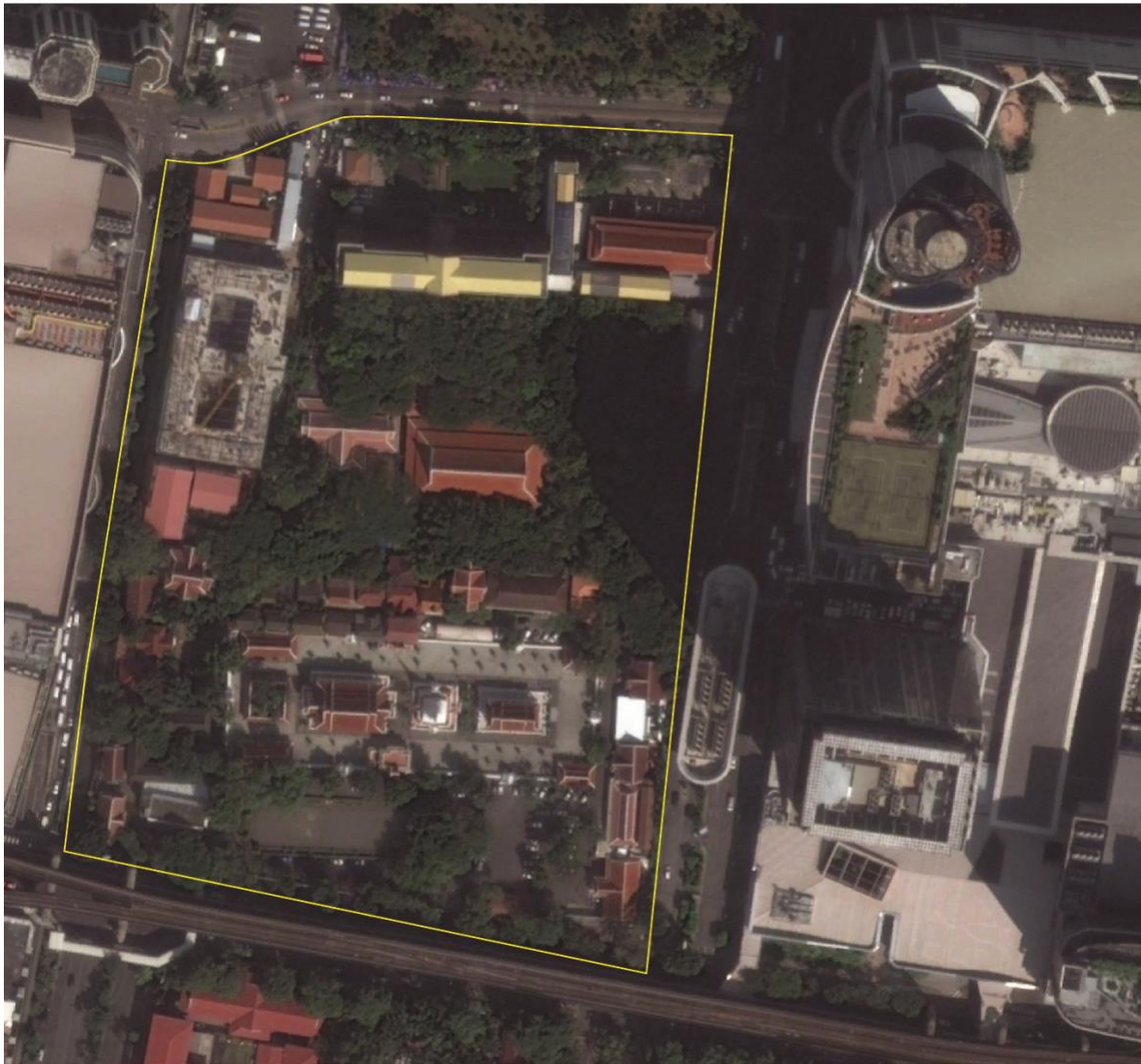
Class: Royal

Sect: Dhammayutika

Significant trees: N/A

Big Tree Awards: N/A

Location: Inner Bangkok



History of the temple:

This temple is Phra Aram Luang chan tri (3rd class Royal temple). King Rama IV built the temple for his wife, Phra Thep Sirintarabarommaratchachonnani, in 1857 (BE 2400). It was built to be a place for the royal family to practice meditation. In 1867 (BE 2410), the temple was

celebrating the Aram. A monk from Wat Bawornniwas came here and became the first abbot of this temple. Today, our temple is under the king's care as it has always been under the Royal family's care. Significant symbols in the temple include Phra Ubosot (church or ordination hall), Phra Chedi (pagoda or stupa), Phra Viharn (Assembly hall), Bodhi kara or Reun Pho (the house of a Bodhi tree). They are all in the same axis, the main axis in Phutthawat section.

First visit:

Date: Saturday June 3, 2015

Time: 1 p.m.

I had visited this temple several times before because it is located in the city center and easy to access. There are meditation sessions in the morning and evening everyday and I have attended a few of them. The forest herb garden in the back attracted my interests.

Before the first interview, I visited the temple for preliminary observation. I went to the office temple and tried to make an appointment to meet with monks for interviews. The staff at the office asked for the letter and said they need to process it to get the abbot's approval before I can start the field work. Hence, I dropped the letter asking a permission for interview. This temple is located in one of the oldest and most famous commercial areas of the city with convenient public transportations. This area was part of the political movement because there were protests on the street right outside the temple several times. There were several incidents of people fleeing inside the temple, shooting, and fighting. Hence, the monks were more cautious about temple visitors, especially ones who want to interrogate about the temple spaces, activities, and the monks' point of view.

Observation:

Thursday June 11, 2015

- Forest garden
- Downtown access (BTS (Bangkok Mass Transit System)- sky trains) with largest shopping malls on both sides – literally located on the Shopping stripe from Siam – Ratchadamri
- Very strict temple office – recent political sites
- Luang Por Thavorn – the abbot's assistant, the founder of the forest garden –despite his sickness, very eager to talk to me. [He passed away a few months after the interview].
- A knowledgeable young monk explained the definition, criteria and classification of the Sangha:
New monk – *Phra Navaka* (ordained less than 5 years),
Old monk – *Phra Matchima* (ordained 5-10 years), and
Older monk – *Phra Thera* (ordained more than 10 years). Later I found *Phra Navaka* can be as old as 70 years old or older and *Phra Thera* can be as young as 30 years old (the youngest age to ordain is 20 years old. Some people ordain as a *Nen* (hold fewer monastic rules) before they turn 20 then ordain as a monk when they turn 20). There are also some older people ordained as *Nen* or novice because they are not ready to maintain 227 monks' precepts.
- This is one of the greenest temples in the city center.
-

Friday June 12, 2015

I went to the office to submit the letter. I thought the reason this temple was so cautious not because it is a royal temple. There are many other royal temples on my study sites list and they tended to be much more cooperative. This temple is located in the city center very close to Siam center and the main intersection of the skytrain (BTS), which make it a prime location. There were many political movements during the past decade especially the past 5-6 years when there was a demonstration at the intersection in front of the temple. Many people, on both sides, ran into the temple and some snipers shot in to the crowd in the temple and also someone shot back from the temple to the group of the mob. Even after the event, there were still many photos and court cases on this shooting in the temple. The temple staffs seemed to be very concerned when I requested to talk with the monks with high authority. They almost refused to talk without any formal letters.

Saturday June 13, 2015

Time: 1-4:30 p.m.

I requested to have an interview with the abbot on Friday, a week from the date I sent the letter. However, that morning – a week earlier than the date in the letter, a monk called me and asked me to go to the temple on the same day in the afternoon. I went there at 1 pm and went to the office. It was located in the back of the temple where there was a magnificent forest herb garden. I had visited the garden but it is still impressive every time I go. It was not that large but the contrast between the busy street outside and the greenness atmosphere inside of this urban forest encompassed the perceptions and made you feel like walking in a green tunnel. I arrived at the temple at 1 p.m. after lunch. This temple is located in the very center of Bangkok. It is situated among the two largest shopping malls of the city. The temple was very easily accessed from the public transportation (BTS). I went there by the sky train (BTS) and walked about five minutes to enter the temple. There was a parking lot in the front with some trees and a long narrow lotus pond in the center. A security gate gave out tickets and collected money from drivers. Cars and pedestrians share the same entrance. The monk told me to go to the Forest garden behind the Phutthawat section where the ordination hall and pagoda were located. I walked past the hot parking lot in the afternoon to the much cooler garden in the back of the temple. There were several buildings in the forest garden. The major building was a pavilion for people to practice and meditate.

1) In-depth interview with the priest with high authority (B-6-1)

N/A

The abbot was not available so he assigned one of his secretaries to talk with me. The senior monk was well prepared and had a sheet of paper as a note in his hand. I have talked to Phra Kru in several temples – they are about 35-45 years old and have authority in the temples.

2) In-depth interview with a monk with long experience in the monkhood (B-6-3)

The senior monk has been in the Sangha for 20 punsa. He stayed at the temple for 20 years. The abbot was not available so he assigned a monk who studied PhD to talk with me. The monk, a small man in his early 40s, seemed to be very curious about my research and studying abroad. He called me early on Saturday morning, less than 24 hours after I dropped the letter

and asked whether I can meet for the interview in the afternoon of that day. I went to the office where the monk mentioned on the phone. Even though there were several buildings and no big signs, it was not difficult to find because I visited the temple several times and was quite familiar with the place. He said I can call him when I get there if I cannot find the place. It was a small glass building amidst many big trees. I entered the office, paid respect to the monk, and introduced myself and started the interview. The monk started asking me some questions about my study. Then after I explained about my research and protocol, he formally talked about the history of the temple as if he was assigned from the abbot and had prepared some information for this short interview. It was a script and I felt a bit awkward as he did not answer much besides what he prepared. He answered most questions quite briefly and seemed to be quite cautious about what he answered and tried to make the answer very formal. He seemed to agree with most of my questions even though I tried to have very neutral questions.

To answer my first question – whether there were significant or holy trees in the temple- he started talking about the history of the temple then started talking about the temple trees.

1. Big trees?

- Bodhi trees- there were two or three Bodhi trees. One of them was broken and died. We did not destroy it. It was naturally decayed so we dug it out. These Bodhi trees were very old, over 100 years.

[Whether these Bodhi trees naturally grow or did someone plant them? I saw a big Bodhi tree on the street at the corner of the wall near the entrance to *Suan Pa*, the temple forest].

We planted some of them. Another one we moved to the front of the temple. There was one left at the Bodhi kara – the house of a significant Bodhi tree.

[I walked there after the interview. The house of a Bodhi tree was like a house with courtyard with an open space in the middle for the Bodhi tree. It was located in the same axis as the Ubosot and Viharn].

- Banyan trees (ficus) already fell down because of a strong wind around 10 years ago.
- Rain trees – there are many enormous rain trees in the forest garden. They were there even before the meditation pavilion was built. People came to get lucky numbers for lotto from the rain trees. This happened before we had the meditation pavilion.

[Does this mean that there is spiritual being in the tree? I learned later from an interview with the landscape manager monk that when building the pavilion they had to cut down some of the big rain trees].

- The meditation pavilion – King Rama IX's concept.
- The landscape manager monk proposed a concept of planting trees- forest garden in 1995 (BE 2538). Sylvan atmosphere, shading the place, meditation area. The LA manager monk took care of the garden and meditation pavilion. He had authority in order to manage, take care of, or plant new trees and also species selected.
- Cultural services –Trees provide shading – create *Sappaya sathan* = Comfortable and convenient place. Create learning atmosphere. We have various Buddhist activities such as meditation workshop (*Kammathan*), recreation and relaxation.
- The landscape manager monk also proposed a project– “*Pluk pa chalerm Phra kiet* – Planting forest on the honor for the king”. We built the temple along with planting the

forest. Temple and forest are related and have strong relationships all along. Wherever we have temple, we will have forest.

- The Buddha taught Buddhist monks to stay in forest and practice meditation. Today the practice of monks is adapted to the social changes.
 - The temple garden care taker is also the director of the Dhamma Propagation Forest and is the abbot assistant.
2. Bodhi trees have colored scarves.
 - Came from the old beliefs that there were *Rukka Thevada* (tree angels/spirits) that protected the trees.
 - Temple visitors tied colored scarves around the Bodhi tree. This tradition had been performed for over 20 years.
 3. Bodhi Lanka – colored scarves – *Reun Pho* – came from India.
 4. N/A
 5. N/A
 6. All trees in the garden, including the holy trees, have the same maintenance. There is not special maintenance for any trees.
 7. Cool and sylvan (Rom ruen) – places under the trees have lower temperature. Trees have direct impacts on our mind. They cool the body and cool the mind. Trees can teach us to see the way the nature is which is the way the truth (reality) is.
 8. N/A
 9. We have temple staffs. Luang por Thaworn (The abbot assistant). Sala Phra Ratchasattha foundation and Thaworn Chittakharo Khongmalai foundation help take care of the trees in the temple garden. We also have the Buddhism propagation policy and many charity events.
 10. N/A
 11. [Places matter]

People worship the Bodhi tree. Even parts of Bodhi trees such as its leaf were considered holy. It is the Thai belief. When people travelled to Bodh Gaya, India, they collected the falling Bodhi leaves for worship. Bodhi trees on the streets are not as holy as the ones in holy places such as temples, houses of priests, meditation schools, etc. Some trees naturally grew. But because Bodhi trees do not have any other benefits (no fruits or flowers that people can use) people cut them down.
 12. We are developing the temple. The abbot is the cardinal (*Phra Racha kana chan tham*) and are in a board of the Sangha Supreme Council of Thailand. We are continual developing. We have more than 100 Buddhist monks here. We have our branch in New Zealand. The temple is building now.

For this temple, we have small children come every year. Some kids decide to stay in the temple until they grow up. As myself, I came to the temple since I was a kid and decide to devote myself to the religion. I have an impetus to work for the Buddhism all my life. Then he talked about King Rama IV.

Khlong San Sap was the previous entrance of the temple. We still have access and pier at the canal. Then he walked me to the landscape manager monk's monastic cell.

3) In-depth interview with the monk who is a landscape manager (B-6-2)

The temple garden care taker – the monk who take care of the landscape.

The old monk and abbot's assistant was a landscape manager of the forest garden in this temple. He had been in the monkhood in 1966 (BE 2509 – 49 years ago) and moved to this temple since 1973 (2516 - 42 years ago). I assumed that he was in his early seventies. He originated from Northeastern Thailand, which made it quite difficult for me to understand what he said at the beginning with his dialect. He was not feeling well with his sickness but still kind and devoted and allowed me to interview him. There were several people in his *Kuti* (monk's cell – this one is a very big room), two groups of visitors, a mother and a son, and a woman who brought a case of counterpain, a pain relief cream, to offer for the monk. There were 5-6 people (4-5 women from 20-over 60 years old and one man in his 60s) who seemed to live there or come regularly to work for the monk. The *Kuti* was air-conditioned, which made it more comfortable and quiet compared with outside atmosphere. I waited until the first two groups finished their talks with the monk, which only took about 15 minutes. The first monk then introduced me to this old monk. The senior monk said I can ask him anything and he would also be happy to let anyone use his idea of the forest garden for meditation. He was the founder and care taker of this forest herb garden in the temple. The property belongs to Bureau of the Crown Property. It is 7-3-40 (rais-ngan-sq.wa =12,560 sq.m. or 3.1 acres). The total area of the temple including the forest garden was 24 rais (9.5 acres).

“I planted every tree by myself”. He did not literary mean that he planted them by himself as he mentioned later about the Royal family coming to plant the trees and few existing trees before the forest garden was found but every tree in the garden was well taken care of. He knows about every tree in the forest garden very well. He also mentioned several trees that were significant in Buddhist study as they were on the locations during the Lord Buddha life's significant events. The first trees he mentioned were the *Nang Rang Tung Kuu* – two trees that the Buddha laid down underneath among those two trees when he reached nirvana. These trees were planted by King Rama IX and his queen, located in front of the pavilion. A Sal tree, also related to Buddha life, was planted by the crown prince, located in front of the pavilion. Every member of the Royal family visited the temple and planted trees here. However, not every tree survived. The tamarind tree that was planted by the privy councilor was dead as it was covered by overgrown vine. The wood from the tamarind tree was later used as a sacred wood to wipe away ghost and evil spirit.

All trees that were planted by significant people were fenced and labeled. Some people come to the garden to beg for lucky numbers from some large trees- especially Bodhi trees. Many large trees were tied with colored scarves. “I let them do it. It was their happiness”. The monk said he later took the colored scarves off and threw them away because it became very dirty and visually unpleasant. [I would say it also distracted people who came for the meditation]. People who take care of the trees in the forest garden are permanent staffs and work closely with the Landscape manager monk. They have never hired any professional arborists. Large and old trees in the garden included some existing trees such as tamarind trees (over hundred years), rain trees, and Bodhi trees (Two Rain trees died during the construction of the pavilion).

When I walked around the garden after the interview, I noticed some metal structure used to support a leaning ficus tree. Ficus trees are easy to grow but require more maintenance

as they tended to grow over other trees and damage buildings and other structures. Regular pruning is needed.

“We have all the species that are mentioned in the Buddha’s life.” Besides a symbol of religion, the monk also mentioned that temple trees enhance the urban environment by cooling down the temperature in the city. However, he mentioned that besides serving as a symbol of religion, Bodhi trees did not have any benefits. The fruits are not edible, and roots damage structures and buildings. As a consequence, people tend to cut down the Bodhi trees.

1. Significant trees in this temple:

- Rain trees around the Meditation pavilion. These big rain trees have historical significance and very strong relationship with the temple.
- Koi (Siamese rough bush, Tooth brush tree. *Streblus asper Lour.*)— a very big Koi tree was there before the construction of the meditation pavilion. We moved the tree to the nursery during the construction and brought it back to plant near the same site.
- Other trees were new. I planted them after we built the meditation pavilion.
- There were some changes at the beginning. Kadoan tree died, Sea almond (Hu kwang) we took it out because there were many insects.
- Big trees made the place sacred because there were spirits in the trees. All trees have spirits in them. We called *Rukkha thewada* (*Rukkha* = plants, *Thewada* = angel). In the air, there are *Akasa thewada*. On the ground there are.... (spirits of the soil).
- We used to have many Pikul trees but they all died. Every tree conveys similar values but the trends in each era are different. These changes of styles and preference were the cause that some trees were cut down or replaced with other species, including the Pikul trees. (Wat Mahathat also has the same changes and impacts from this preference. It mostly depends on how the landscape manager, abbots, or the monks who have authority think about the trees. At Wat Mahathat, Ixora was the previous old species with historical significance but the new landscape manager planted over 300 *Murraya* trees (Orange jessamine, Kaew) and removed many of the ixora from the temple garden).
- We have temple staffs taking care of the trees in the temple garden.
- There are many birds and animals living in this garden because all of these big trees reduce the temperature, create a natural atmosphere, and give comfortable temperature for humans and wildlife. Some animals damage the trees and the garden. There were times that there was too many squirrels in the garden. I paid people to catch them and took them to Nakorn Nayok so the animals can live in a real forest where there are more spaces and food for them. Over 100 squirrels were catch and sent to the forest. We love to have animals here in the temple garden but they were too many and they bite electricity lines and cause adaptor explosion.
- Everyday there were around 300 people coming to the temple because we have trees in the temple.

5. Trees in the Buddha’s life

Rose apple, Wa, Ficus (very easy to grow, need more maintenance, have some metal bracings to prevent the branches from falling). I am not sure about Jik narm, Kate, Thong lang Lai. We had Kadoan tree but it died because there was an underground spring so the water flooded the roots. We have every religious significant tree here.

7. Trees in the temple garden affect the monk's behaviors because the trees cool down the temperature.

[especially temple in the city center like this temple, the garden with lot of shading from these big trees really helps reduce the urban heat from its surrounding contexts].

11. Location does not matter. Bodhi tree is a symbol of religion. People tend to cut them down because they do not have economic benefits and could damage the structures.

12. Landscape project. We have policy to protect this urban forest and add more trees. We do not have any plans of building anything new.

Bodhi tree: Bodhi trees are a symbol of religion. Location does not matter. Even when it grows outside a temple, Bodhi tree still convey religious meaning. Even a leaf of Bodhi tree is a symbol of religion.

Rain trees were one of the largest trees that served as their top canopy provided shade covering the garden.

Maintenance: There were several people working in the forest garden.

Dailynew.co.th Sunday October 18, 2015:

There was a newspaper's article a few months after my interview:

Luang Por Tavorn (Phra Thepvimomyan Thavorn chittathavaro), the abbot assistant, passed away on October 4, 2015, a few months after my interview. He had brain stroke and died when he was 63 years old, 43 Pansa. Although he was sick when I conducted my field work, he was eager to talk to me and answered my questions. He was an inspiring person and had worked in the temple garden since the beginning so he was a major part of it. He knew very well about the garden and knew every trees in the garden. He was very proud of the forest garden, *Suan Pa*, as he said 'I planted every trees by myself, every tree'.

4) In-depth interview with a monk with less experience in the monkhood (B-6-4)

The first monk who was the representative of the abbot walked me to the monastic section and asked a few young monks about their periods of time in the monkhood. He tried to find a junior monk for my interview. The young monk said they have been in the Sangha for three years but they were about to go run some errands so they did not have time to talk with me. The senior monk then took me to the office in front of the temple. I entered the office, followed the monk whom I previously interviewed. There were 3-4 monks in the room. The youngest one in the room, the new monk, seemed to be in his mid 20s, hesitated at the beginning as he said he has been living in this temple for over 10 years (16 years in 2015). He was not sure whether he can be considered as a new monk. Then the senior monk explained about the criteria for the new monk which has to be someone whom has been ordained to be a monk for less than 5 years. The young monk became a monk 5 years ago³ so he was considered a new monk. He was a novice (*Nen*) since 1999.

³ The minimum age to be a monk is 20 years old. People who are younger than 20 years old are consider Buddhist novices and hold less numbers of Sil (monastic rules) than monks. However, there are some older Buddhist novices. Some people are not ready to be monks and cannot maintain 237 rules of the

I started the interview. Similar to most people I have talked to –he started with “I don’t know much about trees”. He mentioned that he did not know much about trees in the temple despite living there for over 10 years. He was in the middle of reading a comic book (*Payukkaraj no.2*). I did not want to interrupt but the old monk insisted that him talk with me.

1. Bodhi tree - The Sri Maha Bodhi that King Rama IV brought the seedling from India. This temple was built by King Rama IV. We have a special treatment for the Bodhi tree. Every year on April 12th, we have a ceremony at the tree. We pour the water on the tree like we do for our elders. The abbot is the one who performs this ceremony.
2. Trees with colored scarves are Bodhi trees.
3. I do not know.
4. Bigger tree tended to have more significance than smaller ones because they can provide more shade. In the public section (Phutthawat), we have some landscape development projects. We cut some trees – some palm trees. We used to have more palms and betel nuts (Mak).
5. There are no other religious symbolic trees, only the Bodhi trees that have religious significance.
6. Significant tree – The Bodhi tree has special ceremony every year.
7. Trees in temple gardens in Bangkok are very important for the monk’s activities:
 - The trees do not provide much benefits on meditation – forest garden provided shade and serenity.
 - Areas in front of the temple used as parking space so there are not many things to do there.
 - Dhamma plaza (in *Suan Pa*- Forest garden) has many trees and has very good shade. Temple visitors can use this plaza.
 - Monks and novices have to sweep the ground.
8. Monks do not use spaces under big trees in the temple garden very often. These spaces are used mainly by temple visitors. Forest garden (*Suan Pa*) provides activities for temple visitors who come to practice meditation.
9. Bodhi trees, even when they grow outside temple, are still significant. There are colored scarves tied around Bodhi trees because Buddhists look at Bodhi trees as they are a symbol of Buddhism. Where ever they are they still relate to the religion. Thai people are afraid to cut Bodhi trees because they believe that there are spirits in the trees. It is a local knowledge. Thais believe in spirits and they are afraid of these spirits in nature, especially ones in the temple trees.

[This monk pointed out several factors that make Bodhi trees became sacred- Liturgical objects, colored scarves adorning the tree, Symbol of Buddhism, and spirits in the trees. He refuted himself when he mentioned earlier that location does not matter, Bodhi trees always convey religious meanings. However, he mentioned later that people are intimidated by those spirits in the trees, especially when the trees are located on temple ground].

Buddhist monks can maintain to be novices, which only have to hold 10 rules, even when they are much older than 20 years old.

Years ordained

Monk 1- 5 years = *Phra Navaka*

6-10 years = *Phra Matchima*

More than 10 years = *Phra Thera*

More than 20 years = *Phra Maha Thera*

- Big trees made the place sacred. Because there were spirits in the trees. All trees have spirits in them.
- Every tree conveys similar values but the trends in each era are different. These changes of styles and preference were the cause that some trees were cut down or replaced with other species.
- Everyday there were around 300 people coming to the temple because we have trees in the temple.
- Similar to laities, when monks take part in the tree planting and maintenance, they know more and care more about the trees. The monks' precepts that refrained monks from pruning trees may need to be reinterpreted to be more practical and suitable with urban temples where temple trees can hardly survive without proper maintenance.



Figure 1: The first old tree the monk mentioned was the Rain tree in the back of the temple. It was not in a good condition because of the expansion of the service section.



Figure 2: The entrance to *Suan Pa* (the forest garden), the meditation section of the temple behind the Phutthawat section where laities regularly come to practice walking meditation.

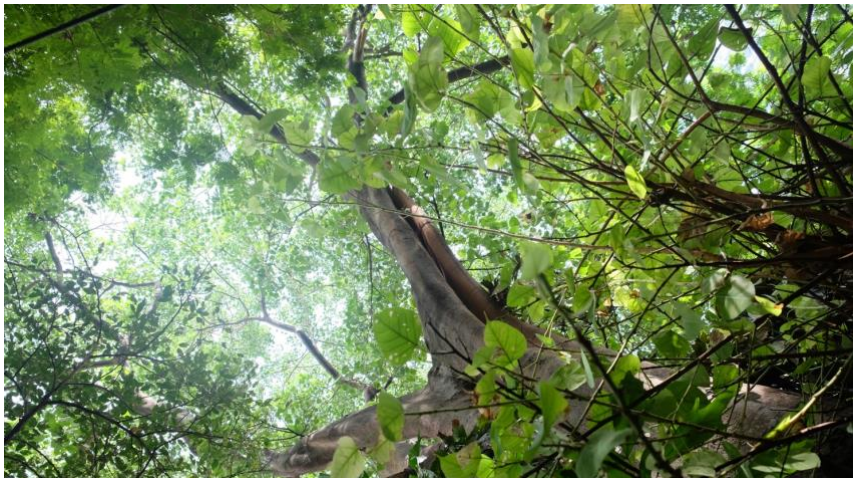


Figure 3: A Bodhi tree in *Suan Pa* (the forest garden) with colored scarves believed to be the one that Princess Sirindhorn planted.



Figure 4: Significant trees planted by the members of Royal family or the abbots have signs and fences.

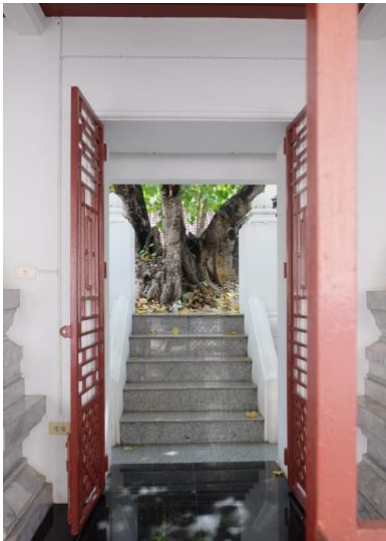


Figure 5: Bodhi kara lined in the same axis of the Viharn, Chedi, and Ubosot in Phutthawat section.



Figure 6: A Bodhi tree that naturally grew in the middle of the walkway between Phutthawat and Sangkhawat sections. People tied it with colored scarves and left some incense sticks at the tree.



Figure 7: Heavy traffic outside the temple and a parking lot in the front section of the temple

C-1

Year of establishment: 1941

Area: 33 acres

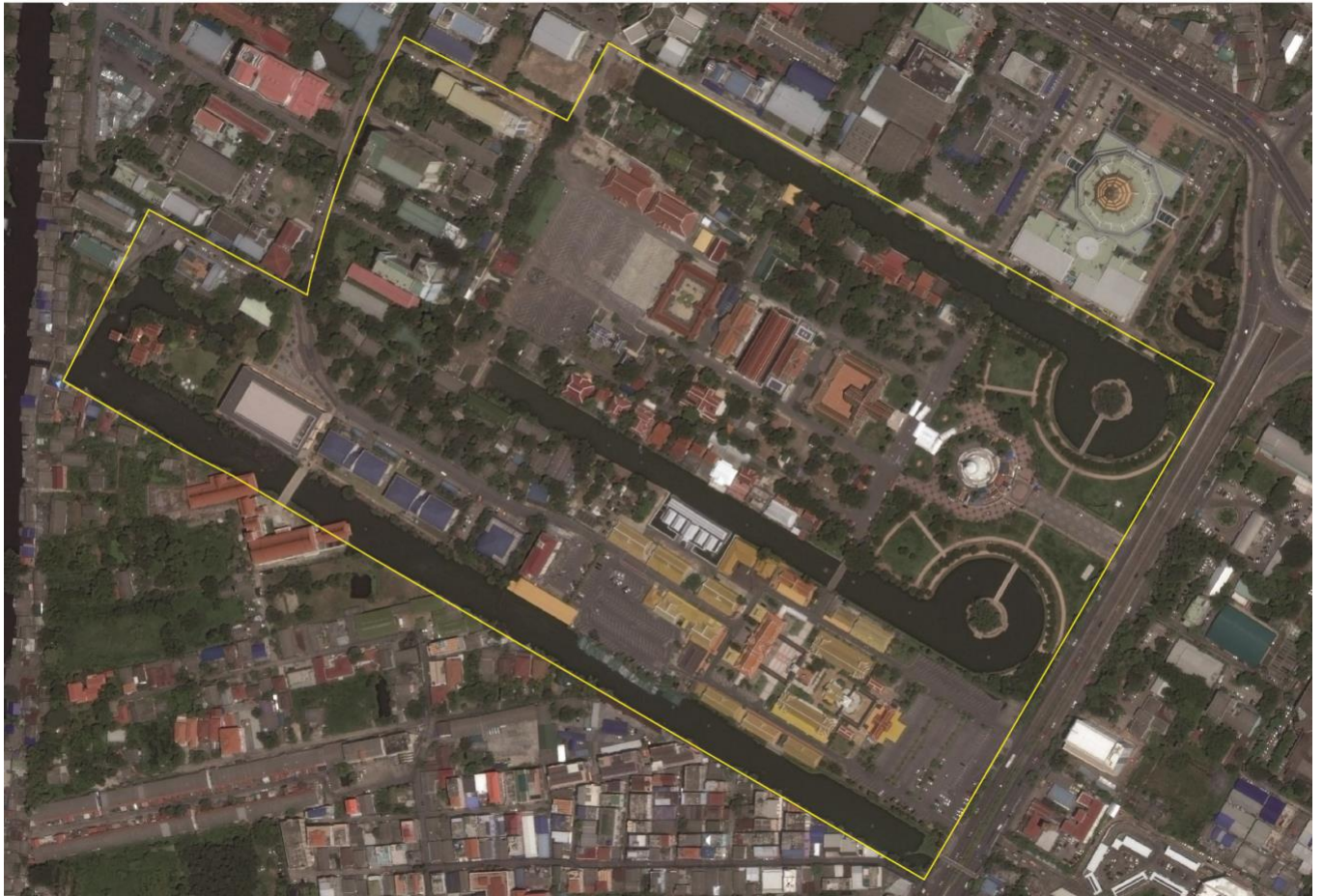
Class: Royal

Sect: Dhammayutika

Significant trees: N/A

Big Tree Awards: 2009 Bodhi trees

Location: Middle Bangkok



Date: June 5, 2015

December 28, 2015 (interview)

Time:

History of the temple

The temple property covered the area of 212 rais (83.8 acres). About half of the land, over a 100 rais (40 acres), was rented to the Rajabhak Phra Nakorn (Polytechnic school). The active temple ground covers the area of 80 rais (31.6 acres), including funeral and cremation hall,

Phutthawat (public section), and Sangkhawat (private monastic section). The temple was built in 1940 (2483) and it took 2 years to finish. It opened in 1942 (2485).

First impressions/ what taken from the interviews/visits:

- Military+Political significant site – the layout and location of the Bodhi trees are different from other Buddhist temples in Bangkok.
- A gay monk

Observation:

I arrived the temple at 5:45 p.m. There were many stray dogs in the temples.

The temple is separated into two parts; the public service which consists of 17 sala for funeral functions and the Buddhist sections with church for monks to do ceremony.

Public service section

This section of the temple has more building and paved surface for parking as it serves for funerals. I have been to this temple several times to attend several funeral ceremonies. The Sangha area was separated from the funeral area by a concrete moat. I entered the temple from the funeral area. It was in the afternoon so there were not many people because most of the funerals happen in the evening. (Traditions? Adapted to these days' people's life style that they work until 6 p.m. so the funeral ceremony starts at around 7 or 7:30 p.m., allowed time for the guests to travel to the temples?).

I stopped at the sign of the temple's map, trying to locate the temple office. Then I drove to the north side past the iron gate then crossed a small bridge where there were several merchants selling the food for fish from the moat. I drove around the church and found the temple office. It was closed on that day. The office is open only until 3:30 p.m. It was before 4 p.m. when I got there so I wrote down the office phone number and walked around to take pictures. (I found the number of the temple on the website earlier but when I called no one answered the phone). There were so many stray dogs. They did not look very friendly nor healthy so I could not walk around much.

I visited the temple again, had made a previous call and talked with the staff at the office yet still not a chance to interview anyone. This time I arrived before midday and the office was still open. I dropped off the letter and tried to make an appointment. They told me to call back in a few days. I left and called back a few times also paid a few more visits until the temple staff remembered me but I still could not make an appointment (with excuses such as the abbot is not here, he is in India, etc. I almost give up and wondered if I should change the study site). Then on the last attempt to call, another staff answer the phone call and gave me the number of the monk who is the abbot's assistant. I finally was able to make an appointment just before the end of December 2015. I went to the temple in the afternoon on December 28, 2015. I got to interview two Thera monks (older monks) and after the Tum Wat Yen (5-6 p.m.), I interviewed a novice monk just before he left for a funeral ceremony.

1) In-depth interview with a monk with high authority (C-1-1)

The abbot was not available so I talked with his representative. The senior monk has been in the monkhood since 1990 (BE 2533) (26 Pansa). He has stayed at the temple since 1988

(BE 2531) as a novice monk. I was sitting in the corridor in front of the monks' cells on the second floor of the monastic building. The wide corridor, or more like a porch, was open (single load corridor) and wide enough to have working desks, several chairs, small book shelves. It was on the north side of the building so it was nice and cool without direct sunlight. It was also shaded with trees adjacent to the building. The temple is located quite close to the old airport that is still active so during the interview, there were many flights landing and taking off which were quite noisy.

The monk gave me a bottle of iced tea and a few calendars consist of pictures of Buddha statues. After the interview, another long experienced monk came to talk to me and gave me a brief walking tour in the temple garden.

1. The two Bodhi trees. Significant trees in the temple are the two Bodhi trees. They are located in the islands in the big pond in front of the temple. The Bodhi trees were planted in 1941 (BE 2484). Field Marshal Plaek Pibunsongkhram, the former prime minister, would like to name the temple "Wat Phrachathippathai" (Democracy temple). *Kana Luang Thamrongnavasawat* received The Buddha relic from India. He also requested the Bodhi saplings from the Government of India. He got five saplings and gave two to the temple. There was also the soil from Sangvechaneeyasathan sii tambons¹ - the four significant places related with the life of the Buddha. The two seedlings were given to this temple. The other three were given to three temples in different regions in Thailand – Wat Phrathat panom Northeastern Thailand, Wat Phrathat Doi Suthep – Chiangmai – Northern Thailand, and Wat Mahathat Nakorn Sri dhammarat – Southern Thailand).
2. There were some colored scarves at the Bodhi trees. Laypeople did that. They also brought the broken Buddha statues and other worship things at the trees. In 2005 (BE 2548), the temple renovated the landscape in the front part of the temple so we get rid of all those relics. We put a stone seat –Than Vachira-art – mimic from the seat where the Buddha reach enlightenment, under the Bodhi tree. However, temple visitors still brought relics things back to the Bodhi trees as well as broken Buddha statues. People considered it a bad thing to keep these broken Buddha statues but it is also bad to throw them (Buddha statues) into trash so they put these broken images under the Bodhi trees. The temple had to occasionally clean and get rid of these things. Most people come to the temples for a funeral and to visit the Chedi with the Buddha relic. Only these two Bodhi trees have colored scarves. [The two Bodhi trees are probably the largest ones with historical significance but when I walked around, there were a few more trees around the Chedi that had some colored scarves and a few broken Buddha statues].
3. There are trees that are older than 40-50 years around the monastic buildings (*kuti*). Munka trees – similar to Thai olive trees. We have a lot of the Munka trees – Almost every monastic building has them. They do not shred leaves much but have some invasive roots issues. Because the temple does not cut them, they tend to spread out

¹ Sangvechaneeyasathan sii tambons is The four great holy places associated with the life of the Buddha- Lumbini (where he was born), Bodh Gaya (The place of enlightenment), Sarnath (The deer park where Gautama Buddha delivered his first sermon), and Kushinara (the site of Buddha's death and mahaparinirvana).

and take more and more spaces. They provide a bit of shade. There was not much wildlife on the trees. All the leaves shed at the same time. It took about one week for the leaves to completely shed.

4. N/A
5. The trees that are symbols of religion. Some of them are symbols of the temple.
 - Sala Lanka (Sal tree *Couroupita guianensis* Aubl.) – but this is not the same species as the Sala tree where the Buddha was born.
 - Bua Sawan – at the North and South sides. There are fruits and pink flowers.
 - Chompu panthip (Tabebuia)
 - The garden in front of the temple has Sala Lanka (Sal trees) surrounding the ponds.
 - Hu Krajong (*Terminalia ivorensis*) – not related to religion.

During the first period of this garden, the government chose the trees. The back side of the garden was once filled with Tabebuia and Praduk (*Pterocarpus indicus* Willd.). Today, it has become a parking lot. Some trees were moved to the front section of the temple.

6. N/A
7. Monks took care of the spaces around the monastic buildings by themselves. The public areas and shared common spaces were taken by temple staffs.
8. Areas around the big trees were used when we have students who come for field trips and learn about the life of the Buddha. Visitors are kindergarten kids to college students. We teach them to do meditation. They would sit around here (under the big tree). Sometimes they come to help clean the temple.

The temple sent requests to the Bangkean District office to help with maintenance of the front section – gardens, ponds, and the Chedi. The district office was responsible for cleaning, sweeping (once a week and before special events or religious ceremonies) mowing lawn, and pruning the place. The back sector, from the area behind the Chedi, was taken care of by the temple staffs.
9. Maintenance- shoveling, watering, and fertilizing. Pruning some longer branches that have potential to fall down. The first abbot – Somdet PhramahaVeerawong planted the trees.
10. The maintenance of temple garden is the responsibility of the Utilities department. The abbot has assigned one monk to be the head of temple garden maintenance.
11. Depends on the location and the context. There are Bodhi trees that people want and the ones that people do not want. A Bodhi tree that grows in a house is more likely to be unwanted. They are unfavorable and tend to be cut, removed, or given to the temple. “I have received many Bodhi trees. Laypeople dug out the trees that mostly grown naturally in their houses. They offered the trees to the monks. They put the Bodhi trees in planting pots and gave them to the temple. We have several Bodhi trees in front of *kuti*.”

How do you maintain those trees?

“Monks cut and trim these trees to control their sizes, to keep them tidy. Sometimes when we travel outside of Bangkok, we brought trees with us and planted them at the temple there in another province [Vinaya – monks may not plant trees, do agriculture, or dig soils]. We do not have any more space in this temple. We might be able to add some trees here.

- Tree species that are believed to have prosperous values should only be planted in temples because many of those species are fast-growing trees with very intrusive root systems that can damage structures of buildings.
 - Bodhi trees that grow on the streets tended to survive, compared with other species, because the Bodhi trees are related with religion.
12. We have no projects going on now. The front part of the temple is already a nice park.

2) In-depth interview with a monk with long experience in the monkhood (C-1-3)

I did not have a chance to meet the abbot but interviewed two *Thera* monks; a monk who is the abbot representative and a senior monk.

The monk who is the abbot representative has been in the Sangha since 2000 (BE 2543) (15 punsa in the Sangha).

1. Trees are significant because of cultural beliefs which are not relevant to the religion. In Bodh Gaya, India, people pay respect to the Phra Sri Maha Bodhi. Bodhi trees are protected and no one cuts them because they are the reminiscence of Buddhism – a place where the Buddha was born. Unlike Thailand, if the tree does not have a spirit or Rukka Thevada, people are unlikely to pay any respect to it. If a Bodhi tree grows at a wrong place, such as location that is too close to a building, it is fine to cut it. We should have a worker cut it out since it is still little. We do not pay respect to every Bodhi tree. We do not bow to any trees.
2. Colored scarves and wood sticks supporting the Bodhi trees are unpleasant. The old trees already have their charisma without these trash (colored scarves and flowers) on them. We should not put these rubbishes on the trees. People can pay respect to the trees. It is fine to bow (wai) to the sacred trees but they should not tie colored scarves or put wood sticks against them because others will be afraid to take these objects away and the areas can become very dirty. We are Buddhist monks so it is fine for us to clean it up. We do it with good intention. We clean the area and throw away everything including all those broken Buddha statues. These objects are unpleasant and should not be left here.

6. Every tree has its values. Not only the significant ones that we have to take care of. Because trees provide shade. We need trees in the temple. The temple should be shady; when people enter the area they should feel cool and calm. We do not have fruit trees so birds, squirrels, and other animals are always hungry. We put fruits in baskets for them. We do not have many fruit trees, only a few mango trees, because we do not have much space. Almost every area is paved. We emphasize planting shady trees. The senior monks are responsible for choosing the tree species.

[After the interview and the walk around the temple garden (north section- Sanghawatt area), the old monk took me to the kuti of the monk who is the landscape manager. Unfortunately, the landscape manager monk was not there. Over a year later when I revisited the temple, I was able to talk to him in August 2017 when I returned to Bangkok for another field research].

8. We use the outdoor spaces where there are big trees to sit and meditate. There are significant Bodhi trees and Mung-ka trees. Some big Bodhi trees provide a lot of shading. Many Mung-ka trees that we grew will provide more shade for the temple garden.

11. Trees have to be in the temple for people to pay respect.

12. Garden in front of the temple. The temple gave the front section to the district office. However, the new park design had cut down many big trees (The district office/BMA). Outside lobbies influenced the park design by making it more formal in celebrating the King. The big and old trees were taken away.

[The monk did not say who was responsible for the design and construction of the park. He said to me “you go find out by yourself”].

What needs to be done is to plant more big trees in front of the temple. We used to have many more large trees which had been planted by the senior monks in that front section. Now they are gone.

Then he walked around to show me the temple garden. We were in the area north side of the *Ubosot* which I later learned from the landscape manager monk that it is called *Laan Thamm* (Dhamma yard).

- The two big ficus trees fell down recently so this plaza became quite hot. We did not have anyone pruning them so the trees were very heavy. We planted Mung-ka trees as a replacement.
- There were 3 Sa-kae trees in front of Kuti 4. I broke the cement on the ground to have some soil space for those trees.
- Bodhi trees in the Lann Thamm have been covered in cement because laypeople want to help but they do not have knowledge. We have to break the concrete to make the tree survive.
- We also received some Bodhi trees from the heirs of the temple’s owner. We are still considering proper locations for the trees.
- After the two ficus trees fell, it has been very hot here. But I hope in 5-7 years, when these replaced trees grow, we will be very happy. Even when outside people sneak in and plant trees without permission, we are happy about it. These Rajhapruk trees (*Cassia javanica*) are growing and I am very happy. I am so glad that they grow fast and beautiful. Temple trees (*Plumeria obtusa*) are not good. Too many falling leaves. They do not provide shade. Temples do not need trees that only have aesthetic values. We need trees that provide shade, ancient trees (with historical values).

3) In-depth interview with the monk who is a landscape manager (Abbot’s secretary) (C-1-2)

I was not able to meet with the monk who was a landscape manager during the summer 2015 and winter the same year. I knew where his Kuti is as the old monk who I previously interviewed showed me before. On August 3, 2016, I visited the temple and dropped by the monastic section and, fortunately, finally met with him. He was during his early afternoon rest just right after lunch. It was Buddhism day so he was not going to take a long rest because he would have to go to the *Ubosot* for *Patimokkha* (recite the monks’ precepts) at 12:30 p.m. He nicely talked to me even without a previous appointment.

Landscape manager

The landscape manager monk is in charge of the section that takes care of the public assistance in the temple. The senior monk who I previously interviewed tried to introduce me

to the landscape manager but he was not at his kuti during that time. When I visited the temple again early August 2016, I decided to drop by to see if he would be available. It was 11 a.m., almost the lunch time which I expect most monks, if not going out for lunch at ceremonies outside, would not be sleeping because it was meal time. However, when I knocked on the opening door at his kuti, he was resting after lunch (11:10 a.m.). He had a quite early lunch and was going to *Patimokkha*².

Even though he was resting before the ceremony, he was kind enough to let me interview him. We walked to the office on the other side of the driveway. There were 3-4 people working there. The temple staffs showed me the meeting room with glass door and windows in the front of the office where I can take an interview.

1. Bodhi trees – The Sri Maha Bodhi at the islands in the pond in front of the temple. Bodhi trees convey religious significance. The species is the tree that the Buddha reached the enlightenment. We have two Bodhi trees at this temple. They came from India. I cannot remember the name of the person who planted them.
Another important tree is the Bodhi tree at Lan Thamm (Dhamma yard). There are two Lan Thamm, one in the north side (the Sangha section) and one in the south side. There are Bodhi trees in both sites. These Bodhi trees are significant trees in the temple. However, we do not know where they came from. As I remember, it was one of the Burmese leaders who literally planted these Bodhi trees.
2. We do not have trees with colored scarves. We only have colored scarves on the Bodhi trees. Once in a while, people come and tie colored scarves around the Bodhi trees. People who believe, it is a personal belief, come and conduct a small personal ritual. If there are too many objects, the temple would remove them. There are colored scarves, wood sticks (a long piece of wood put against a Bodhi tree in the belief that it will bring prosperity to the person who has done that). These activities are not related with religion. This is not Buddhism. We do not have any ceremonies related to the trees. [The young monk I interviewed earlier said there are ceremonies in which monks walk around the trees and meditate (C-1-4)].
3. We do not have any old and ancient trees here. The oldest trees are probably Rain trees. There were many Rain trees in 1967 (BE 2510) when I first moved here. Most trees here were Rain trees. One year, they were mealybugs (plea pang), the white bugs, and most of the Rain trees went extinct. These mealybugs ate the trees and killed them. They are still evident, the trunks of the old Rain trees. There was one very big Rain tree in front of my kuti. Now a Bodhi tree grows there. It is Po kii nok (bird's drop Bodhi (*Ficus rumphii* Blume) – a Bodhi tree that naturally grows by bird's drops) You can go take a look at the remaining of the giant Rain tree.
4. There are not any other trees that convey religious significance.
(He paused a bit before answering this question).

² *Patimokkha* is the Sangha gathering every 15 days when monks recite the 227 precepts of Vinaya, make confession, and chant together. The purpose of *Patimokkha* is for the Sangha to review their moral conducts and reassure that all the monks has the same understanding and is harmonious.

There are trees that have aesthetic values and are unique but I am not sure if we have any other trees that are symbols of Buddhism.

There are Sala trees but the Sala Lanka tree (where the Buddha was born) is a different species. The Sala Lanka (Sal tree) is similar to Teng and Rang tree (larger forest trees). We used to have them (Sala Lanka). They were in front of the Ubosot near the mango tree. We do not have them anymore. They are gone when we had the front section landscape design project.

[The old monk also complained that many trees were gone after the redesign of the front part of the temple].

5. N/A

6. Significant trees also have normal maintenance.

Because Bodhi trees are different from other species, Bodhi trees are hardy trees. They can live very long, very strong, and can survive in different conditions. Flooding or drought cannot harm them (he called the trees – sir). Not many kafak (parasites - Loranthaceae) on Bodhi trees while there often are more parasites on mango trees.

In front of the Ubosot, between the Ubosot and the Chedi, there is a mango tree, a significant mango tree. There is a stone carving with the info about the mango tree and its planter who is an important person. [He was not sure whether it was the Princess who planted the tree. However, when I visited the area after the interview, I found the mango tree and a crafting stone but nothing mentioned about the person who planted the tree].

7. There are not many activities in the garden. We use the garden occasionally such as on Religious significant days. We use the garden and courtyard for the activities and mostly leave the space empty on a regular basis. There are some college student groups that asked for permission to use the temple garden for religious activity but they have not come yet.

8. There are no rituals regarding the trees. However, there are laypeople paying respect to the trees. There are no religious ceremonies that relate to the trees. The temple holds many religious ceremonies on every Buddhist significant day (festival) – Makhabucha, Visakha, Asalahabucha, Khao Pansa, Okk Pansa. We used Lan Thamm (Dhamma yard) and mostly any space in the temple. Lan Thamm was used very often because there is a clear boundary.

[The Bodhi trees in this temple are located quite separate from the rest of the areas and closer to the street in the front of the temple which might be the reason the monks are not using the areas near the Bodhi trees much].

9. The front garden (in front of Ubosot to the main road) is taken care by the BMA office and the Bang Kean District. The district office is responsible for the lawn mowing, pruning, and taking care of the trees. They come regularly. We do not have to send any requests. We only pay them (pajjai) some compensation. They have authority to prune and clean the garden but any major changes require a temple approval.

The area behind the Ubosot is taken care by the monks in the temple. We sweep the ground and water the plants. However, for pruning or cutting trees, we have people from district office take care of those issues.

10. Origin does not matter. Bodhi trees from Thailand are also significant.

Place also does not matter. The species conveys religious meaning so even when a Bodhi tree grows outside temples, it still is a symbol of Buddhism. Location does not matter because people who believe still pay respect to a Bodhi tree no matter where it is. Not many people dare to cut or even touch a Bodhi tree.

There might be some difference between locations of Bodhi trees – inside a temple or outside a temple. The trees in the temple has their stories and their clear origins. They are documented and have proof of where they came from – India, Lanka, given by the King, etc. - while the trees outside temples do not have any documents or narratives regarding whether they grew naturally or who planted them. Although Bodhi trees outside temples receive less public attention, they still convey sacred values. People still respect them and dare not to touch these trees if they do not have to.

11. We have a few small landscape development projects but mostly like to preserve and maintain what we have.

4) In-depth interview with a monk with less experience in the monkhood (C-1-4)

The junior monk has been in the monkhood for a few months. He was getting ready to go to the funeral ceremony and waiting for the other monks to walk to the funeral area together so I asked if I can interview him. He has very dark skin and thick body. We sat outside kuti at a stone garden sitting table. There were a few sets of these stone tables. Some monks sat at another table with some laities.

1. The significant trees in the temple are the two Bodhi trees that are identities of the temple. They do not have any colored scarves or liturgical objects on the trees.
2. There are no trees with colored scarves.

[I walked around and found several trees with colored scarves in the temple].

3. I do not know any other old trees beside the two old Bodhi trees. Most trees came with the temple. They are about as old as the temple but not all of them convey the sacred values or convey any significant meanings.
4. In this temple we have trees with religious meanings which are Bodhi trees, ficus trees, and another trees. I cannot remember the name. It was the one that was on the site where the Buddha was born. Sala trees, the twin Sala trees were there when he was born and before he passed to nirvana.
5. N/A
6. We do not have any special treatment for religious significant trees.
7. There are activities that we use spaces where there are trees in the temple garden. On the Buddha day (4 days/month), we walk mindfully and meditatively around the temple and around the Bodhi trees. On the Buddha day, we normally chant around 6:30 p.m. Then the senior monks will start walking, followed by monks with less experience [not defined by biological ages], and lay followers. The senior monks lead us around the Bodhi tree, sometimes only one tree sometimes we walked around both trees. The ceremony starts around 6:30 -7 p.m. and lasts until around 8 p.m. when we move to the main building for the sitting meditation.
8. Besides those days, monks do not use the front garden with the big Bodhi trees. It is a public area which has been used mostly by the public. People came to feed the fish in the pond. [I also observed some picnic, jogging, and dog-walking].

Monks rarely use the space because it is in front of the temple. We do not have much space in the back side of the temple. We used to have some big trees in the back areas but they were cut down to build a parking lot.

It is the Sangha tradition that monks live under trees which can be interpreted that Buddhist monks should live in a simple way of life. Monks must live peacefully and simply. Trees provide these kinds of spaces that are convenient, fresh, and shady.

Without trees it would be hot and difficult to have mindfulness or practice meditation.

Monks do not pay respect to the Bodhi tree (or any trees). Buddhists believe in the three jewels – Buddha, Dhamma, and Sangha. These are the only three that Buddhists should pay respect. Monks also do not wai (bow) to spirit houses and shrines. There are many broken shrines left at the Bodhi trees. People put broken shrines and broken Buddha statues under the trees because these Buddha statues, or sometimes the images of the King are very significant. They do not want to trash these objects. In other cases, it is people who ask for something from the spirit in the trees and get what they want, then they have to bring cloths, colored scarves, and tie the scarves to the tree where its spirit helps them gain what they wish for.

12. Anything in the temple garden that needs to be improved:

The two ponds in front of the temple. People often come and free fish and turtles there.

The water in the pond is not circulated and became filthy. This area should be improved.

9. N/A

10. N/A

11. No matter where a Bodhi tree grows, its significance is still there. Its religious meaning does not decrease even when the tree is located outside of a temple. There might be a difference in the intention of planting. Most Bodhi trees outside temples are naturally grow; no one planted them. They grow naturally and when they get bigger people start to pay more attention and assign the values on to the trees. Most people who are Buddhists are afraid to cut Bodhi trees. Almost every Buddhist believes that Bodhi trees are sacred because the Buddha reach the enlightenment under the Bodhi tree.

To tie colored scarves, we call it *Amissa bucha* – to *bucha* (worship or pay respect) with objects. Thais people these days pay respect to the trees, bring objects to the tree as their expression of worshipping. This has nothing to do with Buddhism. Lay followers bow to pay respect to the monks because they believe in the Sangha as part of the Buddhism.

Buddhism section

Dogs and chicken

Phra Sri Maha Bodhi

Temple sizes

Construction site in the temple.



Figure 1: Trees with colored scarves



Figure 2: One of the Bodhi trees that received the Big Tree Awards from BMA located in the center of the pond in the front section of the temple.

Figure 3: Other Bodhi trees in the temples.

Figure 4: Lines of Hu kajong trees are visual approaching to the Chedi



C-2

Year of establishment: 1782

Area: 9.1 acres

Class: Royal

Sect: Mahanikaya

Significant trees: N/A

Big Tree Awards: 1999 Chan tree, Krang tree

Location: Inner Bangkok



History of the temple:

This is a second-class Royal temple in Phra Nakorn District at the foot of the Memorial Bridge. The temple was built in the late Ayutthaya period by a Chinese merchant named “Liap” which became an informal name of the temple. The wall painting in the Ordination hall is historical, painted by a monk who is also a talented artist ‘Krua In Khong’ during the reign of King Rama IV³. The temple was severely damaged during the WW II (1939-1945) from an air raid.

³ <https://en.m.wikipedia.org>

Observation: First impression

Date: Thursday December 17, 2015

Time: 3 p.m.

Although I have been in this area so many times, I have never visited the temple before. The temple is located on Chakkraphet Road right before the road connect with the Memorial Bridge and the King Rama I public park. With the location next to Pak Khlong Talat, the most famous wholesale flowers and vegetable market in the city, there are many small trucks, merchants, and vendors on the streets outside the temple.

On Tri Phet Road, the West side of the temple and the main road that go to the Memorial Bridge, is the main entrance to the temple. I was walking from the parking garage a few blocks away. Even though it was in December, the coolest month of the year, it was still very hot in the afternoon. There were many food vendors and merchants selling miscellaneous things on the sidewalk. Walking on the sidewalk, it was noisy with people selling things from food, snacks, small household equipment, shoes, and clothes. There was also noise and smoke from traffic and sometimes motorcycles on the sidewalk. When I walked closer to the temple, there were less shops and less street vendors. Street trees were not very shady due to malpractice on street trees maintenance. The trees were heavily pruned and did not have much canopy despite their large trunks. Behind the temple's fence, it was dense with green vegetation. Once I entered the temple, I could immediately feel the difference in the atmosphere and temperature. It was much calmer and cooler inside the temple garden. There were many trees around the *Ubosot* but also many cars parked under these trees. Some laypeople (look like poor people, homeless, or market merchants) were sitting and laying under trees. It was not a very big temple. The front section was beautiful with its historical architecture but it was not very tidy. I walked through the Phutthawat area, passed another gate and entered the Sangkhawat section. The Sangkhawat section, the private area, was more organized and cleaner. There were a few monks sitting on the porch where it was set like an office. Some young novices studied at the porch of the next building. I bowed at the monk who sat closer to the entrance and introduced myself. He was very helpful and polite and allow me to interviewed him. After that we also went to the abbot's monastic building and asked for permission to take a photo and interview a senior monk with high authority. The abbot also was very kind and charismatic. I also had chances to interview a few younger monks afterward.

Significant/big/old trees:**Location:**

Overall trees have been very well maintained. There were very big and beautiful Krating trees at the entrance of the abbot's monastic building.

- Krating tree at the entrance of the abbot building
- Tamarind tree at the parking lot
- Wa
- Banyan
- Sala
- Kaew Chaojom

1) In-depth interview with a monk with high authority (C-2-1)

A senior monk with high authority in the Sangha was in his *kuti* (monastic building). The monk I previously interviewed introduced me to him. The senior monk kindly allowed me to talk with him on that day. He has been in the Sangha since 1970 (BE 2513) (45 punsa). He lived in the rural area for five years then moved to Bangkok. He stayed at different temples in Bangkok before moving to Wat Liap. [The landscape manager monk, even though he was younger, has stayed in the temple for longer time and expressed much deeper knowledge, understanding, and appreciation of the temple garden than this high authority monk].

The senior monk started talking about the two big Kakrating trees in front of his *kuti*. They were planted when the *kuti* of the abbot was built, approximately 30 years ago.

1. There is no holy tree in the temple. We do not emphasize on that aspect (holiness of the trees) – of holiness. Most trees in the temple garden were intentionally planted to provide shading. We do not have many big trees because of the WWII. (Wat Liap was severely damaged during the war from an air raid).

Trees in the temples have the main purpose of providing shade for people.

2. Banyan tree was the only tree with colored scarves in the temple. It rarely has people come and put scarves, flower, or other sacred objects to worship the spirit in the tree. All the trees in the monastic area do not have any worship objects. The main function was to provide shade. [He emphasized on this point – mentioned it twice].

3. Big and old trees in the temple

We do not have many big trees because of the war. There are not any very old trees. After the war we renovated the temple's buildings and garden but we had to totally rebuilt the other architecture in the temple area. Then we started planting trees. The very old trees would be about 30-40 years old.

- a. Kakrating trees (*Calophyllum inophyllum* Linn.)
- b. Liap tree (*Ficus superba* (Miq.)) – Similar to the name of the temple- Wat Liap. There are different stories of Liap tree. One was about a Chinese guy named Liap who relates with the history of the temple. Another story was there were many Liap trees in the temple, especially on the river banks where the area used to belong to the temple. We used to have the waterfront area (Nowadays, the space became a road and public space) with a small pavilion and some Liep trees.
We planted Liap trees because Liap is the name of the temple. Then the trees spread and started a few more trees. This has been over the past 30 years. A few Liap trees also spread outside the temple about 3-4 years ago. They grow fast and like to grow near water.
- c. Asoke India (*Polyalthia longifolia*). There are a few Asoke India trees. Some died and we replanted some more.
- d. Banyan trees (*Ficus benghalensis*). We planted them to prevent the heat and sun in the afternoon. We planted them so we have some shade. We actually do not have much space left but we found some spaces outside the Ubosot. Banyan trees can grow very big very quickly.
- e. Kaew trees (*Murraya paniculata*) around the Ubosot are over 10 years old. (he mentioned this one later at the end).

We do not plant any decorative plants – flowers or any ornamental trees- because we focus more on the trees’ instrumental function that provide shade and make outdoor space usable. [This is opposite to Wat Rama IX where they tend to plant more species for decorative purpose].

These big trees grow very well and are easy to maintain. We only have to pay more attention during the rainy season. We have to prune them. We asked the staffs from Metropolitan Electricity Authority or the Bangkok Metropolitan Administration to come once or twice a year for the major pruning.

4. Sala tree

We used to have a Bodhi tree but it fell down. We did not plant a new one because it was too close to a *kuti* [not enough space for such a big tree]. We do not have any Bodhi trees now. The Kakrating tree that you see leans so much because there was a Bodhi tree there. The soil here is very good that is why our trees grow very big.

[Temple B-4 is located very close to this temple (10-15 mins walk) but the trees in Wat B-4 are relatively small. The monk who was the landscape manager said that there is very little soil on temple ground and it is a poor soil quality; that is why the trees there are not very well grown].

5. N/A

6. Religious significant trees receive a normal treatment. We provide regular maintenance similar to other trees. We do pruning because it is a fast growing tree (Banyan tree). Nothing special. It was easy to plant, fast growing, has a lot of leaves falling for which monks and novice monks help by sweeping the ground. The leaves fall once a year (in the fall season).

7. N/A

8. In the late afternoon, the novice monks usually sit under the trees to study. When we have religious ceremony, visitors can sit in the pavilion and under the trees. On normal days, laities come sit in the shade to escape from the heat outside of the temple.

9. Monks and novices take care of the garden. We prune all the small branches by ourselves.

10. There are two landscape manager monks. One takes care of watering plants and makes bracing. Another monk takes care of tree planting.

11. Location does not matter. Religious significant trees still serve as religious symbols no matter where they grow. It depends on the people who plant the trees. Bodhi tree is not popular to plant in the residential area because the fruits are not edible. Bodhi trees and Banyan trees are usually found in temple gardens. It seems to be a Thai tradition. Liep trees (*ficus*) are not beautiful when they grow somewhere else. They like soil with high moisture. Liep trees are beautiful when they grow near the water front.

We do not have any fruit trees in the temple. It is Vinaya that we should not grow fruit trees in the temple gardens because they can bring troubles⁴.

⁴ A senior monk at temple A-1 mentioned the same thing. Monks cannot harvest any fruits because fruit trees will bring people and animals and the fruit drops can make the temple dirty.

12. We have some ideas of planting more trees. We were planning to plant some more but some monks suggested that we have designed the master plan before. We would like to focus on planting more big trees because they are easy to maintain (compared with small ornamental plants).

2) In-depth interview with a monk with long experience in the monkhood
(C-2-3)

3) In-depth interview with the monk who is a landscape manager (C-2-2)

The landscape manager monk has been in the monkhood as a novice monk since 1986 (BE 2529) and ordained as a monk in 1996 (BE 2539) so he had 10 years as a novice monk and 19 years as a monk. He moved to this temple in 1989 (BE 2532) (26 years ago).

He was sitting at the porch on a big working table. It was an outdoor semi-formal office of the temple. He was there almost every day in the afternoon to take care of the novice monks.

1. Significant trees in the temple: We only have normal trees. There is nothing special. There are trees that provide functions.

[What kinds of function?]

We have trees and space underneath that are used like a recreation area. Temple visitors can sit under the trees. In the evening novice monks do their activities (reading) under the trees' canopy. There are no significant trees in the temple. Significant is something people give value to it? We do not have such trees. We have trees that provide shades. Temple visitors can sit under the trees to relax.

2. There are only a few colored scarves on some trees. Not that many and I think they are mostly done by coincidence without any intention or agenda. I do not know who did it. There are not many of them. One tree that I saw with colored scarves and flowers as worship was the big ficus tree on the side of the Ubosot. There are some colored scarves on some big trees – ficus tree (Liep tree) near the Ubosot. there are some colored scarves but not many. If they got too many we just take them out when we have religious ceremonies. **We do not have any particular tree that obviously has many colored scarves.**

[I later walked to the parking lot area on the north side which was still a temple property. I saw a big Tamarind tree with a lot of colored scarves, traditional Thai female dress, holy statues, toys, and images of the King and the royal family. There were people, workers and vendors, sitting under the tree. The area is part of temple's property but it is a parking lot outside the monastic precinct. There is a shrine but the space is outside the temple's wall. The monk might not consider it a part of the active temple ground].

3. Big trees in the temple: There are not many existing trees left. A Kakrating tree (*Calophyllum inophyllum* Linn.) is one of the very big and old trees here. This tree was in the Buddha's life story. A kakrating tree is similar to Saraphi tree (*Mammea siamensis*) but Saraphi has yellow flowers, round fruit; the flower bud comes out between two leaves. A Kakrating tree has yellow flowers, round fruit. Flowers come out at the tip of branches. When there are fruits, squirrel always come to eat them. It was not a problem because we sweep the ground every day. Monks and novice monks work together on the garden maintenance. Sometimes people from outside who came to beg for food

also help with the cleaning too. Kakrating trees are deciduous trees but it never sheds all the leaves at the same time. Kakrating trees have a very dense crown. We used to have two Kakrating trees in front of Ubosot but they have been cut down. [Why they were cut?] He just smiled and did not say anything. [Did the trees die?] No. They did not die. We cut them because of other reason. Because they caused visual obstacle. People cannot see the Ubosot very well. It happened almost 20 years ago. Wa tree is also another big tree. It was in the back.

[He seems to have very good knowledge on trees and know very well about the temple gardens and its history, especially when he talked about Kakrating and Sarapii trees. He was very humble and practical. He said monks are taking care of the trees and landscape in the temple].

4. Religious significant trees:

- Bodhi trees were in pots. We still do not have spaces for the Bodhi trees. There were in the pot for 30-40 years. We used to have some Bodhi trees but prevalent wind and heavy rain made them fall down.
- Banyan tree is on the left side in front of the Bot.
- Sala tree takes a long time before they grow.
- Asok Nam tree
- Kaew Jaojom

[He mentioned these trees twice. He also talked about them since the beginning. I supposed that he was the one who planted them so he thought about these trees and remembered them very well].

We planted (added) them in front of and on the side of the Ubosot about 10 years ago. When people donate trees to the temple, we plant them. We did not have much chance to choose the tree species that we plant. We have enough maintenance but these trees have quite shallow roots because there was very shallow soil depth in the city. Bracing supports were needed because some trees fell due to the root systems that had previously weaken.

- Pikul tree (*Mimusops elengi L.*). We have a big Pikul tree right by the wall outside. It was the tallest tree and older than 50 years old. There were many Pikul trees but there were a lot of worms. If they died it was because of the worms. We did not know the way to prevent it. We did not know how to examine this tree symptom.

5. N/A

6. +9.

7. N/A

8. Monks and novice monks usually sit under the trees after *tumwat yen* (the Evening Chant) around 4 to 4:30 p.m. Sometimes we read and study at the seats under the trees. Monks also responsible for sweeping ground and cleaning the areas in the temple, including around the trees.

9. We, monks, take care of the temple trees by ourselves. Big trees do not need that much maintenance. We water small trees (2-3 m) and shrubs. Monks take care of the trees, including pruning, as we see suitable. We cut branches that block the way or might cause liability and trim the canopy to make it airy. Sometimes we have to climb up the ladders to cut the upper branches.

[Do you ask the district office to come help? many temples do that].

I know it is not very convenient for us to do it ourselves. [He smiles]. We have to do it when they were no outside visitors. The district office sent staffs sometimes when big trees fall but we usually do it by ourselves.

[Is it against the Vinaya if monks cut trees?]

It is wrong if we look in that aspect but sometimes we cannot have other people do it (cutting/pruning trees) for us. It is difficult to contact the district office and there is always a high cost that we have to pay. [This temple did not have any tourists and very few temple visitors when I visited. I saw workers who might have worked their night shift in the flower market and slept on the bench under the tree in the temple. Regular temple visitors are merchants and workers who seem less likely to provide big donation money to the temple. They might pay for the parking spaces which contributed to the temple revenue. The temple garden serves as an urban public space especially in this old town area where open spaces are very limited].

Bodhi tree – laypeople would have the feeling that it conveys some significant meaning and we should respect it. The Buddha sat under the Phra Sri Maha Bodhi tree which could be Bodhi, Chan, or Kakrating tree when he reached enlightenment. For Gautama Buddha, Phra Sri Maha Bodhi tree that he sat underneath was a Bodhi tree (*Ficus religiosa L.*). However, other Buddha sat under different trees. For Buddhist monks, Bodhi trees have significant sentimental values. Their instrumental values are not as much as other trees because Bodhi trees do not have woody cores. They do not provide material functions. Nevertheless, it would not take much effort to care for the Bodhi trees. We treat them (Bodhi trees) in a similar way like we take care of other trees in the temple gardens. Most of all, we (monks) do not worship or pay any respects to Bodhi trees.

10. We do not have a specific person taking care of the trees in the temple garden. Luang Pi (senor monks) can order and teach younger monks to take care of the trees.
11. **Location does not matter.** Bodhi trees still have significant meanings even when they grow outside of a temple. The meaning and beliefs are still the same. However, the Bodhi trees that grown outside are mostly naturally grow. No one plants them. Bodhi trees that grow in the house usually are a Bodhi tree that grows by itself. It grows too big until people are afraid to cut it. A big Bodhi tree was revered (have deep respect) by people.
12. You can ask the abbot about any new landscape development projects. We have limited space which make it hard to plant any new trees. Some old and big trees grow so big and have impact on building structures.

4) In-depth interview with a monk with less experience in the monkhood (C-2-4)

The junior monk has been in the monkhood for 3 years. He is 28 years old.
[He looks like 18 years old].

1. Significant tree in the temple - Liap tree (*Ficus superba (Miq.)*) is the oldest and biggest tree in the temple. The name of the tree was used to name the temple. The Liap trees are very old – several hundred years. The formal name of the temple came after the

WWII after the temple got damaged from a bomb. People helped by donating to renovate the temple.

2. Colored scarves and some small statues were found at a small tree (2-3 m. height) near the parking lot. There was not many of them. People from outside of the temple put the objects on the tree. We let them do it as long as there are not too many.
3. Besides the Liep tree, old trees in temple gardens are Mango and rose apple trees which bare fruits but not very many. We also have other trees like those in other temples. [The abbot said there is no fruit tree but the young monk mentioned them after the Liap tree. Mango trees seem to be a very common species found in most of the Thai houses but not very common in temple gardens].
4. Trees that convey religious meanings are Bodhi trees but (he paused and looked around), I am not sure if we have the Bodhi tree in the temple. I do not know.
5. N/A
6. N/A
7. Trees have influences on the Sangha's life. When monks practice meditation, trees help make us feel fresh and healthy. Sitting under the trees enliven our minds. When we see the greenness of the trees and stay close to the trees, we feel healthy and calm which in turn help us in practice meditation.
8. Our kuti has a Liap tree nearby so we get the benefits from the trees, from its shade. The canopy prevents the strong sun and keeps our resident hall cool. We do not need air-conditioning in the kuti.
9. These big trees are strong and healthy. We do not have to take special care of them. No water required. We only sweep the ground when there are leaves falling. Monks and novices sweep the temple courtyard. We do it in the morning, midday, and in the evening. This is a voluntary task. It is not a rule that every monk is obligated to do.
10. N/A
11. People who know that Bodhi trees are symbols of religion and will always remind them of religion when they see Bodhi trees no matter where they are.
Either in a temple or outside temples, a Bodhi tree will make them think of Buddhism; Buddha, Dhamma, and Sangha and create a pure mind. Bodhi trees will give benefit to the people who see the connections of the trees and religion.
 - Location does not matter.
 - Specie
 - Sizes also have impact on how people perceive the values of trees (ecological aspect). Bigger trees provide food and habitat for more animals. The bigger the tree is the more warmth and hospitality it can give to the wildlife.
 - Liturgical articles that people bring to worship and adorn a tree are important factors that make the tree sacred. These relics are evidence that represent the beliefs of holy spirits in the trees. People tend to have more respect when they walk past a tree that has been adorned or has worshipped objects.
 - They are afraid of the spirit and try to be very respectful to avoid disrupting the spirit in the tree. Any profane actions may cause the spirits to be upset and might in turn cause

bad things on the people who disobey. Even if you do not believe in the spirit residing in the tree, you would better not disrespect the tree and the spirit in it.

Trees with liturgical worship objects are the ones that convey significant meanings because they might have holy beings residing in those trees. We must pay attention and be very cautious when we are around them. We must be aware and have self-control when we are near the trees.

[Do you pay respect to the trees? (Bow to the trees?)]

No, we, Buddhist monks, only pay respect to Buddha, Dhamma, and Sangha. We do not bow to trees but laities can do so.

Rukkha Thawada (a tree angel) is the lowest class of angels who reside in trees. Bigger trees mean bigger houses. People worship the spirit in the trees to please them and then the spirit (Deva or angel) will help them in return. People bring all liturgical objects such as food, flowers, and incense sticks to worship the trees and believe that it will be an obligation that the spirits will return the flavors (*Boon khoon*).

The sentient beings, including Deva, manusa (humans), Bhrama, and animals, are reincarnated in the cycle of Samsara. Everything is impermanent (Also see Gethin, 1998: 61). The act of tying colored scarves around the tree, worship with liturgical relics and all of the rituals are *Samanyaluksana*⁵ (characteristics of existence) that make trees become sacred.

12. We will replant trees that fell. This year, a mango tree fell because of the storm. We will plant a new one in front of the Pavilion of Somdej.

Remarks:

The temple focuses more on instrumental functions of the trees. They are practical and Buddhist monks take regular trees of these old trees by themselves. This is the only Royal temple in my study sites that does not have a Bodhi tree. They do not emphasize the religious meanings of the trees more than their pragmatic functions that the trees provide- shade, cool down the temperature, and support health and well-being of the monks and temple visitors. This one of only a few temples in which monks mentioned openly about their roles on tree care and landscape stewardship. This is the only temple that monks literally explained how they provide care for temple trees. The trees in the temple gardens are in good condition.

Public areas of the temple are widely used by local people. There are many merchants from the nearby flower markets and local visitors who utilize temple spaces in the public section.

⁵ *Samanyaluksama* or characteristics of existence is literally translated to 'an ordinary appearance'. In Buddhism *Samanyaluksana* means the character that every living being has in common which are 3 characters; anitya/anicca (impermanent), dukkha/dukkha (suffering), anatman/anatta (not self).



Figure 1: The abbot sat under the heritage Kakrating tree in front of his monastic building.



Figure 2: The old Banyan tree was covered with piles of leaves and organic trash from the temple garden.

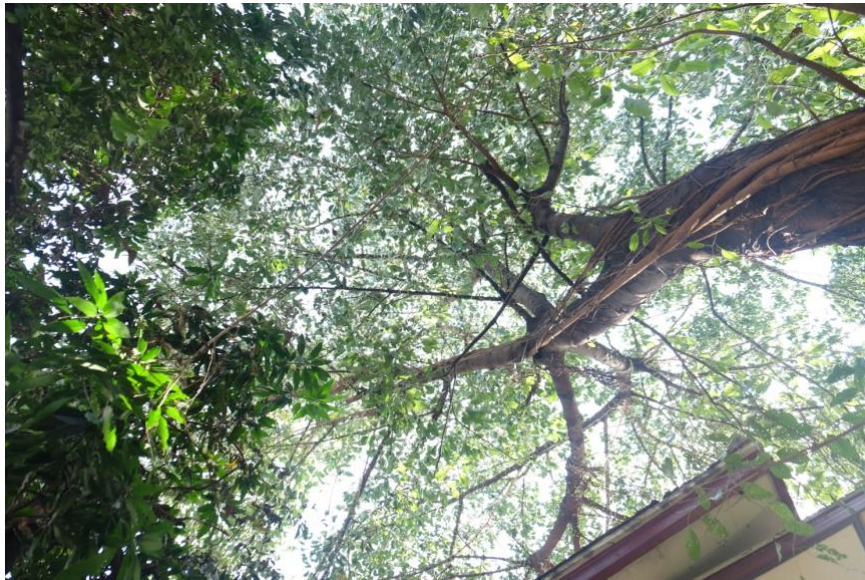


Figure 3: The Banyan tree provides shade in front of the monastic building. Some of its branches were cut off because they were too close to the building.



Figure 4: The old Kakrating tree was leaning to avoid the shade of a big Bodhi tree. Now the Bodhi tree is no longer there but many trees in the area have not been growing upright due to the shade.



Figure 5: Another heritage Kakrating tree in front of the monastic building was also leaning significantly because of the shade from a Bodhi tree's canopy that was once there. The upper part of the tree grows vertically indicating the time when the Bodhi tree died and the Kakrating had more direct sunlight and no longer had to lean away from the shaded area.



Figure 6: Seating areas under tree canopies where Buddhist monks and temple visitors can rest in the shade.



Figure 7: Sal tree, another religious significant tree.

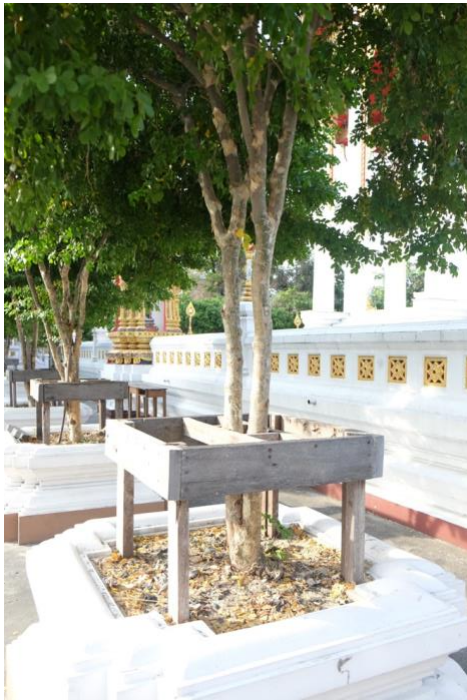


Figure 8: Lines of Praduk trees around the Ubosot buffered the pollution from the busy street outside the temple.



Figure 9: Big Banyan trees in the parking lot outside the monastic precinct provide shade for temple visitors. Many local merchants regularly use the parking spaces in the temple.



Figure 10: regular local visitors tie colored scarves around these big Banyan trees in the parking lot with a sign asking to stop the engine while parking the cars.

C-3

Year of establishment: 1954

Area: 18.5 acres

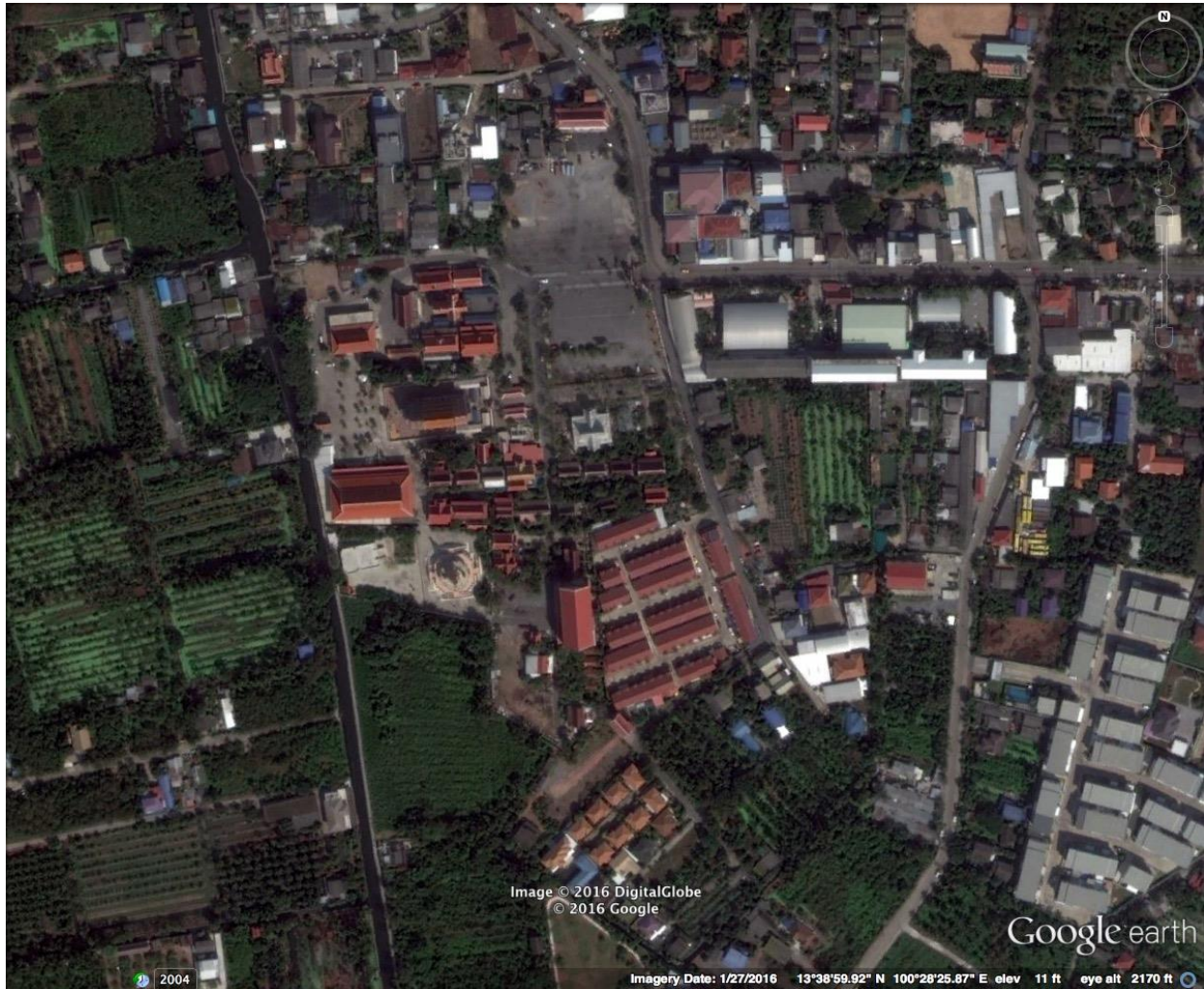
Class: Private

Sect: Dhammayutika

Significant trees: N/A

Big Tree Awards: N/A

Location: Middle Bangkok



History of the temple

The temple is located in the southwest area of Bangkok in Bang Mod district. This district is a quiet suburb and close to the sea. There were once many orange orchards in the area. Brackish water gave the fruit sweetness and a unique taste. Urban sprawl, with many housing projects and commercial malls, caused the diminishment of the orchards. The temple was built in 1954.

Observation:

Date: Tuesday Dec 15, 2015

Time: 1-3:30 p.m.

One day before the Phra Sangkharaj's funeral

Most of the senior monks have to go to Wat Bavornnives to prepare the ceremony.

The entering approach has some similarity with Wat Mahabutr – four lanes minor street, market with many vendors, and many stray dogs. The temple was quite large. I went there with my mom. We asked people where we can find the temple office.

The first tree I noticed was a tree on the right side at the end of the main driveway from the entrance. There were several colored scarves, flowers, a big table with many different statues, fruits, and water at the tree. A few people sat there, and a monk stand there with an umbrella in one hand and put another hand on the tree trunk. I was planning to go talk to him after I talked to the abbot. We went to the office. I knocked on the first door, dark-film glass door, of the first building on the right then slid the door open. An old, very thin monk was sitting in there with large sets of tables with different sides of Buddha images and statues behind him. He told us that most monks are gone today for preparation of the funeral. We walked to the building, the one before the last one where there is a sign "temple office". We were about to walk up the stairs (3-4 steps) when a female worker who sat near the stairs told us that there was no one at the temple office.

Markets started around 3 p.m.

The tree was tied with colored scarves and flowers. Next to the tree was a table with many statues, drinks, and food. Behind the tree, there were a few small chedi where people put their death relative's ash inside. I asked an old lady who walked with a big blue basket to the market whether she knew what kind of tree it is and why people pay respect and worship the tree. She did not know. I asked a few merchants at the market whether they have done the ceremony or worship the tree. None of them have done that [which I doubt that because of many liturgical objects under the trees]. The egg shop merchant who is named 'Yai Noi', is the one who knows about the tree. She is an expert. I visited the temple several times but could never find Yai Noi.

1) In-depth interview with a senior monk with high authority (C-3-1)

The abbot was not at the temple when I had the first visit in December 2015. I had a chance to meet with a senior monk with high authority in August 2016. He was a very old monk. He has been in the monkhood for 62 years since 1954 (BE 2497). He moved from Wat Baromniwas 30 years ago. He spoke with a very low voice and kept turning to the window in his back to see the garden outside.

The senior monk was about to have lunch when I arrived. I was at the office and found 10 monks were having lunch (hotpots). They directed me to the abbot's cell. There were two women at the outdoor area in front of the abbot's room. The older lady told me to enter the room. There was a large dining table. Three monks were there. I introduced myself and asked to interview the senior monk. One of the monks told me to wait until he finished lunch. The senior monk gave me a small plastic bag of Thai coconut dessert. I went there with my mom so we left the room and waited outside. A few monks went walking in and out. There were a few

trays of food that people offered to the monks. The two women separated the food into desserts and main dishes then started eating. They told us to help ourselves with the food. After 45 minutes, one young monk came out and told us the senior monk has finished the meal and ready to take his afternoon rest and can talk with us now so we went in the room. I reintroduced myself. I was sitting quite far so I tried to talk very loud but he could not hear me very well. He seemed to be very kind. It was hard hearing him because his voice was very soft and low and he kept turning to his back to see the trees behind him. There were two other young monks in the room. They helped convey the conversation.

1. The significant tree was the one that was planted by Princess Chulabhorn – the Sala tree (*Couroupita guianensis Aubl.*) in 1999 (BE 2542). We built some walls surrounding it.
2. Trees with colored scarves? [The monk smiled when he talked about it]. Yes, there were Tarn tree (Toddy Palm *Borassus flabellifer*) and Takien tree (*Hopea odorata*) in front of the temple near the entrance. The colored scarves have been there for a long time. Laypeople tied the scarves and put flowers on the trees.
3. Temple visitors adorned these trees with colored scarves and flowers. The temple left everything there.
4. Bodhi tree has more religious significance than other trees. We used to have a big old tree but we cut it down because of the construction project (Luang Pu Munn sculpture). We were trying to move the Bodhi tree but because it had very long roots, it died after the move. It was a Lanka Bodhi [a Bodhi tree from Sri Lanka which seems to have more special meanings related to Buddhism]. However Bodhi trees are quite easy to plant and grow. They are a few naturally grown Bodhi trees in front of the temple.
5. N/A
6. We did not have any special treatment for these special trees.
7. I like trees. The temple does not have many trees. Trees are very important for Buddhism in term of meaning that they convey. Some such as Mango trees bare edible fruits for humans.
8. We do not use much of the outdoor place. We normally use Multi-purpose Hall (Sala Kan Parien) and the Main pavilion (the great Sala – 6 stories) for meditation activities.
9. Monks and novices help take care of the temple gardens and the trees in the temple. District office occasionally come help with the pruning. We do not need to call them.
10. N/A
11. Place does not matter. Bodhi trees convey significant meanings no matter where they are.
12. New projects in the temple – *Hor chan krob rob 110 pii Luang Por Pleam* (100 years anniversary dining hall), *Sala Luang Pu Mun*

2) In-depth interview with a monk with long experience in the monkhood (C-3-3)

N/A

3) In-depth interview with the monk who is a landscape manager (Abbot's secretary) (C-3-2)

The landscape manager monk has been in the monkhood for 15 years. He was working on the small garden/landscape area in front of the Ubosot. When I introduced myself and offered that I could go look at the garden, he seemed very happy. The monk called himself a

garden designer. He has been in the Sangha for 15 punsa and has stayed at the temple for 13 years.

1. The oldest tree in the temple is the Toddy palm tree. It is in the market on the temple property. The temple covers the area of 41 rais.

There is no sacred tree. In Buddhism, there is no holy tree. We have prosperous trees. Buddhabucha trees [I never heard of it. Do you have Buddhabucha trees here?]. Yes, we do have two Buddhabucha trees here. Just recently got them. We do not plant them yet. We keep them behind the monastic building. They are still small, about the breast height. The full growth will be the same size as a rain tree. It has pink flowers similar to Rain trees' flowers. But the flowers of Buddhabucha trees will be darker pink and fragrance. I am the one who finds trees for the temple garden. Sometimes laities gave trees to the temple. Regularly, monks used donation money to buy trees. We try to have more trees to create a comfortable atmosphere and reduce the heat from a very hot climate. Without trees, the temple would be very hot.

There are no holy trees. We only have very old trees in the temple.

Sala tree was planted by the Princess Chulabhorn in 2005 (2548). *Tud waii Look nimit* ritual. Mostly when an important person come visit, we will have them plant a tree. It is an old traditional belief. When we visit someone's house or some places, there will be a tree planting (by significant persons) to be a symbol that we have visited the place. Our King (Rama IX) also planted trees at places he visited to be an example that when he visited the place or any provinces, at least there are trees that he planted in each province [this is exactly what he said. I think it is a bit ridiculous the way he chose the words to explain his belief].

2. Trees with colored scarves – There is only one tree with colored scarves – the Toddy palm trees. [When I ask the first question about sacred or holy trees he mentioned the Toddy Palm tree but said it just is the oldest tree, not the holy tree but he can answer right away that the Toddy Palm has colored scarves and people worship it with relics and flowers – colored scarves and holy or sacred are not related?].

Temple visitors tied colored scarves. There are only scarves, no food, flowers, or incense. The toddy palm tree is the oldest tree in the temple. It was there since the beginning of the temple, in 1957 (BE 2500), or even before. It could be over 60 years old.

3. Toddy palm tree does not need much maintenance. If we over care the tree, it will not grow well. It is better to leave it grow naturally. We used to have two Palm trees but one of them died. Around BE 2540, BE 2544, the parking and market plaza were not paved yet. In the year BE 2533-2534, we started having market. The plaza ground was bare earth. The previous abbot did not like to have people sell things in the temple.
4. Trees with significant meanings are Tamarind trees. We have two Ton Kham (Ma-kham-tamarind tree). They were given from the temple's owner (the laity who was the property owner and gave the land to build the temple). Tamarind trees are also considered Prosperous tree – trees that believed to bring fortune.
5. Lanka Bodhi tree is another prosperous tree. It is near the Chedi. It was not very tall, about a three story building. We try to plant trees that provide shade. We have many Asoke tree, Indian Asoke, Asoke raya (Orange flowers in the back of the temple). Monks

and novice monks take care of the trees in the temple garden. We ask permissions from senior monks. If we get approval, they will give us money to buy trees. We have to make the most efficiency and aesthetic.

I am the one who takes care of the landscape in the garden.

6. N/A
7. We *tum wat* (morning and evening chants) in the area with trees. Some trees have edible parts. Monks do some activities under the trees. Gardening is one of the ways to make merit (*tumboon*). It is as if we create happiness for others. When people see a beautiful garden, their minds are relieved from sadness. People with sorrow can be happy. Happy people will be happier when they see a beautiful garden. It is the monks' duty to help people getting away from suffering or relieve their sadness. People who plant trees and take care of the garden will get merits from doing so.
8. We have only one biggest tree. It was messy in front of the monastic building. Now we design the garden and have some seating spaces.
9. Bangkok office (BMA) comes help with the pruning. Monks are responsible in watering and adding fertilizers. We do not use chemical fertilizers.
10. **Where there is a Bodhi tree, there is a temple.** People in rural areas believe that Bodhi trees are symbols of Buddhism so wherever a Bodhi tree grows, the place becomes sacred as temple grounds. Bodhi trees are beautiful and have high values. It does not matter where it grows.
11. General garden design. We have a lack of gardeners. Monks do the design of the garden and choose the trees. What do you think? Are they beautiful? We do not have many ideas. We want to plant more trees. We want to have more students. On Makhabucha day or Visakhabucha day we have students come to practice meditations. Students come from schools. Each grade planted one tree. We have paper signages put on the trees that the school kids planted. Some students came back to visit the trees they planted. School kids from public service classes come to the temple to sweep the ground, collect trash, clean the temple, fertilize and water trees. We also have fruit trees such as mango, tamarind, guava, papaya. Children who live in the temple collect and eat the fruits. Monks have to refrain from cutting any living greens. However, sometimes the rule is compromised. We can cut branches and prune the trees to keep them nice and tidy.

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (C-3-4)

A very humble three punsa-monk said that there are no sacred trees on the temple ground. He is 50 years old but look a bit older than he actually is. My mom started talking to him about where he grew up and how he became a monk in this temple. They talked about the history of the temple, the big inundation a few years ago, communities around the temple; then I started my interview.

1. There is no sacred or holy tree. We only have some very old trees. Some big trees are on the streets, in the temple, or in the village. There is Takien tree – a very big one.
2. We do not have any trees with colored scarves around it.
3. I am not sure how many big trees we have in this temple or where they are.

4. Trees as a symbol of religious:
We do not have a Bodhi tree in this temple but we do have many trees. Champi (White Champala) at the canal bank. You can see the Champi flowers falling on the ground along the canal. There are also some big trees along the street around the Kuti (monastic cells). Some trees along the canal were just recently cut down due to the new monastic building construction.
5. N/A
6. N/A
7. Trees in the temples help provide shade. They have vibrant color yet create a calm, natural atmosphere. Trees also provide wildlife habitat. You can hear the birds singing. Some other animals can live, eat, and rest under the tree canopy also. There are many birds here. [I saw/heard birds, butterflies, and squirrels]. The trees make animals very happy. Hence, humans, including monks, are happy in this peaceful environment. If we do not have trees, it will be hard to live. It will be very hot and could make us feel upset. When the body feels uncomfortable, it will be difficult to keep the mind at peace.
8. N/A
9. Novice monks help pruning the trees in the temple garden. For the higher and long branches, we have some regular lay visitors help cutting them. Monks sweep the ground morning and evening and take care of their own residential areas.
We plant more trees. The abbot wanted to plant more trees.
 - Species selection – depends on which species lay supporters donate to the temple. Most of the times they are species that are believed to bring prosperity.
 - Monks are not allowed to plant trees because digging soil might kill animals living in it. Prohibition against killing life is one of the most pivotal precepts that monks must refrain from. Monks also cannot cut trees because it might be encroached and jeopardize some wildlife living on the trees.
 - Novice monks (Nen) hold much less precepts so we request them to take care of this task. There are some other tasks that might violate the precept that the novice monks must maintain. We ask lay supporters to help.
 - There are no fruit trees in the garden.
12. A new project at the temple is a big statue of Luang Puu Mun and meditation courtyard in the back.
[we walked there and saw an open large concrete pavement plaza in the afternoon heat. There were some lines of trees, Sok nam with orange flowers and a big tamarind tree]. The meditation courtyard was built on the donated property that temple just received from people. We also renovated the Ubosot.

Remarks:

This is one of a very few temples that monks take care of the trees and openly discuss about it. They clearly state how they compromised the Vinaya and reinterpret the Buddhist monks' precepts. Although there are not many big trees and no heritage large trees, the trees in the temple gardens are doing well.

The landscape manager monk called himself a garden designer. Many responses from the senior monk are opposite from the junior monk's answer. The senior monks

mentioned fruit trees and Bodhi trees but the junior monks said there are no fruits trees and no Bodhi trees in the temple garden. I was not sure what are the reasons. Many junior monks from my interview often said “I don’t know much about trees in the gardens”; however, this junior monk, who is quite old, did not say he doesn’t know.



Figure 1: The heritage holy Toddy palm tree in front of the temple. The first tree that every monk mentioned when being asked about holy trees in the temple garden because of its location that is very close to the temple entrance. Everyone has to pass the tree when entering the monastic precinct.



Figure 2: Taken tree or Iron Wood Tree (*Hopea odorata*) in front of the temple. It is next to the parking and multi-purpose plaza which is used as a market in front of the temple. There are colored scarves and tables with small holy statues, flowers, and water for worshipping the tree.





Figure 3: The heritage large Tamarind tree in the back of the temple.



Figure 4: Two significant Tamarind trees that the temple received from the property's owner's family. The trees were planted for many years but do not grow very big because of the concrete pavement that prevents water and air ventilation in the limited soil space.

Figure 5: A Sal tree or Canon ball tree (*Couroupita guianensis Aubl.*) conveys religious significance as it was believed to be the tree in the location where the Prince Siddhatha or the Gautama Buddha was born.



Figure 6: A line of old Asoka or Soke narm tree (*Saraca indica L.*) along the canal in the back of the temple. The trees provide shade for seating spaces under their canopies.

D-1

Year of establishment: 1963

Area: 6.3 acres

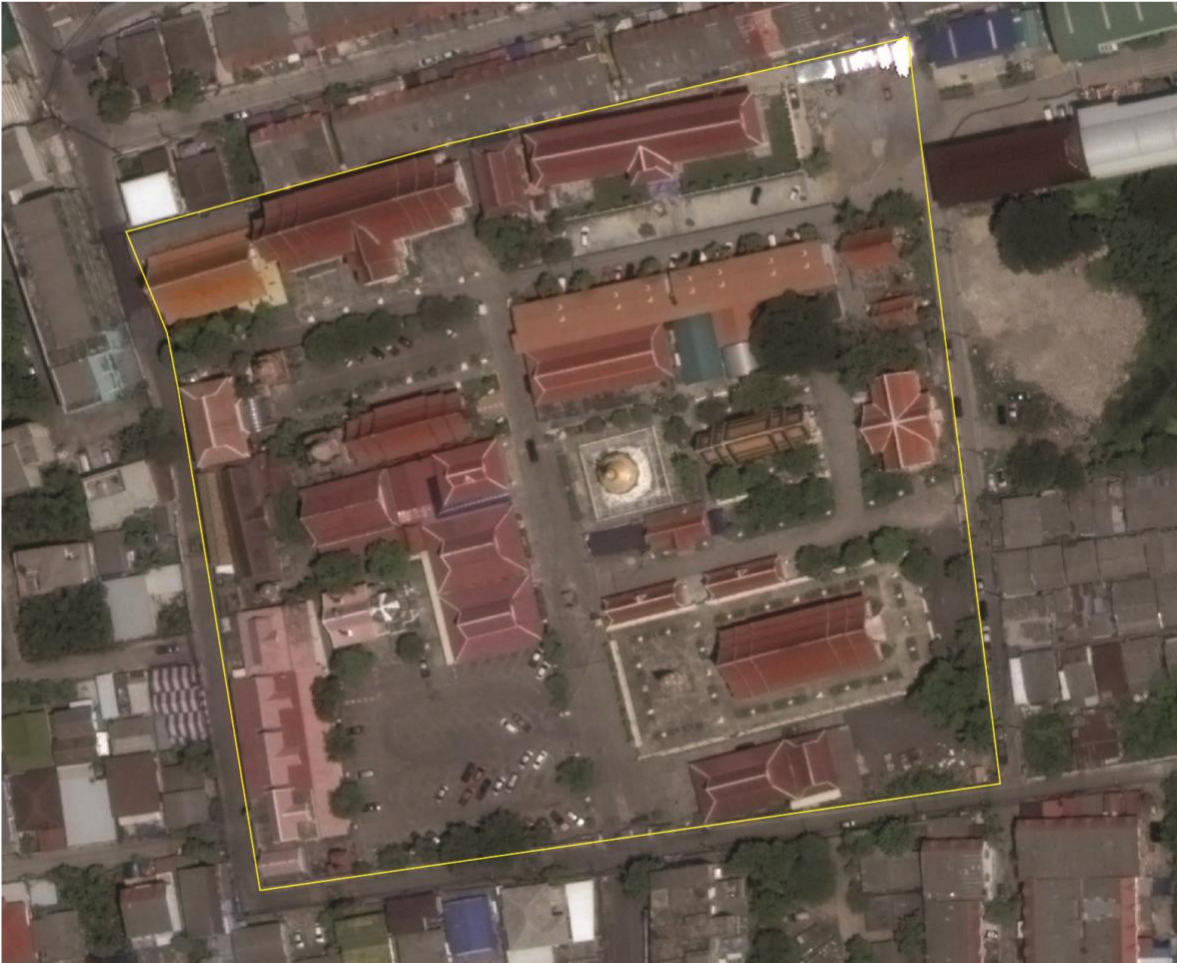
Class: Royal

Sect: Mahanikaya

Significant trees: N/A

Big Tree Awards: N/A

Location: Middle Bangkok



History of the temple

The temple was previously built in 1856 (BE 2399) by a wealthy Laotian. It was abandoned after the decease of the last abbot. The temple did not have any supports from laypeople because its remoted location surrounded with rice fields without any villages nearby. In 1963 (BE 2506), the temple was founded and became a center of the community. The old name of the temple is “Wat Tung Rangsit”, a temple in Rangsit field. In 1965, the King supported the temple and elevates it status to the second class Royal temple with the Prince became the main patron of the temple With the new status, the new road was built from

Sukhumvit road and it has changed the way people access the temple and the land use inside the monastic precinct.

1. Friday December 25, 2015 1:30 p.m. make an appointment with a monk with high authority
2. Sunday December 27, 2015 9:10 a.m. Interview a monk with high authority
3. Wednesday January 27, 2016 9:30 a.m. Interview (2 monks –the abbot deputy and a senior monk)
4. Sunday January 31, 2016 4:30 p.m. Schedule for an interview with the landscape manager monk (secretary)+a young monk (6 p.m.)

Additional questions:

- Any khlong or river close to the temple?
- Old images of the temple
- History of the temple

Observation:

1. The temple is at the end of the small street – Wachirathammasatit road or Soi Sukhumvit 101/1. It is 3 km from the main Sukhumvit road. It was quite hot when I enter the temple for the first time in the afternoon.
2. The weather was much cooler on the other visit in the late afternoon.
3. I called the landscape manager monk around 4:30 p.m. to confirm if I can go to the temple now. I was at my uncle’s house which is only few minutes drive to the temple. The abbot’s secretary asked if I could go there at 6 p.m. because he was about to attend the evening chant ritual (evening *Tum wat*). I arrived the temple 5 mins. before 6 p.m. with my aunt. The abbot’s secretary’s office was locked and no one was there. We wandered around the temple and checked out the small new ornamental garden in front of the church. The weather was nice during the golden hour when the sun was about the set.

I saw a group of monks doing some ritual at the stupa behind the Ubosot. A temporary shelter located next to the stupa had numbers of cows standing underneath – the temple had a campaign asking for people’s donation to buy the lives of these cows. There was a group of people, all in white outfits, performing a ritual (prey at the stupa) with those monks. Not so long after that they finished the ritual and started walking back to the Chedi. I asked the monk where I can find the abbot’s secretary. He said at his office but he was not there. I walked back with one monk and told him that I made an appointment to interview a senior monk and a young monk but they were not there. The monk who walked me to the office then asked another monk who seems younger than him to talk to me.

1) In-depth interview with the priest with high authority (D-1-1)

Sunday December 27, 2015 9:10 a.m.

The senior monk is the ecclesiastic of Phra Kanong district. He has responsibility in the first approval of every temple construction or renovation projects in the district before being pass on for approval to the district and provincial ecclesiastical (Jao Kana Kwang (central)–Kate (district), Jungwat (province)).

There were two female visitors in the senior monk’s pray room when I entered.

The senior monk was very kind. He has been in the monkhood as a novice monk since 1954 (BE 2497) and became a monk (Bhikku) in 1961 (BE 2504). He is now 61 punsa (BE 2015). He is 74 years old. He is old but still looks very healthy.

When I introduced myself he talked about his travels many years ago. He has visited the US before. He came to Berkeley and stayed at the Thai temple in Berkeley for a month. [His phone rang so he got up and walked to the table to pick up the phone and also turned on the AC].

There is a Bodhi tree. The Bodhi tree is the one with colored scarves and many Buddha statues and images underneath. He mentioned it without any hesitations [Unlike some other temples that refused or avoided to say that there are trees with colored scarves in their temples].

People put broken Buddha statues there (under the Bodhi tree) because they do not think it is appropriate to throw away Buddha statues.

1. Significant trees in the temple:
 - a. Bodhi tree – we intentionally planted it. [Many Bodhi trees found in the city are naturally grown by the seed from birds drop or wind]. This Bodhi tree is about 30 years old.
 - b. Sala
2. Trees with colored scarves –Bodhi tree. Temple visitors put the scarves on. We just left it there. Some other old trees are Mango trees and Santol tree. Besides that there are mostly newly planted.
3. N/A
4. Pikul tree – have fragrance flowers that people can use to worship the Buddha. Temple tree / Plumeria was not very popular but now we see them everywhere. Koi – topiary as a decorative plant in the temple.
5. N/A
6. Bodhi trees reminded people of Buddhism which makes the trees honorable. People tended to bow or pay respect to Bodhi trees.

[What do you think about tree ordination?]

Where ever you see a Bodhi tree, there are always colored scarves around it. The scarves were tied around the tree because people pay respect to the tree. The scarves that tied around the tree is to protect the tree from being cut down.

7. Monks used the spaces under the trees to read and study. Laities can sit and relax at this space too. [During one visit I saw a group of middle school students doing their homework at the table under the Pikul trees].
8. N/A
9. Monks take care of the trees in the temple garden. Small branches can be pruned by the monks but when we need to cut bigger branches we ask the district office to send their staffs to help. We do not have many big trees because the existing land use was rice paddy field. There were not many big trees on this site before the temple.
10. I do not assign any monks in particular to be responsible for the landscape in the temple garden. Every monk can help with gardening which is also a good way to build a harmonious Sangha community. Once a week we help taking care of trees in the garden.

Every Monday, Wednesday, and Friday we sweep the ground. Every monk helps take care of the temple.

You can talk to Phra Kru Kanjana Kulikanjana. He knew a lot about the trees.

11. Trees that grow in an unpleasant place would have lower values compared with the same tree species that grow in a place that people respect.

Places matter.

12. We currently have a few landscape projects. We are working on the small garden in front of the Assembly hall (Viharn). We also have a piece of land – 7 rais, that we would like to expand the temple boundary and built a parking lot and a columbarian (respectful places to keep urns holding a deceased's cremated remains). Parking is important. The plaza in the front of the temple used to be a market where locals can come sell and buy merchandises. But the abbot found this activity made the temple dirty and it became an unrespectable place so he stopped letting people come and use the temple space as a market.

2) In-depth interview with a monk with long experience in the monkhood (D-1-3.1)

January 27, 2017.

The abbot deputy has been in the Sangha as a novice monk since 1964 (BE 2507) and as a monk since 1970 (BE 2513). He lived in a temple in Lampang, his home town, then moved to Bangkok and stayed at this temple since 1969 (BE 2512), just six years after the temple was built (in 1963 (BE 2506)). He speaks with some accent.

1. Significant trees?

It is what you can see. I do not know the names. Some trees in the temple were planted by the district office. I cannot tell the species. [He came from the north and he mostly only knew the Northern species or the northern names of these trees].

There are not many old trees now. The old trees are those tall trees that the previous abbot planted. There were there even before I came. I do not remember the names. They are behind the building. Trees in front of the pavilion are newly planted. I cannot remember the names either. The previous abbot was very protective of these trees. No one could cut them even dried branches. He loved to preserve the trees as they are residents of the angels (*Ti yuu Thewada*). The abbot loved to plant trees.

There are many coconut and toddy palm trees. Some died and fell. Some were cut down to build more buildings.

2. Colored scarved trees are the two existing Bodhi trees. They were there since I moved here. They were planted by the abbot after he brought them back from India. They were planted around 1966 (BE 2509) on the side of the Ubosot. Under the Bodhi trees, there are colored scarves, broken Buddha statues, old spirit houses, pieces of old shrines. People leave these broken relics there because they do not want to keep them at home but are afraid to throw them away. The temple has to throw this trash away because it was dirty. We put these broken statues into our reclamation. We use some spirit shrines that were still in decent condition. When people come and leave these objects, sometimes they ask for permission but most of the time they do not. The abbot suggested temple visitors to tie colored scarves around the trees to make them feel better after they leave broken statues or other objects under the tree.

- There was a Bamboo grove – about 20 bamboos, where we can use the area as meditation space. Now the bamboos were cut down where twin pavilions were built beside the Chedi.
 - The Bodhi tree – We just built the concrete border around the base because the tree grew too big and its root started to be invasive and damage the assembly hall (Viharn). Now with the concrete border, the space under the Bodhi tree looks nice and tidy and can be used as a meditation area. We built the border around 1987 (BE 2530) – 28 years ago. [The border is too small now. The tree trunk already filled the space and the roots started to crack the concrete border].
 - Sala tree – located between Luang Pu Khao hall. It is an Indian Sala tree. People also worship this Sala tree. Some asked for permission to get the pollen to make amulets and other sacred objects.
3. Tree maintenance
We asked the district office to help with the maintenance and pruning. If a tree's branches lean too close to the assembly hall, we have to cut them out to protect the architecture and prevent the damage that the tree might cause. We lit incense sticks and talked to the spirit in the tree before we cut its branches.
 4. Bamboo, coconut, toddy palms – we used to have many of these trees. Now we do not have any of them. We used to have many trees and the temple was very shady. There was no concrete, all grass.
There were a few Banyan trees which we had to cut because we built more buildings and roads. Coconut, toddy palm, and bamboo were also gone because of these permanent structures. After the road (driveways and parking lot), we planted Indian almond tree (Huu Kwang), Murraya (Kaew), Pikul trees as these trees were offered from temple visitors and the district offices want to have spaces to plant them. Monks bought some Koi (topiary) from Ratchaburi.
 5. N/A
 6. N/A
 7. Spaces with big trees are nice and shady. Temple visitors asked to plant trees in the temple.
 8. Monks use spaces under trees as study areas. Senior monks teach novice monks under the big trees. Teachers from temple school also use this space as an outdoor classroom. We also use it as a relaxing area.
 9. Monks and novices help pruning and cleaning the temple garden. The district officers came when we have special ceremonies.
 10. We do not have a specific person assigned to be responsible for the garden cares. Phra Maha Somjit is now taking care of the garden in front of the Assembly hall (Viharn). Phra Kru Suwit (Phra Kru Phawana) is the Temple Public Relations.
Every Monday, Wednesday, and Friday all monks in the temple help clean the temple garden, sweep the ground and picking up all the leaves. To cut trees or branches is considered violated the Vinaya (the monastic rules) but we sometimes have to do it to prevent hazard from broken branches. Monks who cut trees can confess their misdemeanors during the daily evening pray.

11. Place does not matter. Trees that convey significant meaning or species that people believe in their sacredness they will always have the sacredness where ever they grow. Size and species are critical factors of their significance. Bigger trees are less likely to be cut because people do not dare to cut them. A tree species that serve as a symbol of the Buddha – Bodhi tree that the Buddha sat underneath when he reached the enlightenment – conveys religious significance and becomes an important factor causes people to want to preserve and respect this species.
12. We currently do not have any projects in the temple garden. If people offer the trees to us, we will find spaces to plant them. The district officers came to check the new building (to see if there are spaces for new trees) that was just finished in September. Sometimes temple visitors plant the trees themselves. In front of the monastic buildings (kuti), there are sitting areas and a small Thai pavilion. People can plant some trees there.

3) In-depth interview with a monk with long experience in the monkhood (D-1-3.2)

January 27, 2016. 10:30 a.m.

He seems to know more and be more hands-on in taking care of temple garden than the older monks I interviewed. However, he avoided to mention the colored scarved trees as if it was against the Buddhist doctrine. He ordained as a monk in 1982 (BE 2525) and moved to Bangkok from Chiang Rai in 1986 (2529). He is 33 punsa and has been at this temple for 29 years. He is in his early 50s, a small thin figure and looking younger than his age. He looks like typical Northern people – white skin. He sat in a rocking chair outside of the bot while talking to me.

1. Significant tree in this temple is the Bodhi tree that the previous abbot brought back from India.
 - a. A Bodhi tree – I am not sure when it was planted. When I moved here the Bodhi tree was already big.
 - b. Sala trees – we have many Sala trees here.
 - c. Kaew Jaajom – I think the crown princess Sirindhorn planted the trees. We have only one left because they were closer to the old buildings and when we took down the buildings some of them died. It was a very rare species back then. Now it is not very difficult to find. She came to plant it when we just started the temple (around 1963 (2506)).
 - d. Boonnak – The King Rama IX planted a Boonnak tree but the tree died. We just replace 2 Boonnak trees in front of Viharn just a few months ago. It is still not very big.

At both c. and d. trees we used to have signs but they are broken now.

- e. Rain trees (Monkeypod, Chamjeree)- a big rain tree was already cut down because we built a new building. It was some decades ago.
- f. Banyan trees –We have several species of banyan trees (ficus). The big banyan tree was already cut down because of its intrusive root system. We replanted with smaller species (Huu Krajong and Huu Krajong dang).

After finishing the construction of the new building, we planted Huu Krajong Trees. We cut the old trees more than 10 years ago but it was only about a year ago that we replanted them. Some trees we managed to buy them by ourselves. Some trees were donated from temple visitors.

2. There is no worshipping tree. There is no tree that people come pay respect. There is no tree with colored scarf in the temple.
3. Bodhi trees and Banyan trees are fundamental trees in each temple. Some are planted by humans. Some are naturally grown. Every temple should have these trees because they provide shade with their large canopies. They also serve as a symbol of religion.
 4. Sala trees, Banyan trees
 5. N/A
 6. N/A
 7. Temple trees have a big impact on the Sangha activities. We sit under the trees and practice meditation. We read and study using spaces under trees because of the shade and coolness the trees provide. Temple visitors also sit under these trees because there are not many trees at their houses.
 8. Kids come to learn about the trees. They have activities in the summer.
 9. The temple takes care of the landscape. Sometimes we ask the district office to come help with very high branches that might fall and cause damage to architecture; Bot, Viharn, might be dangerous to people. We cannot take care of the high branches or the big ones by ourselves because it requires the uses of machines and other equipment. Monks and novices take care of general cleaning 3 times a week – Monday, Wednesday, and Friday.
During the season that Bodhi trees bare fruits, it was very dirty. We sweep the falling leaves three times a week after the evening chant. Sometimes temple visitors volunteer to do public services and come help with cleaning and sweeping the ground.

In rural areas, temples generally have larger spaces so trees can have much more space to grow. But in the density of Bangkok, we have to maintain the sizes, shapes, and forms of the trees. It is considered violating the Vinaya but we (monks) have to do it. If monks do not take care of the trees and leave them as they are, which are quite messy, temple visitors will complain and will not be content to come to the temple. Hence, monks have to prune the trees and keep the garden clean and tidy.

10. We do not have specific monks taking care of the landscape. All monks help each other take care of trees and the temple gardens.
11. Place does not matter. Bodhi trees are symbols of Buddhism where ever they grow. The Buddha reached enlightenment under the Bodhi tree so it is a reminder of the religion. However, if it grows in an improper place, it has to be cut down. But if a Bodhi tree grows very big, even in an inappropriate place, no one dares to cut it.
12. We will not cut any trees. We gradually plant more trees and are looking for appropriate locations to plant more trees, locations where the trees will not visually obstruct the architecture. It is the dry season right now so we only plant some small shrubs but big trees have to wait until rainy season. We will plant them in the rainy season. We also

plant some decorative ornamental plants. During rainy season – Khao Pansa (the 3 months-period that monks have to stay in the temple and are not allowed to go stay at other places), monks will help plant more trees.

3) In-depth interview with the monk who is a landscape manager (Sun Dec. 31, 2016)

The monk did not show up but he asked another senior monk to come talk to me.

I made an appointment and called to confirm before I visited the temple but he (the LA manager monk) was not there.

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (D-1-4)

It was my 4th visit to the temple. I went with my aunt who lived in the neighborhood so I did not get lost. I was driving and she told me the shortcut of the small alleys that go past different communities. The temple was right by a canal but quite far from the main road. It would take much more time if I had to go to the main road and drive back to the temple again.

The novice monk has been ordained for 7 years. He was quite small, not skinny but short. He wore glasses. We sat at a small sala in front of the office then started the interview for five minutes before one senior monk came to us. The secretary called the senior monk and asked if he would come to talk with me. I asked if he can come back in 10 minutes but he decided to sit at sala with us. And it happened again when the senior is present with the junior monk it made the young monk too intimidated to reply. It seems to be more polite to ask the older one first. The novice monk started to talk less and wait for the older monk to reply, even though this old monk was not as aggressive or showed his seniority and authority as much as the old monk at another temple. It was still difficult to get answers from the young monk as he kept saying that he was not here as long as his senior fellow.

The young monk was almost seven punsa. He was ordained in Chiang Mai and stayed there for 1 year then moved to Bangkok in 2010 (BE 2553). He went back to Chiang Mai from 2010 to 2014 (BE 2553-2557) and moved back here this year.

The senior monk ordained as a novice monk 23 years ago. Then he became a monk six years later. He has been in the Sangha as a monk for 17 years. He moved to this temple from Lumpoon in 1989 (BE 2532).

1. Significant/holy trees

- a. Bodhi tree. The significant tree is the Bodhi tree. The previous abbot used to teach meditation under the Bodhi tree. [The old monk added]: It was a sapling from the Sri Mahabodhi from India.

[Were you here when the tree was planted?]

I came after the temple was built for... how many years. The temple was founded in BE 2506. I came here in BE 2532. [He did not answer about the Bodhi tree but I assume that the tree was already there when he came which made the Bodhi tree at least 27 years old].

[Back then, was there any other significant trees beside the Bodhi tree?]

- b. Sala tree located near the Bodhi tree. The sapling from this Sala came from Lumbini, Nepal.

2. Trees with colored scarves

- a. We used to have two jackfruit trees. They died because of insects. Two Jackfruit trees that gave very accurate lucky numbers (*Hai huay mann*). The trees were not very big but had some colored scarves. Some merchants came to beg for the lucky numbers. They used some powder to rub on the tree trunk. Some brought traditional Thai costumes and hung them on the tree. People from the market in front of the school outside the temple came to look for the lotto numbers. The worshipped objects were very messy.
The trees died because of some pests and bugs. When the new building was constructed, we cut the dying trees down. There was a sprout of the jackfruit tree but it was cut too.
 - b. The twin Betel palms were also holy trees because there were two betel palms growing together, Thai people believe that trees that grow in twins have some sacredness. They call the trees 'Two female ghosts trees' (*Phii song nang*). There were colored scarves. People came to look for numbers for lotto.
 - c. Bodhi tree
 - d. Boonnak
3. The two Bodhi trees
- a. Bodhi tree was planted at the same time of the establishment of the temple. There was a bordered seat wall under the tree where monks used as a place for meditation and pray around 3 p.m. everyday but after the previous abbot passed away we no longer sat there. It was also because of the change of the entrance and circulation in the temple. The serene place for meditation had many cars that drove past. The entrance used to be in the back of the temple. There was a small school and a canal (*Khlong Klet*) where people traveled by boat. The back side of the temple was orchard with many coconut trees. Until the new road outside connected to the back side of the temple and the mode of transportation in the city had changed, more people entered from the back side. The new road was named after the temple .
As a consequence, the temple moved the entrance to the back side. The old school buildings were taken down in 1993-1994 (2536-2537) and the new building was built. **The change of the entrance and traffic circulation greatly impacted the uses of spaces in the temple.**
4. Bamboo. Is it also a memoir of the Buddha? I am not sure. It was in the first temple of the Buddha. It maybe the symbol of religion.
Rang tree – the tree that the Buddha sat under when he reached nirvana.
 5. N/A
 6. There are no special treatments for the Bodhi and Banyan trees. Even though they convey more religious significance, they are strong and require very little maintenance. These species, Bodhi and banyan, can grow naturally. We do not have to give special maintenance. Sala trees need a bit more maintenance. They are still small and need water. But once they are mature they will be quite hardy. They also grow fast.
 7. Trees in the temple garden are components that are spiritual anchors (*Tii yut niew jitjai*). Trees that conveyed religious meanings or were parts of the Buddha life make us feel

closer to the Buddha and Buddhism. When Buddhists see these trees, the trees that related to the Buddha life, they remind them of the Buddha.

8. Monks do not use outdoor spaces as much as we used to. Temple visitors can use the space when they come to the temple for making merits or meditation. Due to the change of the surrounding context that influenced and changed the land use inside the temple, many places that monks used to sit for meditation were no longer proper for those activities. Nowadays we use space inside the buildings, in a pavilion, assembly hall, or Ubosot to do morning and evening pray and practice meditation.
 9. The temple is the representative temple of the Phrakanong District. The district regularly sends staff to clean and work on the garden maintenance. They know the time they have to come. We do not have to ask. Monks and novices usually sweep the ground.
- [The old monk was about to leave. I said there were only a few questions left so he stayed].
10. N/A
 11. Bodhi trees are still important even when they are not in a temple. However, these days in this developed society, if a Bodhi tree grows in a wrong place, it is necessary to cut the tree. Bodhi trees might get cut easily in Bangkok. However, in the North, with the traditions of the Northern Thailand, people believe that if they cut a Bodhi tree, they will die. It is a karma. Not only in the Northern Thailand, mostly everywhere in general. There are also many places in Bangkok still do not want to cut Bodhi trees. In Northern Thailand, even a small Bodhi tree is protected. People are afraid to cut it.
 12. We plan to plant more trees. After a new building finished the construction, we start planting tree. Huu Krajong, Chaiyapruk, Kae na, Kaew Jaojom – the Princess planted these in BE 2517 before the construction of the building. Many trees were removed when we built this building but Kaew Jaojom tree was preserved because it was planted by the princess.

Remarks:

The act of putting colored scarves around big old trees is suggested to the temple visitors by senior monks in the temple. Most monks I interviewed in other temples refused to discuss the topic and disagree with the act of putting colored scarves and other objects to the trees because they said it is not Buddhist teachings. However, here they not only ignore it, the monk at this temple told laities to do so because they believe that the laities would temporarily relieve their suffering and feel more comfortable after worshipping the old trees. The ritual was only a physical ceremony but the cultural meanings and belief of conducting it help improve psychological health for those who perform the ritual.

The monks also explained their rituals before cutting trees. The incense sticks were lit and the monks ask the tree (spirit) for approval before pruning or cutting branches. They also talked about the controversy between tree care and Vinaya. One monk mentioned cutting or pruning trees violated the Vinaya but Buddhist monks can confess what they have done during the evening pray. Hence Buddhist monks can cut trees or branches but they must do it with the right purposes and with awareness. They can discuss about it in their daily ritual and explain their actions.



Figure 1: The heritage large Bodhi tree near the Ubosot is a place where senior monks teach Dhamma to temple visitors, junior monks, and school kids.



Figure 2: The new road and new temple school building impact on the Sangha activities and how they use outdoor spaces.



Figure 3: A big Rain tree was preserved during the construction.



Figure 4: Trees with religious significance.

D-2

Year of establishment: 1987

Area: 3.3 acres

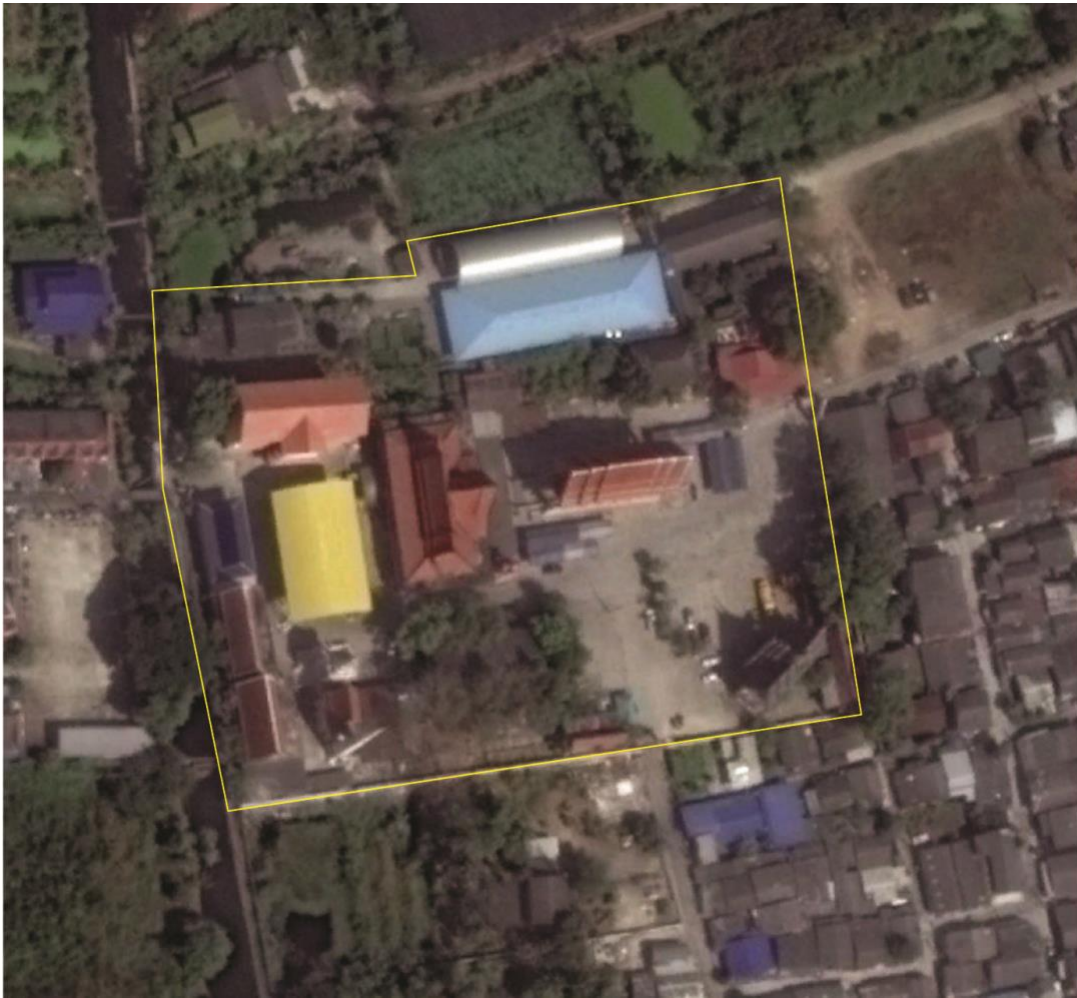
Class: Private

Sect: Dhammayutika

Significant trees: N/A

Big Tree Awards: 1999 Kang tree

Location: Outer Bangkok



History of the temple

This is a private temple that was built on a property that laypeople donated to one senior monk. The temple is located in the Southeast area of outer Bangkok. It is a small private temple in the suburb surrounded with a low density residential area. The Ubosot was known for the 1008 talisman scripted on its wall. There is a heritage tree in the list of Bangkok Big Tree in 1999.

Observation:

Date: Saturday August 15, 2015

Time: 4 p.m.

The temple is in the Southeastern fringe of Bangkok. The traffic on Saturday was extremely bad. Plus the construction for the BTS, the sky train- the Bangkok Mass Transit System, made it even harder to drive there. The temple is located in a small alley, far from the main road (Petchkasem). It is surrounded by low-income low-density residential areas with several still vacant spaces. The first thing I noticed was the big Bodhi tree by the temple entrance. I was also trying to look for the BMA awarded tree, a heritage Kang tree in the temple, but could not find it. I saw many chickens walking around but not many people. I visited the temple a couple of times during different hours on weekdays and weekends but it was always quiet. It might be due to not many people living around the area. However, I was certain that the temple would be busy on the significant Buddha days and when it has other religious events.

1) In-depth interview with the abbot (D-2-1)

N/A

2) In-depth interview with a monk with long experience in the monkhood (D-2-3)

A senior monk has been in the monkhood since 1995 (BE 2538)(20 punsa). He was local, came from this area. He mentioned the Kang tree (*Albizia lebbekoides (DC.) Benth.*), the BMA Big tree awarded tree, as one of the big trees in the temple.

1. Significant or holy trees in the temple:

- Unfortunately, the Kang tree was rotten and broken because of termites and insects. We had two Kang trees but one of them fell from the pervasive wind. There is probably only one Kang tree in this district. The temple does not have any special treatments for big trees. They do not try to cure the trees when they are sick and unhealthy. "We mostly let the trees grow naturally. We do not have any special treatments for any big and old trees. If they fall or break, we cut them.
- Bodhi tree – a tree where the Buddha reached the enlightenment. Most of the Bodhi trees were planted. Some Bodhi trees are existing trees that attached to the site before the temple was founded.
- Banyan tree – *Sawaey wimutti* (Seven weeks after the enlightenment, the Buddha spent seven weeks appreciating the happiness that occurred from the enlightenment. There were seven locations where he spent the seven weeks with seven trees in these places. Banyan tree was in the 5th week. The banyan tree was called *Achapalani korot*. The Buddha sat under the banyan tree and answered the questions about Bhrama and gave Dhamma on how to be Samana and Bhrama. Also at this place the three daughters of the demons came to lure the Buddha [the monk told the story but I did not catch all of the details and Pali names so I rechecked for accuracy on the website later (kkgen.com/vimutti.htm)].
- Sala tree – the place where the Buddha was born.

These trees were planted in the temples. Some trees were here before the temple. Some were given from the temple visitors. They are trees in the life of the Buddha.

2. There are trees with colored scarves. Bodhi trees were tied with colored scarves by both local people and visitors from other districts. There are several Bodhi trees so the visitors choose the one that most accessible [Places matter- location does matter]. They mostly do it with Bodhi trees. It is a Thai cultural belief that has been practiced for a very long time. To do so (tying the tree with colored scarves or worshiping with flowers and food) is the way to worship the spirits of the places and spirits of the trees (*Rukkha Thewada*). People asked for good fortunes from the trees. Sometimes people leave Buddha statues, some good ones and some broken ones. The temple just leaves them there until they disintegrate.

Besides the Bodhi tree, there is the Kang tree, over there next to the bamboo grove.

3. The Kang tree is leaning a lot. Kang trees are very rare. It was much bigger and taller before but because of termites, the top was broken. Before it was broken, it was very big. We need two people entwined or *song kon oab*¹

This place was a rice paddy before the temple. This Kang tree was existing when the temple was built. Kang trees are the existing trees that were grown on the *Kun-na* (levee in the rice paddy field). The bamboo over there is also the existing vegetation. They should be about 50-60 years old.

There is also a Liep tree (ficus family).

4. N/A
5. N/A
6. Trees with religious significance have the same treatment similar to other trees in the temple. If the trees fall or are broken, we just cut them. Mostly done by the laities who came to the temple.
7. Trees in the temple garden provide shade that make the temple a *Sappāya* place (a wholesome, suitable place). People feel fresh and comfortable physically and mentally which make it easier to practice meditation. The Bodhi trees completely shed their leaves twice a year. We have to sweep the ground, clean the garden, and compost the leaves. These activities are the Buddhist monks' responsibilities (including cleaning the church, courtyards, stupa, and other areas in the temple).
8. Monks do not spend much time in the garden or near the big trees because it is not convenient. It should have a space surrounded by trees so we can sit and practice. But we do not have such spaces in the temple so monks mostly practice inside the buildings.
9. Novice monks and monks are responsible for the landscape maintenance. Occasionally, there are volunteers who come and help. In some special events such as the Father's day (The King's birthday on December 5th) or Mother's day (The Queen's birthday on August 20th), temples usually receive many trees as donations. No one ever comes to plant trees yet. If big branches or big trees fall, we usually contact the district office and request for help.

¹ *Kon Oab* is how people entwine around a tree trunk. It is the way to tell the size of trees in Thailand- how many people, with stretch arms, can stand surrounded the tree.

10. The abbot has the authority to approve to cut or plant.
11. Same tree species in different locations still have the same values. However, it is more outstanding when they grow in temples. Bodhi trees or Banyan trees that grow in the temple represent more religious meanings. Some of them just grow in the paddy field from the birds' droppings. Normally, people do not have Bodhi trees or Banyan trees in their houses because these trees are considered sacred (he used the word 'high'). Maybe it has holy spirits in the trees. So mostly we plant them in temples. These trees (Bodhi, Banyan, Sala trees) have more sentimental values than other species.

He asked about my school and my research a bit more after the interview and introduced the Burmese monk who was also attending grad school. I did not get much information from the Burmese monk. When I left, it was about to rain so the monk insisted that I take an umbrella.

3) In-depth interview with the monk who is a landscape manager (D-2-2)

The abbot is the landscape manager (authority) but he was not available for an interview.
N/A

4) In-depth interview with a monk with less experience in the monkhood (D-2-4.1)

Saturday August 15, 2015 4 pm. Stone seats in front of Kuti. There were many chickens walking around the area. The junior monk has been in the monkhood as a Novice for 5 years then as a monk for 9 years. (29 years old). He stayed at the temple for 14 years. He said he has been living here for a very long time. [I feel like he is too young to say that. Many older monks I interviewed stayed at the temple for several decades but none of them said I lived here for a very long time].

The area of the temple is approximately 8 rai 9 ngan 12 sq.wa. (3.3 acres). The existing site was rice fields and swamp areas so there were not many big trees on the site.

1. Significant trees in the temple:
 - Bodhi trees. The abbot planted them when we first built the temple, about 32 years ago. We used to have more than 10 of them but some already fell. Some died after the big flood in Bangkok. Their roots were rotten after the flood. That was 3-4 years ago. We normally do not have any floods.
2. Bodhi trees and Banyan trees are holy trees here. We do not perform any special rituals for them. There were some colored scarves that temple visitors tied around the trees as the way to worship these old trees. The temple just left it as it is. The fabric just decayed over time. Temple visitors are both local community and people from farther away.
3. There are not many ancient or old trees in the temple gardens.
4. Religious symbolic trees:
 - There are Sala trees in the back of the temple. We already cut one down. Another one was almost dead.
5. N/A
6. We do not have any special treatments for the Sala trees. We let them grow naturally. They are quite hardy. Monks sweep the ground, water the plants, trim small branches.
7. Monks' activities in the garden include morning ground sweeping. We take care of the trees and make sure the temple is shaded and cool for temple visitors.

8. We do not use spaces under the trees that much. Laities who visit temples are the major users of the garden. Monks practice in the pavilion. We have *Thevasathan* (a place for angels) just newly built about nine years ago. There is a big Bodhi tree with a lot of shading. I do not know about Kang tree (the BMA awarded big tree).
9. Monks in the temple are taking care of the landscape here. We built the seat walls around the trees (containers). Sometimes we receive some help from the communities. We ask for permission from the abbot. The district office helps with higher branches and canopy pruning. Monks do not do it because they are too high. [He did not mention the monastic rules of not cutting living green].
10. *Phra Arjarn* (the secretary monk) is the landscape manager of the garden.
11. Place does not matter. The same species that grow in different places should have the same value. Bodhi trees are the tree of the Buddha's enlightenment. Even when it grows in the middle of the road, it still is sacred. However, if the trees are an obstacle they have to be cut down.
All the Bodhi trees you see here had been planted at the same time we built the temple. We pruned them because some parts died during the big flood a few years ago (four Bodhi trees were topped off). Banyan trees grow naturally. No one plant them.
12. We currently have some constructions going on. We are lacking places for Buddhist meditation training. We are building *Phra Pariyat* school to be a place for youth camps.

The four bodhi trees in front of the temple were topped off.

Trees and green open space: meditation spaces

5) In-depth interview with a monk with less experience in the monkhood

I had a chance to interview another monk with less experience in the monkhood: **(D-2-4.2)** He is a Cambodian monk. He has been in the monkhood for 11 years. He moved to the temple six years ago. He was a graduate student in Thailand. He seemed to know the temple quite well but he used very strange grammar which was sometimes a bit confusing.

1. Tree with colored scarves – Most of the trees in the temple do not have colored scarves. There are trees that people pay respect. They light incense sticks, put bricks around the trees, and adorn the trees with flowers. Laities did that because they believed the trees were sacred. I have not seen any food offering.

2. The old trees in the temple are Takien trees. It was the local belief in Thai society to tie colored scarves around a big old tree. Sometimes we dig and find colored scarves around the old trees. This is not Buddhism.

4. The Bodhi trees convey Buddhism beliefs because the Bodhi tree was the tree that the Lord Buddha sat when he reached enlightenment.

In Cambodia, there is Lantom (*Plumeria Scop.*) which is called Ton Champee. The white flowers of the temple trees represented the pureness of people who practice meditation and achieve Dhamma. Nuns wear white clothes because they abandon defilements. I would say that 30 percent of people who think about Buddhist temples will think about Bodhi trees.

10. Significant trees still have their values wherever they are. When the Buddha sat underneath the Bodhi tree, he was also not in a temple.

Remarks:

The report from the Green master plan of Bangkok in 1999 enlisted 256 heritage trees in the city, including an old Kang tree at this temple and recommended that these heritage trees must be protected with proper maintenance. However, none of the monks knows about this Bangkok Big Tree list. BMA did not continue or initiate any projects to protect the wellbeing of these trees. The Kang tree was broken 5-6 years ago. Today it still is not in a very good condition. The old monk knew the tree but the young monk I interviewed knew nothing about this tree.

Significant/big/old trees/ Location:

- Kang tree is located behind Kuti and Ubosod. It is not in a very good condition.
- Bodhi trees in the parking lot near the Ubosod. There are four Bodhi trees near Ubosot but all of them were topped off. There are still colored scarves on these Bodhi trees.



Figure 1: The big Banyan tree near the monastic building.



Figure 2: Bodhi trees are tied with colored scarves and saffron colored monk robes.





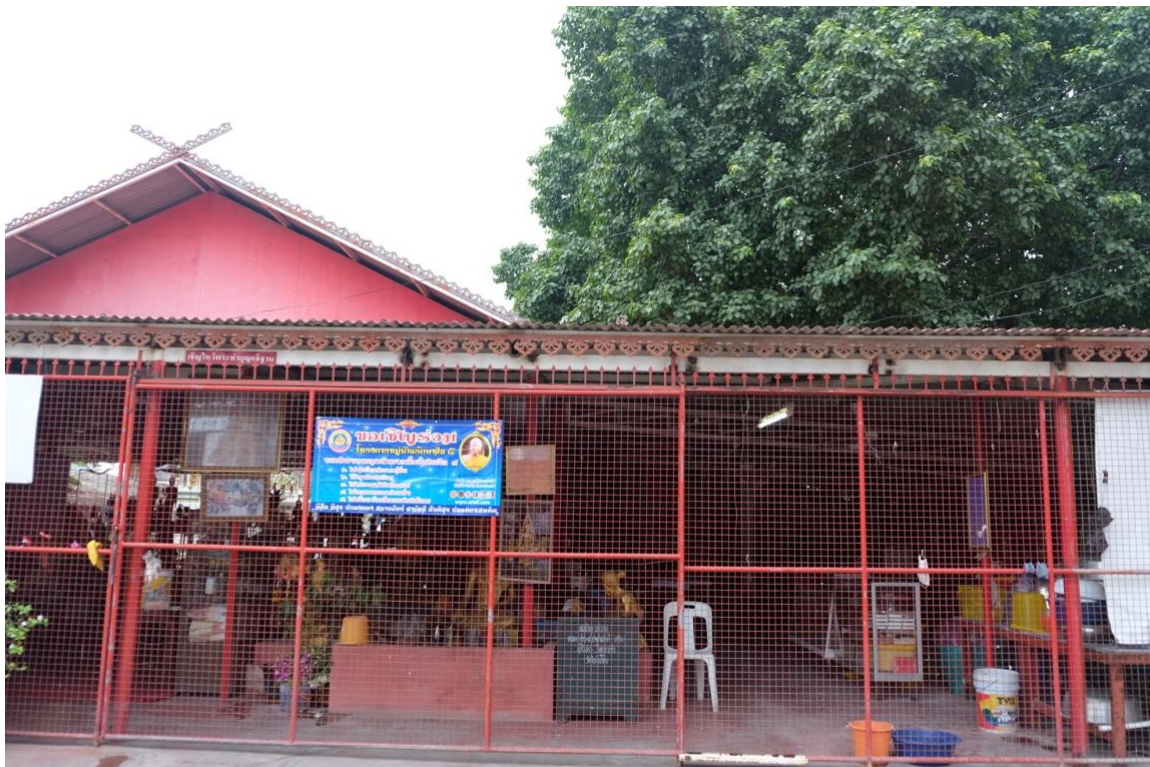
Figure 3: The Banyan tree was tied with colored scarves because of the belief in its sacredness but a piece of saffron colored monk robe was tied around this Mok shrub (*Wrightia religiosa*) to keep its branches in one place. In Thai culture it is believed that Mok tree is a species that will bring happiness and pureness to the household. Mok means 'transcend from all suffering'. Its fragrant white flowers represent wholesomeness untainted by immorality. It is also believed to protect people and keep the residents from any dangers. However, it might be because of its small size that Mok has never been mentioned as a sacred species.



Figure 4: Kang tree, the Big Tree Award tree, is not healthy because of the flood some years ago. It was broken and did not receive proper care.



Figure 5: Lanka Bodhi in front of the temple. The tree is big and old and can be seen from far away when approaching the temple entrance. However, it is inaccessible because it is located behind the multi-purpose pavilion that was built right behind the temple wall next to the temple entrance. Laities can conveniently conduct religious ceremonies and make donation here. It is a large vacant plot outside the temple's wall so the tree has plenty of soil space and water. The tree seems healthy and is very large. A monk at the pavilion proudly said it is a Lanka Bodhi.



D-3

Year of establishment: 1997

Area: 3.4 acres

Class: Royal

Sect: Mahanikaya

Significant trees: N/A

Big Tree Awards: 2009 Bodhi tree

Location: Inner Bangkok



History of the temple

The temple started from the Royal project of the improvement of polluted water in Ladprao canal and Rama IX swamp areas. The purpose of the project is not only improving the water quality and ecosystem of the Rama IX swamp sites but also enhancing the quality of life of people in the community. King Rama IX, Bhumibol, initiated a royal project “*Kang han nam Chai Pattana*,” a small machine used to generate oxygen into the water, to improve water quality. After the project progressed, the King suggested that a temple should be built at this location to serve as a community center and help maintain the healthy environment. The temple was designed with a concept of simplicity and modern with minimum monastic architectural details to be a symbol of pureness, cleanliness, and simplicity.

Observation:

Date: Monday August 3, 2015

Time: 3:50 p.m.

August 2, 2014

First visit

First impression:

A developed temple – everything looks new with modern architecture using new local technology including *Kang han nam Chai Pattana*- water aerating system in the pond.

I arrived at the temple in the afternoon, around 3 p.m. There were many monks working and chatting under the main pavilion (It was a modern architecture, a different building connected but still with an open basement like Thai architectures and it was where the monks gather and work). I approached the group of monks, around 10 of them, age between early 20 – early 40, and introduced myself. Since I could not call to make an appointment before, I asked if I can meet with the abbot. They said the abbot was not there. He was away to attend a ceremony at another temple so I asked if I could interview a monk with long experience in the temple, one with short experience, and a landscape manager.

The young monk and the monk who is the landscape manager came together. They took a few plastic chairs that stack and sat near one column where there was an electric fan. Then I started the interview. It was noisy with traffic noise and dogs barking and fighting outside the fence. After the interview with the young monk and the landscape manager monk, they invited a senior monk to talk with me. They were very accommodating and eager to talk.

1) In-depth interview with the abbot (D-3-1)

N/A

2) In-depth interview with a monk with long experience in the monkhood (D-3-3)

A senior monk has been in the monkhood for 16 years.

1. Holy trees? At our temple we do not talk about holy trees. There are no holy trees in this temple. We just have a big Bodhi tree in front of the church. It is the enlightenment Bodhi tree that lived at the same time as the Buddha.

[The same Bodhi tree from Lanka?]

Yes, it is a sapling from the original Bodhi tree in Bodh Gaya, India. There were 4-5 saplings. That what people said. They are in front of the church.

[How long have the trees been planted here?]

2. Big trees in the temple:

- The Lanka Bodhi came from Bodh Gaya – we have 4-5 Bodhi trees in front of the church. They were planted since the establishment of the temple (BE 1997 – 18 years in 2015 when I conducted the interview). Some trees were planted by temple visitors. The saplings were about one meter tall when lay followers planted them.

We do not allow people to plant trees too close to the church. The area around the church was preserved. It belongs to the King and the Queen. Laypeople are not allowed to plant any trees there. If laities want to plant a tree, they need to inform us first. They cannot bring trees and plant here because we already have trees.

[Are there any difference between trees that have been planted since the establishment of the temple and the new trees that people brought later?]

Trees that were planted when we first built the temple came in their mature size, quite big already. As a consequence, they do not have tap roots. You can see the difference. They will not be as tall as the trees that we planted later with small saplings. The new trees are behind

the church. You can see that they are much bigger and taller. Most of the trees that came at the beginning were brought in full size. They will not grow any bigger. I have seen them in that size for a long time. The Bodhi tree and PhyaSattabun trees were planted from small saplings so they are much stronger and thrive better.

- Koon tree or Golden shower (*Cassia fistula*) along the street by the pool side. There have not grown big even though we planted them quite a while ago. [It was a concrete road and interlocking block walkway with very small soil area for each tree].
- Peep tree (*Millingtonia hortensis*). Temple visitors asked permission to plant trees. They brought these Peep trees, or Kasalong kam and planted them in front of the pavilion. There were also other trees, such as Ma-tart, Chan pa, planted there for 4-5 years already. [These trees seem bigger than the Koon trees even though they are much younger].

We do not have any holy trees.

Significant trees are those trees in front of the church. Around the church are the areas where the King, the Queen, prince, and princess planted their trees. There are ones that were planted by the crown prince and the princess. One is Sala tree. Another one I am not sure but there is a signage you can go check it out.

There are other old trees that have been there for a long time. I do not know what it is. The orange flowers (*Hang NokYoong farang*).

Bodhi trees are significant religious symbols no matter where they grow. It represents Buddhism and does not have to be the one that grows in a temple.

Bodhi tree is one of the seven things that occur during the Buddha period:

- Phra nang Yasothara (Prince Sitthata's wife)
- Phra Ananda
- Nai Chantha (the Buddha follower)
- Kathuthayi
- Kanthaka horse
- Bodhi tree
- Seven treasures

Other tree species that related to Buddhism.

- Lotus – when the prince born, there were seven lotuses blooming under his foot when he made the first 7 steps.
- Sala flowers were at Lumbhiniwan where the Buddha was born.

6. N/A

7. I think trees related with Buddhist monks' life. Buddhism has relationships with trees in different dimensions. The Buddha was born in a forest, reached the enlightenment in a forest, and reached the nirvana in a forest. The Buddha lived with nature. Forest was a place for practice of meditation since the Buddha period. Forest monks rested and slept under a tree in the Buddha time.

[How about today?]

We still have it. We plant more trees to have more shade and create privacy. Sometimes monks sit and meditate under the trees. That was the practice of *Phra Tudong* (Forest monks). Forest temples in rural areas like to plant trees.

[How about here? Do you have meditation practices under the trees?]

It is not very convenient for us to practice outdoor. [There were dogs barking aggressively]. We have meditation hall for public. People can wonder outside the building and sit outside under the trees. In this section, the Sangha section, it is not appropriate to practice outside. But there are some monks who practice under the trees here as well.

8. The uses of spaces under the trees in the temple:

Monks do not use outdoor space much because the places are not convenient. We mostly meditate and practice inside the buildings.

9. Maintenance:

The way to take care of the trees is to leave them alone. Prisoners regularly come to help taking care of the garden. It was one of the 227 monastic rules that Buddhist monks are not allowed to cut trees. It will be wrong to cut trees or even eat fruits or vegetables that can still be propagated. When offered fruits or vegetables (the ones that have seeds and can still be planted) for monks, we have to cut them (sometimes just a tiny bit – we called it “*Kappaya*”) as a symbol that this fruit or vegetables can no longer be propagated. When we see any trees or parts of trees that need to be trimmed, we, monks, cannot cut them. We have to tell temple visitors to take care of the issues.

11. Locations (inside or outside temples) do not make any difference in the perceptions of the values of trees.

To sweep the floor (*Laan Wat*) was one of the Sangha’s duties. We planted the Bodhi tree in front of the church. We actually cannot plant any trees because Buddhist monks are also prohibited from digging soil. To dig soil can disturb animals living in the ground or even kill them. We believe that there are *Rukka Thewada* (Tree angels) living in trees. It was a story since the Buddha period when a tree spirit was encroached by humans, including monks, so the Buddha announced a rule, which is part of the Buddhist monks’ precepts, to make sure that Buddhist monks refrain from disturbing other living beings.

3) In-depth interview with the monk who is a landscape manager (Abbot’s secretary) (D-3-2)

The landscape manager monk has been in the monkhood for 4 years. Another monk who works on research and community service came and sat with him. They sat together and complemented each other’s answers.

1. Bodhi tree

Bodhi tree is the tree of the Buddha’s enlightenment. There is a Bodhi tree in front of the Ubosot. A Bodhi tree is also where the Buddha was born [This is not correct information. He hesitated a little bit then said it with confidence. I did not correct him because it was at the beginning of the interview and I was afraid that if I do so he might be afraid to talk more. The trees in the location where the Prince Siddhartha was born were Sala trees. Sometimes people got confused because Bodhi trees are a strong symbol in Buddhism).

There is no information sign at these Bodhi and Asoke trees.

- Asoke tree
- Sala tree – the Buddha reached nirvana under the Sala tree [This is also incorrect. Again, I did not say anything].

Princess Sirindhorn and the Crown Prince planted two trees over there, I cannot remember the names. They are in front of the church on the right and left. They are not so big [I walked there after the interview and found that those trees were planted in small soil areas surrounded with concrete pavement. They will not grow much bigger than that].

- Old tree – Teen Ped (*Apocynaceae scholaris (L.) R. Br*), Hang nok yoong (*Delonix regia*) right by the temple wall along the street.
 - Takien ngen, Takien thong (*Hopea odorata*)
 - Another old tree is Lampu (*Sonneratia caseolaris*). There are two of them in front of the church and another two in front of the pavilion (*Sala Chaloem phra kiet*). These trees were existing trees before the temple was built.
 - Chan (*Diospyros decandra*)
 - Ma-fieng (*Averrhoa carambola*)
 - Ma quid (*Limonia acidissima*)
 - Sa-dao (*Azadirachta indica*)
 - Sa mor (*Terminalia chebula*)
 - Tamarind (*Tamarindus indica*)
 - Thong Lang (*Erythrina variegata*)
2. There is no tree with colored scarves. There is a Bodhi tree near the church behind where we put the large image of the King. There are some broken Buddha statues under the Bodhi tree. Once in a while there are some colored scarves around the trees.
3. All trees have the same maintenance.
- District office regularly comes to sweep the ground and do the pruning. The district officer brought prisoners for regular pruning and cleaning the place 2-3 times per month. Temple requests major pruning when necessary
 - Monks in the temples also help taking care of the trees and garden.

We decorate the temple garden with ornamental and seasonal flowering plants.

We buy more decorative plants, especially ones with flowers, to decorate the place when we have religious events and other ceremonies. Not only small flowering plants, we plant some trees too such as Ton Koon (*Cassia fistula*), Ton Peep (*Millingtonia hortensis*) in front of Sala. But we already have many big trees in the temple.

[I do not think they already have many big trees in the temple. It was still very hot and lack of shaded areas. Even the driveway, parking, plaza in front of the church, small sitting areas by the big pond, and pedestrian walkways were still very hot and lacked shade. There were some big tree species but they were quite small and not very shady. Later they talked about big trees that mostly were in the Sangha area which they were not willing to let public, especially women, go there, even it was a midday so I did not go beyond the public and semi-public areas. I can see some trees in monastic area from outside and understand that when the monks said the temple already have many big trees, he might have thought about those trees in the private section of the temple].

[There was a large area on the other side of the street (I parked my car there) which is a location of the new meditation building and expanded parking lot. Monks also go there to practice and pray for public religious rituals. There was a big building with some floors used as monastic spaces. The area was still quite empty – loose gravel and had only a few existing big

trees – Rain trees, Bodhi trees. etc. The monk later told me that this large property belonged to the Crown property bureau].

7. Benefits of big trees in temple:

They provide shades when monks go out to collect alms around 7 a.m.

[They do not use much of the spaces under the trees, just walking past].

Cool the eyes and minds. Falling leaves are the Buddhist monks' duty to sweep the ground.

Leaves from some species such as Canna, Indian shot (*Canna indica* L. – Puttharaksa), can infiltrate the water.

11. Bodhi trees are very well known as a religious symbol. People tie colored scarves around Bodhi trees. Sala tree also conveys religious significance but not many people recognize its religious significance.

Monastic rules (Vinaya) prohibit monks from taking away living greens because in the Buddha time, people believed that trees are living creatures. Laypeople thought that Buddhist monks should not cut trees because the act of cutting trees is like killing people. As a consequence, the Buddha added the rule for the Buddhist monks to refrain from cutting trees [This is opposite from literature of the Buddhist studies- the interviewee might refer to the local culture of that time but not the Buddhism belief. However, the way he talked about and referred about the Buddha's period seems like it was believed among monks and the whole Sangha that trees is *sattva*, which is incorrect according to the Canonical doctrine].

12. We do decorate the temple in every special event. On the Mother's day [I interviewed them around 9 days before the Mother's day on August 12], we will decorate the temple with white flowers. The abbot told everyone not to cut any trees in the temple. We do not have any projects on planting new trees. We only focus on ornamental plants for decoration.

4) In-depth interview with a monk with less experience in the monkhood (a young monk) (D-3-4)

A junior monk who has been in the monkhood for 4 years. He is responsible for research and community service. He came at the same time and sat with the landscape manager monk (D-3-2) so their answers are similar as they avoided causing conflicts with each other.

Temple visitors

I parked my car at the south section of the temple. There is a Buddhist meditation school with a big Bodhi tree in front of the building. I went to the office and talked to the staff but she said the temple is on the other side of the street. They have separated management and cannot contact any Buddhist monks for me. There was a small farmer market "Natural market and Dhamma business" in front of the building on Saturday. One time I visited the temple during midday. It was the last day for people who attended the meditation course so they brought a lot of food and invited me to have lunch with them. Laypeople always bring the best food to offer to the monks and share with temple visitors. It is a way of merit making. I had some food and talked to the participants about their activities and experience practicing meditation and learning Dhamma for the past week. Even though there is a lot of open space outdoors, participants spent most of their time in the building. The outdoor space was not well designed and was mostly abandoned. I did not eat much but I had one of the best coconut ice creams. The participants said they spent most of their time practicing inside the building.

Remarks:

“The way to take care of the trees is to leave them alone”.

There were several information points from the interview that did not correspond with the Pali Canon. I should not say they were incorrect but they were obviously different from what I found in the literatures and distorted from what monks from other interviews in other temples talked about. The different information started from the beginning - the tree species under which the Buddha reached nirvana, how the Sangha was given the rules of refraining from cutting living trees and the reason for this, and how they perceive the status of trees (*Rupa-sattva*). However, the monks provided lengthy answers which I appreciated. They were willing to take their time and talk with me even without a previous appointment. What they described, despite being different from my knowledge, I listened and took the information the same way I collected from other interviews. Despite the errors on historical aspects, the monks were very active on managing the temple gardens. They regularly buy new plants, redesigning and organizing garden spaces to make them tidy and beautiful. Pruning for big trees could be improved. The old Bodhi tree on the other side of the street in front of the meditation school was big and beautiful.

Most species in this temple are ornamental and small decorative plants. It might have been their own culture at this temple and their own reinvented story of ecological Buddhism. The monks did a very good job on wastewater management with an aerated pond in the temple but pertaining to trees and green space, their approach, knowledge, and understanding seem to be different from monks in other temples.

The active temple ground is as demonstrated in the map. However, there is the area on the south up until the major roads that are parts of the temple grounds. This piece of land is the location of a Buddhist meditation school. There is a big Bodhi tree in front of the building. The monks attend many rituals and conduct many activities here. Some of the novices live in the building. It is outside of the active temple ground and the landscape is disconnected but there were many religious activities in this area. Most of the big trees the monks mentioned are inside the active temple boundary. Even the biggest Bodhi tree is on the side in front of the meditation school building; the monks focus more on the smaller trees in front of the Ubosot that were planted by the Royal family.

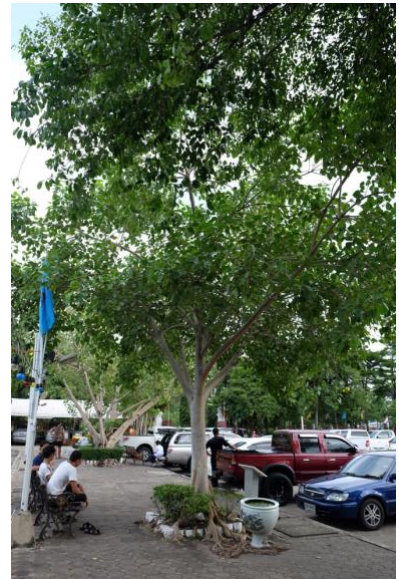


Figure 1: A sign of Phra Sri Maha Bodhi planted on King Bhumibol's birthday on December 5, 2007.



Figure 2: Small soil space keeps the trees small. These trees were planted about 10 years ago but because of limited soil space they do not grow very big.



Figure 3: Open space around Ubosot. Traditional Thai architecture requires this area to be clear from any shade from trees and other roof. It is very hot during the day. People can hardly use the space.



Figure 4: The significant trees planted by the royal family located in front of the Ubosot with signages mentioned the Prince's name and the scientific name of the tree.



Figure 5: A big Bodhi tree in front of the Buddhist meditation school building outside the active temple ground. There are many monks performing religious rituals and staying in this building.

APPENDIX 3: Significant and Heritage Large Trees in Temple Gardens

Significant old trees in temple gardens (A-B)

		Achariaceae	Anacardiaceae	Annonaceae	Apocynaceae			Asparagaceae	Bignoniaceae	
Significant old trees in temple gardens	Scientific name	Hydnocarpus anthelminthicus Pierre ex Lanessa	Mangifera indica	Polyalthia longifolia	Plumeria Scop.	Alstonia scholaris	Apocynaceae scholaris (L.) R. Br.	Dracaena cochinchinensis	Tabebuia rosea	Millingtonia hortensis
	Family	Achariaceae	Anacardiaceae	Annonaceae	Apocynaceae	Apocynaceae	Apocynaceae	Asparagaceae	Bignoniaceae	Bignoniaceae
	Common name	Chaulmoogra	Mango Tree	False Ashoka	Plumeria, Frangipani. Champa Lao, Lanthom	Devil Tree, White Cheesewood	Pong pong tree	Dragon Blood Tree, Dracaena	Pink Trumpet Tree	Cork Tree
	Vernacular name	Kabao	Mango	Asoke India	Plumeria	PhayaSattaban	Teen ped	Chan pa	Chompupanthip	Peep
Period 1	A-1									
	A-2									
	A-3									
Period 2	B-1									
	B-2									
	B-3									
	B-4									
	B-5									
	B-6									
Period 3	C-1									
	C-2									
	C-3									
Period 4	D-1									
	D-2									
	D-3									
Numbers of temples		1	9	1	5	2	1	1	1	3

Significant old trees in temple gardens (C-D)

		Calophyllaceae	Clusiaceae	Combretaceae			Dipterocarpaceae			Dilleniaceae
Significant old trees in temple gardens	Scientific name	Mesua ferrea L.	Mammea siamensis	Terminalia catappa	Terminalia chebula	Terminalia ivorensis	Combretum quadrangulare Kurz	Hopea odorata	Shorea siamensis (Miq.) Kurz	Dillenia indica
	Family	Calophyllaceae	Clusiaceae	Combretaceae	Combretaceae	Combretaceae	Combretaceae	Dipterocarpaceae	Dipterocarpaceae	Dilleniaceae
	Common name	Iron wood, Indian rose chestnut	Salapee, Saraphi	Indian Almond, Sea Almond Tree	Myrobalan,	Ivory Coast almond, Black Afara	Bushwillow	Iron Wood	Dark red meranti, Red lauan	Elephant apple, Chulta
	Vernacular name	Boonnak	Saraphi	Hu Kwang	Samor	Hu Krajong	Sa kae	Takien	Rang tree	Ma tart
Period 1	A-1									
	A-2									
	A-3									
Period 2	B-1									
	B-2									
	B-3									
	B-4									
	B-5									
	B-6									
Period 3	C-1									
	C-2									
	C-3									
Period 4	D-1									
	D-2									
	D-3									
Numbers of temples		1	2	1	4	4	3	6	2	1

Significant old trees in temple gardens (E-F)

Significant old trees in temple gardens	Scientific name	Ebenaceae		Fabaceae										
		Diospyros malabarica (Desr.) Kostel	Diospyros decandra	Samanea saman	Albizia lebbekoides (DC.) Benth.	Erythrina variegata	Tamarindus indica	Dalbergia cochinchinensis	Dalbergia oliveri	Delonix regia	Saraca indica L.	Cassia fistula		
		Family	Ebenaceae	Ebenaceae	Fabaceae	Fabaceae	Fabaceae	Fabaceae	Fabaceae	Fabaceae (Leguminosae-Papilionoideae)	Fabaceae (Leguminosae)	Fabaceae	Fabaceae	
		Common name	Malabar Ebony, Pale Moon Ebony	Gold apple	Rain Tree, Monkey pod Tree	Ceylon rose wood, Black siris	Indian Coral tree, December tree	Tamarind Tree	Thailand Redwood, Siamese Redwood	Burmese Redwood	The Flame Tree, Royal Poinciana	Asoka, Ashok, Asoca	Golden shower tree	
Period	Vernacular name	Maplub	Chan	Rain tree	Kang	Thong lang	Makham	Payoong	Ching chan	Hang Nokyoong farang	Soke narm	Ratchapr uk, Koon		
		1	A-1	Big tree award 1999										
			A-2											
			A-3											
2	B-1		2											
	B-2													
	B-3													
	B-4													
	B-5													
	B-6													
3	C-1													
	C-2													
	C-3													
4	D-1													
	D-2				1									
	D-3													
Numbers of temples		1	6	4	1	1	7	1	1	1	4	3		

Significant old trees in temple gardens (G-M)

		Guttiferae	Leguminosae	Lecythidaceae		Lythraceae		Magnoliaceae	Meliaceae		
Significant old trees in temple gardens	Scientific name	Calophyllum inophyllum Linn.	Crudia Chrysantha (Pierre) K. Schum.	Pterocarpus indicus Willd.	Couroupita guianensis Aubl.	Barringtonia acutangula (L.) Gaertn.	Lagerstroemia floribunda	Sonneratia caseolaris	Magnolia x alba (DC.) Figlar	Sandoricum koetjape	Azadirachta indica
	Family	Guttiferae	Leguminosae	Leguminosae	Lecythidaceae	Lecythidaceae	Lythraceae	Lythraceae	Magnoliaceae	Meliaceae	Meliaceae
	Common name	Alexandrian laurel, Indian laurel		Burmese rosewood, Padouk	Canon ball Tree	Indian Oak, Freshwater Mangrove	Bungor, Thai crape myrtle	Cork Tree, Mangrove apple	White Champaca	Santol	Neem Tree
	Vernacular name	Kakrating	Satue	Praduk	Sala/Sal tree	Jik	Tabak	Lampu	Champi	Kraton	Sadao
Period 1	A-1										
	A-2										
	A-3										
Period 2	B-1										
	B-2										
	B-3										
	B-4					Oldest					
	B-5										
	B-6										
Period 3	C-1										
	C-2										
	C-3				Princess Chulabhorn						
Period 4	D-1										
	D-2										
	D-3										
Numbers of temples		2	1	6	12	5	2	1	1	1	2

Significant old trees in temple gardens (M)

Significant old trees in temple gardens	Moraceae							Musaceae	Myrtaceae	
	Scientific name	Ficus religiosa L.	Ficus religiosa L.	Ficus benghalensis	Ficus superba (Miq.)	Ficus benghalensis L.	Artocarpus heterophyllus	Musa balbisiana Colla	Jambosa jambos Millsp.	Syzygium cumini
	Family	Moraceae	Moraceae	Moraceae	Moraceae	Moraceae	Moraceae	Musaceae	Myrtaceae	Myrtaceae
	Common name	Sacred Fig, Pipal Tree	Sacred Fig, Pipal Tree	Banyan Tree	Deciduous Fig	Banyan Tree, East Indian Fig	Jackfruit		Rose Apple Tree	Java Plum Tree
Vernacular name	Phra Sri Maha Bodhi	Bodhi	Saii	Liep	Krang	Kanoon	Banana Tanee	rose apple	wa	
Period 1	A-1		King Rama II							
	A-2	King Rama III								
	A-3									
Period 2	B-1					1				
	B-2			1						
	B-3	King Rama II								
	B-4	King Rama II	Oldest	Oldest						
	B-5									
	B-6	King Rama IV								
Period 3	C-1		2							
	C-2		N/A		Liep tree					
	C-3									
Period 4	D-1									
	D-2									
	D-3		1							
Numbers of temples		10	13	9	2	1	1	1	4	5

Significant old trees in temple gardens (M-P)

		Musaceae	Myrtaceae	Oxalidaceae	Palmae	Phyllanthaceae	Poaceae			
Significant old trees in temple gardens	Scientific name	Musa balbisiana Colla	Jambosa jambos Millsp.	Syzygium cumini	Averrhoa carambola	Areca catechu Linn.	Borassus flabellifer	Phyllanthus emblica	Bridelia ovata Decne	Bambuseae
	Family	Musaceae	Myrtaceae	Myrtaceae	Oxalidaceae	Palmae	Palmae (Arecaceae)	Phyllanthaceae	Phyllanthaceae	Poaceae
	Common name		Rose Apple Tree	Java Plum Tree	Carambola, Star fruit	Areca Palm, Betel nut	Toddy palm, Asian palmyra palm, Lontar palm	Indian Gooseberry		Bamboo
	Vernacular name	Banana Tanee	rose apple	wa	Ma-fieng	Maak	Toddy palm	Makhampom	Maka	Bamboo
Period 1	A-1									
	A-2									
	A-3									
Period 2	B-1									
	B-2									
	B-3									
	B-4									
	B-5									
	B-6									
Period 3	C-1									
	C-2									
	C-3									
Period 4	D-1									
	D-2									
	D-3									
Numbers of temples		1	4	5	1	1	2	2	1	3

Significant old trees in temple gardens (R-Z)

Significant old trees in temple gardens	Scientific name	Rutaceae			Sapotaceae		Zygophyllaceae		
		Aegle marmelos	Limonia acidissima	Murraya paniculata	Manikara hexandra	Mimusops elengi L.	Guaiacum officinale		
		Family	Rutaceae	Rutaceae	Rutaceae	Sapotaceae	Sapotaceae	Zygophyllaceae	
		Common name	Indian Bael	Wood apple	Murraya	Palu	Bullet Wood, Spanish cherry	Roughbark Lignum-vitae, Gaiaewood	
Vernacular name	Matoom	Ma quid	Kaew	Kate	Pikul	Kaew chaojom	Mung-ka	TOTAL	
Period 1	A-1								26
	A-2								11
	A-3								12
Period 2	B-1								9
	B-2								5
	B-3								16
	B-4				Oldest				12
	B-5								12
	B-6								7
Period 3	C-1								11
	C-2					tallest			13
	C-3								10
Period 4	D-1								15
	D-2								6
	D-3								19
Numbers of temples		1	1	3	2	7	2	1	184

APPENDIX 4: Percentage of Land Cover Classification in Each District of Bangkok

4.1 Percentage of Land Cover Classification in the Inner Districts of Bangkok

Inner Bangkok	Bare Areas		Buildings		Road/parking lots		Grass/shrub		Trees		Waterbodies		Shadow		Total district area (sq.m)
D1	4268672	26.20%	4120648	25.30%	2825952	17.30%	1535584	9.40%	1999164	12.30%	1021640	6.30%	518872	3.20%	16290532
D5	557128	6.60%	3077988	36.40%	2416772	28.60%	170192	2.00%	1548576	18.30%	201340	2.40%	478044	5.70%	8450040
D7	699428	6.20%	5016416	44.40%	1322488	11.70%	352752	3.10%	2263360	20.00%	940688	8.30%	707008	6.30%	11302140
D09	537412	5.80%	3488488	37.90%	2795356	30.40%	578048	6.30%	1356624	14.70%	101996	1.10%	343900	3.70%	9201824
D10	662260	5.40%	5376284	43.70%	1719156	14.00%	960968	7.80%	2824784	23.00%	484800	3.90%	279284	2.30%	12307536
D11	53408	0.70%	3332620	46.60%	1645104	23.00%	184776	2.60%	1373180	19.20%	43212	0.60%	526800	7.40%	7159100
D12	167424	3.10%	2399064	44.80%	430728	8.00%	114312	2.10%	1573004	29.40%	565800	10.60%	108060	2.00%	5358392
D13	0	0.00%	1611484	64.50%	171920	6.90%	21836	0.90%	469540	18.80%	92436	3.70%	131508	5.30%	2498724
D14	740160	9.20%	2890004	36.00%	1177936	14.70%	589948	7.40%	1812152	22.60%	449300	5.60%	366856	4.60%	8026356
D17	1407824	10.80%	6594896	50.80%	1046556	8.10%	826700	6.40%	1763644	13.60%	338952	2.60%	999284	7.70%	12977856
D18	107488	1.70%	3356388	53.40%	434084	6.90%	313436	5.00%	1598220	25.40%	297224	4.70%	173304	2.80%	6280144
D20	0	0.00%	890652	64.00%	92140	6.60%	40064	2.90%	165332	11.90%	164320	11.80%	38524	2.80%	1391032
D21	1360504	10.30%	3405464	25.80%	4413444	33.40%	589152	4.50%	1257740	9.50%	1870904	14.10%	326820	2.50%	13224028
D22	145360	1.70%	4361896	51.60%	1178960	13.90%	360744	4.30%	1675844	19.80%	399460	4.70%	332400	3.90%	8454664
D23	154392	2.60%	3363872	56.50%	352300	5.90%	300888	5.10%	983072	16.50%	536464	9.00%	264432	4.40%	5955420
D25	96200	2.40%	1999408	49.90%	814028	20.30%	77864	1.90%	601720	15.00%	136588	3.40%	283180	7.10%	4008988
D27	390732	5.40%	3914176	54.00%	556992	7.70%	694880	9.60%	1281732	17.70%	241572	3.30%	172304	2.40%	7252388
D28	1552664	12.40%	3593376	28.80%	2705144	21.70%	818508	6.60%	1154100	9.20%	2482304	19.90%	186700	1.50%	12492796
D30	606020	7.30%	3865236	46.60%	673380	8.10%	825752	10.00%	1197880	14.40%	933824	11.30%	196564	2.40%	8298656
D42	4060736	12.50%	13043280	40.00%	4969544	15.20%	1861348	5.70%	6204624	19.00%	1630404	5.00%	845916	2.60%	32615852
D46	891420	6.90%	5032724	39.10%	2577288	20.00%	999752	7.80%	2464072	19.20%	624028	4.90%	275580	2.10%	12864864
total	18459232	8.90%	84734364	41.10%	34319272	16.60%	12217504	5.90%	35568364	17.20%	13557256	6.60%	7555340	3.70%	206411332

4.2 Percentage of Land Cover Classification in the Middle Districts of Bangkok

Middle Bangkok	Bare Areas		Buildings		Road/parking lots		Grass/shrub		Trees		Waterbodies		Shadow		Total district area (sq.m)
D0	570900	4.80%	4707152	39.90%	1915896	16.20%	1125212	9.50%	2163180	18.30%	991860	8.40%	317072	2.70%	11791272
D2	1573584	9.20%	6211712	36.40%	3794324	22.20%	2266516	13.30%	2456724	14.40%	223972	1.30%	527352	3.10%	17054184
D8	653184	2.30%	7699028	27.40%	4852284	17.30%	4414012	15.70%	6240732	22.20%	3137780	11.20%	1056780	3.80%	28053800
D15	7809340	16.30%	8993880	18.80%	8278668	17.30%	13091464	27.40%	8434644	17.60%	1190720	2.50%	57772	0.10%	47856488
D16	2446760	8.90%	8798960	32.00%	4272532	15.60%	3259576	11.90%	3243024	11.80%	1165980	4.20%	4272532	15.60%	27459364
D19	2046412	10.70%	6649316	34.70%	2259044	11.80%	3014708	15.70%	3833004	20.00%	586448	3.10%	775644	4.00%	19164576
D24	4224204	7.90%	14099880	26.30%	9499168	17.70%	9530216	17.70%	9533396	17.80%	5696152	10.60%	1113632	2.10%	53696648
D29	822360	3.60%	9544768	41.20%	2746336	11.90%	3413488	14.70%	5640388	24.40%	755192	3.30%	234796	1.00%	23157328
D31	2690944	19.80%	4142008	30.50%	1343868	9.90%	1131536	8.30%	2938640	21.70%	963776	7.10%	348720	2.60%	13559492
D32	706544	5.70%	4884420	39.60%	1337496	10.80%	1113996	9.00%	2942712	23.90%	1001904	8.10%	340628	2.80%	12327700
D34	276056	1.50%	7446140	39.30%	4143236	21.90%	2126868	11.20%	2996092	15.80%	1456168	7.70%	485428	2.60%	18929988
D38	4467796	10.30%	12689452	29.10%	5852180	13.40%	10813716	24.80%	6631492	15.20%	2481948	5.70%	634360	1.50%	43570944
D41	1679764	4.10%	10026256	24.50%	9127904	22.30%	6777036	16.60%	9143944	22.30%	2869116	7.00%	1314084	3.20%	40938104
D43	2193472	8.60%	4819440	19.00%	7759628	30.60%	3970472	15.60%	4458580	17.60%	1514952	6.00%	654032	2.60%	25370576
D45	1048900	4.90%	7067132	33.30%	5469080	25.70%	2373028	11.20%	3979020	18.70%	916408	4.30%	389676	1.80%	21243244
D47	0	0.00%	8372632	35.80%	5602224	24.00%	3914484	16.70%	1792628	7.70%	2780668	11.90%	922748	3.90%	23385384
D48	2359752	8.60%	9252484	33.60%	6179564	22.40%	3506280	12.70%	3656312	13.30%	1575464	5.70%	1029808	3.70%	27559664
D49	1378044	4.20%	8966372	27.20%	3616352	11.00%	4297700	13.10%	8890008	27.00%	3985268	12.10%	1780296	5.40%	32914040
total	36948016	7.60%	144371032	29.60%	88049784	18.00%	80140308	16.40%	88974520	18.20%	33293776	6.80%	16255360	3.30%	488032796

4.3 Percentage of Land Cover Classification in the Outer Districts of Bangkok

Outer Bangkok	Bare Areas		Buildings		Road/parking lots		Grass/shrub		Trees		Waterbodies		Shadow		Total district area (sq.m)
D3	4619100	8.90%	9565248	18.50%	5972108	11.60%	10622056	20.50%	16556644	32.00%	3022880	5.80%	1343592	2.60%	51701628
D4	8882992	6.90%	17316092	13.50%	12907256	10.00%	34433292	26.80%	19273704	15.00%	28348932	22.00%	7409464	5.80%	128571732
D6	2146440	6.00%	9679320	27.10%	6286372	17.60%	7629680	21.30%	7034580	19.70%	1598920	4.50%	1379464	3.90%	35754776
D26	1427528	3.90%	9530836	26.30%	6531804	18.10%	6587500	18.20%	9120204	25.20%	1652768	4.60%	1334060	3.70%	36184700
D33	2229948	6.20%	12226060	34.10%	4727556	13.20%	8131376	22.70%	5269428	14.70%	2047488	5.70%	1205260	3.40%	35837116
D35	7475848	6.10%	17668904	14.50%	12796344	10.50%	14581480	11.90%	22922604	18.80%	44605068	36.50%	2135712	1.70%	122185960
D36	2629700	7.20%	13606156	37.10%	5188108	14.10%	5591460	15.20%	6538328	17.80%	2177092	5.90%	938904	2.60%	36669748
D37	65940412	27.40%	19972996	8.30%	14885320	6.20%	60984628	25.40%	46013028	19.10%	31423280	13.10%	1200840	0.50%	240420504
D39	9593992	8.00%	14421860	12.00%	11189428	9.30%	33155700	27.60%	32120644	26.70%	16436488	13.70%	3213812	2.70%	120131924
D40	267052	1.20%	8295372	36.60%	4005308	17.70%	2821980	12.50%	5601036	24.70%	1018088	4.50%	648544	2.90%	22657380
D44	2143996	3.50%	13228832	21.70%	8981404	14.70%	13059248	21.40%	14995056	24.50%	7099732	11.60%	1577568	2.60%	61085836
total	107357008	12.00%	145511676	16.30%	93471008	10.50%	197598400	22.20%	185445256	20.80%	139430736	15.60%	22387220	2.50%	891201304