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Patwin Folk-taxonomic Structures

By

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THESIS

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June 18, 1976
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by

Kenneth Wayne Whistler

I dedicate this work to the Patwin people,
whose land we have taken,
whose language we have destroyed.

ACKNOWLEDGEMENTS

I would like to acknowledge some of the many people who helped to make this thesis possible. First of all, the Patwin people, to whom this data really belongs: Oscar McDaniel, Jennie Regalado, and Harry Lorenzo, all of whom worked with me; as well as the many others who have helped to record the Patwin language in the past. Second, the members of my committee, Wallace Chafe, Charles Fillmore, Mary Haas, and Brent Berlin, whose comments and advice helped shape this thesis. Brent Berlin, in particular for his enthusiastic response to my efforts and his detailed critiques of the more troublesome portions of my drafts. And Mary Haas in particular for encouraging me to start fieldwork with the Patwin, and for her support, through the Survey of Californian and other Indian Languages, which made that fieldwork possible. Paul Kay, for helpful comments on an earlier version of the thesis. Sonia Tamez, for comments and for guiding me to numerous important references. Donald Ultan, Bernadine Morgan, and Warren Snyder, who made their Patwin data available to me. And the Stonyford District of the Mendocino National Forest and the people of Stonyford, California, whose hospitality and interest made my fieldwork far easier, more efficient and enjoyable.

Many others contributed in one way or another. I thank them all.

... and a DISCLAIMER

Any errors in the text or in the taxonomic interpretations are my own alone. But errors in what means what are so numerous that, reluctantly, I have to admit that I didn't make them all myself.

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I. INTRODUCTION, AIMS

It has long been recognized that the biological lore of the myriad non-literate peoples of the world constitutes a vast storehouse of information about the natural environment and its uses. Since at least the time of Herodotus, adventurers and scholars have been recording which animals the barbaroi ate or worshiped, what plants they used for clothing, for shelter, for food, for medicine, and so on. Modern scholarship regarding folk biology has typically consisted of intensive collection of a subset of the culturally relevant flora and fauna of a region, its identification, and a correlated list of the uses to which the various species were or are put to. Such studies may or may not have included the local names for the plants or animals, since their major goal was the identification of uses.

More recently, there has been a shift in emphasis from listing of uses of various species to investigation of the conceptual structures underlying any particular culture's relationship with the flora and fauna of its environment. The earlier efforts of this type were "ethnoscience" in orientation, and their success was mixed, due in part to their overemphasis on formal methodology and formal structures. Conklin, Berlin, Hunn, and other investigators of an outlook now known as "folk-science"¹ have, in contrast, emphasized the importance of the biological data itself and of the systematic correlation between biological

taxonomic conceptual structures and nomenclatural systems. In so doing, they have started to lay the foundations of a universal theory of folk biological classification, a theory which now seems to be providing partially explanatory models for the biological taxonomic systems of many peoples of widely divergent cultures. The emergence of the folk-scientific paradigm has been accompanied by a stimulation of new research, of which the current study is an example.

The present work was conceived within the folk-scientific orientation. Its aim is threefold. First is the organization and presentation of basic data. Data on the biological nomenclature of the Patwin, like that of 95 per cent of the peoples of the world, has been fragmentary, disorganized, and generally unavailable. I have recorded and analyzed as much as possible, in part purely as an effort toward preservation of an otherwise vanishing heritage, and in part to make that data available for other studies, internal or comparative, which are beyond the scope of my present work. The second aim is more theoretical--an attempt to reconstruct and interpret the folk-biological taxonomic structures of the Patwin within the general framework of Berlin, Breedlove and Raven's theory of folk biological classification. Hopefully, that interpretation can serve as one more set of evidence confirming or disconfirming details of that theory. Third, my study has a modest methodological goal--namely, the demonstration of techniques whereby detailed taxonomic structure can be

culled from fragmentary or poorly recorded data.

Most major folk-taxonomic biological work to date has focused on work in living cultures with a viable linguistic community. Such a focus provides for reliable, controlled, and complete data, and has been the basis for most of the recent development in folk-scientific theory.² A second type of approach to folk biology has been to make detailed classifications of plants and animals of classical civilizations for which there are surviving written records, e.g. Chinese, Greek and Roman, and Central American.³ Most of this work preceded or has otherwise been outside the research paradigm of folk-scientific theory, but at least one very recent study (de Montellano 1976) shows the application of Berlin, Breedlove, and Raven's model to the Nahuatl botanical data recorded in the Florentine Codex.

There is, however, a third kind of study possible, intermediate between scientifically controlled work in viable cultures and pure philological study of data from classic civilizations--namely, the study of poorly recorded data from recently vanished cultures and data collected from speakers of moribund languages, which no longer show the full richness of a living language. The theoretical status of folk-biological investigations among moribund cultures has not been adequately examined, despite the fact that throughout most of North America, as well as much of the rest of the world, fragmentary data are the best that can be hoped for. Accordingly, one of the questions I will

be addressing myself to in this study is the question of just how much can be done with such data.

I contend that with a combination of careful correlation of existing earlier recordings of ethnobiological data, systematic reconstruction of categories, and careful elicitation from remaining speakers it is possible to recover a great deal of information about the folk-biological system of a culture when it was at its prime. In essence, I am advocating something analogous to computer enhancement to clarify a fuzzy or low resolution picture and bring out the structural details which are implicitly there, but which are difficult or impossible to see in the greatly degraded raw data. As will be seen below, my approach is still basically philological in character--it therefore has implications for folk-scientific work on classic civilizations, but its most effective use involves consultation with living speakers, no matter how fragmentary their command of biological lore.

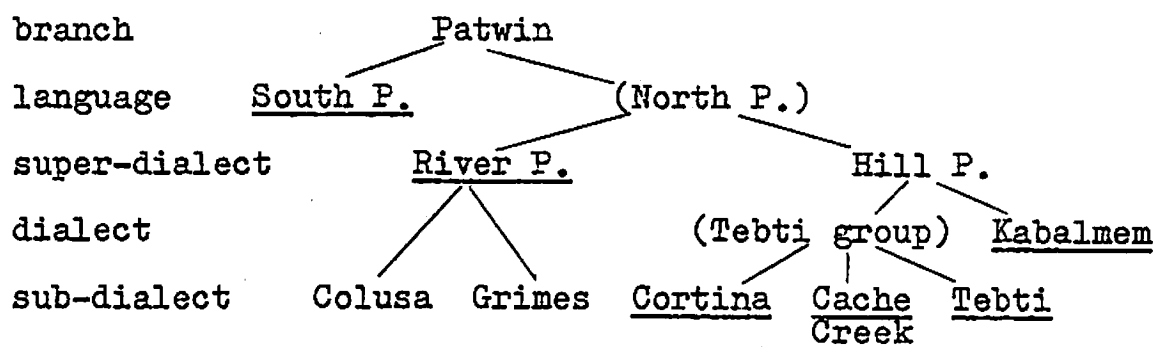
Before presenting the methodology and results of my study, I will give a quick introduction to the Patwin people and dialects and an overview of the environment which they lived in and named.

II. THE PATWIN PEOPLE AND DIALECTS

The Patwin were one of the largest and most populous groups in aboriginal California. The Wintun language family, of which the Patwin formed the southern branch, occupied the West Sacramento Valley, from the Sacramento River to the crest of the Inner Coast Range, and from the Trinity and McCloud River drainages in Trinity and Shasta Counties south to the northern banks of the Suisun Bay and the lower reaches of the Napa River. The Patwin proper occupied more than 40 per cent of this territory, roughly Colusa, Yolo, and Solano Counties, plus the eastern portions of Lake and Napa Counties (see map, pp. 63 and 64). There are, of course, no reliable figures on their original population, but it may have been as high as 12,000 or more.⁴ In fact, in the relatively sparsely populated Colusa County (current population 12,000), outside of the larger towns of Colusa, Williams, Arbuckle, and Maxwell, the aboriginal population probably approached, and in some areas exceeded the modern resident population even today.

The Patwin did not settle their entire territory evenly, but concentrated in areas of maximum environmental advantage. The majority of their settlements thus paralleled the major year-round stream- and river-courses, and, as a result, the pattern of major stream drainages dominates the cultural and linguistic subgrouping of the group. Pending more detailed comparative work, I have settled on the following linguistic subgrouping, which is reflected in the

biological taxonomies in the appendices:



Underlined languages or dialects represent the lowest level for which reliably identified data are available, and they are accordingly the levels I will be referring to regularly.*

The South Patwin are a very poorly documented and ill-defined group that have been extinct for over 50 years. They formerly occupied the lower Napa Valley from the town of Napa south to the bay, and probably scattered locations north of Suisun Bay throughout Solano County. Further north, a short stretch of the Sacramento River, from Knight's Landing south nearly to the confluence of the Feather River, was occupied by a Patwin-speaking group distinct from those further north. This group may have been closely related to the Suisun and Napa groups, but I am unaware of any data which could prove it. The lower stretches of Cache Creek and Putah Creek also have a few recorded sites of former settlement, in the plains upstream from the great marshes which formerly bordered the Sacramento River in the Sacramento area. Those sites were

* Throughout this study, I will be using the following abbreviations for languages and dialects:

South Patwin	S	Tebti	T	Cache Creek	CC
River Patwin	R	Cortina	C	Kabalmem	K
Hill dialect	unspecified	HX	All Hill dialects		H

probably also occupied by the South Patwin.

The River Patwin occupied both banks of the Sacramento River from a few miles north of Knight's Landing north to the town of Princeton. They comprised two slightly different subgroups, one centered on the site of the current town of Grimes, and the other further north in and around Colusa.⁵

The Hill Patwin occupied all of the major stream drainages above the valley floor and north of Solano County. They were divided into two groups. The larger of these was a loose assemblage speaking virtually identical dialects. I have identified three subgroups: 1. Cache Creek. This group occupied the Capay Valley, a long, U-shaped valley running from Esparto at the edge of the plains north to Rumsey, where Cache Creek emerges from a steep, narrow canyon. 2. Cortina. This group occupied a number of sites in the hills north of Rumsey, centered on the now-discontinued Cortina Rancheria. Most of the streams in that area are seasonally dry, so the Cortina settlements were dependent on local springs. A couple of recorded settlements along Bear Creek to the west may have been associated with the Cortina group.⁶ 3. Tebti. This was a group of settlements centered on the confluence of Long Valley Creek and North Fork Cache Creek (also known as Bartlett Creek). The zone of more or less continuous settlement associated with Tebti probably extended up both creeks and down the North Fork to just a few miles south of

its confluence with the main fork of Cache Creek. The occupants of the upper Putah Creek, especially near Monticello, may have been another, less numerous component of the Cache Creek, Cortina, Tebti grouping, but there are no recorded forms from those people.

The second, and fairly distinct, group of Hill Patwin are the Kabalmem (also known as the Chuhel-mem-sel "gravel spring people"). They occupied the drainage of the Little Stony Creek and of Indian Creek, near the modern town of Lodoga, and probably also the hills as far east as the town of Sites. The Kabalmem people formed a close geographic and complex cultural unit with the Northeastern Pomo of the Big Stony drainage, and apparently also had extensive contact with the Nomlaki, who occupied the Big Stony and its tributaries north of its confluence with the Little Stony.⁷

The Patwin dialects have received varying degrees of attention, but none of them can be considered well-documented. The earliest recordings are a few versions of the Lord's Prayer, the Hail Mary, and a few other words of South Patwin, collected by Arroyo de la Cuesta in 1821. Much later, in the 1890's, Platón Vallejo recorded similar material on South Patwin. There are a few scattered word-lists of other Patwin dialects gathered by early explorers and linguistic surveyors in the 19th century.⁸ Early in the present century, T. T. Waterman, Howard B. Wilson, S. A. Barrett, Alfred L. Kroeber, and C. Hart Merriam all worked with the Patwin, but with the exception of Merriam, their

linguistic materials are quite limited in scope. Jaime deAngulo and Paul Radin did specifically linguistic work on the Cortina and Tebti dialects in 1929 and the early 1930's, respectively. And finally, at intervals starting in 1951, several fieldworkers from Berkeley and Davis have done linguistic work with the few remaining speakers of both Hill and River Patwin dialects. Currently I have been working intensively with the very last speakers.⁹ Most of these people are well over 70 years old. Even more critical than their age, however, is the fact that they are all isolated from each other, and only one or two retains any really detailed degree of knowledge about the local flora and fauna or of other aspects of their culture from the aboriginal point of view.

III. ENVIRONMENT AND ENVIRONMENTAL CHANGE

In this section I characterize the aboriginal environment of the Patwin and also summarize some of the major environmental changes during the last 140 years in their territory. This should give some perspective on the biological data included in the taxonomies and also make clear the fact that the few remaining speakers of Patwin are living in an environment vastly different from that of their forefathers.

The Patwin territory lies wholly within the California biotic province. The vegetation types can be divided into three major belts, which in turn subdivide into specific plant communities.¹⁰ I will discuss each of these belts briefly and point out the changes each has undergone since precontact times.

In the broad floor of the Sacramento Valley is the valley belt, composed of two plant communities: 1. fresh-water marshland along the river, relatively narrow around Princeton, but increasingly broad as one moves south towards the Sacramento Delta. 2. valley grassland on the valley floor away from the floodplain and stretching up to the base of the Coast Range foothills. With the exception of the Sacramento, Colusa, and Delevan national wildlife refuges, the marshlands in Patwin territory have been completely destroyed--drained, plowed and turned into irrigated orchards, truck farms, and wetland rice farms. The grassland has mostly been plowed and is used for

dryland oat and barley crops or for sheep and cattle grazing. Even in those few spots protected from both farming and grazing, the native perennial bunchgrasses and various annuals have been mostly replaced by aggressive introduced annuals such as wild oats (Avena fatua, A. barbata), bromegrass (Bromus spp.), wild mustard (Brassica spp.), and thistles and star-thistles (Cirsium vulgare and Centaurus spp.), etc.¹¹ Heavy application of pesticides and herbicides has hastened changes in both the floral and faunal populations throughout the valley.

The rolling hills and low front ranges bordering the great valley constitute the foothill belt. This belt, too, encompasses two plant communities: 1. foothill woodland bordering the valley, dominated by open stands of digger pine (Pinus sabiniana) and blue oak (Quercus douglasii) on dry hillsides. 2. chaparral -- a nearly treeless scrub community composed of chamise (Adenostoma fasciculatum), buckbrush (Ceanothus cuneatus), manzanita, toyon, and other hardy perennials. The foothill belt has not undergone the massive destruction and change of the valley belt, but it still shows the marks of considerable human intervention. The more open sections of the foothill woodland are heavily utilized for range cattle grazing. Thus, the undergrowth and even the soil itself have changed considerably due to trampling and selective browsing pressure by the cattle. There is considerable controversy over the extent of change of the chaparral since aboriginal times. Kerry Chartkoff

(Chartkoff 1966) reports the possibility of considerable retreat of the chaparral, at least in Glenn County, just north of Patwin territory, due to brush cutting for rangeland. This effect is visible locally in Colusa County as well. Elsewhere, the chaparral may have advanced at the expense of less fire-adapted communities, but this process has probably been minor during this century.¹² Strict fire management policies in the hills and mountains since the turn of the century have, no doubt, resulted in an overall increase in the mass and age of the chaparral, however, and probably, as a result, have contributed to a decline in the deer population, which depends on the chaparral for both shelter and food.

Above the foothill belt is the yellow pine belt, starting at about the 2000 foot level. It is dominated by dense stands of yellow pine (Pinus ponderosa), mixed with sugar pines, cedars, black oaks (Quercus kelloggii), and Oregon oaks (Q. garryana). In some areas the yellow pine forest shades into the Douglas fir forest, dominated by Pseudotsuga menziesii. At lower altitudes in open locations the knobcone pine (Pinus attenuata) is common. The yellow pine belt in Patwin territory, as throughout California, has been subject to a century of logging. The timber harvesting, selectively concentrated on yellow pine, sugar pine, and Douglas fir, has resulted in changes of local species balances, and the numerous logging roads have caused changes in local habitats, drainage patterns, and

runoff composition. Over 70 years of active fire management have also had an effect here, principally on the undergrowth composition, on population distribution of the trees, and on stream runoff volume.¹³

Besides the three major vegetation belts, there is another important plant community, the riparian woodland, not confined to altitude belts, but following the major stream-courses. It is dominated by willow species, cottonwoods, sycamores, valley oaks (Quercus lobata), etc. This was the favored habitat for aboriginal settlements. It has, in many places, been extensively modified by levees, dams, irrigation works, channeling, gravel removal and heavy construction of various types.

In addition to the various vegetational changes mentioned above, there is one plant introduction worthy of note, if for no other reason than its dominance of the landscape it colonizes: the eucalyptus. Several species of this group of trees, native to Australia, have become naturalized in California. Large stands and groves of eucalyptus are now prominent in Patwin territory, especially in the grasslands and foothill woodlands of Solano and Yolo Counties.

The original location of the Patwin groups within the various vegetation belts is very important for the interpretation of the folk-biologic data recoverable for each dialect. The River Patwin lived in the riparian woodland along the banks of the Sacramento River, in intimate contact

with the freshwater marshland and valley grassland and their associated faunas. The South Patwin around Knight's Landing lived in a similar habitat, but the Suisun and Napa branches of the South Patwin lived near or in the foothill woodland and in close contact with coastal salt marsh along the edges of Suisun and San Pablo Bays, as well as the freshwater marshland further inland and upstream. All of the Hill Patwin groups lived in the foothill belt, generally in contact with both the woodlands, abundant in acorns, and the chaparral, abundant in game and berries. The Tebti group was the westernmost of the Patwin, living entirely within Lake County. At their higher and more coastward location, they must have been more familiar with the montane floral and faunal species of the yellow pine belt than were any other Patwin group. They were also in contact with Pomo groups whose territory extended west and northwest into the redwood belt.

The faunal population of the Patwin territory has changed drastically since the 1830's. The formerly plentiful antelope and tule elk herds of the valley floor have long since totally disappeared. Only the deer remain--in the chaparral and bordering plant communities--since the chaparral they browse is the least utilized of any part of the area. The carnivore populations have dropped greatly. Grizzlies and wolves are long gone from the Coast Ranges (and California altogether). Mountain lions, bobcats, and black bears are much scarcer than in aboriginal times.

Fishers, weasels, minks, badgers, and ring-tailed cats are all uncommon to rare. The river otter has virtually disappeared. Even the coyote and gray fox have suffered declines.¹⁴ Beavers still occur locally, but are not common. These changes are the result of a combination of forces: predator control, trapping, sport hunting, change of environment, and decline in the population of suitable prey populations of small and large browsers. The cottontail rabbit, for instance, has been rare in the valley floor since the 1930's, at least on the west side of the river. The black-tailed hare ("jackrabbit") population, too, has declined, drastically so in the valley due to direct control by farmers and less drastically in the hills, probably in part due to competition by sheep and cattle for suitable browse. More importantly, the rodent populations, a key link in the maintenance of predator populations, have declined, especially in farmed areas. However, the ground squirrel seems to have extended its range, as has the porcupine. Nowadays, in the place of the native mammals are the cattle, sheep, horses, dogs, cats, rats, and mice brought by the ranchers, farmers and town dwellers.

The most evident change in the bird populations has been the disappearance of the large birds of prey, mostly due to habitat destruction and the resultant loss of appropriate food resources. Condors, once plentiful in the Sutter Buttes, are now virtually extinct. Other raptors have not fared much better: eagles are rare in the area,

and falcons and ospreys are uncommon. The hawks, however, have been generally more successful. The shift to massive agriculture in the valley has resulted also in declines of many other species--most notably the waterbirds. In their place are the urbophile English sparrows, starlings, and domestic pigeons. Pheasants and wild turkeys are species which were fairly recently introduced and established. The bird species of the hills have not been too disturbed, but the population of flickers and acorn woodpeckers in the valley at least has apparently suffered as a result of a continuing campaign by the phone companies to preserve their telephone poles.

The composition of the fish populations has also changed. The salmon run up the Patwin rivers has been virtually eliminated due to damming, silting, and disturbance of spawning beds, as well as bay and estuary pollution. Numerous species of trout have been added to the streams and reservoirs. Also introduced are bass, catfish, sunfish, minnow and carp species, as well as the tiny mosquitofish. In some cases these species are replacing such native fish species as the Sacramento perch (Archoplites interruptus).¹⁵

It is also important to note the effect of changes in the settlement and seasonal movement patterns of the Patwin people. The Patwin used to range widely through their territory--hunting in the chaparral and the plains, gathering numerous seeds and bulbs in the plains, fishing along

the stream-courses, venturing seasonally into the higher mountains to quarry chert for projectile points and other tools and to trade with their neighbors for unworked obsidian as well as finished points and tools, shell beads and bead blanks, ceremonial items, and probably food items. Now, the few people still speaking the old language are confined to scattered tiny rancherias or are totally absorbed in the dominant culture; they get around like the Anglos and the Chicanos, driving into town to buy groceries. Practically no active gathering is pursued now, even of acorns. In fact, because of the danger of pesticide residues, the River Patwin (and presumably other California Indians in agricultural areas) have been actively warned against gathering vegetable materials. Only fishing is still pursued by those who are able to and are located near a major watercourse. As a result of the changes in mobility and subsistence, the Patwin have largely lost contact with what portion of their original environment still remains today. With the isolation of the few remaining speakers, the opportunity for them even to reminisce with each other about the past has evaporated.

This discussion about the aboriginal environment and environmental changes is not meant as a covert argument for a claim of environmental determinism of culture. However, given the environmental changes outlined, I think it safe to conclude that much of the physical context which verified, in a sense, the Patwin system of folk biology has disappeared,

thus undoubtedly contributing to the general loss of Patwin culture. In fact, given the current state of culture loss, I find it remarkable that any of the original Patwin folk-biological information and implicit taxonomic structure should still be present. Many of the environmental changes mentioned above were initiated early in the 19th century and were already far-progressed by the birth of even the oldest living speakers today. Early ethnographic studies were sketchy, of a survey nature, and seldom asked the right questions in the right detail to provide satisfactory, systematic data today about aboriginal conditions. Typically, those studies consisted merely of lists of plant and animal names with associated uses. Even Kroeber's ethnography (Kroeber 1932) often does not include native words for the various plants and animals he discusses. And current work is fraught with the danger of working with marginally fluent speakers in shattered communities in environments irrevocably changed by massive European incursion.

So what can be salvaged? One aim of this study is to attempt to answer that question in the case of the Patwin. The taxonomic tables in the appendices detail the recovered folk-biologic information for the Patwin. In section V I take up the issue of the degree of completeness of that data, hopefully providing, thereby, an at least partially satisfactory answer to the question. Since the Patwin situation is typical of much of North America, the answer

should also be indicative of the kind of information that could be recovered for other marginal and vanishing groups.

IV. METHODOLOGY

In order to work out the Patwin folk-biological taxonomic systems, I started with a survey of all readily available recordings of Patwin lexical material relating to plants and animals. These included the Wintun wordlist in Barrett (1908), scattered Patwin forms in Kroeber (1932), the short manuscript semasiology of Cortina Hill Patwin by Jaime deAngulo (1929), the manuscript dictionary of Tebti Hill Patwin by Paul Radin (1932), field notes on River Patwin by Warren Snyder (1969) and a related wordlist drafted by Bernadine Morgan (1974). The core data consisted of the extensive field notes and indices of linguists working under the auspices of the Survey of California and other Indian Languages: Elizabeth Bright (1951-2), Donald Ulta (1961-3) and myself (1975-present). My other major source was the natural history wordlists of C. Hart Merriam for Patwin-speaking groups, gathered at scattered intervals from 1903 to 1936.¹⁶

The basic course of the research was as follows: I correlated and organized all of the data, including my own but excluding Merriam's. When I had worked out a complete set of hypotheses, I returned to the field for twelve days in the spring of 1976 and consulted with speakers of Kabal-mem, Cache Creek and River dialects to check the results as far as possible. Subsequently, I checked my composite data against Merriam's lists, further amending and adding taxa.

I will not try here to reconstruct the full history of

the development of my hypotheses regarding the taxonomies, but rather present a generalized picture of the process whereby the raw wordlists and field elicitation were turned into a reliable folk-taxonomic analysis.

First, in order to facilitate comparison of items, I reduced the bewildering array of transcriptions and diacritics used by the various collectors to an orthography compatible with my own (see p. 65), as far as possible. Besides such obvious changes as substituting one symbol for another, this involved reducing the numerous vowel phones recorded to the basic five-vowel phonemic system. Aspiration was a particular problem, since it was often not accurately recorded by early workers. Glottalization, too, especially of the affricate /c'/, was often mistranscribed. In doubtful or contradictory cases I have generally opted for a conservative interpretation of other people's transcriptions, but have occasionally amended forms based on my still incomplete knowledge of Patwin stem structure. Merriam's orthography turned out to be the most intractable--he transcribed his data using the standard Webster's dictionary pronunciation guide for English. In the taxonomies I have usually recorded his data within brackets to indicate the uncertainty of my phonemicization of it.

The next step was to analyze all the data by dialect or subdialect, lexeme, and by identified taxon. Each of these dimensions of analysis posed a particular set of problems, which I will discuss here in turn.

The dialect divisions have never been absolutely clear, as might be expected. The subgrouping which I outlined above on page 6 represents a best estimate based on several factors, including evidence of settlement distributions, Indians' statements about who spoke the same as or differently than they, and my own judgements about the degree of commonality and divergence of vocabulary. But even given a reliable analysis of dialect interrelationships, there were two further types of problems in dialect identification. First, Barrett and Kroeber did not identify their Hill Patwin informants precisely. On the basis of internal evidence and correspondence with other data, I now feel that Barrett's forms are quite probably Tebti Hill Patwin, and I have treated them accordingly. Kroeber's forms, however, were recorded throughout the Hill Patwin territory. He, in fact, does record details regarding each of his informants but in the text of the ethnography cites forms merely as Hill or River, with no hint of which person gave him which form. As a result, it is next to impossible to assign Kroeber's Hill Patwin citations to the correct subdialects. Since I have, after repeated attempts, been unable to locate Kroeber's original notes regarding the Patwin, I have had to use his Hill Patwin forms mainly just to corroborate the recordings of other collectors. The second problem was that among the fourteen specifically identified informants of later workers, at least six show some degree of dialect mixture, with parents from different

areas or they themselves having grown up in one place and then lived for many years in another. My approach to the dialect problem this posed was to take the most reliable speakers as the core representatives of each dialect and then tentatively line up the rest of the data around them. Such analysis resulted in the discovery of at least one major dialect misidentification--one of Bright's informants, Mrs. Minnie Bill, was a Kabalmem speaker living in Colusa. Bright identified the material that Minnie Bill gave her as River Patwin, a mistake which I have since sorted out of the data.

As a summary of the dialect coverage, I list here the names of each collector associated with every dialect they worked on, as best as I can determine:

<u>Kabalmem</u>	<u>Tebti</u>	<u>Cache Creek</u>
Bright	Bright	
Ultan	Ultan	
Whistler		Whistler
	Radin	
	Barrett	
(Kroeber)	(Kroeber)	(Kroeber)
Merriam	Merriam	Merriam
<u>Cortina</u>	<u>River</u>	<u>South</u>
Bright	Bright	
	Ultan	
	Whistler	
deAngulo	Morgan/Snyder	
(Kroeber)	Kroeber	
Merriam	Merriam	Merriam

The second analytic dimension, lexemic identity, presented a more tractable problem. Since there is very little phonetic difference between Patwin dialects, it is

'bat'	K	{ pa·lway 'kansalaymen }	(= 'labia of female' ?)
	T	'kansalay	(< <u>kan</u> 'armpit', referring here to axillary smell)
		{ CC,C keculay 'C teculay }	(etymology uncertain)
	R	{ damha·lay 'kansalay }	(< <u>dam</u> 'gambling bone' ?)
	S	waliwali	(possibly related to <u>wali</u> 'coals' ?)
'cricket'	K	tiltil, tortor	
	T	tortor	
	CC,C	lerler	
	R	'curum'curum	

The third dimension, the actual identification of the plant or animal category being named, has been the occasion of the most difficulty. Earlier workers on Patwin varied widely in their degree of acquaintance with the native flora and fauna of North Central California, so that many of the identifications in their data are insufficiently precise or even totally wrong. It is a long, painstaking process to sort those out and match the correct word with the correct category, especially if there is a lexical difference from one dialect to another. For example, consider the following example, without a lexical difference:

Collector	Dialect	Patwin	Gloss
Kroeber	HX	say	'hill oak acorns'
Baumhoff ¹⁷	HX	say	<u>Quercus douglasii</u>
Barrett	T	say	'black oak'
Ultan	T	say	'black oak'
Ultan	K	sa(·)y	'mountain oak, black oak, live oak, tanoak ?'
Whistler	K	say	'Oregon oak ?'
Whistler	CC	say	'black oak'
Radin	T	sa·y	'tanoak acorn'
Bright	T	say	'mountain oak'
Bright	C	say	'acorn sp., greasy; chestnut oak acorn'
Bright	R	sa·y	'acorn sp.'
Ultan	R	say	'oak'
Merriam	K	[say]	Oregon oak (<u>Q. garryana</u>)
Merriam	T	[say]	black oak (<u>Q. californica</u>)

In order to narrow down the possibilities and make an identification of say on the basis of this data set, it is necessary to consider the range, habitat, morphology and abundance of various oak species in the area, and to rule out candidate species that clearly have other names already. On this basis it is simple to rule out valley oak (Q. lobata), blue oak (Q. douglasii), and interior live oak (Q. wislizenii), which are lo·, mu·le, and sa·sa respectively. That leaves four mountain oak species as possible candidates: black oak (Q. kelloggii = Q. californica), Oregon oak (Q. garryana), canyon live oak (Q. chrysolepsis) and tanoak (Lithocarpus densiflora). The desirability of the say acorn among the Patwin has led some of the collectors to identify it as the tanoak, which bears acorns highly prized throughout the Northwest. However, the tanoak grows in the redwood belt, entirely out of Patwin territory. Further, it is an evergreen tree with distinct

leaf pattern, overall tree shape, and acorn caps, and is unlikely to be confused with the black or Oregon oaks. So, I eliminate it as a possibility. The canyon live oak is a widespread but scattered species, with small evergreen leaves and a distinctive golden tomentum on the acorn cap. If confused with any other oak in the area, it would be with Q. wislizenii, so I have to rule it out as a possibility for say, too. That leaves the black and Oregon oaks, both large-leaved, deciduous species with large acorns. A possible conclusion is that say refers to both species. The two trees, however, still show considerable differences which make it unlikely that a California Indian would give both the same name--Q. kelloggii is the typical 'black oak', whereas Q. garryana is a typical 'white oak', with lighter, scaly bark, annually maturing acorn crops and distinctive round-lobed leaves. The acorns, too, have quite different shapes. Furthermore, Q. kelloggii is associated mainly with the yellow pine belt, tending to grow at higher elevations than the Q. garryana, although their ranges overlap. This tortuous chain of reason leads to the conclusion that say refers to the Oregon oak. In contrast, I have settled on khope as the Patwin term for the black oak, but there are problems with that identification, too. The whole issue invites further study, including a collection of acorns and dried acorn kernels from each species to check with the speakers.

The problem with say is a particularly complex but

otherwise typical example of the kinds of problems involved in species identification from fragmentary data. It illustrates nicely what can happen to biological information about species of former importance which are now located outside of the range of first-hand knowledge of the remaining speakers (i.e. away from the lowlands and roads). Clearly, identifications of taxa which have even more marginal recordings than those for say must be viewed with great caution.

Another example of an identification problem, which also shows a minor lexical variation, is the following:

Collector	Dialect	Patwin	Gloss
Whistler	K	'kupu·	'screech owl'
Ultan	K	'kuphu·	'little owl'
Ultan	T	'kopu·	'owl sp., message owl'
Radin	T	'kupu·	'owl'
Bright	C	'kopu·	'screech owl'
deAngulo	C	kupu	'ordinary owl'
Whistler	CC	'kupu·	'screech owl; news owl'
Whistler	R	'kopu(·)s	'small owl sp., makes a long trilling sound'
Morgan	R	'ko?pus	'small owl'
Merriam	H	{ [kupu·]	'screech owl'
Merriam	R	{ [kopu·]	
Merriam	S	{ [kopu·s]	
		[kopu]	

In this case, my tentative identification on the basis of all the evidence is the screech owl (Otus asio). Here, as for many other birds in Patwin, the name is clearly onomatopoeic and thus provides prime evidence for the identification, as pointed out by Hunn for owl names in Tzeltal and other languages.¹⁸

Dealing with each of these problems as best I could, I have reorganized the entire data base into tabular form separated by dialect, collector, lexeme, and identified species (genus, family, or whatever). (See section V of this study for a discussion of the extent and completeness of that data.) I have also gathered, but not included here, approximately 100 plant- and animal-related vocabulary items, excluding body-part terms applicable to humans as well. Those include, for example, names of parts of plants or of fruits, young of animals, feathers, exudations of plants, etc.

The next step in the analysis was to reconstruct a set of folk taxonomies. In doing so I have more or less adopted the Berlin, Breedlove and Raven (1973) model. I have several reasons for doing so. The BBR model is worked out in great detail and has been applied in several languages already. It makes strong claims about the universality of folk-taxonomic structures, which, if valid, would suggest its appropriateness for handling data of any language. The BBR model also claims that there is a sharply limited set of taxonomic ranks in folk taxonomies and that there is a strong correlation between those taxonomic ranks and lexemic form, which makes the model a potentially useful tool for structuring data for which there is little independent information about inclusion relations.

Originally, I had felt that the Patwin data would be too fragmentary to provide any strong test of the BBR

model. It has turned out, however, that the data are complete and reliable enough to draw some suggestive conclusions. In some respects they support the BBR model; in others they suggest weaknesses. I will discuss these points in detail in section VI.

This section on methodology would be incomplete without some evaluation of the part that the Patwin speakers living today have been able to play in clarifying and recording Patwin folk-biological classification. Part of the point of the entire study is to demonstrate what can be done in folk-scientific work with members of marginal, disappearing cultures, and to show how it can be done. It is clear to me now that what really brought the folk-taxonomic systems alive were the data and interaction which the Patwin I consulted were able to provide.

In working with the Patwin, I used an eclectic approach, emphasizing my own desire to learn as much as possible of what they knew about plants and animals in as natural a manner as possible under the circumstances. I avoided any commitment to rigid elicitation frames. Such a technique tires and bores the person subjected to it. The possibility that the category assignments of taxa are more "objective" using elicitation frames is more than offset by the damage it can do to the relationship between the collector and consultant, including the probably justified conclusion by the consultant that the collector is slightly nuts. Such damage is critical when working with

the very last, elder representatives of a dying culture. Instead, I elicited in numerous ways--by directly asking for names; by letting the consultant express what he or she felt important; by rechecking old recorded forms for accuracy.(The Patwin feel as strongly as I about making sure that their language is accurately recorded.) In cases where there was no English term for a species, or no term known to the Patwin, I often discovered a new Patwin name by describing the form and habit of that species, which entailed finding out for myself what was there to be named. Other times I let the Patwin guide me on to plants or animals they knew. Where possible, we worked with specimens, especially of plants, and where impossible, with whatever photos I could turn up.¹⁹

The task is still far from complete; I view the current study as a kind of work in progress. I have, to date, worked extensively with Oscar McDaniel, a Kabalmem speaker who retains a surprising degree of knowledge of his local environment, but my work with the last Cache Creek and River speakers is far less extensive, as yet comprising just a few days each of specifically folk-biological work. And undoubtedly I will learn much again when I have a chance to work with Cortina speakers. Interestingly, talking about plants and animals over an extended period with the Patwin speakers has proven to gradually jog their memories about other names and information they originally thought they had forgotten. Furthermore, plants and animals are things

they enjoy discussing--for the Patwin, as for perhaps any nonindustrial culture, their immediate biological environment seems always to have constituted one of the major topics of their concern and discussion. Thus folk biology has proven to be a vehicle for study of Patwin grammar and other topics as well as folk taxonomy per se.

Overall I would say that my direct work with the Patwin has been responsible for about a third of the data I present here, and for over half the interpretation of it in terms of taxonomic structure. Philological work with earlier recordings was invaluable of course, but in many cases the real touchstone of analysis proved to be the living memory of a speaker. The process of interpretation has been subject to a bootstrap effect: doing a folk-taxonomic analysis vastly enhances the speed and meaningfulness of elicitation, the elicitation in turn refines the taxonomic analysis, and so on. I expect that similar methods applied with other California groups (or groups in other areas) could yield surprising amounts of good information.

I turn now to a brief discursion on the degree of completeness of the data I present.

V. SCOPE OF THE DATA

The methodology I have used raises questions of degree and reliability of coverage. How many taxa are represented in the data? And what assurance is there that those taxa represent a nearly complete set, or at least a sufficiently representative set to lend credibility to the reconstructed taxonomies?

The first question can be answered by a tabulation of the appendices:

	K	T,CC,C	R	S	Total	Per cent
mammals	37	37	27	21	41	93%
fish	14	17	13	3	18	83%
molluscs, crayfish	4	5	3	--	6	60%
reptiles, amphibians	14	19	13	6	20	73%-89%
'bugs'	46	51	32	3	~58	60%
birds	82	100	87	45	111	90%
SUBTOTALS	197	229	175	78	264	~80%
plants	119	118	55	8	153	~67%
mushrooms	3	10	4	--	10	80%
TOTALS	329	357	234	86	417	70%-75%
domesticated animals	9	9	6	--	12	--
domesticated plants (mostly Span. loanwords)	12	8	6	--	16	--

The numbers in this table are the counts of terminal taxa, excluding terms for the young of a species, or for the male and female of a species. The figures are somewhat

indeterminate, as a result of the difficulty in deciding which taxa to exclude. Also, there are probably cases of inadvertant collapse of two independent taxa into one, or of double representation of a single taxon, due to uncertain identification of some species--especially for the plants--but such cases are relatively few in number.

The totals column results from shuffling together the data for all dialects. It is the count of biological taxa which are named in at least one dialect or dialect group; thus, the figures exceed the counts for any single dialect. In addition, the last column of the table contains my speculations on the probable percentage of completeness (i.e. of the whole range of biological taxa recognized and named by the Patwin aboriginally) that the totals represent. The percentages are ball-park' estimates based on several factors:

1. The actual numbers and types of species present in the area natively
2. The nature of the tail-off in the data--is it at a point where further systematic subcategorization and naming would be difficult (in the absence of the exigencies of breeding and/or cultivation), or is it at a level where naming would still be easy and/or likely?
3. The relative structures of the taxonomies

Thus, for instance, I estimate the taxa for 'bugs' to be 60 per cent complete, that figure a balance between the fact that there are obviously many other species present in the area and the unlikelihood that most of those would be

systematically recognized and named. A somewhat different situation obtains for the plants: I would expect nearly all of the trees and large shrubs in the Patwin environment to be named, as well as a good portion of the showy flowering plants. However, the place of herbs and grassy plants is not so clear. The differences between species of these types are often minimal, and I suspect that this area of the flora is the most overdifferentiated in the scientific taxonomies as compared to folk taxonomies. Worse, the grasses and herbal plants are often those most affected by introductions, soil disturbance, etc. As a result, it is very difficult to make any reliable estimate of the number of aboriginally named plant taxa, even on the basis of my reconstructed taxonomies.

Although my estimates of completeness for the plants and various 'bugs' are no more than refined guesses, the figures for vertebrates are more reliable. In Appendix F I have compiled species lists for all of the mammals, fish, and herps occurring in Patwin territory, including introduced species. A similar effort for birds turned out to be beyond the scope of this study, so I have included just a list of identifications for birds in the taxonomic tables. Of interest here is the fact that on the basis of the species lists for mammals, fish and herps it is possible to make very good estimates of the number of taxa which should have been named by the Patwin. To estimate, I clump together species which can only be accurately separated by an expert,

e.g. small bats, the pocket mice, sculpins, etc. This procedure results in 41 native mammalian taxa "deserving" of names in a folk biology, 38 of which actually have Patwin names. The "missing" taxa are the pocket mice (Perognathus spp.), which may not have been distinguished from the kangaroo rat (Dipodomys heermanni); the harvest mouse; and the chickaree (Tamiasciurus douglasii), which is a mountain species outside of the usual Patwin settlement areas. 38 of 41 yields an estimate of 93 percent completeness. A similar analysis for fish finds 15 names for the 18 native taxa "deserving" names--83 percent complete. The main problem for the fish is in the minnow family, which is a taxonomic mess from either the folk or modern biological point of view. Finally, for herps, I find 12 Patwin names for 16 to 22 taxa "actually" there in the area. The uncertainty in that figure arises almost entirely from the newts and salamanders. There is only one Patwin term, cayakhamen, probably referring typically to the newts (Taricha spp.). There are four other distinguishable salamander species in the area. (See Appendix F, p. 177) However, the range of the arboreal salamander (Aneides lugubris) is only marginally Patwin--in the southern, live oak area near the San Pablo Bay. The other three species (Ambystoma, Ensatina, and Batrachoseps) all are found in damp habitats of the foothill belt or higher and are, like all salamanders, usually retiring in habit and hard to find. Only the tiger salamander (Ambystoma tigrinum) is really strikingly

different in appearance from the newts and other salamanders. Thus I suggest that the Patwin may have had only one or two names for all newts and salamanders. If so, the higher estimate of 89 per cent completeness for herps is the more accurate. For birds, my figure of 90 per cent complete is just a guess, but a guess based on more complete examination of the native avian fauna than the guesses for plants and 'bugs'.

Based on the estimates of the total number of taxa in²⁰ the aboriginal system, it is possible then to make estimates of how complete the data for each dialect are. I suggest the following figures:

Kabalmem	-60%
Tebti, etc.	-65%
River	-45%
South	-15%

These figures should, of course, be taken with several grains of salt, but they are at least relatively accurate and should provide a basis for comparison with ethnobiological data for other Indian groups within the California biotic province and California culture region.²¹

Note that the data for the two Hill Patwin groups are much more complete than for River and South Patwin. The Tebti group is best represented, but the data are somewhat muddied by the subdialectal differences between the many tribelets it comprises. The Kabalmem data is more unitary and coherent, but shows the marked influences of Northeast Pomo and Nomlaki borrowings and adaptations. It

undoubtedly is not as characteristically Patwin as the Tebti group.

The River group, though characterized in the ethnographic record as having possessed the most highly elaborated culture of any of the Patwin (Kroeber 1932), bore the brunt of the Anglo settlement in the Sacramento Valley and collapsed relatively quickly. Their rapid cultural decay is reflected in the relatively sparse recording of River folk-biological information, which I estimate, perhaps optimistically, at roughly a little less than one half of the aboriginal diversity.²² My estimate of completeness is adjusted upwards to take account of the fact that the River Patwin lived in an environment ecologically less diverse than that of the Hill Patwin. The River people lived apart from the chaparral, fully-developed foothill woodland and the forest plant communities, as well as the characteristic fauna associated with those communities. Thus it should be expected that their botanical and zoological nomenclature should be less replete than that of their Hill neighbors. On the other hand, they lived in intimate contact with an abundant and diverse fish habitat, the Sacramento River, and can also be expected to have had far greater acquaintance with all types of waterbirds, both the swimmers and the waders, which frequented the marshlands.

Unfortunately, because of the sparseness of the River data, it is not possible to fully quantify the comparison

between it and the Hill groups. The general trend, however, of fewer plant and mammal taxa, and more water bird taxa (the situation for fish is unclear) should be reflected in the data for other California groups which show foothill versus river specializations, e.g. the Yokuts, the Miwok, the Maidu, the Nomlaki and possibly the Wintu.²³

In summary, if my estimates are correct, with as high as 65 per cent taxa recovery for a single dialect and perhaps 75 percent for Patwin as a whole, then the prospect for accurate taxonomies is good. At least the prospect is good on the basis of the quantity of recovered taxa. I will assess the accuracy of specified inclusion relations when I discuss the reconstructed taxonomic structures in the next section.

An interesting observation which can be made just on the basis of sheer numbers of taxa, as contrasted with detailed study of taxonomic structures, is the salience of birds in Patwin culture. As percentages of zoological taxa recorded, the birds comprise 40 per cent of the Kabalmen taxa, 44 per cent of the Tebti group taxa, 50 per cent of the River taxa, and 58 per cent (!) of the South Patwin taxa. These figures reflect, in part, the fact that C. Hart Merriam was most knowledgeable and careful about ornithological data. They also demonstrate, however, the importance of birds to the Patwin. In particular, the feathers of quail, geese, ducks, woodpeckers, condors and eagles were used in ritual costumes, and that implies a careful

interactional knowledge of those and related types of birds. Other birds figure in myth or esoteric practices, e.g. the thrasher, the kingbird, the raven, and the quail, etc.

VI. RESULTS; DISCUSSION OF TAXONOMIES

The taxonomies which resulted from analysis of the Patwin folk-biologic data are in Appendices A and C, with overall summaries for the zoological and botanical data, separated by major dialect group, charted in Appendix D.²⁴ Scientific identifications for most taxa are located in Appendix F.

The prime assumption of a folk-scientific analysis in the BBR model is that there is a small set of well-defined, empirically justified taxonomic ranks, universally valid for analysis of any folk-biological system.²⁵ Those ranks are called unique beginner, life form, intermediate, generic, specific, and varietal. In my taxonomic summaries I have used that terminology, labeling the ranks ub, lf, in, ge, and sp, respectively. I have excluded the varietal rank, for which there is no evidence in Patwin.

The overall structure of the taxonomies as proposed is largely consistent with the BBR model. As evidence of this, consider the following characteristics of the taxonomies, all of which accord with BBR predictions: The data, with basically just one exception, can be interpreted neatly using just five taxonomic ranks. (The waterbirds are the exception, and will be discussed below.) The unique beginners, 'plant' and 'animal' are unnamed in any Patwin dialect. In each taxonomy there is a small set of taxa demonstrably of life form rank, taxa which include the majority of the generic rank taxa. Generic rank taxa

outnumber those of any other rank. There is a relatively small, but still substantial number of generic rank taxa which are unaffiliated with any life form taxa. Most of the taxa of generic rank are monotypic, and most of those which are polytypic contain just two taxa of specific rank. There seem to be only a few intermediate taxa, many of which are unnamed, covert categories.

So far, so good--the data seem to provide good support for the validity of the BBR model. However, there are a number of discrepancies, some more problematical than others. Since the botanical and the zoological data show different types of problems, I will discuss them separately, starting with the folk-botanical taxonomies. The general direction of my discussion will be from the top down--starting with the unique beginner and proceeding to the specific rank taxa and then other miscellaneous issues.

The lack of a Patwin term for the unique beginner 'plant' is not a particular problem for the theory. Berlin (1972) has argued that the unique beginner is named late in his (speculatively proposed) sequence of taxonomic development. In fact, many cultures around the world apparently have no simple word for 'plant' (or 'animal'), even though they can and do consistently distinguish the one from the other and both in turn from inanimate things.

A problem vis a vis the unique beginner 'plant' did arise, however, concerning the status of fungi. BBR report that fungi are not 'plants' to the Tzeltal. That also

coincides with the usual English folk-botanical judgement. However, since the Patwin have no overt word for plant (so that it is difficult to ask, for example, "Is such and such a mushroom a plant?"), and since they showed no signs of strongly distinguishing mushrooms as a group from other true plant species which they used to gather to eat, I have provisionally included mushrooms as unaffiliated taxa with the data for plants.

Each of the Patwin dialects has a small number of botanical taxa of lifeform rank. (See Appendix D) In the Hill dialects the most salient and inclusive of these is tho·k 'tree, shrub, vine, etc.' This usage seems to be derived from tho·k in the sense of 'stem'. tho·k undoubtedly is also related to the word tok 'wood'.²⁶ At the point where the language started to become moribund, tho·k in Hill Patwin was being applied quite generally to nearly any plant with a clear stem, whether pithy or woody, upright or vining. This was especially true in the Kabalmem dialect. The term clearly focused on large trees with substantial trunks, but in part because it was a deductive category, namely "plants which have stems", it was easily extended. In Kabalmem at least it proved hard to find plants other than grasses, tules, etc. which could not be considered tho·k, especially if attention was drawn to their stem. Thus I consider tho·k as having been the most likely candidate for ascension to the status of unique beginner in Hill Patwin, and I have indicated so in the summary charts.

Some of the uncertainties of category assignment in the Hill Patwin taxonomies are a result of this special status of tho·k.

In River Patwin, the term mi is the archaic Wintun word for 'tree'; it seems to have been much more sharply delimited to plants with substantial woody upright stems, i.e. trunks. The term botok is quite probably related to tho·k and may have been replacing mi in River Patwin. The speaker I consulted with was using it to code 'acorn tree' (i.e. any oak), a category which was unnamed in other dialects. In other collectors' River data, botok shows up in connection with definitely shrubby plants and so may have been starting the same process--which was already far developed in Kabalmem speech--of broadening the inclusiveness of the category. The data, however, are far from complete and conclusive in the River dialect.

Another major lifeform category in Patwin is lew, which seems to have covered numerous "stemless" types: grasses, low herbs, clovers, etc. The tules also constituted a separate lifeform, clearly named in River Patwin (laka), but only a covert category in Kabalmem. The word laka(·) itself seems to be a verbal derivative and may be a recently developed name.

There are also two apparent lifeform taxa which are derived from names for plant parts. These are calal 'flower' and eli 'edible root, bulb, corm, etc.' calal is a solid category in all of the dialects, whereas eli is only overtly

named in the Kabalmem dialect. The two categories are clear near their focusses, but category membership around the fringes is often unclear. Such quasi-taxonomic categories complicate the analysis of taxonomic structure. There is no simple way to handle them in the BBR theory. They blur the distinction between use categories, which may also be based on plant parts (see below), and true biological categories, but they must be allowed, to account for the facts of the folk classification and nomenclature.

Related to the issues I've been discussing is another unsettling problem: ambiguous affiliation of taxa. For Hill Patwin in particular such cases are relatively numerous. For example there are cases of a taxon being considered either tho·k or lew; other cases are ambiguous between tho·k and 'calal or between 'calal and eli, etc. Such cases are especially hard to sort out, since they generally cannot be reconstructed comparatively from other people's data, and living informants are very fuzzy about precisely those taxa. The correct approach may not be to try to find evidence to force each taxon into one category or another. I suspect that the real biological world as experienced by people does in fact contain perceptual ambiguities which show up in their classificatory systems. But if it is to account for such data, the basic BBR model must be changed somewhat. Hunn (1973) took steps in that direction, in an analysis of Tzeltal folk zoology.

Given the nature of my data, it is difficult for me to

make any quantitative statement about how many Patwin taxa are ambiguously affiliated and how many are just improperly or incompletely identified, but I can make a qualitative statement of the kind of intergrading of taxa which does seem to exist. I present below a chart which contains the major lifeform categories in boxes. Along arrows drawn between those boxes I have listed representative examples of plants which show signs of ambiguous affiliation between the two categories. The chart should not be taken too seriously; it is primarily an attempt to map out visually the kinds of ambiguities which occur for the Patwin.

One unusual case is worthy of mention. In Kabalmem bahki-pospos (Clematis ligusticifolia), a definitely viney plant with showy flowers, apparently gets its name from two different parts. bahki refers to the Clematis vine, which is probably a tho·k, while pospos refers to the Clematis flower, which is definitely a calal. Such cases shade into the more general problem of dual classifications of plants both by their form and by their fruit or root, etc., as discussed below.

There is good evidence in Patwin for several covert botanical taxa of intermediate rank. The best examples are 'acorn tree' and 'pine(nut) tree', both of which can be identified in terms of unique vocabulary sets. Thus, for instance there is a complex set of terms for parts and types of acorns, vocabulary applicable only to the oaks. Such vocabulary sets are taken as prime evidence for the

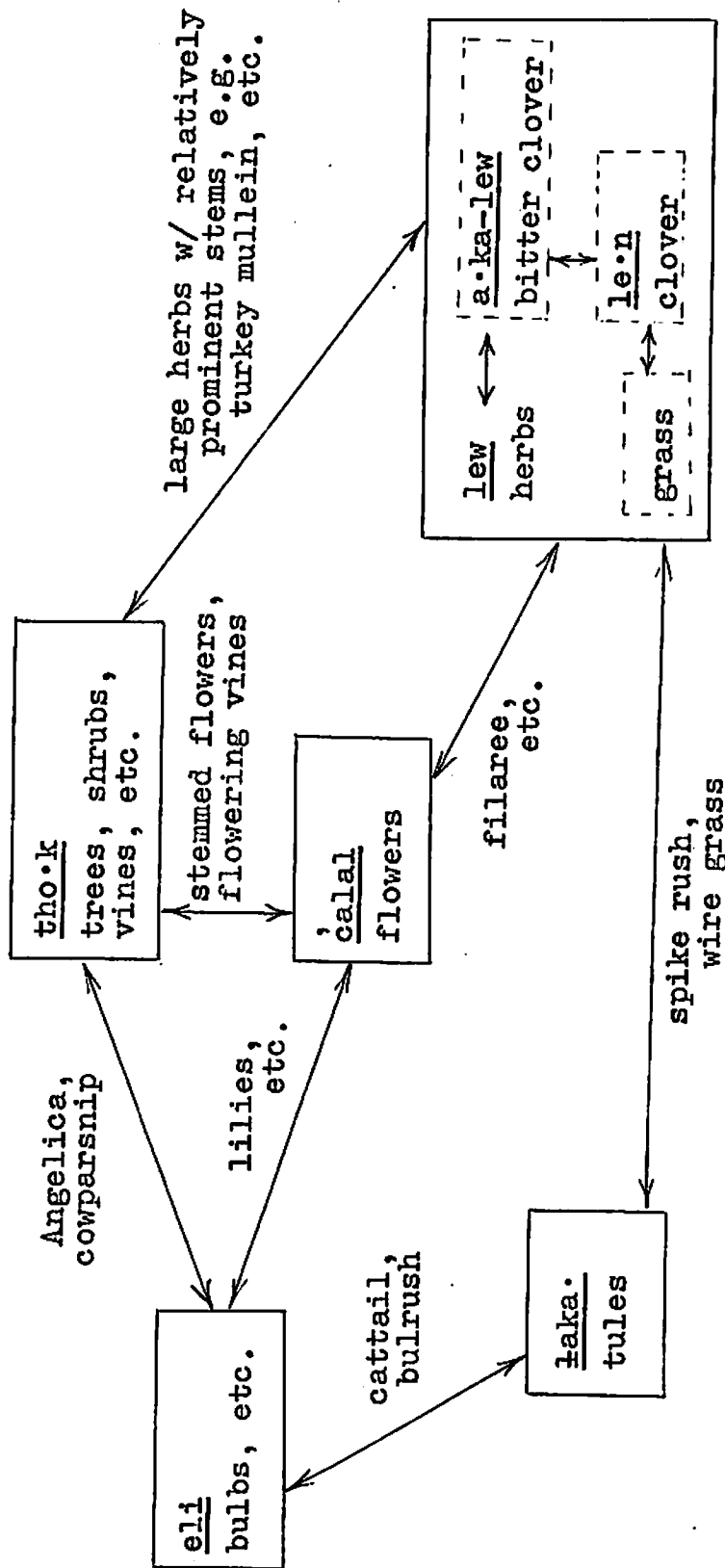


Chart I: Idealization of Patwin botanical conceptual space, showing typical examples of ambiguous affiliation.

existence of a covert category. Similar analysis is applicable in the zoological taxonomies, as well, where a term for the young of a closely related group of species, e.g. the rabbits, is considered evidence for a covert category there. Consistent with Berlin's predictions, these intermediate categories typically do not receive names. The one possible case in the botanical taxonomies, the Kaballem sanak-tho·k 'nut tree', seems to be a late innovation or an extension of a secondary term for the digger pine.

There is a problem of taxonomic rank in the grasses and clovers. len 'clover' behaves much like a lifeform category, yet in other respects it seems like it must be a named intermediate. Certainly the types of clovers are all folk generic taxa, yet the Patwin generally agree that all types of len are types of lew 'grass, clover, herbs, etc.'

The really overwhelming fact about the structure of the Patwin taxonomies is the preponderance of monotypic taxa of generic rank. Fowler (1972), working on reconstruction of the Numic system of ethnobiology, discovered a similar dominance of monotypic generics among the Numic groups, which also had a subsistence pattern of hunting and gathering. This coincidence raises the question of whether all hunting-gathering societies will show a similar pattern. For the Patwin in particular the issue boils down to deciding whether the dearth of taxa of specific rank is due to loss early in the decay of the language and culture,

or whether the taxa were never there in the first place. The pattern of the Patwin taxonomies seems to indicate that the latter is the more correct assumption, which might in turn suggest that non-agricultural societies in general may have extremely high percentages of monotypy, considerably higher than the 85 per cent or so reported by Berlin for agricultural societies. The issue cannot be decided on the basis of the Patwin data, which, after all, are largely reconstructed and manifestly incomplete in some portions; the data are, however, suggestive. A comparative study of an agricultural and a non-agricultural society in comparable environments would be the ideal way to sort out the problem.

Another problem has appeared in the course of my analysis. The taxa which I have listed as unaffiliated generics may not all be unaffiliated. When using a reconstruction method as I have it is not possible to prove those taxa are unaffiliated, since the judgments are based on negative, not positive evidence.

Turning to an issue which appears at the specific rank, I note that analogic name formation has been widespread in Patwin folk-biological taxa, often obscuring the real taxonomic relations between taxa. In a typical case a new name is formed by adding a qualifier to the simple name of another folk genus which for some reason, some salient similarity or analogy, happens to juxtapose the two genera. The resultant name is nomenclaturally identical

rank terms, and the data in the taxonomic tables would seem to indicate that precisely that happened.

On the next page I have compiled a list of all forms from the taxonomies which I suspect of being analogic name formations. Note that the strategy of prefixing nom- 'west' or puy- 'east' seems particularly popular. The forms for pileated woodpecker, Swainson's hawk, and Steller's jay may all be true specifics, but I have included them because of suspicious glosses or funny correspondences with data from other dialects, etc.

Note that the effect of finding so many analogic name formations is to increase the ratio of monotypy to polytypy. Another finding which has an effect in the same direction is that many of the undoubted, true specifics, especially among the Kabalmem zoological data, are actually loan translations of one sort or another. This probably reflects the mixed status of Kabalmem in the first place, since it was heavily influenced by contact with the Northeast Pomo. But even more importantly it shows the pressure of English, since most of the Kabalmem loan translations are calques on English forms. (Cf. 'redwood tree', 'birdseye gilia', etc.)

There is a problem in interpreting the status of the form chi·li 'wild rose, thistles, etc.'. There may originally have been specific taxa included in chi·li, but the data are ambiguous. It is a kind of cross-cutting category anyway, as can be seen by considering the status of what are probably the best English glosses: 'sticker bush,

T,K	kom-no·p	elk ("big deer")
K	kirnabo--tubes	opossum ("ground-living rat")
K	che·n-tiwi·l	king snake ("down rattler")
K	me·m-ka·k	cormorant ("water crow")
K	nom-saka·kay	dusky grouse ("west quail")
K	nom-tara·t	pileated woodpecker ("west acorn-woodpecker")
C	kom-sedew	wolf ("big coyote")
C	wilak-loklok	Swainson's hawk ("valley red-tailed-hawk")
R	puyel-sunsun	1. alligator lizard ("east salamander") 2. skink
R	anak-sa·li	tadpole ("knee minnow")
R	nom-çayçayt	Steller's jay ("west scrub-jay")
R	mi-khay	barn owl ("tree goose")
K	pom-ka·çay	ground cherry sp. ("ground ka·çay")
K	pom-kethi	unidentified medicinal plant ("ground wormweed")
T	tucayno-sawli	Garrya fremontii ("devil's pepper-wood")
C	nom-lakmo	madrone ("west toyon")
T,CC	nom-chi·li	chaparral pea ("west rose" or "west sticker bush")
T	saka·kayno-bo·yo	fern sp. ("quail's basket-design-material" [usually redbud])

Probable analogic formations in Patwin
plant and animal names

sticker plant'. Such forms are problematical in the folk-taxonomies of any language.

Functional categories cause another problem of cross-cutting taxonomies in the Patwin data. The clearest case is 'seed plant', a covert category of great importance to the Patwin, who gathered seeds of all kinds to produce pinole, a food staple. Compositae species are the typical Patwin 'seed plants', but seeds of many other families were utilized as well. The taxonomic issue is that some of the seed plants were large and sturdy enough to be considered tho·k (by the Hill Patwin), others were considered lew, and others seem to have been characterized primarily by their flowers. I have tried to group them near each other in the taxonomies, but have given priority to the biological taxonomy rather than the functional one. Another important function category is 'basketry plant', which includes such diverse species as the willows, the redbud, a Carex sedge, and possibly the bulrush.

One final issue raised by the botanical taxonomies is whether a single biological taxonomy is sufficient to express the actual classifications people are using. I think there is good evidence in Patwin that for many types of plants the Patwin actually had dual, parallel classificatory structures, one for the overall plant morphology and one for the fruit or root, etc. For species which were important for their nuts or berries, etc., the core organizing principle seems to be the morphology of the

fruit or nut, rather than that of the plant itself. Actually, that is not such an exotic notion, as even a cursory examination of the English folk taxonomy of fruit trees, nut trees, berry vines, etc. will show. For the Patwin the principal plant parts of relevance are acorns, pinenuts, berries, and roots. I have drafted dual taxonomies in Appendix E for all the plants for which I have some evidence in Patwin of double classification.

The zoological taxonomies are generally less problematic than the botanical ones, but they raise a few interesting issues also.

There is no term for the unique beginner, 'animal'. However, the word pethi, a nominalization of 'to hunt', now meaning 'game animal', refers to a very broad class of both mammals and birds. It seems to have been the prime candidate for coding the concept 'animal', and there is evidence that some Patwin were starting to use it that way. If pressed for a word for 'animal', that is the word they will provide.

The major lifeform taxa are relatively straightforward. There are just two: thi·r 'fish' and khudi/cip/kucuy 'bird'. The mammals formed a large, rather clear covert category, unnamed by the Patwin. In addition, there are numerous small polytypic taxa which look much like lifeform categories, but which are quite small in total number of folk genera contained. The unambiguous

cases for the Patwin are the ants, bees, and spiders. The grasshoppers may be another such class, but the data are unclear. Snakes are also problematical; they constitute a named, small lifeform taxon in River Patwin, but only a covert category in Hill Patwin. I probed carefully for 'snake' in Kabalmem, with no result, and the data for Tebti, Cortina and Cache Creek are contradictory enough to strongly suggest that 'snake' as a category was indeed unnamed in Hill Patwin.

Small zoological lifeform categories, such as found in Patwin, seem to appear in folk-zoological systems of other cultures as well. They are quite likely the result of universal perceptual differences between the botanical kingdom, characterized by large numbers of small variations on just a few basic stem types, and the zoological kingdom, characterized by an extreme diversity of basic body plans-- 0, 2, 4, 6, 8, many legs; flying, walking, swimming; bony inside, bony outside, or soft all the way through, etc. The problem of these zoological lifeform categories is currently being researched by other workers in the field.

There is evidence for several taxa of intermediate rank among the mammals: rabbits, skunks, and squirrels. Part of that evidence is the existence of a name for the young of each of those types: baby rabbit, baby skunk, etc. (See Appendix B) Whether the name of the most salient member of each category--the jackrabbit, the striped skunk, the ground squirrel--was ever used aboriginally to cover

the entire category is, however, in doubt. I suspect that all three categories were originally covert, and have come to be named partly in response to English categories.

The depth of the taxonomy for the waterbirds is a problem for the BBR theory. In the Tebti and River taxonomies, which are more reliable and complete for the waterbirds than is the Kabalmem taxonomy, there seem to be two intermediate categories (between 'bird' and the folk-generics 'mallard', 'snow goose', etc.). There are two ways of looking at that data. If the taxonomies are correct as proposed, then they may provide some evidence in favor of Eugene Hunn's distinction between inductive and deductive categories in folk-taxonomies and against Berlin's notion of rank. In essence that view would hold that people will produce extra levels of distinctions upwards or downwards in a folk-taxonomy in ways that match the perceptual possibilities of the classified with the classifying needs of the people. The waterbirds were very important to the River Patwin in particular, and they are a complex group readily amenable to extra levels of classification. If that is the reason for the extra intermediate rank taxa, then it would suggest that the BBR theory should be amended in that respect. However, there is a second possibility which I have not yet been able to follow up. I may in fact have misinterpreted the inclusiveness of the Patwin terms for 'bird'. It may be the case that khay refers to large and small waterbirds, whereas River kucuy (and possibly the

Hill forms as well) refers to birds exclusive of the waterbirds. I consider that the less likely alternative, but it will require some checking before I can say definitively.

One quirk in the data, typical of the types of things happening in Kabalmem, is the status of the ants in the taxonomy. Whereas in the other dialects, 'ant' seems to be one of the small lifeform taxa mentioned above, in Kabalmem it behaves like a folk-generic; the types of ants are labeled with binomials similar to those in English--'black ant', 'red ant', etc. I think that those forms are in fact formed on analogy with English and do not represent the aboriginal system. Note also the situation for bears in the Kabalmem dialect.

Finally, it is of interest to note that implicit in the data are some conclusions about evolution and devolution of folk-taxonomic systems, which unfortunately I will have to leave to another paper to elaborate.

In summary, I would say that the Patwin data provide strong general support for the BBR model of folk biological classification and suggest its usefulness in investigating plant and animal nomenclature of other cultures. However, in many details, the data are somewhat at odds with the model, suggesting the need for some refinements.

Footnotes to the Text

1. The terminological distinction between "ethnoscience" and "folk-scientific" is perhaps an unhappy one, and Berlin (personal communication) notes that that terminology may not be kept in the future. The distinction, however, is a real one. It has become progressively clearer over the past five years or so.

Two aspects of the distinction seem worthy of mention here. First, there is a shift in emphasis from formal theoretical constructs (in ethnoscience) to data (in "folk-science"). That shift is difficult of course to quantify, but it currently seems to be a strong trend in many areas of anthropology and in linguistics, too. In folk biology, the shift can be seen in the progression from stuffing folk taxa into formally-defined taxonomies to the recognition of the reality of covert categories, taxonomic ranks, etc. by Berlin and his collaborators and now to the suggestions of Hunn and others that super- and subgeneric categories have a different perceptual basis than do generic categories. The resulting theoretical constructs, while still formal in a sense, are much more plastic and "responsive" to the data now than in earlier studies, and in general it seems that the data are more highly valued.

A second aspect of the distinction I'm making has to do with cultural relativism. Early ethnobiological studies were biased towards a relativistic position. Not surprisingly, they failed at providing any universal explanatory framework for plant and animal naming behavior. The more recent studies, however, have been biased towards a cultural universalist position. Hunn, in particular, has gone to great lengths to develop a measure of correlation between taxonomic structures to document the claim of essential "sameness" of structure from culture to culture (for folk biology at least). This shift in bias has been sufficient to generate excitement about the possibility of truly explanatory, cognitively based theories of naming behavior and category formation.

Thus the appearance of a "folk-scientific" research paradigm has resulted in a typical scientific paradox: less theory generates more theory.

2. For examples see representative works by Brent Berlin, Paul Kay, Eugene Hunn and others among the Tzeltal, Berlin among the Aguaruna, Ralph Bulmer among the Karam, Harold Conklin among the Hanunoo, and Terence Hays among the Ndumba.
3. See, for example, The Vermilion Bird: T'ang Images of

the South, by Edward H. Schafer (UC Press, 1967), for a discursive presentation on the natural history of Southern China more than a millenium ago. He includes a list of 151 Classical Chinese primary sources and 14 pages of secondary sources and derivative scholarship, much of it having to do with plants and animals of China. Schafer covers the T'ang dynasty, but from even earlier in Chinese history there are documents such as the Classic on Birds and compendia like Shuo wen, which include long lists of plant and animal names from 2000 years ago.

In the West, we find that Pliny the Elder compiled a natural history in 37 books, whose somewhat disconnected observations and lists still form the kernel of studies of Greek and Roman plants and animals.

And for Central America, Bernadino de Sahagún's General History of the Things of New Spain, known also as the Florentine Codex, contains extensive data on Aztec plants and animals.

Needless to say, this barely scratches the surface. It would take years to adequately review the primary and secondary sources for traditional natural history of classical civilizations.

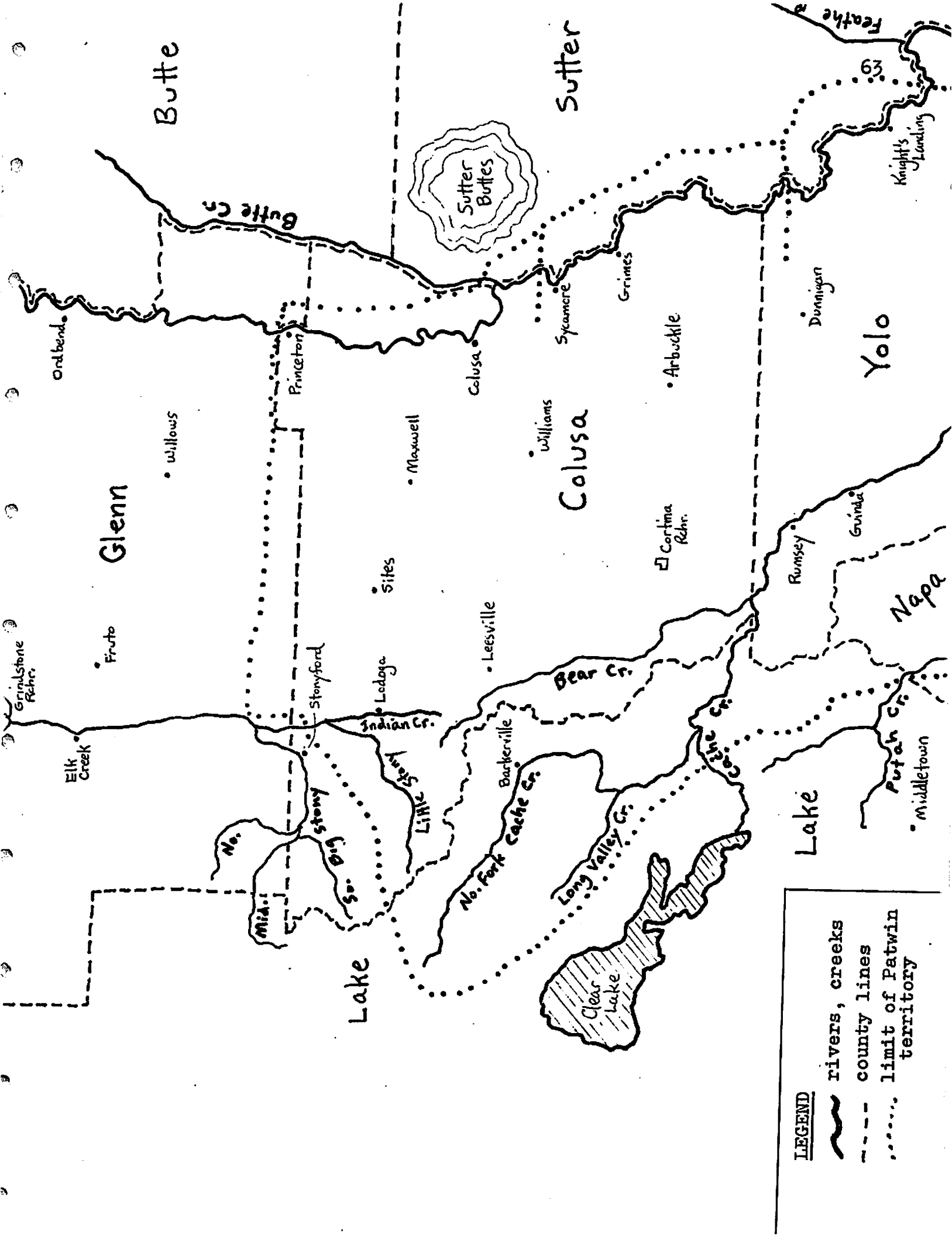
4. Kroeber (1923) estimates the total Wintun population at 12,000, Maidun at 9,000, and Yana at 1500. Cook (1964), in a complete review of the assumptions on which population estimates had been made, re-estimates the population of those three groups as an aggregate at about 50,000. Cook's figures correspond to an estimated California total of 275,000, very close to C. Hart Merriam's earlier estimate of 250,000. Baumhoff (1963), on the basis of a study of utilization and density of food resources, estimates even higher--350,000 for the state--but he gives no figures for the Wintun. If Cook's figure is approximately correct, and if the Patwin comprised 45 per cent or so of the Wintun, then their population could have been near or above 12,000.
5. The site of Colusa was known in Patwin as koru·la, whence the current name.
6. Note that Bear Creek is a small, alkaline stream, not suitable for heavy settlement.
7. For further details and discussion of Patwin settlements, see Kroeber (1932), especially pp. 257-270, 349-352, and Barrett (1908), pp. 289-297.
8. Most notably Charles Pickering in 1841 and George Gibbs around 1860.

9. The situation as of April, 1976:
- | | | |
|-----------|--------------|-----------------|
| Kabalmem | Hill Patwin | 2 speakers |
| Tebti | Hill Patwin | extinct? |
| Cortina | Hill Patwin | 3 or 4 speakers |
| Cache Cr. | Hill Patwin | 1 speaker |
| | River Patwin | 2 speakers |
| | South Patwin | extinct |
10. For a detailed discussion of California floral communities, see Ornduff (1974). Also, Brown and Lawrence (1965), Munz and Keck (1968), pp. 5-18, and Storer and Usinger (1963), pp. 23-41. I have borrowed the notion of vegetation belt from Storer and Usinger, and my terminology for plant communities is consistent with that of Munz and Keck.
11. See Frenkel (1970) for an excellent discussion of introduced plants in California grassland and other communities. He also includes an extensive bibliography on the subject.
12. The issue of the evolution of the chaparral in response to periodic burning has a long and rancorous history. Frenkel (1970), pp. 28-31, reviews some of the literature and concludes:
- "Controversy regarding fire as an element of the aboriginal vegetation continues unabated. Some contend that Indians burned little; others deny this. Some assert that under repeated burning chaparral will encroach upon grassland, while others claim that grassland will expand relative to chaparral. Still others claim that the character of the aboriginal forest was parklike having developed under periodic burning." --p.31
- Also, see Ornduff's (1974) discussion of chaparral. (pp. 92-96)
13. See especially Reynolds (1959) and Lewis (1974) for a discussion of the development of forest composition in relation to the effects of intentional and accidental burning, both by the aboriginal population and later by miners and herders in the 19th century.
14. The red fox (Vulpes fulva), however, was introduced fairly recently to Northwest California and is now seen in Patwin territory.
15. Many sunfish (family Centrarchidae) have been introduced as game fish. The Sacramento perch has not been competing successfully and is on the decline. (Information from the California Academy of Sciences.)



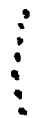
16. The Merriam natural history wordlists are in the possession of the Archaeological Research Facility, Department of Anthropology, Berkeley. A catalogue of all the Merriam materials is available there. The items I consulted for this study were T/19l/NH67 (Kabalmem), T/19m/NH68 (Tebti), T/19o/NH69 (Cortina), T/19p/NH70 (Cache Creek), T/19r/NH71 and T/19r-s/NH72 (River), T/19t/NH73 (South Patwin) [all natural history wordlists], and T/19a-t/CL21 and A-Z/--/CL32 [comparative wordlists].
17. Baumhoff (1963), p. 164. Baumhoff was not a collector himself; he just took Kroeber's data and reinterpreted it along with data for much of California.
18. Hunn, Eugene (1975a), pp. 237-239. Another even nicer example of an onomatopoeic name for a Patwin owl is si.k for the barn owl (Tyto alba) whose cry is described in standard references as "a toneless hiss", or "a shrill rasping hiss or snore: kschh or shiiish." Hunn's Tzeltal informants gave šoč as the Tzeltal name of the same bird and render its call s "šššt", strikingly similar to the Patwin rendition.
19. Cf. Hunn (1975b), p. 16, where Hunn shows a similar devotion to an eclectic approach in gathering folk zoological data.
20. If the total of 418 taxa is 70 to 75 per cent complete, the aboriginal system would have had somewhere in the range of 550 to 600 named taxa.
21. Cf. Dorothy Hill's (1972) listing of species utilized by the Maidu Indians, who also lived in the Sacramento Valley. Her listing (also partial) includes 184 plants, 38 mammals, 49 birds, 15 fish, 6 reptiles, 1 amphibian, 1 annelide, 11 insects and 6 molluscs. The main difference between her figures and mine is for birds--the great majority of which probably had no direct use in any California culture, and which are accordingly left off her list.
22. The River taxonomies, being based on this less complete data, are probably less reliable than those for Hill.
23. This situation would parallel the ecological/economic adaptation analyzed by Baumhoff (1963) in another context--that of estimating the aboriginal carrying capacity of various areas of California. He identified two zones of heavy settlement in the Great Valley: a narrow zone along the Sacramento and San Joaquin Rivers, where fish utilization was particularly high, and a

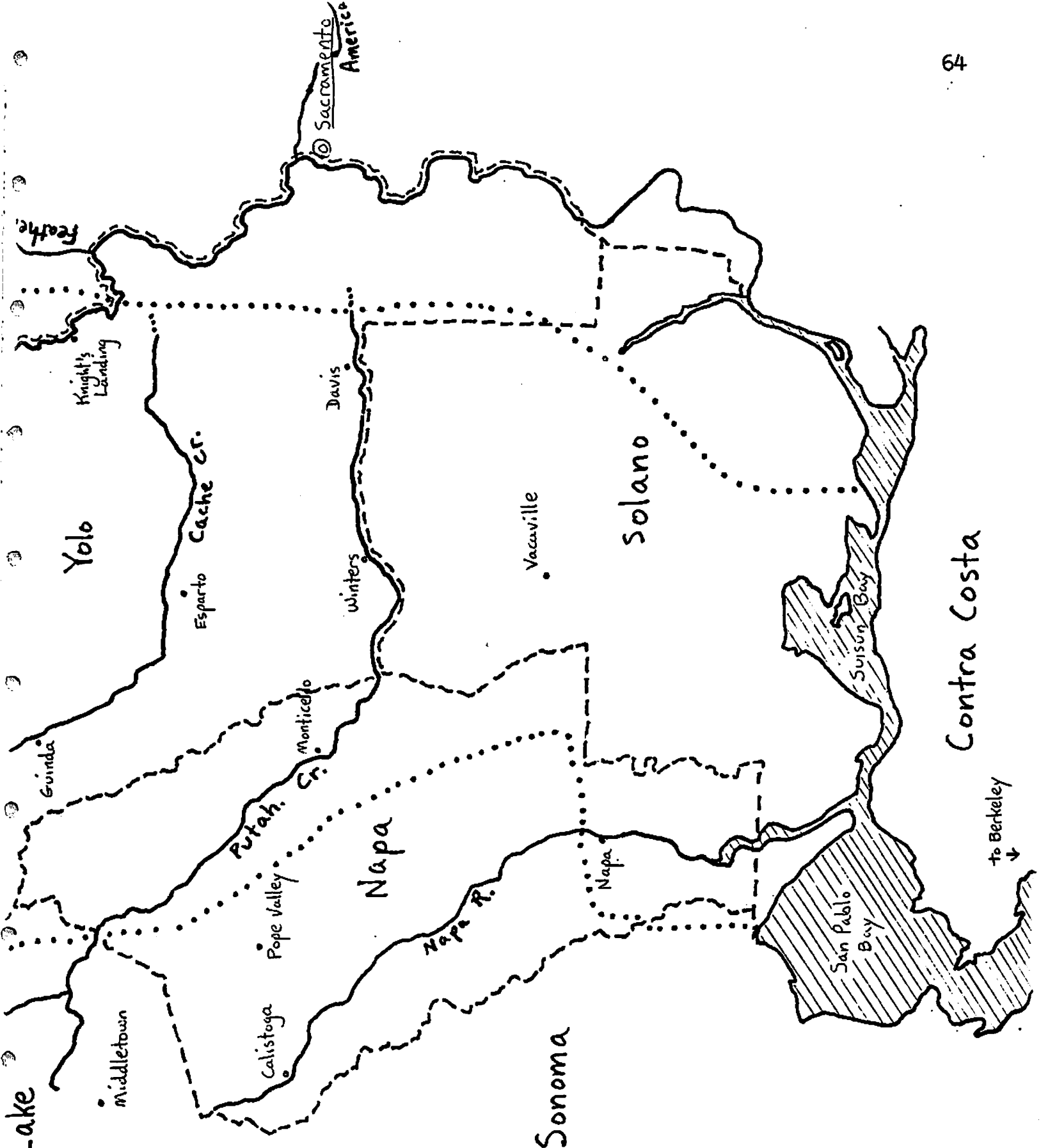
broader zone in the foothills, where utilization of deer and other game mammals would have been more extensive.

24. In the summaries, covert categories are enclosed in parentheses; named categories are labeled with their name in Patwin and an English gloss. Names for life stages (e.g. the young of animals) are listed separately in Appendix B.
25. See Berlin (1975) for the latest and most detailed statement regarding the place of rank in folk-scientific theory.
26. Cf. the historical development of tree and beam in English.



LEGEND

-  rivers, creeks
-  county lines
-  limit of Patwin territory



Lake

Yolo

Esparto Cache Cr.

Davis

Solano

Vacaville

Winters

Contra Costa

Guinda

Putah Cr.

Monticello

Napa

Pope Valley

Calistoga

Middletown

Napa R.

Napa

San Pablo Bay

Suisun Bay

to Berkeley
↓

Sonoma

Patwin Phonemes

North Patwin, which includes both Hill and River dialects, has the following phonemes. I have arranged them in classes relevant to Patwin phonology.

		bilab.	alv.	lat.	pal- alv.	velar	glottal
stops, affricates	voiceless	p	t		c	k	[ʔ]
	aspirated	ph	th		ch	kh	
	ejective	p'	t'	λ'	c'	k'	
fricatives	voiced	b	d				
	voiceless		s	ʃ			h
sonorants		m	n	r	l		
glides		w			j		
short vowels			i			u	
			e		o		
				a			
long vowels			i·			u·	
			e·		o·		
				a·			

Note: The Patwin /s/ is a typical "California s". It is articulated further back than a dental [s̪], but is neither truly retroflexed, like Mandarin [ʂ], nor as palatal as English [ʃ]. It might be best described as an alveolar s, occasionally varying to [ʃ].

REFERENCES

A. Patwin Linguistic and Ethnographic Source Materials

- Barrett, S.A., 1908, "The Ethnogeography of the Pomo and Neighboring Indians", UCPAAE, Vol. 6:1.
- Bright, Elizabeth, 1951-2, unpublished Patwin field notes, at the Survey of California and other Indian Languages (SCILA), UC Berkeley.
- Bright, William, 1960, "Animals of Acculturation in the California Indian Languages", UCPL 4:4, pp. 215-246.
- Bright, William and Elizabeth Bright, 1959, "Spanish Words in Patwin", Romance Philology 13, pp. 161-164.
- deAngulo, Jaime, 1929, unpublished grammar and semasiology of Cortina Hill Patwin, American Philosophical Society (APS), ms. no. 2650 in the Freeman and Smith catalog.
- Kroeber, A.L., 1923, "The Wintun", chapters 25 and 26 in Handbook of the Indians of California, pp. 351-390.
- Kroeber, A.L., 1932, "The Patwin and Their Neighbors", UCPAAE, Vol. 29:4.
- Merriam, C. Hart, 1903-1936, Patwin materials from the C. Hart Merriam collection, Archaeological Research Facility, Department of Anthropology, UC Berkeley. Used by permission of Dr. Robert F. Heizer. (See text footnote no. 16 for a list of the catalog numbers of items consulted.)
- Morgan, Bernadine, 1974, "Phonemic and Preliminary Morphemic Analysis of River-Patwin", unpublished M.A. thesis, UC Davis. (Used with author's permission)
- Radin, Paul, 1932, "Patwin-English Dictionary", unpublished manuscript, APS, ms. no. 2654 in the Freeman and Smith catalog.
- Snyder, Warren, n.d., slip files of River Patwin, Cal State Sacramento. Currently on loan to SCILA, UC Berkeley.
- Ultan, Donald, 1961-3, unpublished Patwin field notes and indices, SCILA, UC Berkeley.
- Whistler, Kenneth, 1975-6, unpublished Patwin field notes and indices, SCILA, UC Berkeley.

B. Selected Botanical and Zoological References for
Central California

- Abrams, Leroy, 1960, Illustrated Flora of the Pacific States, 4 volumes, Stanford Univ. Press, Stanford.
- Arnold, John R., n.d. (>1966), "Introduced Animals of California", unpublished list, Sonoma State College, Dept. of Biology.
- Brown, V. and G. Lawrence, 1965, The Californian Wildlife Region, Naturegraph Publishers, Healdsburg.
- Chartkoff, Joseph L. and Jeffrey Childress, 1966, An Archaeological Survey of the Proposed Paskenta-Newville Reservoir in Glenn and Tehama Counties, Northern California, Schenk Archives of California Archaeology, paper number 24, SF State College.
- Chartkoff, Kerry K., 1966, "An Ethnobotanical Study of the Paskenta-Newville Reservoir", Appendix A in Chartkoff and Childress (1966), q.v.
- Chesnut, V.K., 1902, "Plants Used by the Indians of Mendocino County, California", Contributions from the U.S. National Herbarium, 7:3, pp. 295-422.
- Duncan, John Whitfield III, 1961, "Maidu Ethnobotany", unpublished master's thesis, Sacramento State College.
- Eddy, Samuel, 1969, How to Know the Freshwater Fishes, Wm. C. Brown Company Publishers, Dubuque.
- Evermann, Barton W. and Howard W. Clark, 1931, "A distributional list of the species of fresh water fishes known to occur in California", California Division of Fish and Game, Fish Bulletin, No. 35.
- Frenkel, Robert E., 1970, "Ruderal Vegetation along some California Roadsides", UC Publications in Geography, Vol. 20, UC Press. (includes an extensive bibliography)
- Goin, Coleman J. and Olive B. Goin, 1962, Introduction to Herpetology, W.H. Freeman and Company.
- Hill, Dorothy J., 1972, "Maidu Use of Native Flora and Fauna", privately printed, Chico, CA.
- Ingles, Lloyd G., 1965, Mammals of the Pacific States, Stanford University Press, Stanford.
- Knoche, Herman, 1929 (?), "Also Pioneers", Quart. Soc. Calif. Pioneers, Dec. 1929, pp. 1-7.

- Lewis, 1974, "Patterns of Indian Burning", Ballena Press.
- Lloyd, Robert, 1964, "Ethnobotanical Uses of California Pteridophytes by Western American Indians", American Fern Journal, 54:2.
- Munz, Philip A., 1961, California Spring Wildflowers: From the Base of the Sierra Nevada and Southern Mountains to the Sea, UC Press.
- Munz, Philip A. and David D. Keck, 1968, A California Flora and Supplement, UC Press.
- Murphy, Garth, 1941, "A key to the fishes of the Sacramento-San Joaquin Basin", California Fish and Game, 27:3, pp. 165-171.
- Ornduff, Robert, 1974, Introduction to California Plant Life, UC Press.
- Pammel, L.H., 1916, "Notes on the weeds of California", Proc. Iowa Academy Sci., 23, pp. 489-493. (reprint in the UC Herbarium file)
- Peterson, Roger T., 1961, A Field Guide to Western Birds, Houghton Mifflin Company, Boston.
- Pettingill, Olin S., Jr., 1953, A Guide to Bird Finding West of the Mississippi, Oxford University Press, New York.
- Pope, Clifford H., 1955, The Reptile World: A Natural History of the Snakes, Lizards, Turtles, and Crocodilians, Alfred A. Knopf.
- Reynolds, R.D., 1959, "Effect of natural fires and aboriginal burning upon the forest of the central Sierra Nevada", M.A. thesis, Geography Dept., UC Berkeley.
- Robbins, Chandler S., Bertel Bruun, and Herbert S. Zim, 1966, Birds of North America, Western Publishing Co., New York.
- Stebbins, Robert C., 1951, Amphibians of Western North America, UC Press.
- Storer, Tracy I. and Robert L. Usinger, 1963, Sierra Nevada Natural History, UC Press.
- Tatlock, Thomas J., 1966, "Ethnozoological Study of the Paskenta-Newville Reservoir", Appendix B in Chartkoff and Childress (1966), q.v.

U.S. Fish and Wildlife Service, 1968, "Birds of the Sacramento National Wildlife Refuge", Refuge Leaflet 146-R4.

U.S. Forest Service, 1974, "Plants and Animals of the Mendocino National Forest", list prepared by the Forest Supervisor, Mendocino National Forest, Willows, CA.

Watts, Tom, 1973, Pacific Coast Tree Finder, Nature Study Guild, Berkeley.

Yocom, Charles and Ray Dasmann, 1965, The Pacific Coastal Wildlife Region, Naturegraph Publishers, Healdsburg.

C. General and Folk-biological References

Baumhoff, M.A., 1963, "Ecological Determinants of Population Distribution in Early California", UCPAAE, 49:2.

Berlin, Brent, 1972, "Speculations on the Growth of Ethnobotanical Nomenclature", J. Lang. Soc., 1:., pp. 63-98.

-----, 1975, "Some Evidence from Aguaruna Folk Botany for the Concept of Rank in Ethnobiological Classification", unpublished paper.

Berlin, Brent, Dennis E. Breedlove and Peter H. Raven, 1967, "Covert Categories and Folk Taxonomies", American Anthropologist, 70:2, pp. 290-299.

-----, -----, -----, 1973, "General Principles of Classification and Nomenclature in Folk Biology", American Anthropologist, 75:1, pp. 214-242.

-----, -----, -----, 1974, Principles of Tzeltal Plant Classification: An Introduction to the Botanical Ethnography of a Mayan Speaking Community in Highland Chiapas, Academic Press, New York.

Conklin, Harold C., 1954, "The Relation of Hanunoo Culture to the Plant World", unpublished Ph.D. dissertation, Yale University.

Cook, Sherburne F., 1964, "The Aboriginal Population of Upper California", Actas y Memorias del XXXV Congreso Internacional de Americanistas, Mexico, 1962, 2, pp. 397-403. Reprinted in Heizer and Whipple, 1971, The California Indians, 2nd ed., UC Press, pp. 66-72.

Fowler, Catherine, 1972, "Comparative Numic Ethnobiology", unpublished Ph.D. dissertation, Univ. of Pittsburgh.

- Geoghegan, W.H., 1973, "Polytypy in Folk Biological Taxonomies", unpublished paper.
- Goodrich, Jennie, 1976, "Kashaya Pomo Plant Taxonomy", paper delivered at Southwest Anthropological Association meeting, San Francisco, April 1976.
- Hage, Per and Wick R. Miller, n.d., "'Eagle' = 'Bird': A Note on the Structure and Evolution of Shoshoni Ethnoornithological Nomenclature", American Ethnologist 00:000.
- Hunn, Eugene, 1973, "Tzeltal Folk Zoology: The Classification of Discontinuities in Nature", unpublished Ph.D. dissertation, UC Berkeley.
- , 1975a, "Words for Owls in North American Indian Languages", IJAL 41, pp. 237-239.
- , 1975b, "The Tenejapa Tzeltal Version of the Animal Kingdom", Anthropological Quarterly, 48:1, pp. 14-30.
- de Montellano, Ortiz, 1976, "A Botanical Classification Among the Nahoas?", unpublished paper.

APPENDICES

Following are the main biological taxonomies (Appendices A and C), the summaries (Appendix D), the zoological life-stage nomenclature (Appendix B), the dual botanical taxonomies (Appendix E), and scientific identifications of species (Appendix F).

The main taxonomies are organized into four sections each, one for each of the four major dialect areas. All four sections are structured in a parallel fashion to facilitate inter-dialect comparison. The ordering of generic rank taxa within the taxonomies constitutes a somewhat ad hoc variation on traditional biological classification, as can be seen by comparing the main folk zoological taxonomies (Appendix A) with the corresponding scientific identifications and classification in Appendix F. The ordering I use here resulted from the original process of organization of the data, where it was necessary to compromise between numerous organizational principles used by the collectors: alphabetical by English or by Patwin, traditional taxonomic (Merriam and various references), and folk-taxonomic (both that of the Patwin and my own). The result is a hybrid system, but I have decided to retain it to minimize errors of omission or confusion of the data and to emphasize perceived relations between taxa. Thus, for example, it makes more sense to place shrews and moles in the taxonomies near the mice and gophers, which they resemble most, rather than near the bats, to which they are more

sil 'yellow tarweed' may be both a kind of calal 'flower' and a kind of tho·k 'upright-stemmed plant'. That fact is indicated with dotted lines for the second lifeform affiliation.

The following qualifiers occur fairly regularly throughout the taxonomies, so are not glossed at each occurrence:

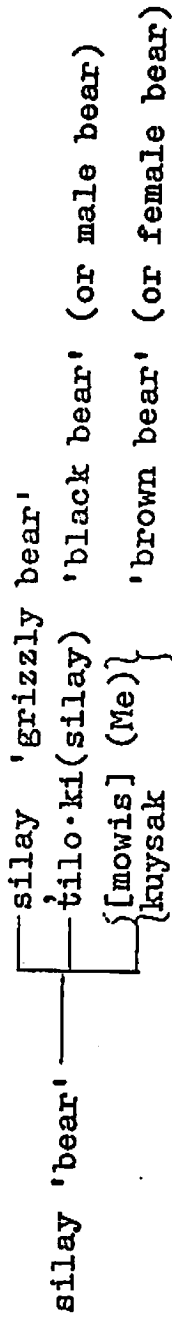
nom	'west'
puy, pul	'east'
'kom	'big'
'kere(k)	'small'
sil(t)i	'black'
'cama·	'white'

Finally, the suffix -men, especially common in the insect and bird taxa, is a derivational affix which seems to mean, "bug or animal which _____s, which is _____, which is like _____, which makes _____ noise, etc." Compare the English morph bug, as in lightning bug, stink bug, potato bug (= Jerusalem cricket), etc., which shows a similar but not quite so general a formation pattern as Patwin -men. Other Patwin derivational affixes, e.g. -lay, -kay, -kay, also appear in the data but are probably deeper morphological fossils; they show no current productivity.

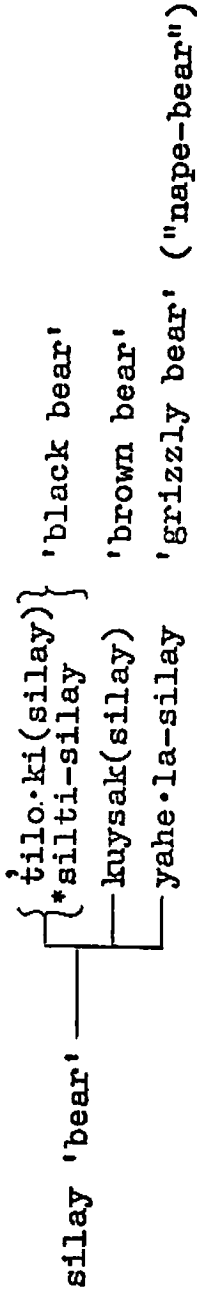
I have not made any effort to indicate onomatopoeic forms in the taxonomies, but it should be obvious that many of the bird and insect names are onomatopoeic in origin.

The classification of bears is complicated by their extreme cultural and mythic significance, and the fear associated with them, which probably resulted in some name taboos. Also, the type-specific, the grizzly bear, has long since disappeared from California, resulting in some confusion of terminology among current Patwin speakers. I present both the probable aboriginal taxonomy and the current taxonomy.

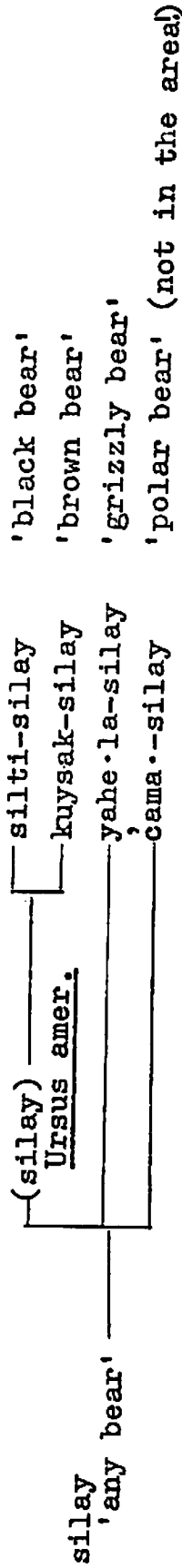
Aboriginal:



Current:



There is some evidence that the word for grizzly bear was being lost altogether, and that silay was developing two foci of meaning, one more inclusive and one less inclusive. Thus, under the influence, apparently, of English, Patwin seemed to be shifting toward the following scheme:



Kabalmem

Bears

(bears) see preceding sheet

pate 'mountain lion'
 pamalay 'bobcat'

{ sedew }
 { tuçay ("devil") } } 'coyote'

ha.w 'fox'

hu.l 'wolf'

{ hayu }
 { chu.chu } } 'dog'

no.p 'deer' ——— [sia 'buck'
 ——— (no.p)ne.n 'doe' ("deer mother")

{ loko.ya }
 { *kom-no.p (EB) } } 'elk'

kha. 'antelope'

{ ('celo.) }
 { 'rabbit' } ——— [celo. 'jackrabbit'
 ——— welik 'cottontail'
 ——— { nomik }
 ——— { diyas ("dwarf, runt") } } 'brush rabbit'

Kabalmen

Mammals (1)

'cewe.ya 'raccoon'

cotom 'badger'

{kxo.} ——— {kho.} }
'skunk' ——— {loyta (Me) ("lady")} } 'striped skunk'
 wi.cikay 'spotted skunk'

{picilik }
{*tho.ʔnabo.--ka.to ("mountain cat")} } 'ring-tailed cat' (n.14)

?behe.mak (EB) 'weasel' ?

?[suklami] (Me) 'fisher' ?

mem-kaki 'mink' ?

mem-sedew (Me) ("water coyote") 'otter' ?

?[patul] (Me) 'beaver'

hoshos (Me) 'porcupine'

(ʔet) ——— ʔet 'ground squirrel'

'squirrel' ——— chumuk 'gray squirrel'

chikchi.ki 'chipmunk'

?[ʔusa-emimen] (Me) ("pestle hugger") 'flying squirrel'

Kabalmem

Mammals (2)

1kot 'kangaroo rat; pocket mouse'
 1kay 'gopher'
 hese 'meadow mouse'
 1tubes 'wood rat; rat'
 1karnabo--tubes 'opossum' ("ground rat")
 { 1tulukun }
 { [solokun] (Me) } 'white-footed mouse' (n.l)
 [pho--echesmen] (Me) 'shrew' ("fire-stealer")
 { [malo.li] (Me) }
 { [matimen] (Me) } {"breaking ground"} 'mole'
 { *sem-olda.wi (KW) } {"hands upraised"}
 { pa.lway ("labia of female") }
 { [kansalaymen] (Me) ("axillary smell") } 'bat'

Kabalmen

Mammals (3)

- hur 'salmon'
- si?a-thi·r ("toothed fish") 'trout'
- ne·s 'sturgeon'
- hoyo 'sucker'
- 'tokow 'pike, big' (Sacramento squawfish)
- 'cuwes 'pike, small' (Sacramento blackfish?)
- kama· 'chub'
- 'to·bo 'minnow'
- 'karen-thi·r ("small fish") 'minnows, etc.' (n.3)
- kele·lay 'perch, small' (tule perch?)
- oni·s 'catfish, small; tadpole' (sculpin)
- { sepsep-thi·r ("whisker fish") } 'catfish'
- { *ka·to-thi·r ("cat fish") }
- { thurthi-thi·r ("thick fish") } 'carp'
- { sepsep-thi·r }
- thelep?a-thi·r ("flat fish") 'fish sp.' (hardhead?, n.2)
- upunik 'eel'
- hopodik 'tadpole' (n.4)

thi·r 'fish'

Kabalmem

Fish, tadpole

kuk 1. 'salt-water clam'
 2. 'abalone' ?

orok 'fresh-water clam'
 se.lis(men) 'snail'

?[ko.ko] 'crayfish' (Me)
 ano. 'turtle'

{
 tiwi.l
 pom-silay ("ground bear")} 'rattlesnake'
 che.n-tiwi.l ("down rattlesnake") 'common king snake'

{
 porwan
 howe (Me) ? } 'gopher snake'

kudilip 'water snake' (Thamnophis sp.)
 khuipmen 'fast land snake' (probably the striped racer)

'
 tacalay 'Western fence lizard'
 ?[ba.s-katimen] (Me) 'alligator lizard'
 palimen 'Western skink' ?
 komo.kay 'Western whiptail'

'
 cayakhamen 'newt'

wata.k 'frog'

{
 yohol (bor. < Nomlaki)} 'toad'
 ?[lotora-wata.k] (Me) }
 (tadpole) see under fish

Kabalmem Molluscs, crayfish, reptiles, amphibians

hakam 'ants' ————— hutulay 'stink ants, (tree)'
 ————— (silti)hakam 'big black ant sp.'
 ————— silti-hakam 'small black ant sp.'
 ————— { *watwa-ti-hakam }
 ————— { [hana.hana] (Me) } 'big red ant sp.'

ho.salay 'housefly'
 taba 'horsefly'
 ey 'gnat'
 to.sak 'mosquito'
 chen-cho.ki 'mosquito larvae' ("head-down")

pu.sidik }
 { ?ti.ntit (EB) } 'dragonfly'
 ba.lbalik 'butterfly' ---- *sino.lbo.ba.lbalik 'moth' ("evening-
 butterfly")
 { *teche.men }
 { [tecew] (Me) }
 { [lo.no] (Me) } 'yellowjacket'

lo.no 'bees, wasps' ————— lo.no 'honeybee' (an introduced bee)
 ————— palimen }
 ————— { [lopa-?alaman] (Me) } 'mud-dauber'
 ————— wa.wis 'hornet' ?
 ————— humu.makay 'bumblebee'

Kabalmem

Ants, flying insects, etc.

taram	┌ taram 'small flying grasshopper sp.'
'grasshopper'	└ [pul-taram] 'small wingless grasshopper sp.'
	ture.s 'large grasshopper sp.'
{tiltil}	'cricket'
{tortor}	
sedimen	'large black stinkbug'
cesimen	'click beetle' (or a worm sp. ?)
[tapan]	(Me) 'dung beetle'
pela.men	'cicada'
to.romen	'June bug'
toko.k	'ant lion'
hana.hana	'brown beetle sp. ?'
ku.chay	'small black flying beetle sp. ?'
pako.li	'water-strider'
{cheret	yomtayomtamen 'black widow spider'
{[lasalasa] (Me)}	└ hachimen 'daddy-long-legs' ?
{'spider'	
	{ taka.taka (Me) } 'scorpion'
	{ takakwayt (KW) (bor. < Nomlaki) }
	{ [surutsurutmen] (Me) } 'centipede'
	{ phili.men (KW) }

Kabalmem

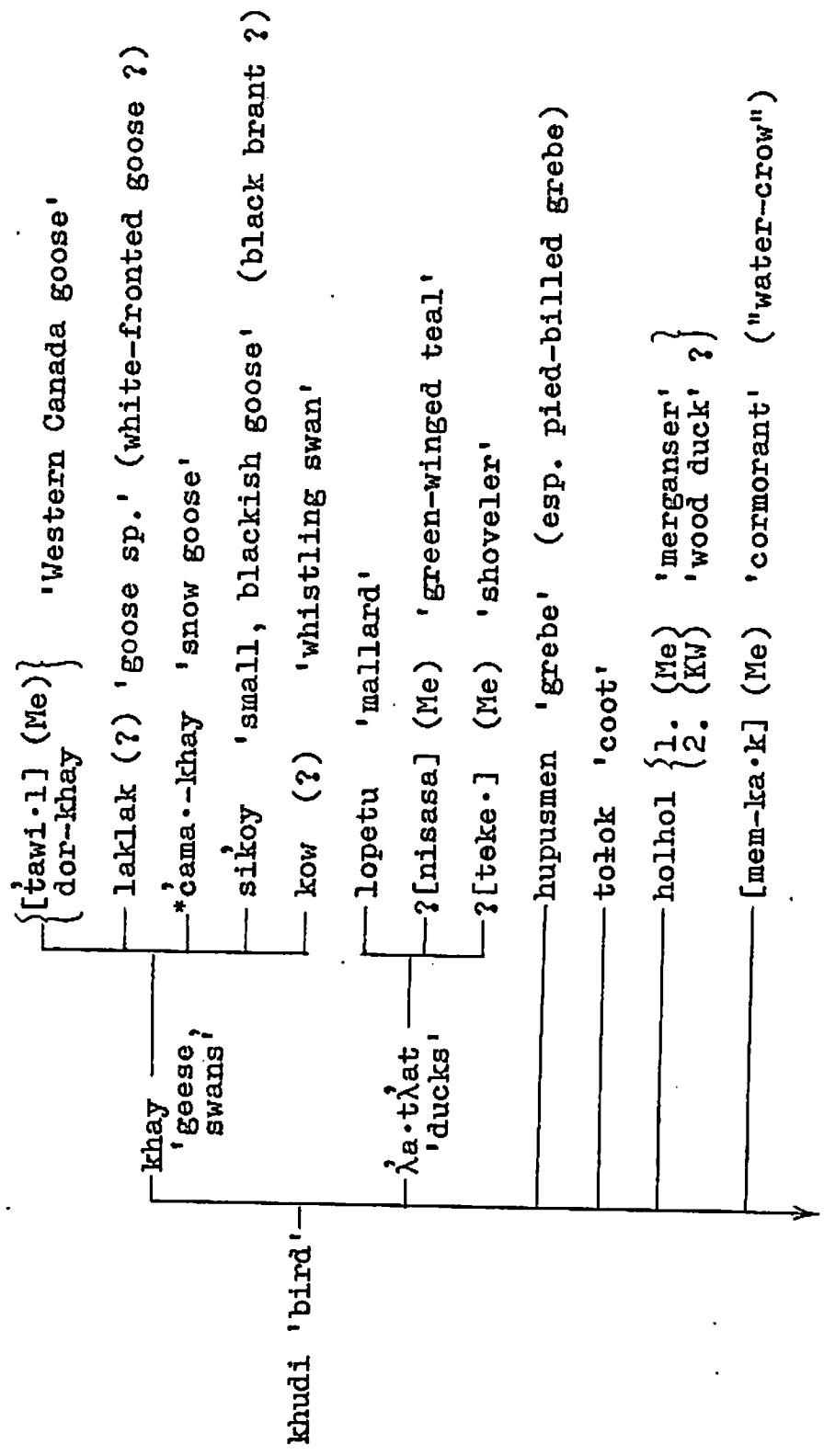
Misc. insects, arachnids, etc.

pheri.	'(head) louse'
chupse	'grayback (louse)'
'coco.	'flea'
ti.n	'woodtick'
'ce.	'earthworm'
tomo	'maggots'
'posol	'acorn worm'
{*silti-tomo	} 'hairy caterpillar'
{[silaysilaymen] (Me)}	
[tho.k-borimen] (Me)	'white worms in dead trees' (termites ?)
'cawmen	'lightning bug' (a worm)
ha.tali	'tapeworm'

tomo 'worms' —

Kabalmem

Lice, flea, ticks, worms.



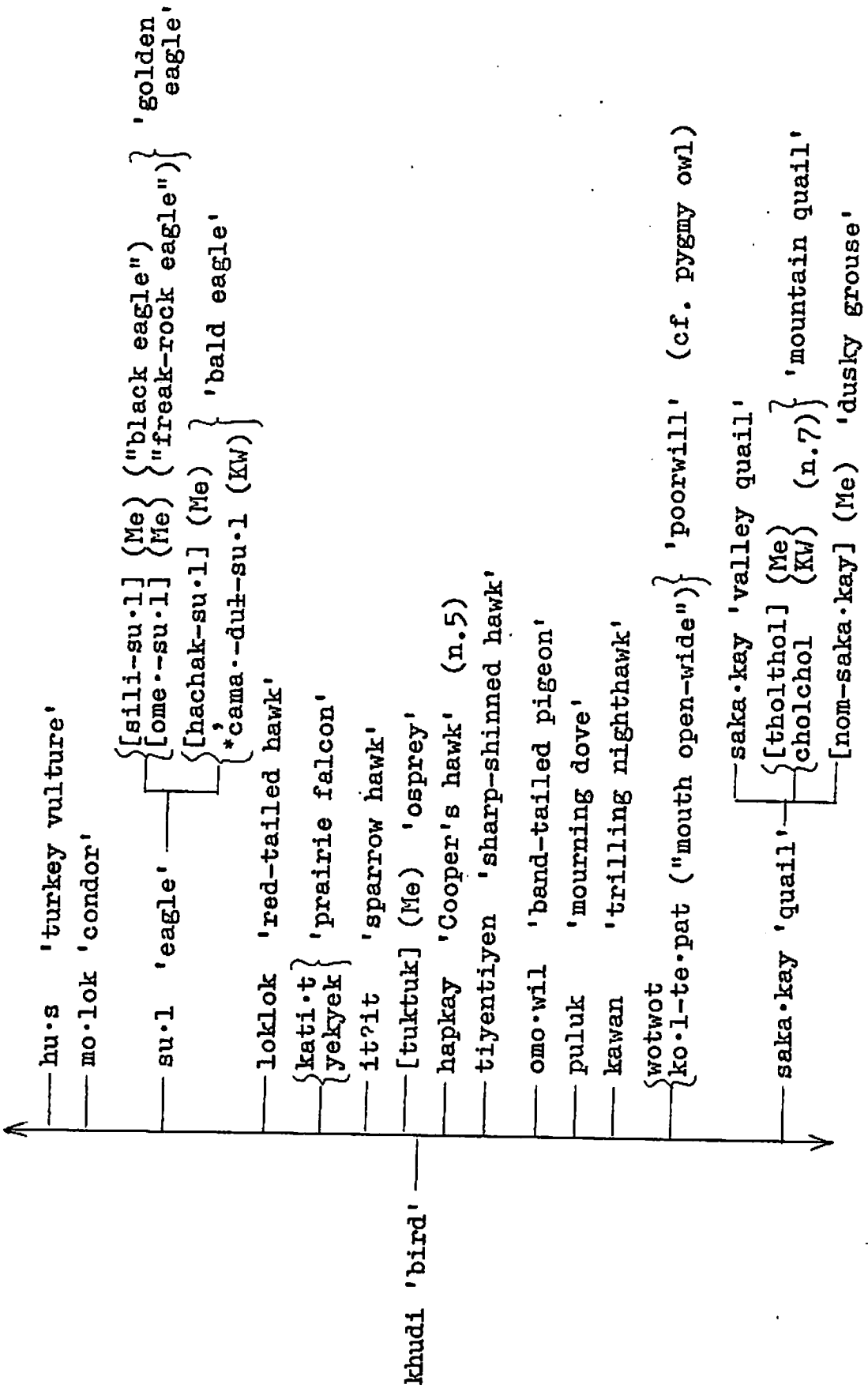
Birds (1)

Kabalmem

	{ [waksu] (Me) }	'great blue heron'
	{ wokse }	
	wak	'night heron'
	kalaw ^h kaw ^h kaw	'green heron'
khudi	[chorok] (Kr, Me)	'sandhill crane'
	[yolmen] (Me)	'common egret'
	*sili 'gull'	(bor. < Pomo)
	[pela-coymen] (Me)	'bittern' ("sun look-at")
	khayphilphil	'snipe'
	tiwi·t	'killdeer'

Kabalmem

Birds (2)



Kabalmem

Birds (3)

khudi 'bird'		
{ thimpiri.k	{	'great horned owl'
yomba ("nightman")	}	
si.k	'barn owl'	
kupu.	'screech owl'	
{ toko.k	{	'burrowing owl'
wik	}	
powthimen	'pygmy owl' ? (n.6)	
cha.rara.	'belted kingfisher'	
bi.t	'Western meadowlark'	
{ al'al	{	'crow' (n.8)
ka.k	}	
cayi.t	'scrub jay'	
weswes	'Steller's jay'	
a.c'ac	'yellow-billed magpie'	
wololok	'red-shafted flicker'	
tara.t	'acorn woodpecker'	
nom-tara.t	'pileated woodpecker' (n.9)	
?[tiloktilok] (Me)	'Lewis' woodpecker'	
[tudittudit] (Me)	1. 'Nuttall's woodpecker'	
	2. 'red-breasted sapsucker'	(n.10,21)
tarmen	'white-breasted nuthatch'	

Kabalmem

Birds (4)

—	sulultay	'roadrunner'
—	'capol	'Brewer's blackbird'
—	'cakatu	'red-winged blackbird'
—	sapa·sapa	'Bullock's oriole' (or any oriole)
—	'[ke·tet](Me)	'loggerhead shrike'
—	'kowitzo	'California thrasher'
—	tottot	'yellow-breasted chat'
—	salaksalak	'swallow'
—	li·sbok	'robin'
—	'tuyuluk	'hummingbird'
—	sududay	'plain titmouse'

khudi 'bird'

Kabalmem

Birds (5)

khudi 'bird'	{	'cōwkočowko	} 'Western bluebird'
	{	'[čō·ka] (Me)	
	—	'pati·lorok	'Western kingbird'
	—	[teye] (Me)	'black phoebe'
	—	'[čililuk] (Me)	'horned lark'
	—	[lul] (Me)	'black-headed grosbeak' (or 'goldfinch' ?)
	—	lio	'house finch'
	—	[biktil] (Me)	'yellowthroat' ? (n.11)
	—	[sinowala] (Me)	'crowned sparrows'
	—	[patakay] (Me)	'(lark) sparrow'
	—	{	} 'brown towhee'
	—	{	
	—	[sewok] (Me)	'rufous-sided towhee'
	—	[tobtob] (Me)	'Oregon junco'
	—	{	} 'wren sp.' (prob. <u>Troglodytes</u>) (n.12)
—	{		
—	[tirimtirim] (Me)	'common bushtit'	

silay 'bear' — silay 'grizzly bear'
 tilo.ki 'black bear'
 { mowis (T) } 'brown bear'
 { tuluk?a-silay (C) }
 uyum 'black water bear' (n.13) ?

pate 'mountain lion'
 pamalay
 { *sutu-kopti (T-EB) ("tail cut off") } 'bobcat'
 { sedew } 'coyote'
 { tucay (T) }
 ha.w 'fox'
 hu.l
 { kom-sedew (C) ("big coyote") } 'wolf'
 hayu, 'dog' — chu.chu 'bitch'
 { chu.chu } [perol (T,CC-Me) 'male dog'
 no.p 'deer' — sia 'buck'
 ne.n 'doe' ("mother")

{ loko.ya (T,C) }
 sawa.tu
 { *kom-no.p (T-EB) ("big deer") } 'elk'
 kha. 'antelope'
 celo. 'jackrabbit'
 { (celo.) }
 { welik } 'cottontail'
 { 'rabbit' } nomik 'brush rabbit'

Tebti, Cortina, Cache Creek Mammals (1)

{ cewe·ya (T) } 'raccoon'
 { cewey (CC,C) }
 cotom 'badger'

(kho·) —————
 'skunk'
 { kho· 'striped skunk'
 { wi·cakay (T)
 { ?[wi·caki] (CC-Me) } 'spotted skunk' (n.14)
 { ?[wi·ciki] (C-Me) }

picilik 'ring-tailed cat' (n.14)
 celecele 'weasel' ? (n.14)
 thasi· 'mink' (n.14)
 kaki 'otter'

po·k 'beaver'

hoshos
 { hāra·k (CC-KW) ("white flint") }
 { tatimen (C-Me) ("star, morning") }
 'porcupine'

(λet) —————
 'squirrel'
 { λet 'ground squirrel'
 { chumuk 'gray squirrel'
 chikchi·ki 'chipmunk'

Tebti, Cortina, Cache Creek Mammals (2)

ˈkɔt 'kangaroo rat; pocket mouse'
 ˈkay 'gopher'
 hese 'meadow mouse'
 ˈtubes 'wood rat; rat'
 ˈtulukuy 'white-footed mouse'
 ˈpukuytu 'shrew'
 { maloːli (C-JA) } 'mole'
 { maksimen (C-JA) }
 { kansalay (T) }
 { keculay (C,CC) } 'bat'
 { [teculay] (C-Me) }
 ?[chen-teramen] (C-Me) 'large bat sp.' (prob. Lasiurus spp.)

Febti, Cortina, Cache Creek Mammals (3)

hur	'salmon'	
mala.k	'small salmon' (T-PR)	
{si'a-thi.r	("toothed fish") 'trout'	}
{apali	(CC-KW) 'fish sp.' (prob. trout)}	
ne.s	'sturgeon'	
hoyo	'sucker'	
tokow	'pike, big' (Sacramento squawfish)	
to.kani(thi.r)	'pike, small' (hardhead?, Sacramento blackfish?)	
kama.	'chub'	
to.bo	'minnow'	
kerek	'minnow (or any small fish)' (CC-KW) (n.3)	
kele.li	'perch, small' (tule perch?)	
ce.wal	'sunfish sp., big' (Sacramento perch)	
cote	'perch sp.' ? (n.27)	
oni.s	'bullhead' (sculpin)	
{waci	}	}
{sepsep-thi.r		
tepek	'carp'	
{upunik	}	}
{sikili		
{hopodik	(T-PR)	}
{hopodok	(CC-KW)(C-EB)	

thi.r 'fish'

Tebti, Cortina, Cache Creek Fish, tadpole

kuk 'clam, salt-water'
 khola 'abalone'
 orok 'clam, fresh-water sp.'
 tayi. 'clam, fresh-water sp.'
 se.lis(men) 'snail'

ano. 'turtle'

tiwi.l 'rattlesnake'

cititakay

teci.cakay (C-EB)
 ?[ticakay] (C-Me) } 'king snake'

porwan 'gopher snake'

porwan (C-Me)
 tiwi.l (T-Me)
 CC-Me }
 kudilik (T-EB)
 'snake' }

huwe (T-PR) 'snake'
 howe (CC-KW) 'big water snake' }
 kudilik (T-DU, Me) 'water snake'
 khusi.p 'water snake'

(Thamnophis spp.)

pukimen (T-PR) 'garter snake'
 pokimen (CC-KW) 'racer'?
 (C-EB) 'garter snake' }

(probably a striped racer)

lewmen 'snake sp., small' (possibly the Western ring-necked snake)
 tho.i-pilimen (T-DU)(C-EB)
 tho.i-polokomen (CC-KW) } 'legendary tree snake'

awus-kacar (T-EB)

ma.ta.tiwi.l (C-EB) ("eared rattlesnake") } 'legendary spirit snake'

Tebti, Cortina, Cache Creek Molluscs, turtle, snakes

{¹tasalay 'Western fence lizard'
 ¹tomsalay (T-PR) 'Western fence lizard' ?
 ¹tumculay (C-EB) " }

ba·smen 'alligator lizard'

{¹komokay (T-PR)
 ¹kacamen (C-EB) }
 {¹kachamen (CC-KW) } 'Western whiptail'

¹cayakhamen 'newt'

wata·k ————— wata·k 'frog'
 'frog, toad' { [sek-wata·k] (T-Me) 'green frogs, tree frogs'
 { [lotelote-wata·k] (T-Me) } 'toad'
 { lotor(o)-(wata·k) (CC,C) }

(tadpole) see under fish

Tebti, Cortina, Cache Creek Lizards, amphibians

hakalay 'ants' — { hutulay }
 { thu·bi (T-EB) ("stink") } 'stink ants, (tree)'
 sodok 'big black ant sp.'
 { menemene (T-PR) } 'little red ants'
 { mene·mene } 'little black ants'
 { tedek }
 { lasalasa (C-EB) } 'big red ant sp.' (cf. spiders)
 { ho·solay } 'housefly'
 { ho·salay }
 taba 'horsefly'
 ey 'gnat'
 to·sak 'mosquito'
 { tu·ktuk (CC-KW) } 'mosquito larvae' ?
 { tuktuk (T-PR) }
 pu·suduk 'dragonfly'
 ba·lbalik 'butterfly'
 llaymen (CC-KW) 'small (flightless?) butterfly' ?
 { tecew }
 { fo·no (Me, Ba) } 'yellowjacket'
 fo·no 'honeybee' (an introduced bee)
 wawis (T-PR) 'hornet, wasp ?'
 mulu·tay 'bumblebee'

Tebti, Cortina, Cache Creek Ants, flying insects, etc.

'taram
 'grasshopper'

{ taram 'small, flying grasshopper'
 tuwa--taram (CC-KW) 'large grasshopper (in
 pines)', ? ("digger pine grasshopper")
 cine. 'large grasshopper sp.'

{ tortor (T)
 lerler (C,CC) } 'cricket'

sedi(men) (CC-KW) 'large black stinkbug'

cesimen { 1. 'click beetle' (T-Me)
 2. 'inchworm' (CC-KW)

[senimen] (T-Me) 'dung beetle'

pela·men 'cicada'

to·romen (CC-KW) 'bug sp.' (June bug ?)

toko·k (CC-KW) 'ant-lion'

ʔuyukhuy (C-EB) 'ladybug'

{ bakomen (T-PR) }

{ toko·men (CC-KW) } 'water beetle'

hanahana (T-PR) 'bug or spider' ?

{ cheret

{ yomtayomtamen (C-Me) } 'black widow spider'

[ʔo·yomen] (CC-Me)

'spider'

--lama·ka(men) 'large (white) spider sp.'

--hachimen (CC-KW) 'daddy-long-legs'

?[paha·men] (T-Me) 'spider sp.' ?

taka·taka 'scorpion'

phili·men (CC-KW) 'centipede'

Tebti, Cortina, Cache Creek

Misc. insects, arachnids, etc.

pheri. '(head) louse'

chupsi (T,C) 'grayback (louse)'

{coco. (T,C) } 'flea'
 {cotchow (CC-KW)}

ti.n 'woodtick'

?[sokopol] (C-Me) 'large rabbit tick'

ce. 'earthworm'

tomo 'maggots'

lu.pɫup (C-EB) 'caterpillar ?, worm?'

ɫut 'worm sp.' (cutworm?)

li. { (C-EB) 'acorn worm'
 { (T,CC-Me)(CC-KW) 'hairy caterpillar' }

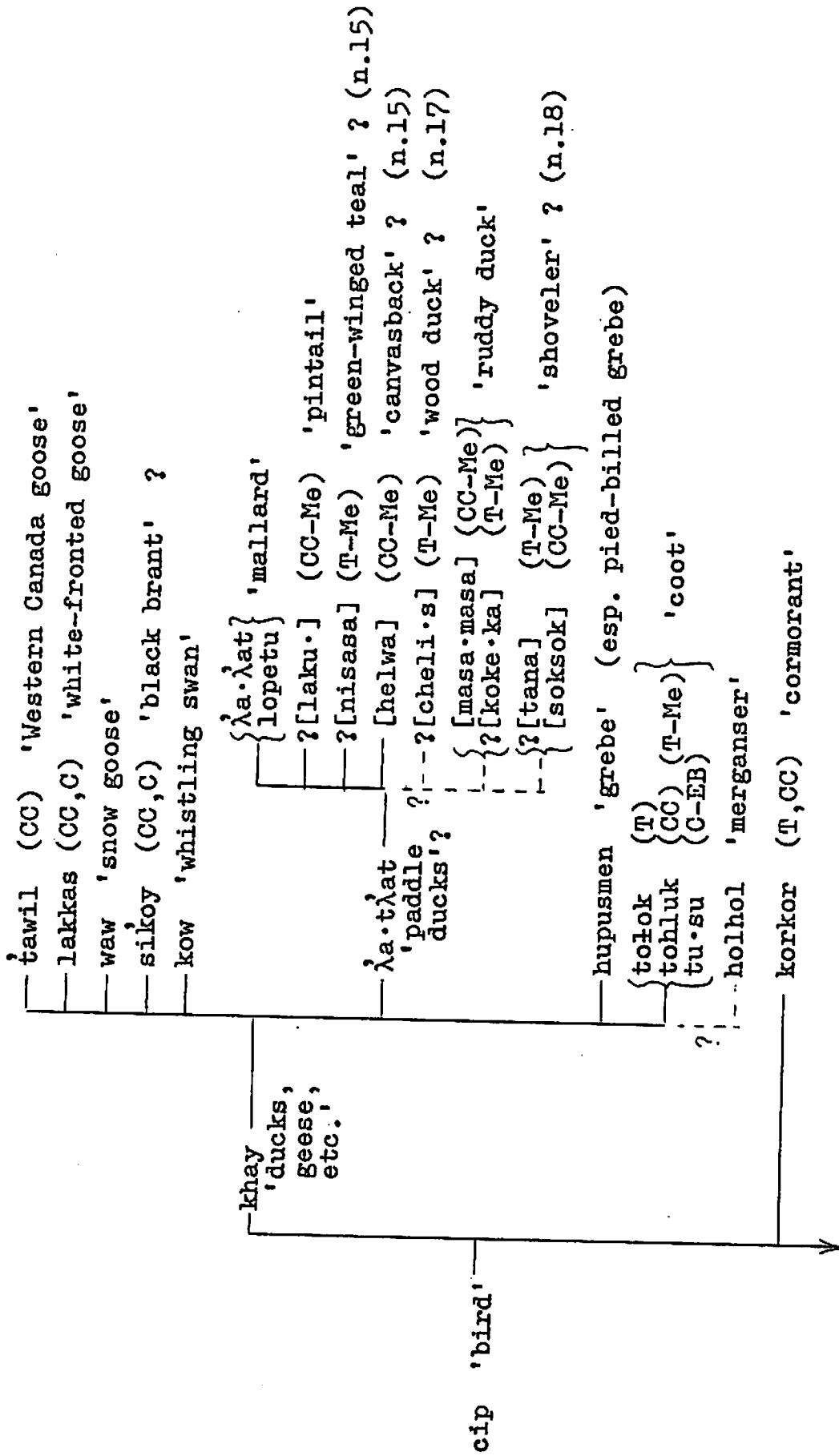
ɫara.men 'hairy caterpillar' ?

ɫamen (C-EB) 'green bug'

ca.wmen 'lightning bug' (a worm sp.)

ha.tali 'tapeworm'

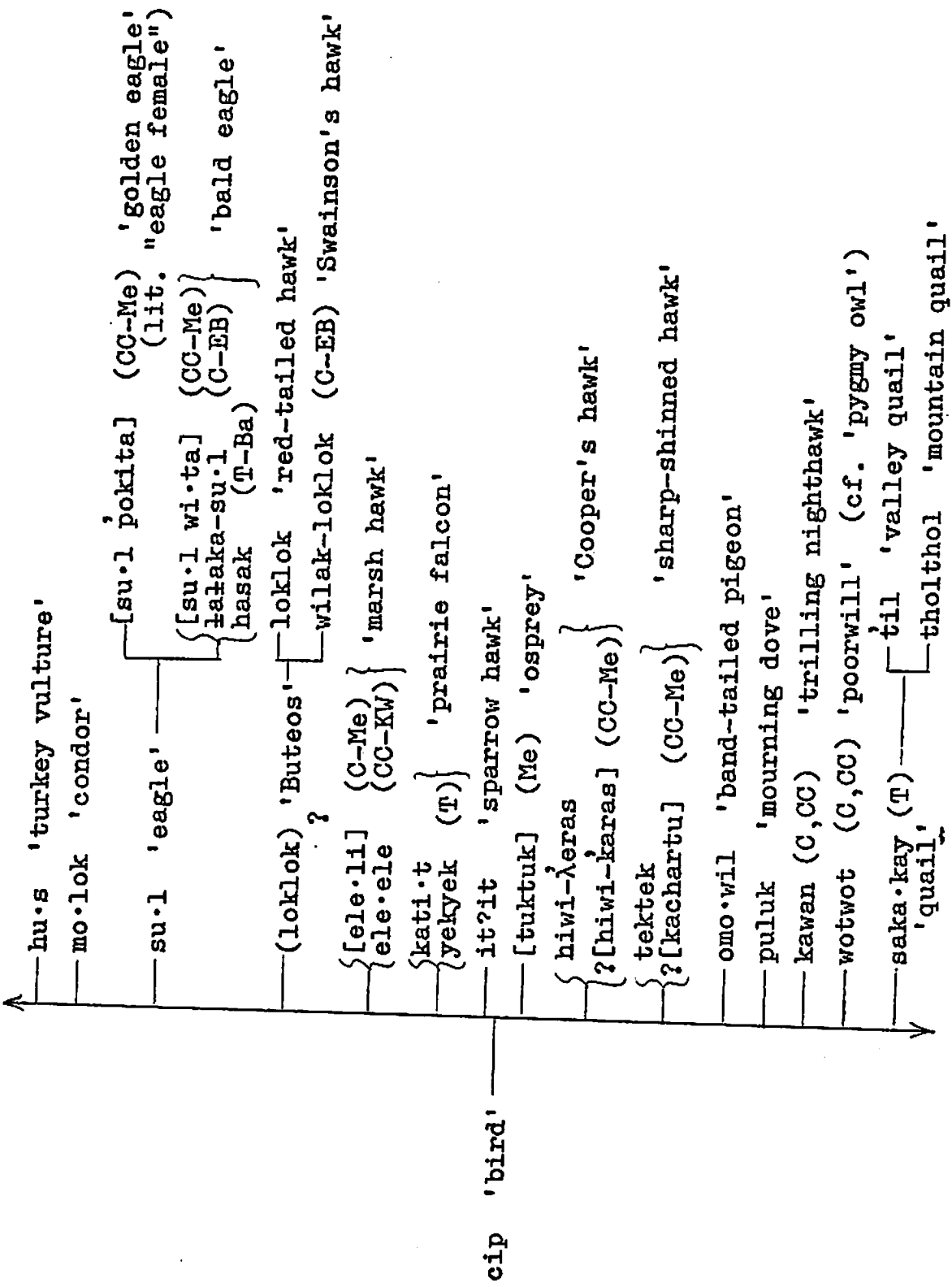
Tebti, Cortina, Cache Creek Lice, flea, ticks, worms.



Tebti, Cortina, Cache Creek Birds (1)

	away	'pelican'
	{ wakse. (T-EB) }	'great blue heron'
	{ woksu (CC,C) }	
	wak	{ (T,C) 'any heron or egret' (n.19) }
		{ (CC) 'night heron and green heron' ? }
	? [kawkaw]	(T-Me) 'green heron'
	{ [chorok] (C-Me) }	'sandhill crane'
	{ ? [korow] (C-JA) }	
	salsal	{ 1. (C-EB) 'common egret' }
		{ 2. (T,C) 'gull' ? }
	[khayphilphil]	(C-Me) 'snipe'
	ha.t	{ 1. (T-PR) 'snipe' }
		{ 2. (C-EB) 'greater yellowlegs' ? }
	[titti.tay]	(CC-Me) 'spotted sandpiper'
	tiwi.t	'killdeer'
	khwitkhwit	(CC-KW) 'American avocet'
cip	'bird'	

Tebti, Cortina, Cache Creek Birds (2)



Tebti, Cortina, Cache Creek Birds (3)

cip	'bird'	
{	timpirik	} 'great horned owl'
{	yomba ("nightman")	
—	si·k	'barn owl'
{	kopu·	} 'screech owl'
{	kupu·	
—	toko·k	'burrowing owl'
—	powthimen (CC, T?)	'pygmy owl' ? (n.6)
—	[hi·n] (CC-Me)	'short-eared owl'
—	cha·rara	'belted kingfisher'
—	bi·t	'Western meadowlark'
—	ka·k	'raven'
—	a·l	'crow'
—	cayi(·)t	'scrub jay'
—	weswes	'Steller's jay'
—	a·c'ac	'yellow-billed magpie'
—	wololok	'red-shafted flicker'
—	tara·t	'acorn woodpecker'
—	[tiloktilok] (Me)	'Lewis' woodpecker'
—	kuruk	'Nuttall's woodpecker' (n.21)
{	ka·kodoy	} 'red-breasted sapsucker' ? (n.22)
{	ka·kkodoy (CC-KW)	
—	tarmen	'white-breasted nuthatch'

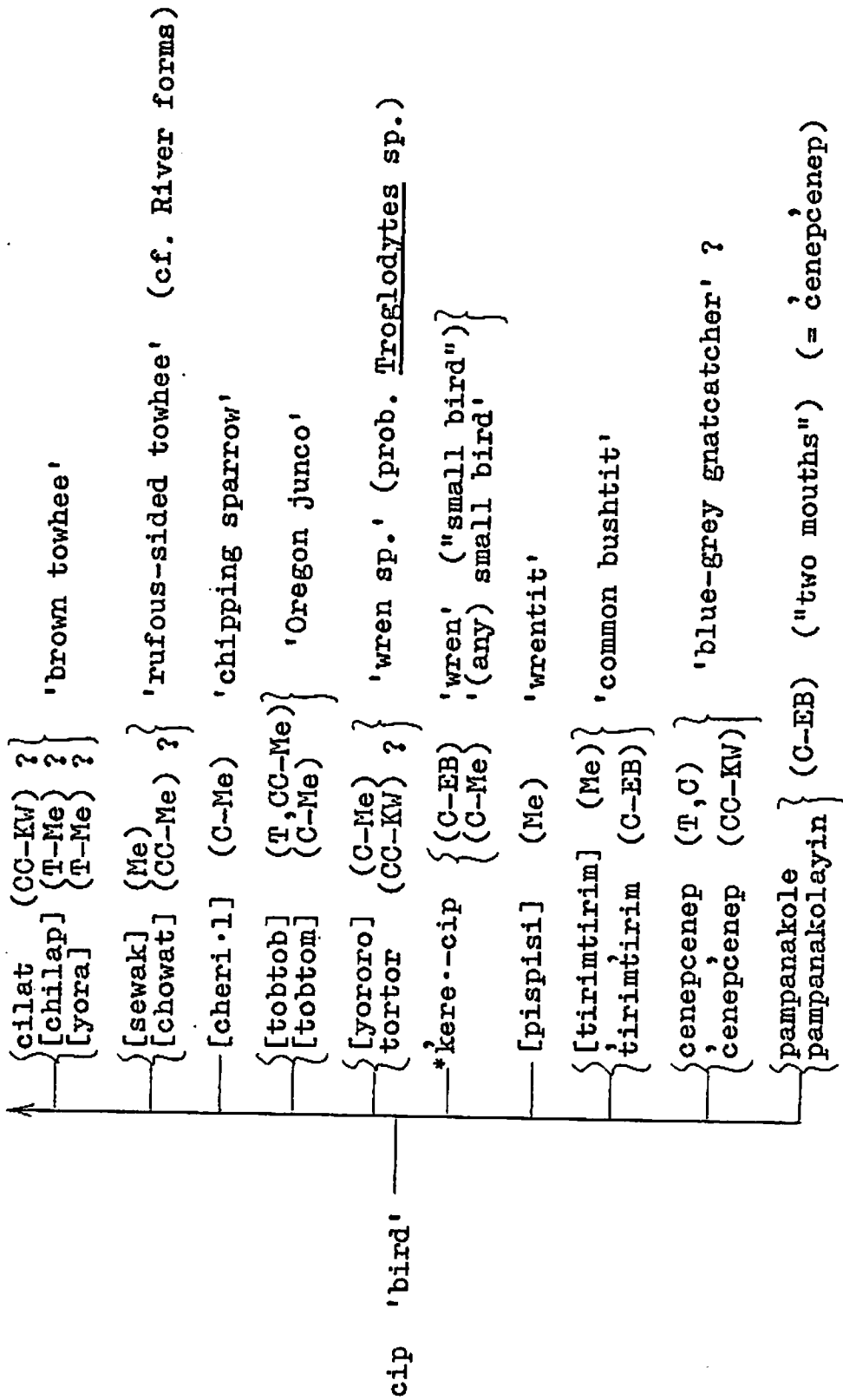
Tebti, Cortina, Cache Creek Birds (4)

cip 'bird'	{sululatay (T,CC)}	'roadrunner'
	{sululaytu (C,CC)}	
	{[silulay] (C-Me)}	
	capol {1. 'Brewer's blackbird'	'red-winged blackbird' (in CC dialect only)
	2. 'red-winged blackbird'	
	{cokotuy (C-EB)}	'red-winged blackbird'
	{[cokutu] (C-Me)}	
	{cakatu (T)}	
	{[pokok] (C-Me)}	'yellow-headed blackbird'
	chekecheke 'Bullock's oriole' (or any oriole)	
	{[philphil] (T,CC-Me)}	'loggerhead shrike'
	{ke.ythi (C-EB)}	
	{kowiito (C,CC)}	'California thrasher'
	{[koitta] (T-Me)}	
	{[kuk] (C-Me)}	
	{to.tot}	'yellow-breasted chat' (n.23)
	{tati.sunan (C-EB) ?}	
	palimen 'swallow' (any, but esp. cliff swallow)	
	chilikchilik 'swallow sp.' (prob. tree swallow)	
	li.sbok 'robin'	
	{tuyuluk}	'hummingbird'
	{toyuluk (CC)}	
	{sududay (T,C)}	'plain titmouse'
	{suducukuy (CC-KW)(C-Me)}	

Tebti, Cortina, Cache Creek Birds (5)

cip 'bird'	{	co·ka (T,C)	}	'Western bluebird'	
	{	cowkha (CC-KW)			}
	—	pati·lorok (CC-KW)(C-Me)		'Western kingbird'	
	—	[apichana] (T,CC-Me)		'Western kingbird' ? (n.24)	
	—	[koschemen] (CC-Me)		'black phoebe'	
	—	[wosmen] (C-Me)		'flycatcher sp.' (prob. <u>Empidonax</u> and <u>Contopus</u> spp.)	
	—	[kuku·lok] (C-Me)		'horned lark'	
	—	[wo] (C-Me)		'phainopepla' (n.25)	
	{	[bittil] (T,C-Me)	}	'black-headed grosbeak' (or goldfinch ?)	
	{	bittil (C-EB)			}
	{	suyik (T-PR)(CC-KW)	}	'house finch'	
	{	[soyik] (T-Me)			}
	{	[lipsok] (C-Me)			
	{	[lia] (T-Me)	}	'warbler sp.' (prob. yellowthroat)	
	{	[lie] (CC-Me)			}
{	liye (CC-KW)	}			
{	liye. (C-EB)				
—	[sinowel] (Me)			'crowned sparrows'	
—	[patikay] (Me)			'(lark) sparrow'	

Tebti, Cortina, Cache Creek Birds (6)



Tebti, Cortina, Cache Creek Birds (7)

cukhuy 'bear' — [cukhuy 'grizzly bear'
 —silay 'black grizzly bear' ? (Me)
 —tilo·ki-cukhuy (Me) 'black bear'
 —uyum 'black water bear' ? (n.13)]

pate 'mountain lion'

pamalay 'bobcat'

sedew 'coyote'

{kholchi (Colusa) }
 {ha·w (Grimes-Me) } 'fox'

hu·l 'wolf'

{hayu }
 {chuchu } 'dog'

no·p 'deer' — [sia 'buck'
 —sinaka 'doe']

sawa·tu 'elk'

kha(h) 'antelope'

'celow 'jackrabbit'

welik 'cottontail'

{[nomik] (Me) }
 {yu·lu } 'brush rabbit'

River

Mammals (1) (n.26)

'cewey 'raccoon'
 marut 'badger'
 { sete·tu ("farter") }
 { *mayin ("queen") } 'striped skunk'
 thasi· 'mink'
 { kaki
 { [chake·] (Me) ? } 'otter'
 { po·k
 { ?[timilitu] (Me) } 'beaver'
 fara·k ("star") 'porcupine'
 thusu 'ground squirrel'
 kinkin 'gray squirrel'
 [kot] (Me) 'kangaroo rat, pocket mouse ?'
 dey 'big yellow gopher sp.' (prob. Thomomys bottae)
 kay 'small gray gopher sp.' (prob. meadow mouse, Microtus)
 tubes 'mouse, rat'
 { hopi·semen (DU) }
 { [hopi·chamen] (Me) } ("digger" ?) 'mole'
 { damha·lay
 { damha·le } 'bat'
 { kansalay (Me) }

River

Mammals (2,3)

hur	'salmon'
apali	'trout'
ne·s	'sturgeon'
o·bali	'sucker'
tokow	'pike, big' (Sacramento squawfish)
mawmaw	'pike, small' (Sacramento blackfish?)
toku	'hardhead'
kama·	'chub'
kerek	'minnow' (n.3)
sa·li	'shiner' (hitch?)
çote	'perch sp.' (Sacramento perch?, n.27)
sepseptu	'catfish'
kowwa	'eel'

thi·r 'fish'

[anak-sa·li] (Me) 'tadpole' (n.29)

River

Fish, tadpole

[kuk] (Me) 'abalone shells' (sic, more likely clam shells)
 orok 'mussels' (fresh-water clam sp.)
 tayi. 'marsh clam sp.'

anu.s 'turtle'

{ tiwi.l }
 { po.mnabo } 'rattlesnake'
 { handapil (EB,Me) }
 { handapil (KW,Me) } 'common king snake'
 — howe 'gopher snake'
 { porwan }
 { ?[chaya.men] (Me) } '(black) water snake' (Thamnophis sp.)
 — huli.p 'water snake' (Thamnophis sp.)

{ hulucukuy }
 { ?[hulay-ciwi] (Me) } 'Western fence lizard'

sisamen 'lizard sp., blue underneath' (n.28)
 [puyel-sunsun] (Me) 'alligator lizard; skink'

sunsun 'newt'

wata.k 'frog'

yeke 'toad'

(tadpole) see under fish

River

Molluscs, reptiles, amphibians

haka 'ants' ————
 ———— sodok 'stink ants, (tree)'
 ———— manemene 'small black ants'
 ———— tedek 'big red ants'

homo·tay 'housefly'
 ey 'gnat'

to·sak 'mosquito'
 ʔoli 'dragonfly'

walalakay 'butterflies'

ʔ[cameltu] (Me) 'butterfly sp.' ?

mulu·mulu ————
 'bees, wasps' ————
 ———— tecew 'yellowjacket'
 ———— mulu·mulu 'honeybee' (an introduced bee)
 ———— kecek 'blue wasp sp.'
 ———— kal'cemen 'wasp sp., lives in ground'

tarap 'grasshopper'

cukkul 'small wingless grasshopper'
 ʔurum'curum 'cricket'

River

Ants, flying insects, grasshoppers, etc.

okkok 'large black stinkbug'

?[lo.l-cemen] (Me) ("tobacco goes-around") 'June bug'

tuku.ku { 1. (DU) 'water beetle'
 { 2. (Me) 'ant lion; caterpillar' ??

hanayhanay (KW) 'water-strider' (cf. spiders)

chere't 'spiders' — chere't 'black widow spider'

— hanayhanay (EB,DU) 'large (white) spider' ? (or water strider ?)

— wahakcemen 'daddy-long-legs'

taka.taka 'scorpion'

pheris 'louse'

tunkus 'flea'

ti.n 'woodtick'

koyophili 'earthworm'

{ lu.pɬup (EB,Me) }
 { ɬupɬup (KW) }
 { worms' }

— ɬupɬup 'maggots'

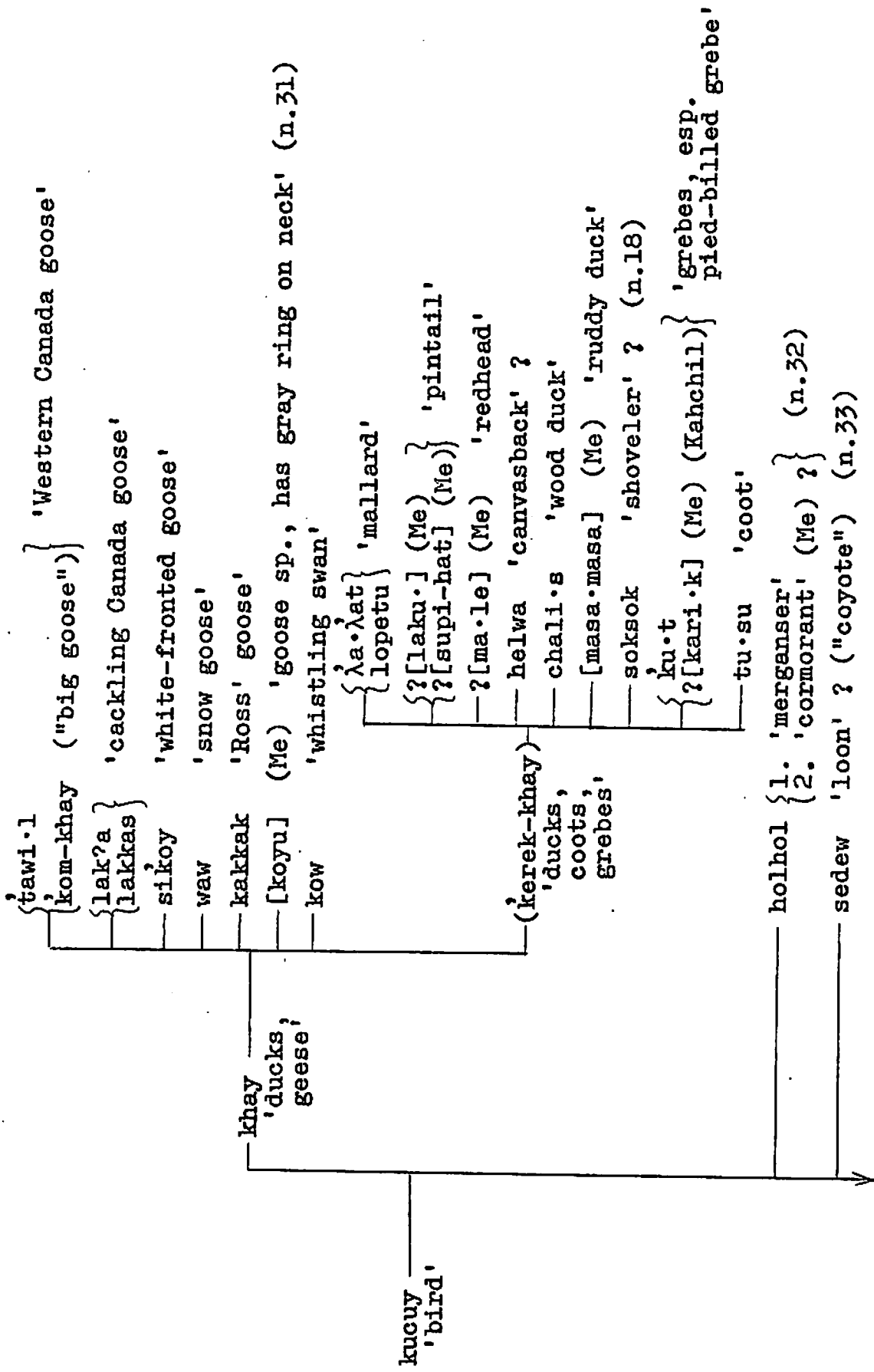
— upulu 'worm sp.' (cutworm ?)

— kocol 'acorn worm'

— ɬaracemen 'caterpillar'

River

Misc. insects, arachnids, etc., worms



River

Birds (1)

	away 'pelican'	
	{ waksu (Kahchil-Me) }	'great blue heron'
	wakwak (Grimes)	
	{ [doretu] (Me) ? }	
	wak 'night heron'	
	? [kawkawchu] (Me)	'green heron'
	{ [chorok] (Me) }	'sandhill crane'
	{ korow (Grimes ?) }	
	salsal 'common egret'	
kucuy 'bird'	? [chomas] (Me)	'snowy egret'
	karit 'bird sp.' (n.34)	
	araw 'gull'	
	{ ? [dukubi] (Me) }	'bittern'
	{ ? [dukabil] }	
	[humuy] (Me)	'snipe'
	tiwi.t (Me)	'killdeer'
	[khwitkhwit] (Kr)	'American avocet'
	? [pokor] (Me)	'black-necked stilt' (?)

River

Birds (2)

hu·s	'turkey vulture'
mo·lok	'condor'
su·l	'eagle'
loklok	'red-tailed hawk'
?[likki] (Me)	'Swainson's hawk'
[ele?ele] (Me)	'marsh hawk'
{ kati·t wekwek yekyek }	'prairie falcon'
icit	'sparrow hawk'
[tuktuk] (Me)	'osprey'
{ chetchet ?[alokla] (Me) }	'Cooper's hawk'
?[hiwi-kare·si] (Me)	
tektek	'sharp-shinned hawk'
[omo·win] (Me)	'band-tailed pigeon' (n.35)
{ lukuku i·hu pulukpuluk (?) }	'mourning dove'
kawan (Me)	'trilling nighthawk'
[puluk] (Me)	'poorwill' (n.36)
aka·ka	'valley quail'

kucuy 'bird'

River

Birds (3)

{sittiri tukkul (n.37)}	'great horned owl'
{si.k mi-khay (n.38)}	'barn owl'
— kopu(·)s	'screech owl'
{toko.k wet}	'burrowing owl'
— carara	'belted kingfisher'
— hayu.k	'Western meadowlark'
— ka.k	'crow'
{caycayt cayit}	'scrub jay'
{[nom-caycayt] [nom-cayit]}	(Me) 'Steller's jay'
— acat	'yellow-billed magpie'
{ciyak ("old man") wololok wululuk}	'red-shafted flicker'
— thoday	'acorn woodpecker' (n.39)
— [tiloktilok]	(Me) 'Lewis' woodpecker'
— kuruk	'Nuttall's woodpecker' (n.21)
— tudutthu	'red-breasted sapsucker'
— [tarmen]	(Me) 'white-breasted nuthatch'

River

Birds (4)

	{ thulthul (EB) }	'roadrunner'
	{ [tholthow] (Me) }	
	— 'ca(h)pol	'blackbird' (n.40)
	— ?[pokok] (Me)	'yellow-headed blackbird'
	— 'capcap	'oriole' (Bullock's or any)
	— (weswes (Me)	'mockingbird' ? (or California thrasher ?)
	{ ?[kup] (Colusa-Me) }	'California thrasher'
	{ ?[kuk] (Grimes-Me) }	
kucuy 'bird'	— weswes (Me)	'yellow-breasted chat' ? (n.41)
	— 'cotoxmen	'swallow'
	— li·sbok	'robin'
	{ tumu·rut	'hummingbird (female or any)'
	{ 'tuyuluk	
	{ [chidiwadet] }	(Me) 'plain titmouse'
	{ [chidiwadek] }	
	{ [chidiweri] }	

↑	— ?[coki·s]	(Me)	'Western bluebird'
	{ olpa?atik }	(EB)	'Western kingbird' (?)
	{ olpati·t }		
	{ [tatichelu] }	(Me)	'Western kingbird' (?) (n.42)
	{ [taticheli] }		
	— [koschemen]	(Me)	'black phoebe'
	— ?[chede]	(Me)	'horned lark'
	{ [warchemen] }	(Me, EB)	'black-headed grosbeak' ("blackberries goes- around")
	{ [warsemen] }	(Me)	
	{ [niki] }	(Colusa--Me)	'house finch' (n.43)
	{ [takkodoy] }		
	{ [kakodoy] }	(Grimes--Me)	
	— [chakditi]	(Me)	'yellowthroat' ?
	— [sinoli]	(Me)	'crowned sparrows'
	— [yoka]	(Me)	'brown towhee'
	— [chawa·t]	(Me)	'rufous-sided towhee'
	— [tobe·r]	(Me)	'Oregon junco'
	{ [chop] }	(Me)	'long-billed marsh wren'
	{ [koki] }		
	— ?[ti-salay]	(Me)	'common bushtit' (n.44)

kucuy 'bird'

River

Birds (6,7)

[yapoti] 'bear'	[yapoti] 'grizzly bear'
{? [tonchi]	[sili?a-yapoti] 'black bear'
{ [ucay] (Suisun-Mason)	'coyote'
{ [ha.w]	'fox'
{? [yuka.s] (Suisun-Mason)	'dog'
{ [chuchu]	'wolf'
{? [chuku.] (Suisun-Mason)	
? [nakor] (Suisun-Mason)	
[sia] 'deer'	
? [hulhila] 'elk'	
? [khaw] 'antelope'	
[celo.] 'jackrabbit'	
[monik] 'brush rabbit'	
? [ticha] 'raccoon'	
? [kho.] 'striped skunk'	
? [ʔek] 'ground squirrel'	
[chumuk] 'gray squirrel'	
[kot] 'kangaroo rat'	

South Patwin (puy-sel)

Mammals (n.45)

[yelel] 'gopher' (n.46)

[tubeh] 'wood rat'

[malo·li] 'mole'

?[waliwali] 'bat'

hur 'salmon'

thi·r 'fish' — [te·wan] (Me) 'sucker'

— [na·] (Me) 'sturgeon'

— tiwi·l 'rattlesnake'

— [haya] (Me) 'common king snake'

— porwan 'gopher snake'

— huli·p 'water snake' (Thamnophis sp. ?)

?[acalay] (Me) 'Western fence lizard'

?[charak] (Me) 'frog, toad'

?[hosaloy] (Me) 'housefly'

?[pu·suluk] (Me) 'dragonfly'

[balalakay] (Me) 'butterfly'

South Patwin (puy-sel)

Mammals (2), misc. animals

?[tukuli]	'great horned owl'
[si.k]	'barn owl'
[kopu.]	'screech owl'
[toko.k]	'burrowing owl'
{[charaw]	'belted kingfisher'
{[chararaw]}	
[hayuk]	'Western meadowlark'
[ka.k] ?	'raven'
[a.l] ?	'crow' (n.49)
?[sayi.c]	'scrub jay'
[wes]	'Steller's jay'
?[ac?ac]	'yellow-billed magpie' (n.50)
[wololok]	'red-shafted flicker'
?[teraç]	'acorn woodpecker'
[kuruk]	'Nuttall's woodpecker'
?[tar]	'white-breasted nuthatch'

South Patwin (puy-sel) Birds (4) (n.45)

[çapol]	{ 1. 'red-winged blackbird' (male)	} (n.40)
	{ 2. 'Brewer's blackbird' (female)	
?[chekecheke]	'oriole'	
[salaksalak]	'swallow'	
?[sakananaw]	'robin'	
?[yumu.luk]	'hummingbird'	
?[çowka]	'Western bluebird'	
?[lippesok]	'house finch'	
[yi.]	'yellowthroat' ?	
?[mili.]	'small bird sp.'	(Suisun-Mason)
?[kili]	'small bird sp.'	(Suisun-Mason)

South Patwin (puy-sel) Birds (5,6,7) (n.45)

Notes to Appendix A

1. These two terms may represent two different species. Merriam records that solokun is a recent arrival in the area, but that may be incorrect.
2. Hardhead (Mylopharodon conocephalus) is a possible native species for this term, but it is also possible that cote is applied to a perch or introduced bass.
3. Kabalmem keren-thi·r ("small fish"), seems to parallel the term kerek 'minnow' in other dialects. Both terms probably have two meanings: 1. fingerling or fry of any fish; 2. small minnow spp. and/or small introduced fish, such as the mosquitofish.
kerek is also glossed once as a 'small salmon'
4. Note that Kabalmem hopodik 'tadpole' (= Cortina, Cache Creek hopodok), though clearly associated with wata·k 'frog', is also considered a thi·r 'fish', at least marginally. The Patwin were perfectly aware that tadpoles turned into frogs, but on account of their form, habitat, resemblance to small sculpins, etc., tadpoles were considered by at least some of the Patwin to be 'fish'. Cf. also River anak-sa·li 'tadpole' (literally "knee minnow").
5. Merriam identifies hapkay as the marsh hawk (Circus cyaneus), but that is probably incorrect.
6. A small white and brown bird, smaller than a poorwill, with which it was somewhat confused. Identification uncertain.
7. cholchol 'mountain quail' is almost certainly a borrowing from Nomlaki.
8. ka·k means 'raven' in other Patwin dialects.
9. nom-tara·t may not be considered taxonomically a type of tara·t 'acorn woodpecker' (Melanerpes formicivorus). This is a possible case of analogic name formation. See section VI of the text for a list and discussion of suspected analogic forms.
10. Merriam reports that the Nuttall's woodpecker is considered the female tudittudit, whereas the red-breasted sapsucker, with rather showy plumage, is considered the male. Compare the eagles, blackbirds, and lizards and skinks for similar cases of one species as "female" and another as "male" of a folk taxon.

11. Compare the Tebti form for the black-headed grosbeak.
12. The form I recorded was elicited for 'sparrow'.
13. uyum is variously glossed in the data as 'black bear', 'cinnamon or red small bear', 'black water bear' for the Hill dialects and as Ursus americanus, 'black water bear (with long silky hair)', and 'hide of black bear' for the River dialects. I consider it most likely that uyum refers both to a black water bear (probably a legendary or spirit bear) and to the hide of the black bear, which was a highly prized grave good.
14. The ring-tailed cat (Bassariscus astutus) and the various Mustelidae species form a conceptual group whose members are often confused with each other, both in the old sources and in the minds of current speakers. The most common confusions are the ring-tailed cat with the spotted skunk (both are commonly termed 'civet cat'), the weasel with the spotted skunk and the ring-tailed cat, and the mink with the weasel.
15. Merriam glosses both nisasa and helwa as 'redhead' Aythya americana. However, the redhead is fairly uncommon in the area, and I have suggested two more likely identifications, both common ducks with red or russet heads which could be confused with the redhead.
16. note deleted
17. Merriam glosses as 'cinnamon teal', but the River term which corresponds to this one undoubtedly refers to the wood duck.
18. tana and soksok quite likely refer to two separate species, rather than one. One possibility for soksok is the Western grebe (Aechmophorus occidentalis).
19. wak may not include the great blue heron, but the data are unclear.
20. deAngulo records both koro and kereu (his orthography), glossing both as 'heron'. I have reinterpreted those as probably two recordings of korow, which most likely refers to the sandhill crane.
21. The terms for the Nuttall's woodpecker probably also refer to the downy woodpecker, which occurs locally. Both woodpeckers are Dendrocopos species.
22. ka·k(k)odoy resembles more the calls of acorn-eating woodpeckers than of sapsuckers. Thus the identification as red-breasted sapsucker is suspect.

23. Bright records the comment, "bird comes out at 4 a.m." The name tati·sunan, although not completely analyzable, contains the element tati, which refers to early dawn.
24. Glossed as 'Western kingbird' by Merriam. It may in fact be a second name for the kingbird, or it may refer to another species of flycatcher. If it is another species, the most likely candidate is the ash-throated flycatcher (Myriarchus cinerascens).
25. Merriam appends the comment "very rare".
26. Many of the small mammal species seen in the Hill Patwin taxonomies were not native to the lowland river area inhabited by the River Patwin. Some of the species not occurring locally are the ring-tailed cat, weasel, fisher, porcupine, chipmunks, and the spotted skunk. The porcupine in particular is mentioned as not occurring along the Sacramento River, but it was known and named and appeared as a character in Patwin folk tales. Porcupines were reputedly found where shooting stars land--hence the nomenclatural association with 'star'.
27. cote may refer to the Sacramento perch, but it may also be used for an introduced sunfish or black bass. The data are unclear.
28. This probably refers to a large male Sceloporus occidentalis. sisamen was reportedly used by Indian doctors.
29. anak-sa·li is another case of analogic name formation. Note the relatively close association of tadpole and fish. Also, compare the Hill Patwin forms for 'tadpole'.
30. note deleted
31. This just possibly could be the black brant (Branta nigricans), which is, however, rare in the area. koyu is also the River Patwin word for 'to bathe'.
32. The common merganser (Mergus merganser) is probably the bird which is called a "loon" locally. Loons actually would be quite rare in Patwin territory. The common loon (Gavia immer) is reported from Lake Pillsbury in Lake County, but it neither breeds nor winters in Central California. Data for other dialects of Patwin suggest that korkor is probably the correct term for 'cormorant', rather than holhol as Merriam suggests here.

33. This word seems to be a good candidate for 'loon', given the nighttime noise-making habits of coyotes and of loons, but, again, it is doubtful whether loons frequented the Central Valley of California.
34. The consultant claimed that karit was like a crane and could now only be found up around Clear Lake, not in the Valley. Compare the term for 'grebe'.
35. Band-tailed pigeons are now rare along the river.
36. Known to the River Patwin, but probably not in the area.
37. tukkul is a borrowing, probably from South Patwin or from Miwok (?).
38. si.k is the term used from Colusa north. mi-khay ("tree-goose") was used from Sycamore south, i.e. by those speaking the Grimes dialect.
39. Compare River tara.t 'woodpecker scalp', which is occasionally used to refer to the acorn woodpecker. The acorn woodpecker was hunted for the red feathers in its scalp.
40. Merriam notes that the (male) red-winged blackbird was considered the "male" cahpol, whereas Brewer's blackbirds (and presumably the female red-winged) were considered the "female".
41. 'yellow-breasted chat' is the more likely of a couple of possible identifications.
42. This may be a second name for the Western kingbird, but compare the Cortina tati.sunan 'chat' (?). Also compare the Hill Patwin forms for Western kingbird.
43. Compare the names for woodpeckers. The Grimes forms may well be in error.
44. Merriam adds, "gray bear (grizzly)". Compare the following forms from Hill Patwin: tha.say (K) 'gray, grizzled', silay (K, etc.) 'grizzly bear', and tasalay (T) 'Western fence lizard'.
45. All of these forms are from Merriam's data, except where marked "Suisun-Mason". Dr. J. Alden Mason recorded a few Suisun forms in 1916. They are listed in Kroeber (1932), p. 355. Suisun is clearly South Patwin.
46. Compare kho.-yelel 'baby skunk' in Kabalmem (listed in Appendix B).

47. Mason glosses this term as 'gray goose' in Suisun.
48. Mason gives ?[lala·k] 'white goose' in Suisun.
49. Merriam had the glosses for raven and crow in the opposite order, but indicated some uncertainty as to which was which. I have shifted the glosses to accord with the preponderance of evidence from the other dialects.
50. Merriam glosses as 'oriole'. Unlikely.

APPENDIX B

In addition to the native animals classified in Appendix A, there are numerous introduced, mostly domestic animals in the Patwin territory. For most of the domestic animals the Patwin borrowed the Spanish name for their own use. There are also a few cases of borrowings from English or of authentic Patwin coinages.

I have listed here all of the borrowings and coinages. Most are straightforward, but a couple deserve special mention. The term hanaw for 'cattle' shows unusual sound correspondences with the Spanish ganado and may turn out to be an indirect borrowing. hayu 'dog' is a widespread word in California, probably predating Spanish contact. It appears in Pomoan, Miwokan, and Wappo languages, as well as Patwin. The borrowing of chu·chu and pero from Spanish for 'dog' seems to have been a result of the cultural importance the Spanish attached to dogs; Spanish dog breeds were also markedly different from native dogs. Such suppletion of a native word for 'dog' with a Spanish word occurs elsewhere in California, too. See Bright and Bright (1959) and Bright (1960) for further discussion of Spanish loanwords in Patwin and for a nomenclatural treatment of "animals of acculturation" by the Patwin and other California groups.

Following the borrowed terms is a list of life-stage words in the various Patwin dialects. Some of these constitute evidence for covert categories among the mammals.

	Kabalmem	Tebti, etc.	River	Spanish source
horse	kawa.yu	kawa.yu	kawa.yu	caballo
mare		ye.wa		yegua
mule		mu.la	mula	mula
pig	ko.che	ko.che		cochi - coche ?
		{		----
		λopa-peti (EB)		
		"mud animal"		
cow	waka	wa.ka	waka	vaca
			khaw	----
cattle		hanaw	hanaw	*ganado
bull	to.ro			toro
calf	wese.ro			becerro
steer	nowiya			novilla
sheep, lamb	wore.ka	wore.ka	woreka	borrega
goat	chi.wa	chi.wa	chi.wa	chiva
cat	ka.to/u	ka.tu		gato
*dog	hayu	hayu	hayu	----
dog, bitch	chu.chu	chu.chu	chuchu	chuchu
dog (male)		pero		perro
turkey	wahalo.te	woholo.te		Eusjolote
chicken, hen	kayi(.)na	{		gallina
		kayi.na/o		----
		mansu-cip (EB)		
		"tame bird"		
cock	ka.yu			gallo

Patwin Terms for Domestic Mammals and Birds

?[cukhuy] (Me) 'bear cub' ("pet" ?)
 (no.p)naw 'fawn'
 to.bito 'yearling buck'
 {chawo.ye }
 { [chawa.ya] (Me) } 'baby rabbit'
 kho.-yele.l 'baby skunk'
 wakel 'baby squirrel'
 keren-thi.r 'fingerling; fry; minnow' (see n.3 in Appendix A)
 to.kani 'young sucker' (probably the result of a semantic shift.
 cf. the Tebti form, which is glossed as
 'small pike sp.')

tubi 'nits' (louse eggs)
 chiwchiw 'quail chick'

Kabalmem

Life-stage names

elak (C) (probably means 'bear cub')
 naw 'fawn'
 {to·bitu (T-PR)
 {yomta-no·p (CC-KW) ("doctor deer") } 'yearling buck'
 kali (T-PR) 'yearling doe'
 {chawo·yo (T-PR) }
 {chawo·ya (CC-KW) } 'baby rabbit'
 wakel 'baby squirrel'
 kerek 'fingerling; fry ?; minnow' (see n.3 in Appendix A)
 tubi 'nits'
 pe·tpet-khay (CC-KW) 'small duck' (probably 'duckling and/or
 gosling')
 sewsa 'quail chick'

Tebti, Cortina, Cache Creek Life-stage names

{elak } ? 'black bear' ? (probably 'bear cub')
 {ila·k }
 ,
 ciw 'fawn'
 ,
 pecu (BM) 'tiny duck' (probably 'duckling and/or gosling')

River

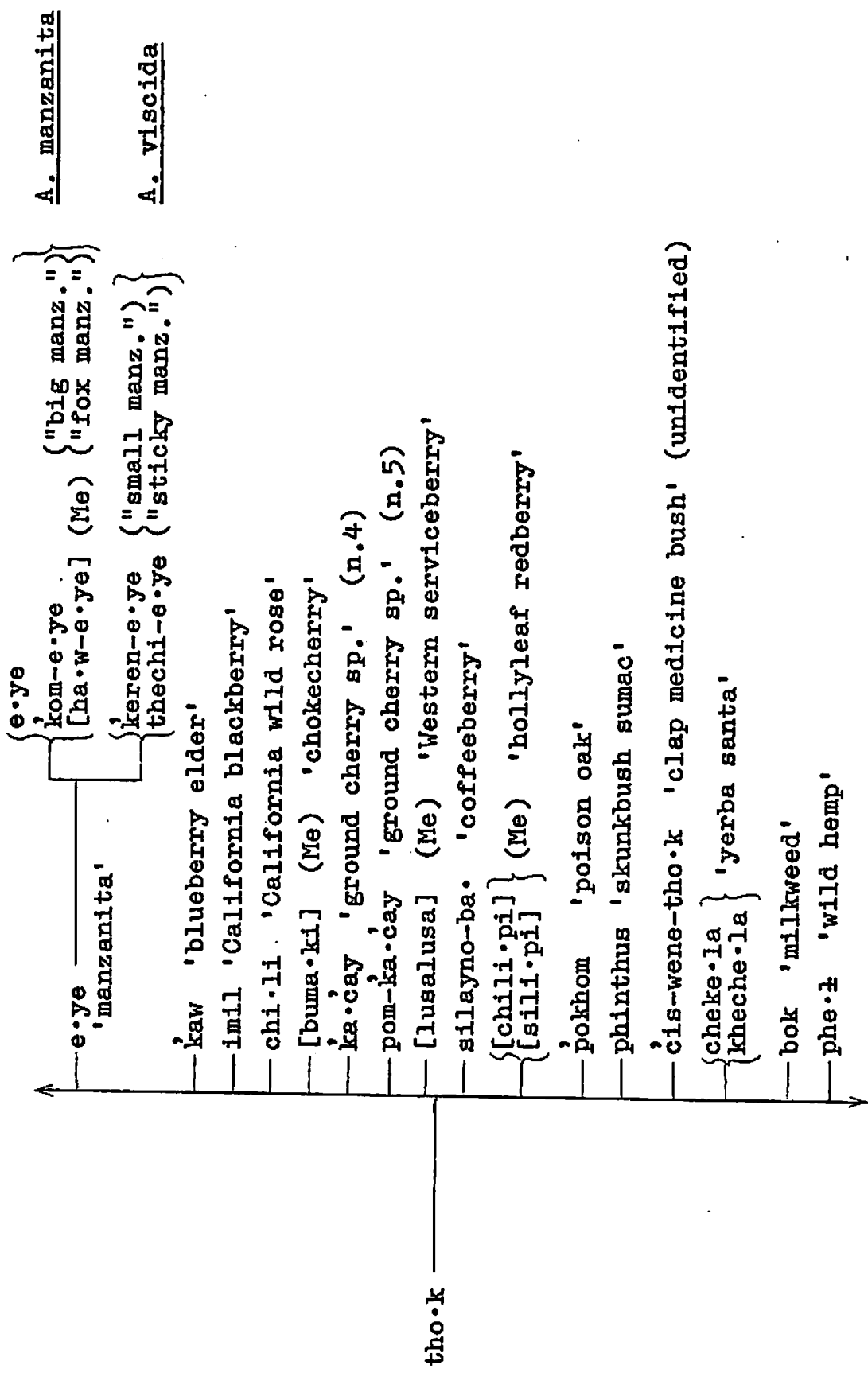
Life-stage names

	tuwa.	'digger pine'
(sanak-tho.k)	summu	'sugar pine'
'(pine)nut tree'		-(various introduced nut trees--black walnuts, almonds, etc.)
sakmu	'ponderosa pine'	?
batha.m	'Douglas fir'	?
meya	'knobcone pine'	
chow	'incense cedar'	?
*watwa.ti-tok-tho.k	'redwood'	(loan translation: "red-wood-tree")
[moyek] (Me)	'seedling conifer'	?
mon	'California juniper'	
[monmon] (Me)	'McNab cypress'	?
	to.	'valley oak'
	mu.le	'blue oak'
	say	'Oregon oak'
(acorn trees)	khope	'California black oak'
	sa.sa	'interior live oak'
	pachachay	'scrub oak'
[bomit-tho.k] (Me)	'tree ash'	("pipe-tree")
saysay	'big-leaved maple'	

tho.k
'tree, shrub,
stemmed plant'

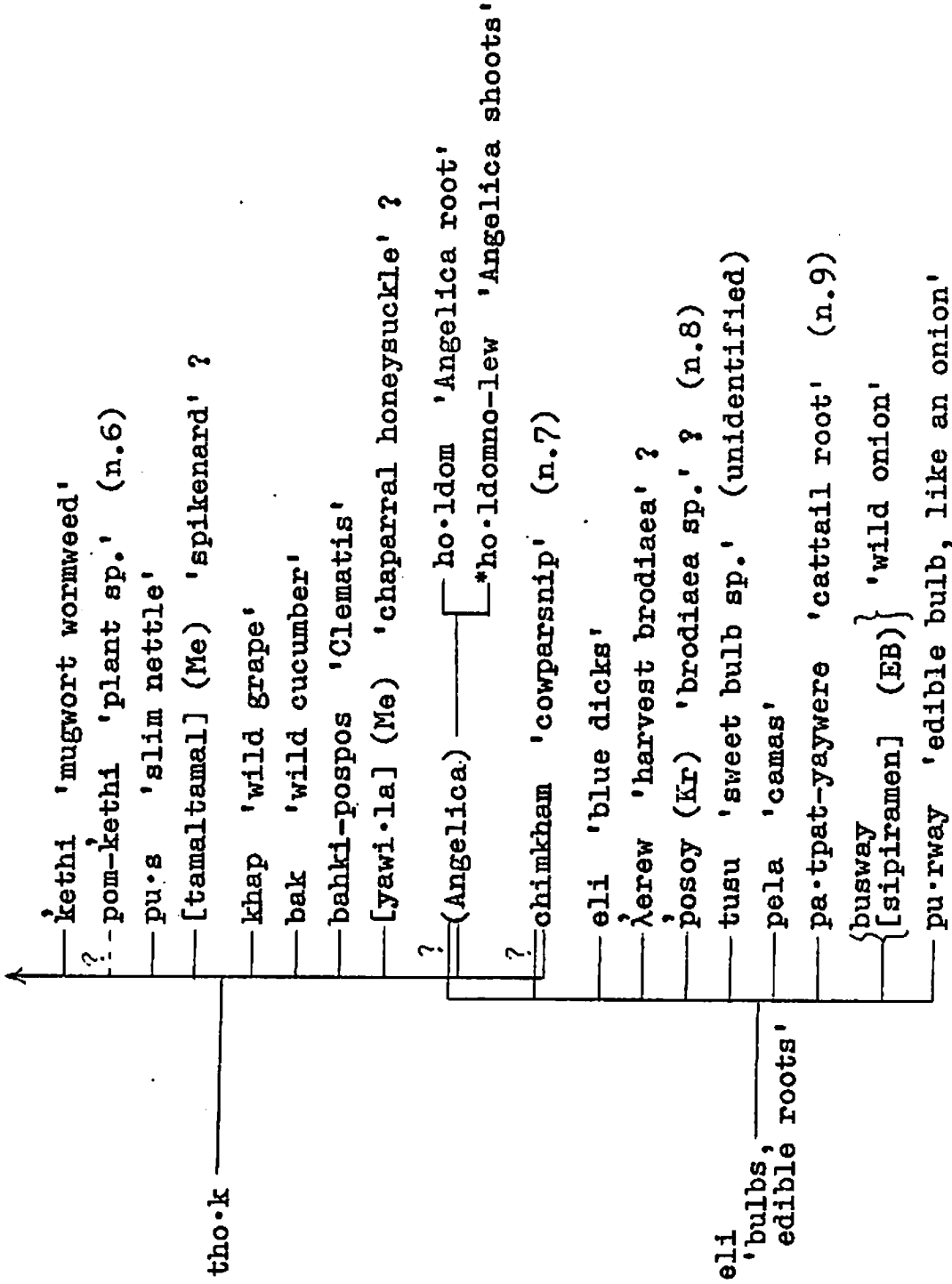
Kabalmem

Trees (1)



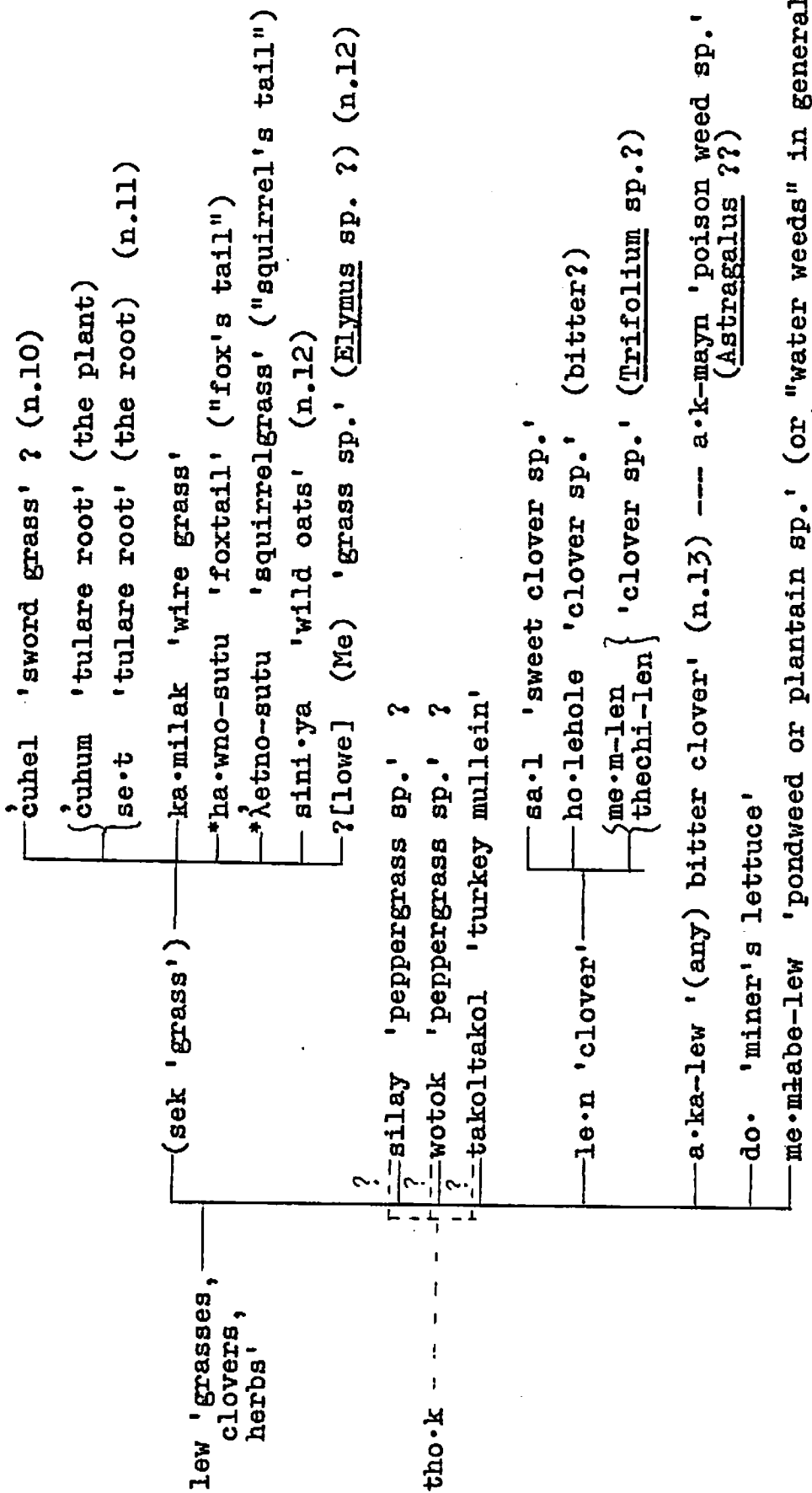
Kabalmem

Shrubs (2), Vines (1), etc.



Kabalmem Vines (2), etc., Bulbs

Kabalmem



Kabalmen

Grasses, clovers, misc. herbs

(tules) —————

- { taka. 'bulrush'
- { ulum 'black basket root' (probably Scirpus root)
- pa.tpat 'cattail'
- say'ay 'horsetail'
- [so.si] (Me) 'rush sp.' ?
- [posak] (Me) 'spike rush'

—————

- { amol } 'soap root'
- { ?[teltu.] (Me) }
- bo.lbolik 'poppy'
- ya.mel-calal 'lowland shooting star' ("birdscornb flower")
- kulu.kulu(calal) 'Johnny jump-up' (lily sp.?)
- { *khudino-sa.-calal } 'birdseye gilia'
- { *khudino-sa.ma }
- kakthi-calal ("pale flower") Gilia capitata
- pute.pute-calal (unidentified) (n.14)
- to.n 'white tarweed sp.' (prob. Hemizonia rudis, 'hayfield tarweed')
- silo 'yellow tarweed sp.' (prob. Calycadenia sp., 'rosin weed')
- kho.no-sete. 'vinegar weed' (n.15)
- noy-'elayt 'purple owl's clover' (n.16)
- haikaw (Plagiobothrys or Cryptantha sp.) (white, scorpioid spike)
- nopno-cili 'fiddleneck' ("deer's horn")

tho.k - - - - - ?

Tules, flowers (1)

Kabalmem

tuwa.	'digger pine'	
{ sumu		
{ micil(tho.k) (T,C)	("honey tree")	} 'sugar pine'
{ [hal] (CC-Me) ?		
— sakmu (T,C)	'ponderosa pine' ?	
— meya (T)	'knobcone pine'	
— komol (C-EB)	'pine sp.' ?	
— mo.ye (T)	'seedling conifer' ?	
— mon	'California juniper'	
— [monmon] (T-Me)	'McNab cypress' ?	
— ? [tuchil] (T-Me)	'California nutmeg'	
— (acorn trees) - - - -		
	— lo. 'valley oak'	
	— mu.le 'blue oak'	
	— say 'Oregon oak'	
	— khope (T-PR)	'California black oak' ?
	— sa.sa	'interior live oak'
	— [pachachay] (C-EB)(T-Me)	'scrub oak'
{ silipay (T-EB)		} 'tree ash'
{ [irit] ? (T-Me)		
— [saysay] (T-Me)		'big-leaved maple' ?
— sohon (C-EB)		'sycamore'

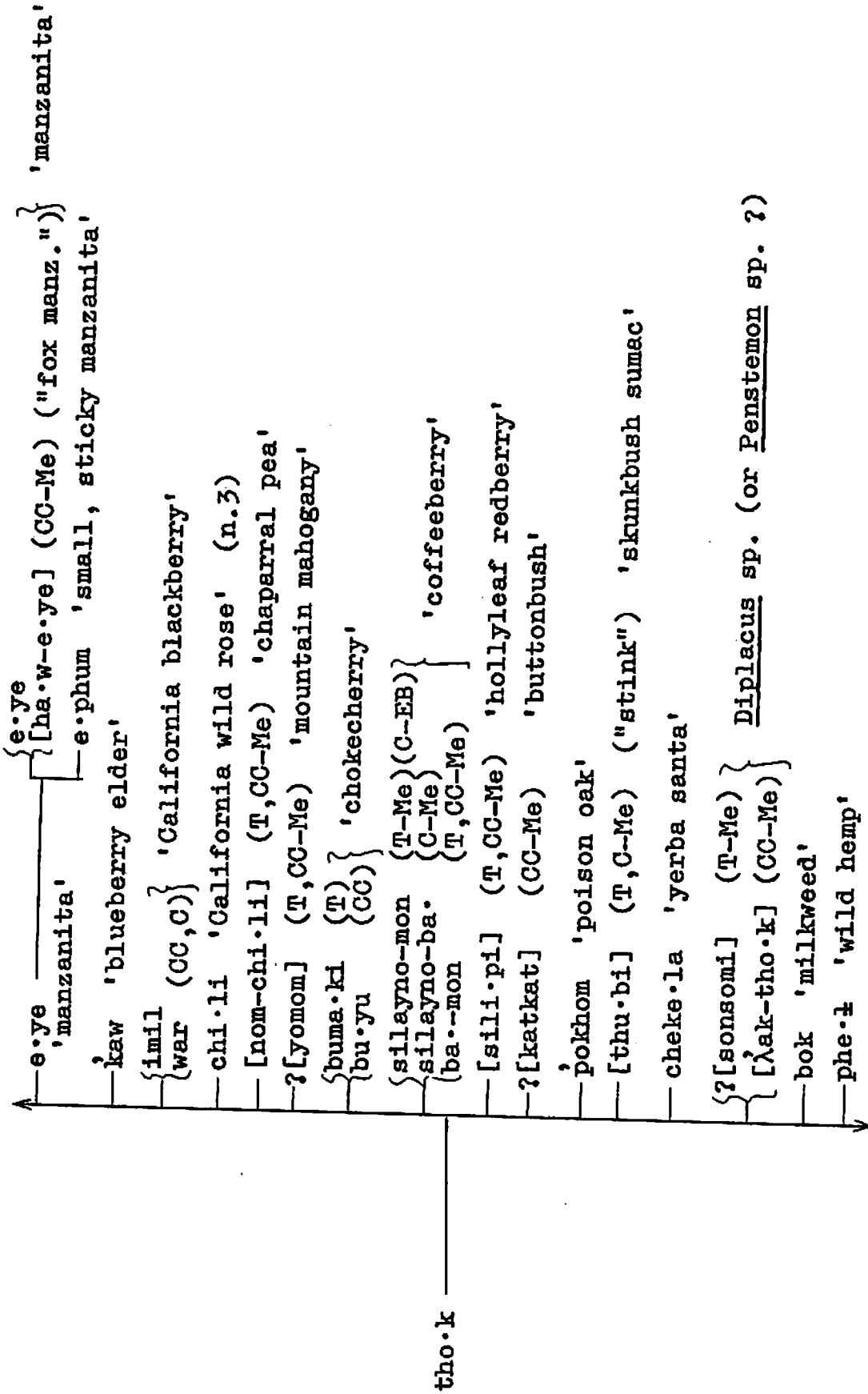
tho.k
'tree, shrub,
stemmed plant'

Tebti, Cortina, Cache Creek Trees (1)

[kalaw]	(T, C-Me)	} 'white alder'
{sutum-tho.k}	(CC-Me)	
— solo.l(tho.k)		'Fremont cottonwood'
— sawli		'California laurel'
— [tuayno-sawli]	(T-Me)	'silk tassel' (<u>Garrya fremontii</u>)
{yawli(tho.k)	(CC-Me)	} 'buckeye'
{u.nu-tho.k}		
{u.no-tho.k}	(T-EB)	
— lakmo		'toyon'
— nom-lakmo	(C)	'madrone'
— tha.r		'red willow' ? (<u>Salix laevigata</u> ?)
— phukum		'basket willow' (<u>S. hindsiana</u> ?)
— tutut		'black willow' (<u>S. lasiandra</u> ?, <u>S. lasiolepis</u> ?)
{moł	(T, CC)	} 'big, brittle willow sp.' (<u>S. goodingii</u> ?)
{awal	(C-Me)	
— kala		'mule fat'
— lul		'redbud'
— ta.		'dogwood' (n.2)
— bo.mbomit	(C-EB)	'red flowering bush' (unidentified) (n.2)
— mo.ti	(T-PR)	'bush' (species uncertain)
— lo.l		'tobacco' — *hintil-lo.l (CC-KW) 'Indian tobacco' (<u>Nicotiana</u> sp.)
— sow		'chamise'
— to.ro		'buck brush'

tho.k

Tebti, Cortina, Cache Creek Trees (2), Shrubs (1)



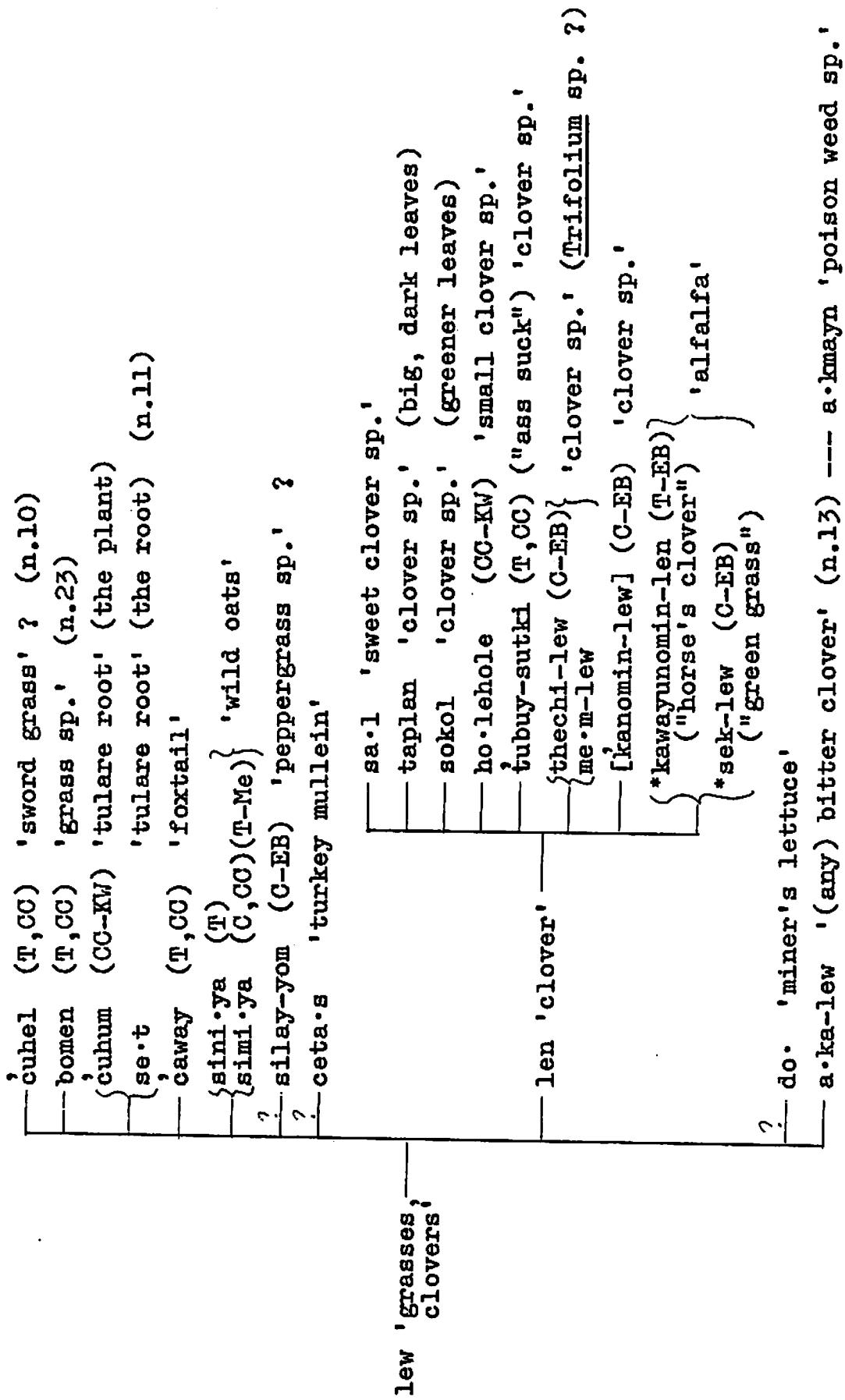
Tebti, Cortina, Cache Creek Shrubs (2), Vines (1)

ket(h)i 'mugwort wormweed'
 pu.s 'slim nettle'
 khap 'wild grape'
 bak 'wild cucumber'
 { aci-wene (CC-KW) 'steeples bush' } 'Angelica sp.' ? (n.20)
 { tholak (C-EB) }
 { holdom (T,CC) }
 { holdum (C-EB) } 'Angelica root'
 { kom-wene (T,CC) ("big medicine") }
 hutili (T,CC) 'Angelica shoots'
 { [chimkham] (T-PR) }
 { chinkham (C,CC) } 'cowparsnip'
 eli 'blue dicks'
 λerew (C,CC) 'harvest brodiaea' ?
 tusu (C-EB) 'sweet bulb sp.'
 pella (CC-KW) 'camas'
 duk (CC-KW) 'cattail root'
 busway 'wild onion'
 pur 'edible bulb, like onion' ?

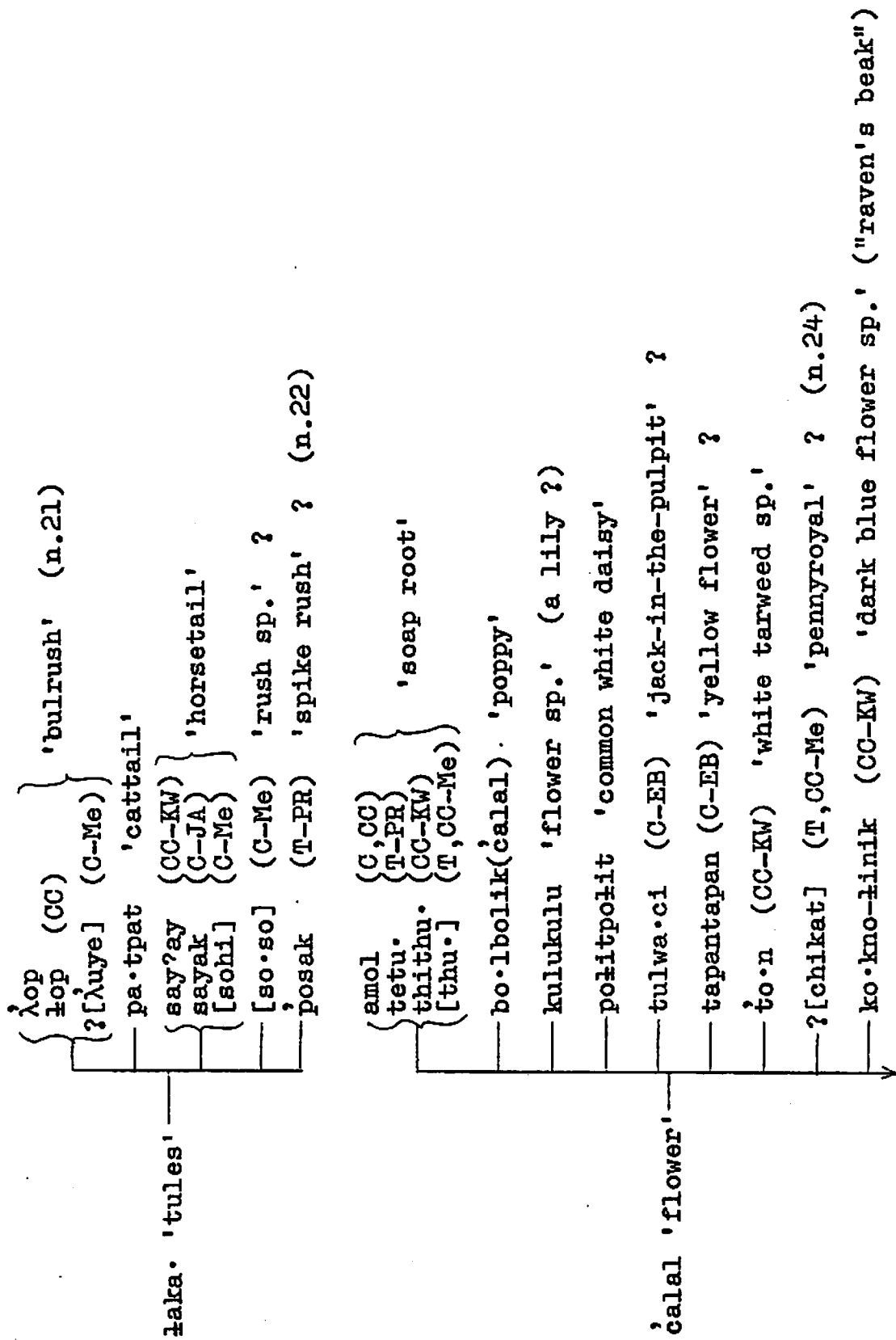
tho.k

(eli 'bulbs, edible roots')

Tebti, Cortina, Cache Creek Vines (2), etc., Bulbs



Tebti, Cortina, Cache Creek Grasses, clovers, misc. herbs



Tebti, Cortina, Cache Creek Tules, flowers (1)

'calal ————— ↑	{koʔ {honol (CC)}	'seed plant sp.' (<u>Achyrachaena mollis</u> ?)
	—tini.k	'seed plant sp.'
	—[ʔabal] (CC-Me)	"
	—cisaw (CC)	" (white)
	{payi.ʔ {ko.t}	" (yellow)
	—o.la (T, CC)	"
	—tuluy (T-PR)	"
	—kholot (T, CC)	'sunflower' (<u>Wyethia angustifolia</u> ?)
	—luppay (CC-KW)	'filaree'
	—ʔaktak (C-EB)	'tansy' ? (n.25)
	—ʔuktuki-wene (C-EB)	'blue vervain' (prob. <u>Verbena lasiostachys</u>) (n.25)
	—ʔeraʔera-wene (C-EB)	'common mullein' (n.25)

Tebti, Cortina, Cache Creek

Flowers (2)

toke 'mistletoe'

{ti.lnomin-bo.yo (CC-KW)} 'five-finger fern' ? (n.26)
 {saka.kayno-bo.yo (T-PR)}

neta (CC-KW) 'moss; tree moss; algae'

?[ne.p] (T-Me) 'moss'

to.no (T-PR) 'seaweed' ?

{co.loycoloy (C-EB)} 'waterlily'
 {chowlulu (CC-KW)}

kotu. 'mushroom sp.'

'tarap 'mushroom sp., shelf-type' (on cottonwoods?)

walakay 'mushroom sp., shelf-type' (on oaks)

atakmen 'large flat mushroom sp.' (on oaks in hills)

bade (T-PR) 'toadstool' ?

saltuno-thuba. (C-EB) 'mushroom sp.' ("spirit spit")

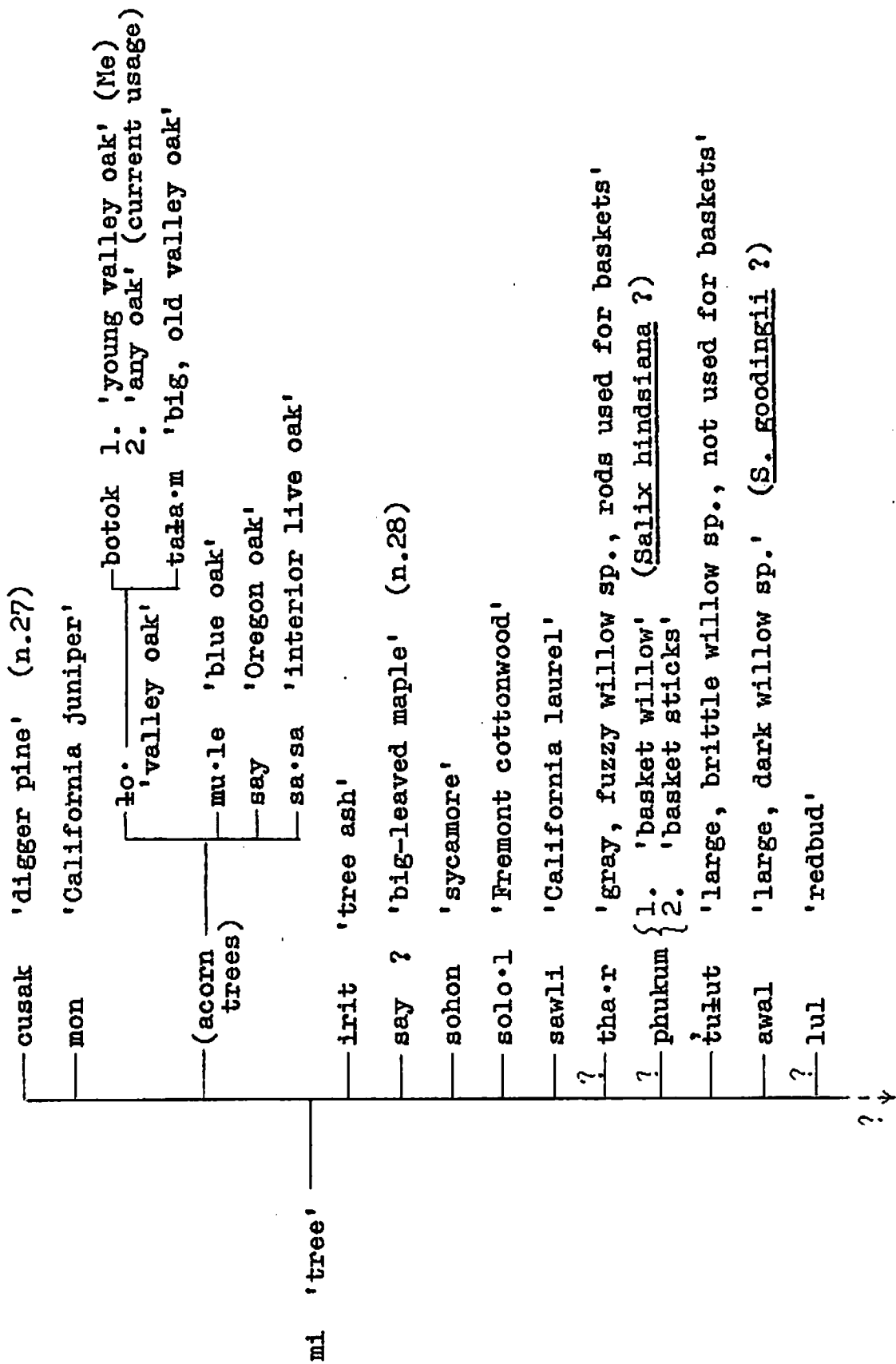
{loyta (plural)} (T, C-EB) 'mushroom sp.' ("girl")

zubukmen (CC,C) 'mushroom sp.' (black inside)

'ce.te (CC,C) 'mushroom sp.' (hot, peppery taste)

'ca.rmen (C-EB) 'mushroom sp.'

Tebti, Cortina, Cache Creek Unaffiliated plants, mushrooms



River

Trees

'fa.	'dogwood'	
lo·l	'tobacco'	
e·ya	'manzanita'	
not	'blueberry elder'	
war	'California blackberry'	
chi·li.	'California wild rose' (n.3)	
mumuy	'chokecherry'	
{[tilo·ki] (Me) {mono(·)t	{("dark") {n.29}}	'nightshade sp.' (<u>Solanum</u> sp.)
'pokhom	'poison oak'	
bok	'milkweed'	
{'cebi (Kr) {'æbi (EB)}	'wild hemp'	
'keti	'mugwort wormweed'	
pu·(h)	'slim nettle'	
?[we·tu] (Me)	'salt grass' (n.30)	
khap	'wild grape'	

River

Shrubs, vines, etc.

dum 'Angelica root'
 holdum 'Angelica root, poisonous var.' ?
 pol 'blue dicks'
 soplok 'bulb sp., 2 ft. high, white flowers'
 duk 'cattail root'

me·na-lew (EB) 'ordinary grass'
 ? se·t 'tulare root' (plant and root)
 ?[tichil] (Kr) 'grass or sedge sp.' ?
 ---sa·l 'clover sp.' (pink and white flowers)
 ---komta-lew 'clover sp.'

ƶaka }
 { ?[ʎuyek] (Me) } 'bulrush'
 pa·tpat }
 { [pokpok] (Me) } 'cattail'
 ---sohi. 'horsetail'
 ---'posak 'spike rush'

River Bulbs, grass, clover, tules

'calal 'flower'	{ [ti.chu] (Kr, EB, Me) }	'soap root'
	{ [chiwak] (Me) }	
	bo.lbolik	'poppy'
	[to.n] (Me)	'white tarweed sp.'
	honol	'seed plant sp.'
	tini.k	'seed plant sp.'
	cisaw	'seed plant sp.'
	ko.t	'seed plant sp.'
	{ [comento] (Me) }	'wild sunflower' (<u>Helianthus annuus ?</u>)
	{ [kha] (or Wyethia angustifolia ?) }	
	[kopsa] (Me)	'mistletoe'
	kotu.s	'mushroom sp.'
	tarap	'mushroom sp., flat' (on trees)
	atakmen	'large flat mushroom sp.' (on oaks in hills)
	wayca	'tall mushroom sp., with yellow top'

River

Flowers, mushrooms

[mi.] 'tree'	---[lumani]	'redwood' ?
	---[saawli]	'California laurel'
	---[u.nu]	'buckeye' ? (probably the buckeye nut)
?	?[pu.cha]	'toyon' ? (cf. Kabalmem [po.che] for 'lilac')
	[kaw]	'blueberry elder'
	?[pochokom]	'poison oak'
	{ [sokom] }	'mugwort wormweed'
	{ [suhun] }	
	ur (Suisun-Kr)	'wild onion'

South Patwin (puy-sel) Plants (n.31)

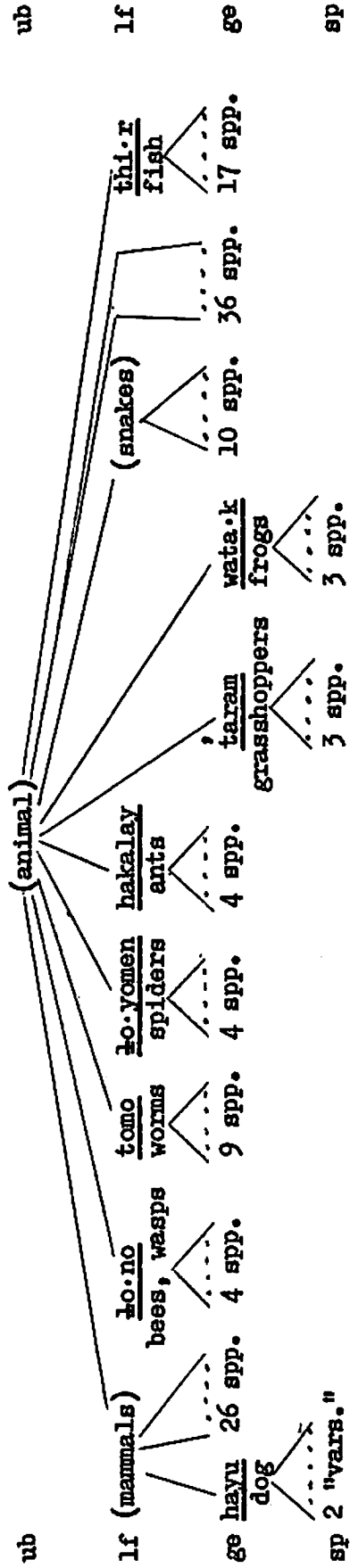
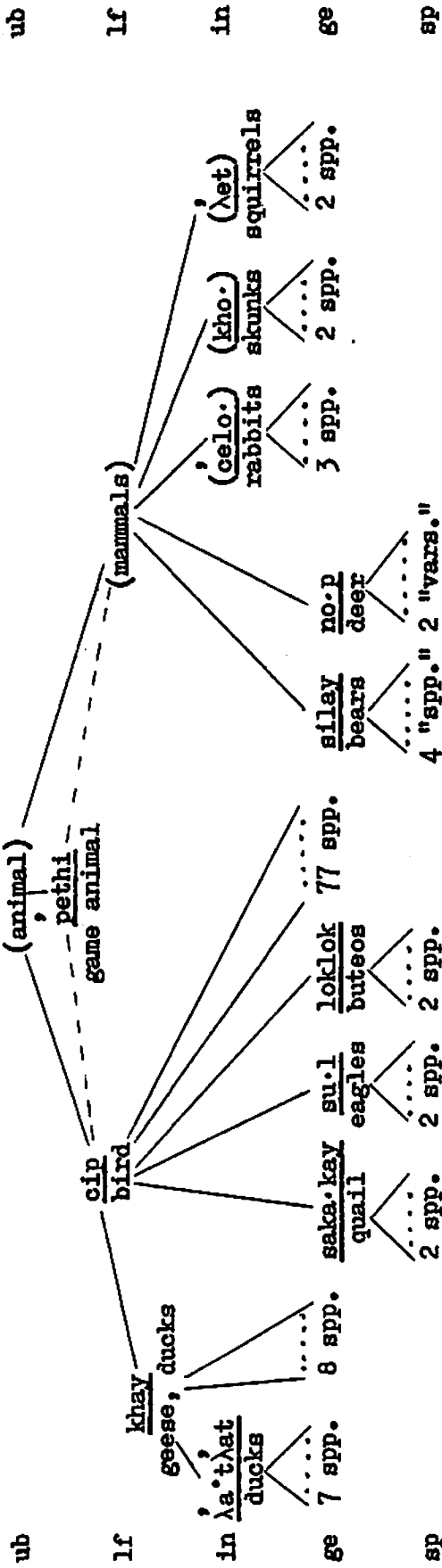
	Kabalmem	Tebti, etc.	River	Spanish source
potato	{ pa·pa kom-eli }	pa·pa (C-EB)		papa ---
barley	siwa·la	siwa·la	siwa·lu	cebado
wheat		tiri·ko	tiri·ku	trigo
rice		aros	aros	arroz
beans		yihor (T-DU)	yihor	frijoles
corn	mays			maiz
corn (ears?)	ilo·te			hilote
fruit (any)	yura·s	yura(·)s (T-DU)		frutas
oranges		nara·ho (C-EB)	naraho	naranja
plum	phulum			---
prune	kano·-phulum ("dry plum")			---
pear	pe·ras			peras
peach	pichis	pichis (C-EB)		---
apple	{ mansa·no a·pul }	apul (C-EB)		manzano ---
grape	u·was		u·was	uvas
fig	i·was			higos
watermelon	santi·ya			sandía

Patwin Terms for Introduced, Domesticated Plants

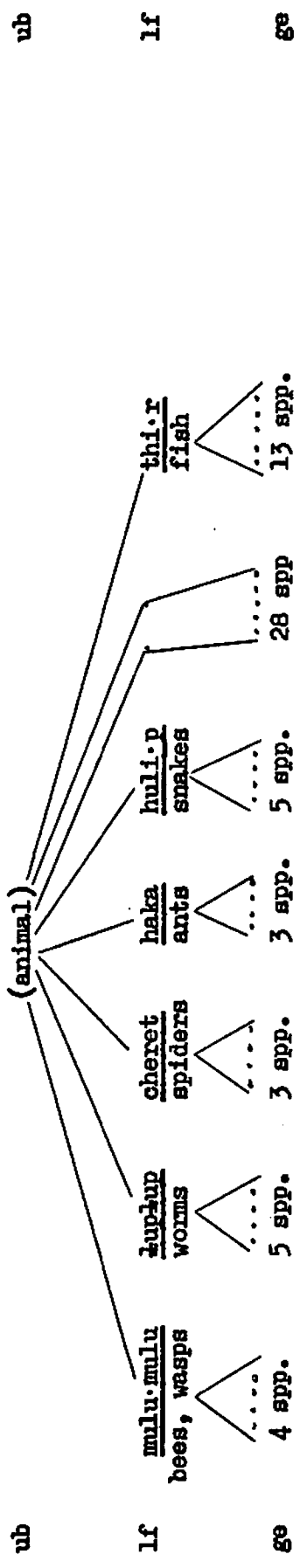
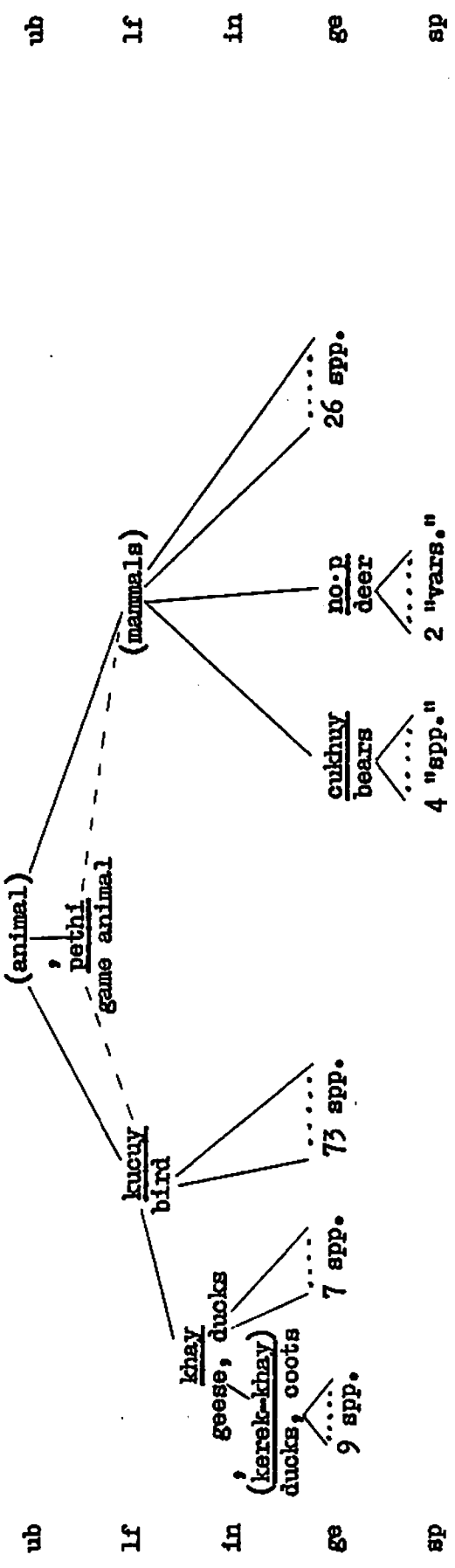
Notes to Appendix C

1. In the Kabalmem dialect, bo·yo seems to be extended to mean the redbud plant itself (Cercis occidentalis) as well as basketry designs made using that plant. Compare terms for redbud in other dialects. lul in Kabalmem is used for the "red twigs of redbud", i.e. the basketry materials themselves.
2. Used for making arrows.
3. The word chi·li refers prototypically to the California wild rose (Rosa californica). However, it is also extended to cover any thorny plant species, especially thistles, but apparently excluding the blackberry vine, which has a separate name. Most of the abundant thistle species in Patwin territory are introduced: Cirsium vulgare, Centaurea solstitialis, etc.
4. An unidentified species said to have yellow berries.
5. An unidentified species with greenish berries, possibly Solanum xanthi.
6. An unidentified species, small with leaves similar to those of wormweed. It may not, however, be a kind of tho·k taxonomically, although kethi 'wormweed' clearly is. It was used as a toothache medicine.
7. This identification was made without a specimen, in part on the basis of the consultant's assertion that the plant "stinks".
8. Possibly a borrowing from Nomlaki. Compare Merriam's recording of [posloy - połoy] ? as the Nomlaki word for the harvest brodiaea (B. coronaria).
9. Also see the tules.
10. Used in making baskets.
11. The root of the "tulare root" (probably a Carex sedge) was a basketry staple of the Patwin.
12. Seeds of this species were gathered and used for pinole.
13. "bitter clover" refers to poisonous or distasteful clovers and clover-like herbs as opposed to various edible species eaten in the spring.
14. An unidentified flower sp., about 5" tall, with white flowers. The name is literally, "feather feather flower".

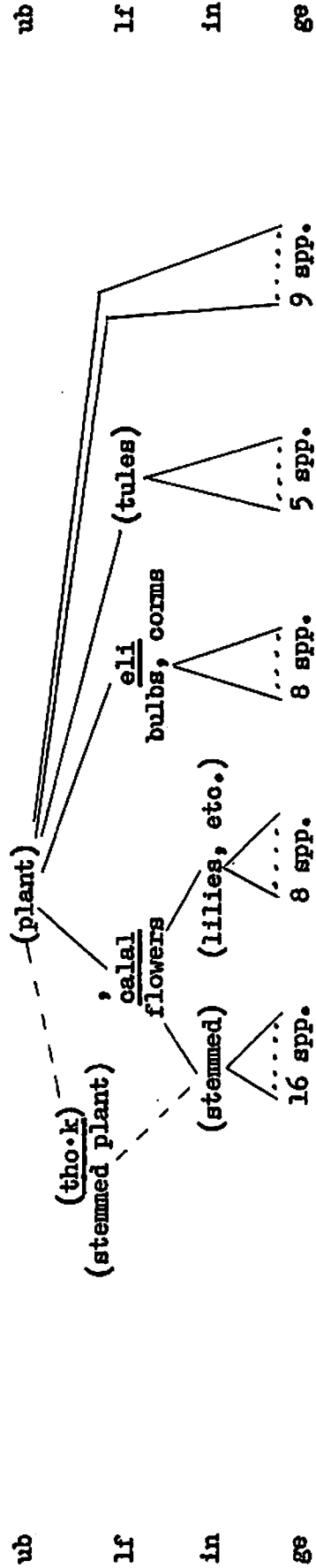
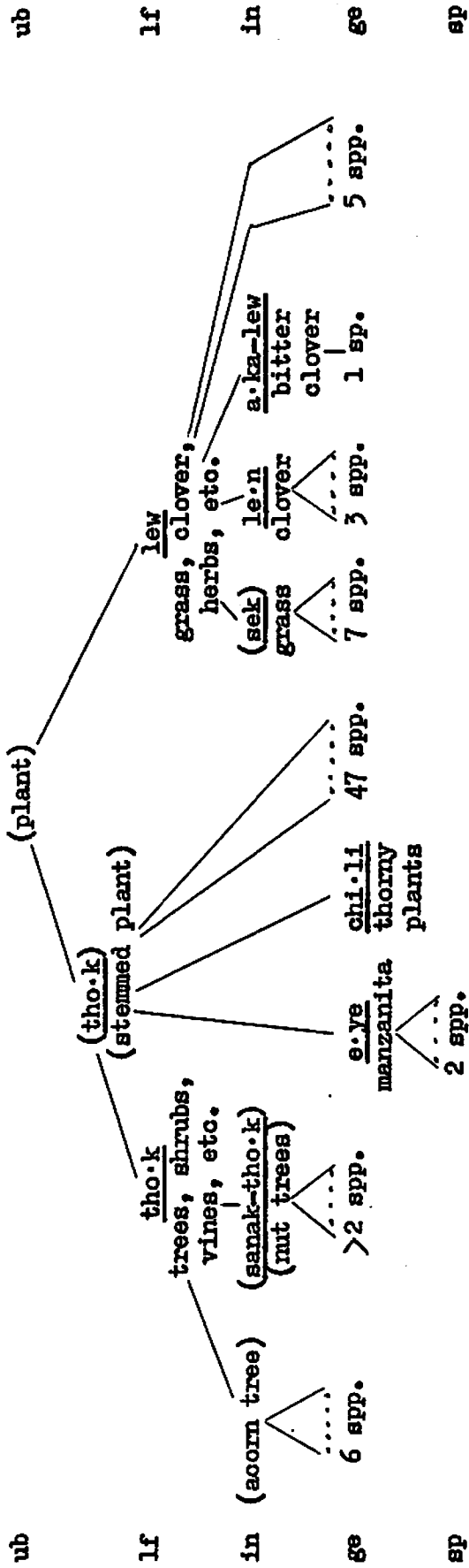
15. Literally, "skunk fart". Probably a loan translation from NE Pomo.
16. A borrowing from Nomlaki.
17. Known to the Patwin as "eye medicine bush".
18. This fern is possibly the five-finger fern (Adiantum pedantum). Otherwise, it may be the bracken fern.
19. This name, literally "whiskers", refers to "moss" which grows in long streamers, e.g. tree moss and the long strands of algae which often attach to tree roots and rocks in slow streams.
20. Said to have long stalks and a hot and peppery taste. There was probably only one Angelica species in Patwin territory (Angelica tomentosa), but Angelica was a prized commodity which may have been obtained from other areas as well.
21. ḷaka is often used to refer specifically to bulrushes as well as to tules in general. It may be a verbal derivative. ḷop or ḷop seems to be the archaic term for bulrush, showing a correspondence with the Wintu word for bulrush.
22. Paul Radin glosses this as "dry grass".
23. Said to "grow like a broom", it is used in leaching acorns.
24. A mint species, used to make a tea. May have medicinal properties.
25. A medicinal species. wene is the general word for 'medicine'. Compare also Angelica.
26. Or possibly the bracken fern? Literally, "quail's basket-design (material)". Compare Kabalnem bo·yo 'redbud' and terelaterel 'fern sp.'.
27. May include other evergreens, but the data are unclear.
28. Merriam glosses as 'ash'.
29. Compare the River not 'blueberry elder'.
30. Probably a saltbush (Atriplex sp.)
31. All forms are from Merriam's recordings except one Suisun form reprinted in Kroeber (1932), p. 352.



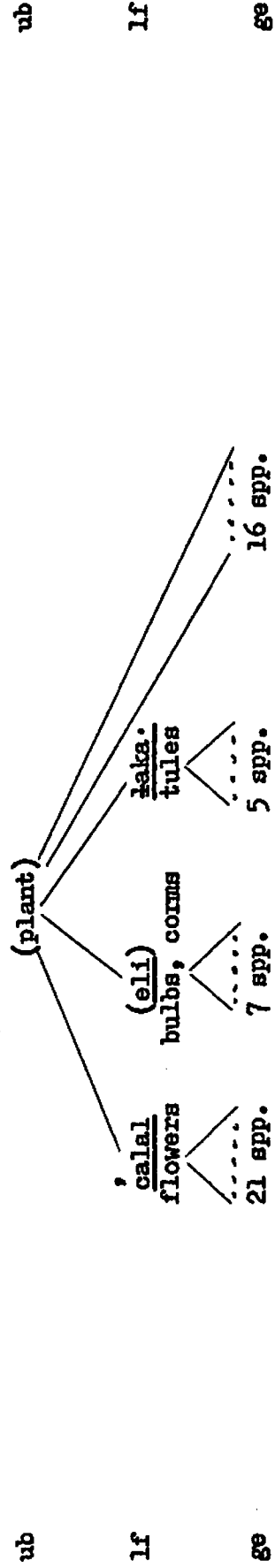
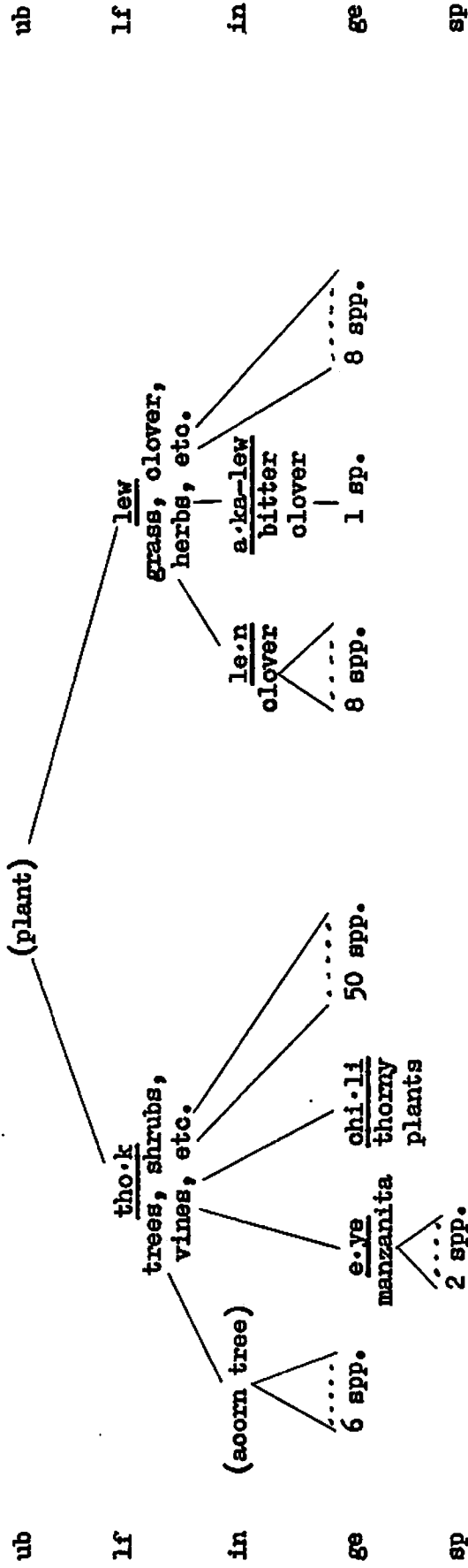
Summary of { Tebti Cache Creek Cortina } folk-zoological taxonomic structure



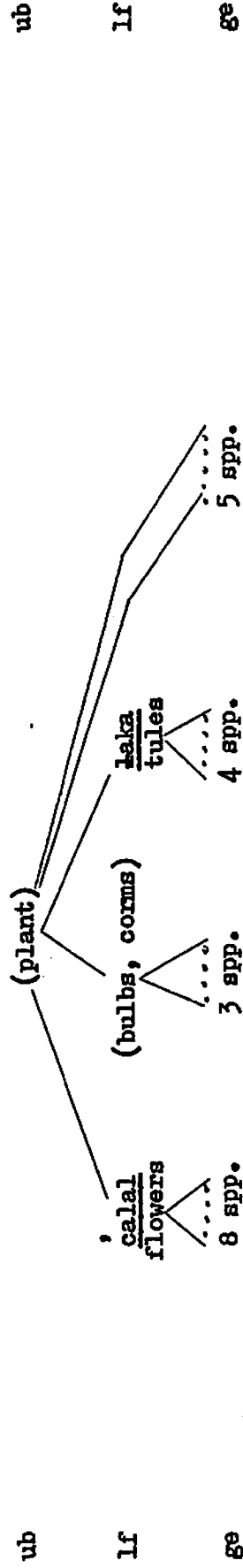
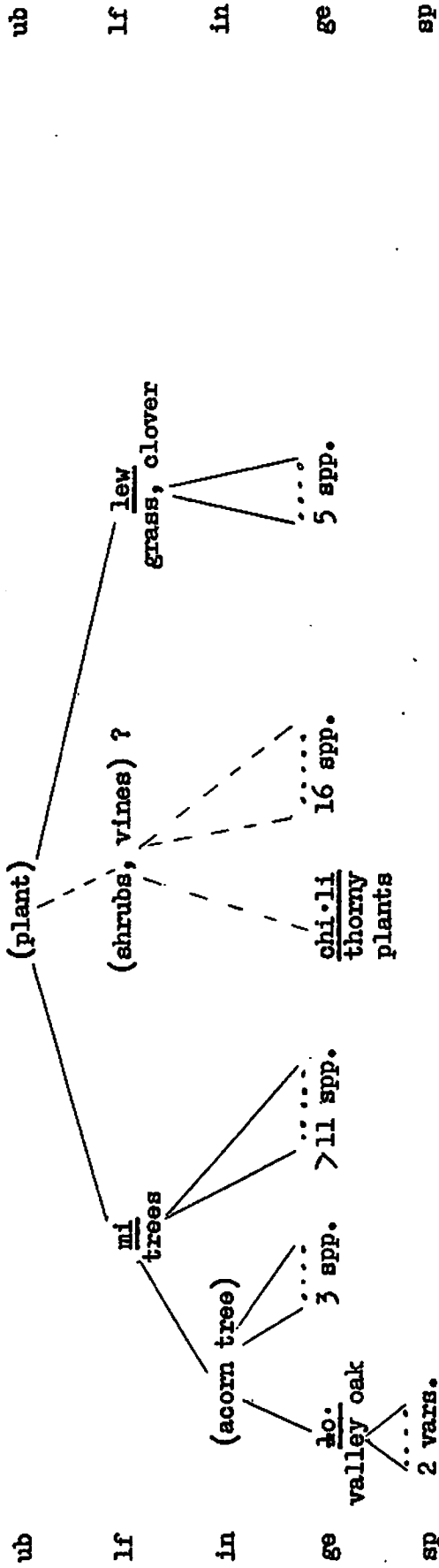
Summary of River folk-zoological taxonomic structure



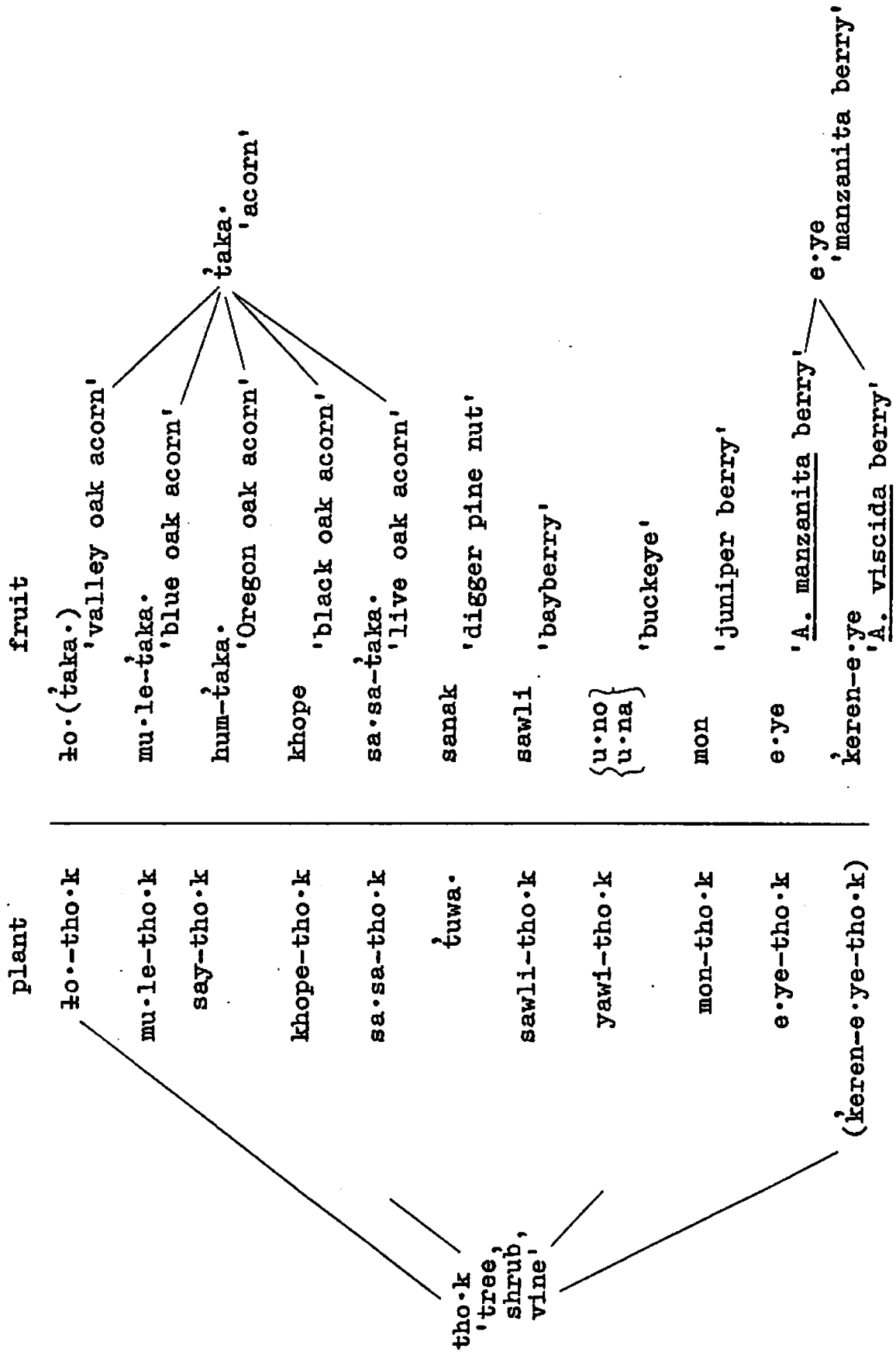
Summary of Kabelmen folk-botanical taxonomic structure



Summary of { Tebti Cache Creek Cortina } folk-botanical taxonomic structure



Summary of River folk-botanical taxonomic structure

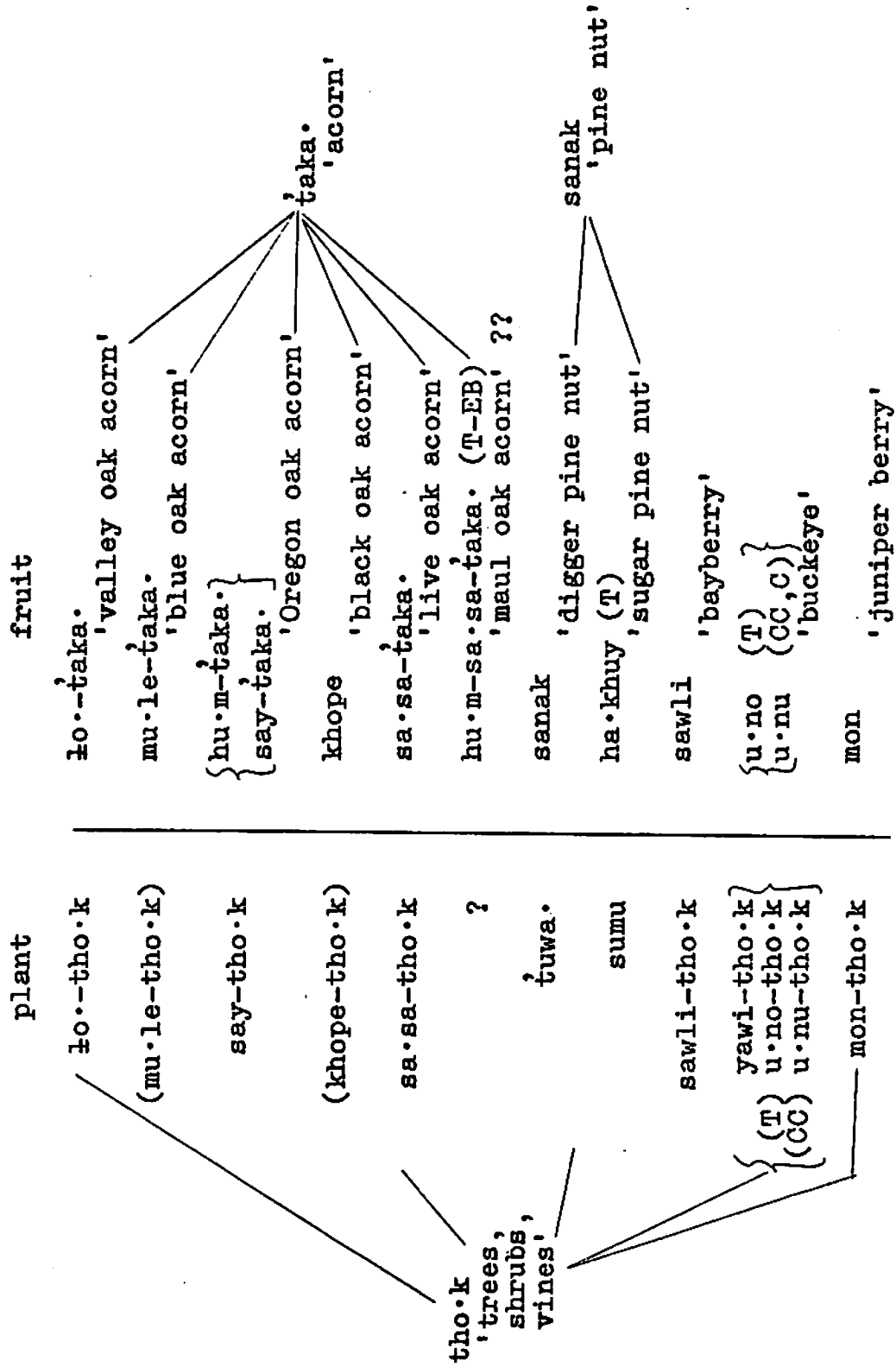


Dual Botanical Taxonomy (1)

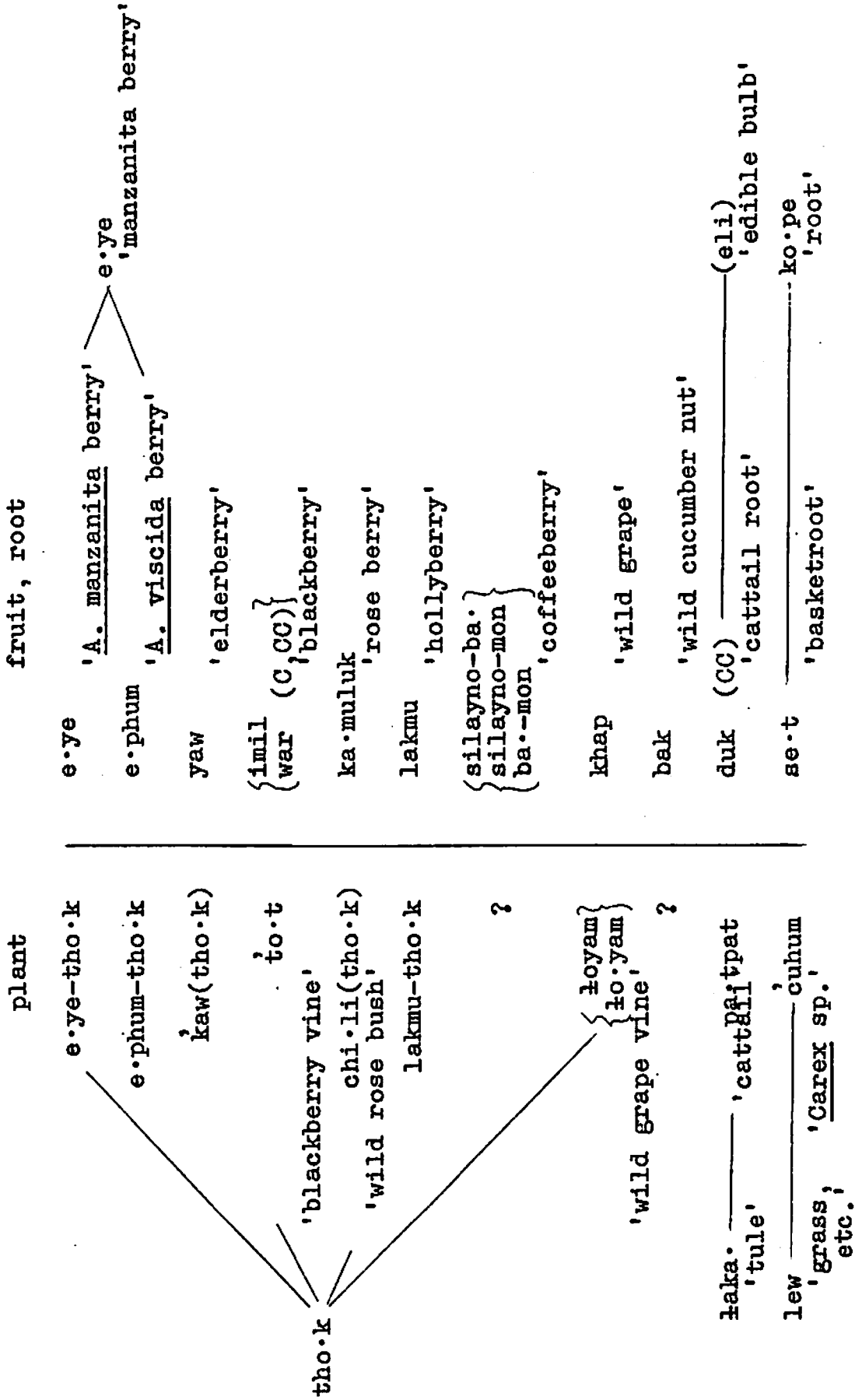
Kabalmem

plant	fruit, flower, root
kaw-tho·k	[kaw] (Kr) 'elderberry'
imil-tho·k	imil 'blackberry'
chi·li-tho·k	chi·li-ba. 'rose berry'
lusalusano-tho·k	lusalusa 'serviceberry'
lakmu-tho·k	(lakmu) 'hollyberry'
silayno-tho·k	silayno-ba. 'coffeeberry'
loyom 'grapevine'	khap 'grape'
bak-tho·k 'wild cucumber vine'	bak 'wild cucumber nut'
bahki 'Clematis vine'	pospos ————— calal 'Clematis flower' 'flower'
pa·tpat 'cattail'	pa·tpat-yeywere ————— eli 'cattail root' 'edible bulb'
zaka· 'bulrush'	ulum 'black basketroot'
lew ————— sek ————— 'grass' 'Carex sp.'	se·t 'basketroot' ————— kupat 'root'

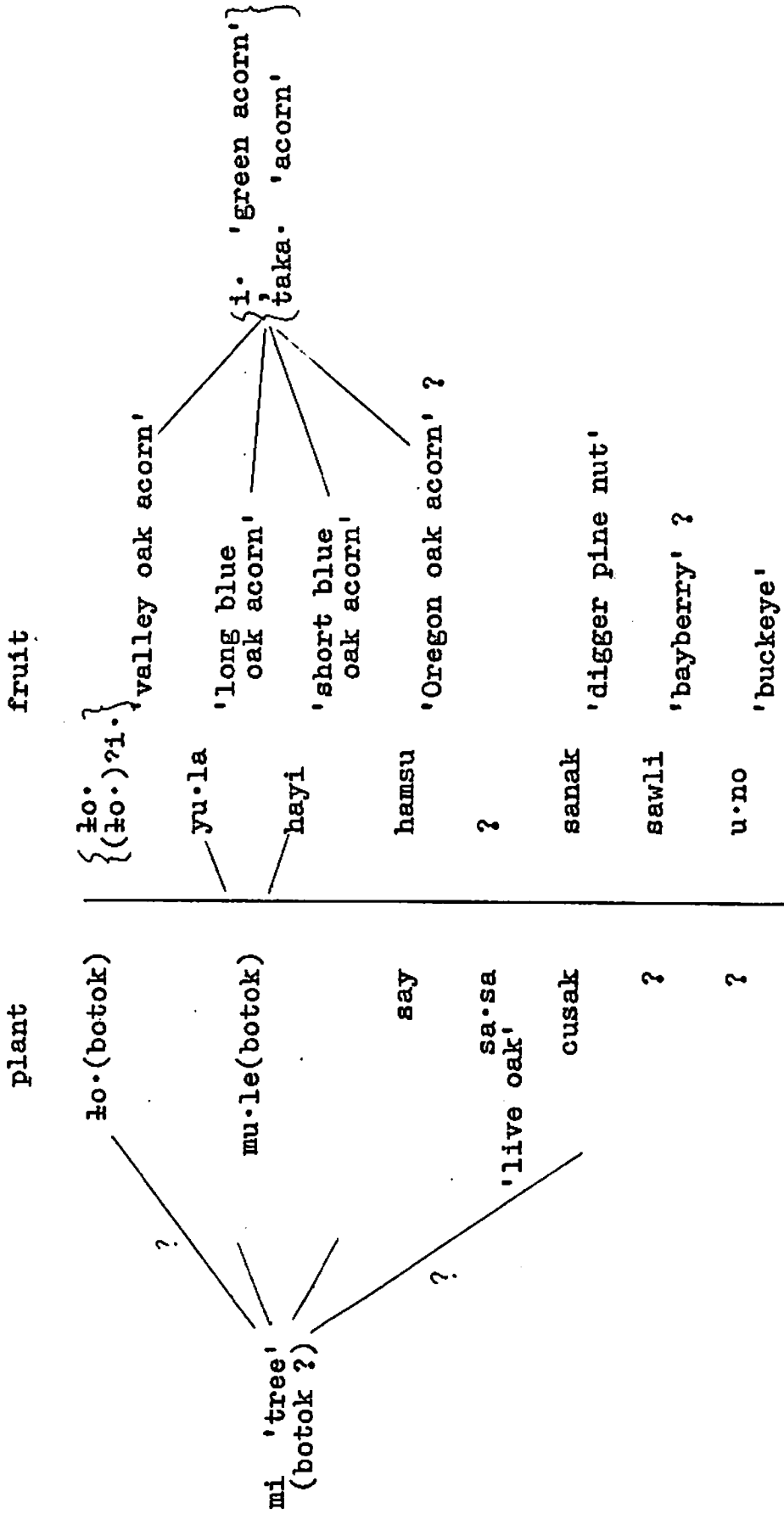
Kabalmem Dual Botanical Taxonomy (2)



Tebti, Cortina, Cache Creek Dual Botanical Taxonomy (1)



Tebti, Cortina, Cache Creek Dual Botanical Taxonomy (2)



Dual Botanical Taxonomy (1)

River

plant		fruit, root
*monno-botok	mon	'juniper berry'
e.y-botok	e.ye	'manzanita berry'
not	yaw	'elderberry'
to-t	war	'blackberry'
chi.li	?	
'wild rose bush'		
toyam	khap	'wild grape'
'wild grapevine'	duk	'cattail root'
zaka	se.t	
'tule'		<u>'Carex, basketroot'</u>
?		ko.pe 'creeper, root'

River

Dual Botanical Taxonomy (2)

Kabalmem:

valley oak acorns	lo·	lo·-taka·	'green on tree'
		iw	'black, on ground'
blue oak acorns	mu·le	{mu·le-taka· [yarti] (Me)}	'green'
		[mulaka] (Me)	'black'
Oregon oak acorns	say	hum-taka·	'on tree'
		{thułthi pene·l}	'dry, hulled'

Tebti, Cortina, Cache Creek:

blue oak acorns	mu·le	{wipili (C) yulak (T)}	'long'
		tuduy-?iw	'short'
Oregon oak acorns	say	{hu·m-taka· say-taka·}	'green, (on tree?)'
		pene·l	'hulled, dried'
manzanita berries	(e·ye)	e·ye	'ripe manzanita berry'
		polo·la (T,CC)	'green manzanita berry'

Subcategorization of Acorns and
Berries by Degree of Ripeness
or Size

APPENDIX F

This appendix contains scientific identifications for all vertebrates and most plants mentioned in the taxonomic charts. The data are of two types. First, for mammals, fish, reptiles, and amphibians, I have listed all species I know to occur in the Patwin territory. (See section 2 of the text and the map for a description of that territory.) These include recent (not fossil) species now extinct in the area, e.g. the wolf and the grizzly bear, currently flourishing species, species introduced since European contact, e.g. the muskrat, the brown bullhead, etc., and species whose range has shifted slightly since contact times so as to be included in the territory now, e.g. the red fox (Vulpes fulva). The lists are ordered in more or less standard zoological order. I hope that they will serve both the immediate purpose of demonstrating the degree of completeness of the taxonomies and the long-range purpose of aiding further ethnographic, linguistic and folk-biologic studies of the area.

The data for birds and plants are somewhat different from those described above. An attempt to make complete species lists proved to be beyond the scope of this study. Birds are exceedingly numerous (Pettingill (1953) reports 439 species recorded in California), and their extreme seasonal variation in population, from year-round abundant local residents to occasional or rare winter visitors, etc., makes it very difficult to know where to draw the line in

including species. (See Tatlock (1966) for an attempt to make an inventory for the Nomlaki, just north of the Patwin.) For plants the problem is not mobility; however, plant species range widely in degree of differentiation. Some have grossly obvious differences of morphology, for instance the local trees. But among such types as grasses, species differentiation is often very fine. Inherent variation and hybridization of species complicate the problem of identification even for professional botanists. For both the birds and plants, then, I have compromised by making lists of identifications for all species which have reliably recorded Patwin names. The order of those two lists parallels that of the taxonomies themselves, to aid comparison between the two.

Some notes on conventions used: An asterisk preceding a scientific name indicates an introduced species. An otherwise unexplained date appearing in the "Notes" column indicates a date of introduction. More extended notes are located at the end of the appendix. The names used in the taxonomies generally correspond with the standard common name of the species, but where they do not, I have usually underlined the name which I use in the taxonomies. In other cases the connection should be obvious: e.g. "Pacific gopher snake" in this appendix corresponds with "gopher snake" in the taxonomies. Finally, for comparative purposes, I have included some species of oaks and willows which do not appear in the taxonomies proper but which are important for understanding these complex groups.

Class Mammalia

Family	Genus and species	Common name	Other names	Notes
Didelphidae	*Didelphis marsupialis	common opossum	<u>opossum</u>	1906
Scoricidae	Sorex ornatus	ornate shrew	<u>shrew</u>	
Talpidae	Scapanus latimanus	broad-handed mole	<u>mole</u>	
Vespertilionidae	Myotis californicus	California myotis	} <u>bat</u>	
	Myotis yumanensis	Yuma myotis		
	Lasiurus cinereus	hoary bat	} <u>big bat</u>	(n.1)
	Lasiurus borealis	red bat		
Molossidae	Eptesicus fuscus	big brown bat	} <u>bat</u>	
	Pipistrellus hesperus	Western pipistrelle		
	Antrozous pallidus	pallid bat		
	Plecotus townsendii	lump-nosed bat		
	Tadarida brasiliensis	Brazilian free-tailed bat		
		Lepus californicus		
Leporidae	Sylvilagus audubonii	Audubon cottontail	<u>jackrabbit</u> , hare	
	Sylvilagus bachmani	brush rabbit	<u>cottontail</u>	
Sciuridae	Otospermophilus beecheyi	Beechey ground squirrel	chamise rabbit	
	Eutamias sonomae	Sonoma chipmunk	<u>ground squirrel</u>	
	Sciurus griseus	Western gray squirrel	<u>chipmunk</u>	(n.2)
	Tamiasciurus douglasii	Douglas squirrel	chickaree, red squirrel	(n.3)

Class Mammalia (2)

Family	Genus and species	Common name	Other names	Notes
Sciuridae	<i>Glaucomys sabrinus</i>	Northern flying squirrel	<u>flying squirrel</u>	
Geomyidae	<i>Thomomys bottae</i>	Botta pocket gopher	<u>gopher</u>	
Heteromyidae	<i>Perognathus inornatus</i>	San Joaquin pocket mouse	pocket mouse, <u>jumping mouse</u>	
	<i>Perognathus californicus</i>	Californis pocket mouse		
	<i>Dipodomys heermanni</i>	Heermann kangaroo rat	<u>kangaroo rat</u> , <u>jumping rat</u>	
Castoridae	<i>Castor canadensis</i>	beaver		
Cricetidae	<i>Reithrodontomys megalotis</i>	Western harvest mouse	<u>harvest mouse</u>	(n.4)
Cricetinae	<i>Peromyscus boylii</i>	brush mouse	<u>white-footed mouse</u>	(n.5)
	<i>Peromyscus truei</i>	pinyon mouse		
	<i>Peromyscus maniculatus</i>	deer mouse		
	<i>Neotoma fuscipes</i>	dusky-footed wood rat	<u>wood rat</u> , <u>pack rat</u>	
Microtinae	<i>Microtus californicus</i>	California meadow mouse	<u>meadow mouse</u>	(n.6)
Muridae	* <i>Ondatra zibethica</i>	muskrat		
	* <i>Rattus norvegicus</i>	Norway rat	<u>rat</u>	<1856
	* <i>Rattus rattus</i>	black rat	<u>rat</u>	<1856
	* <i>Mus musculus</i>	house mouse	<u>mouse</u>	<1856

Class Mammalia (3)

Family	Genus and species	Common name	Other names	Notes
Erethizontidae	Erethizon dorsatum	porcupine		
Canidae	Canis ochropus	valley coyote	<u>coyote</u>	
	Canis lupus	wolf		(n.7)
Ursidae	Urocyon cinereoargenteus	gray fox	<u>fox</u>	
	Vulpes fulva	red fox	<u>fox</u>	(n.8)
	{Euarctos americanus}	black bear	bear, brown bear,	
	{Ursus americanus}	grizzly bear	cinnamon bear.	(n.9)
Procyonidae	Bassariscus astutus	ringtail	<u>ring-tailed cat</u> ,	
	Procyon lotor	raccoon	<u>civet cat</u> coon	
Mustelidae	Martes pennanti	fisher		(n.10)
	Mustela vison	mink		
Taxidiinae	Mustela frenata	long-tailed weasel	<u>weasel</u>	
	Taxidea taxus	badger		
Mephitinae	Mephitis mephitis	striped skunk		
	Spilogale putorius	spotted skunk		
Lutrinae	Lutra canadensis	river otter	<u>otter</u>	(n.11)
	Felis concolor	mountain lion	civet cat, pole cat puma, cougar.	
Felidae	Lynx rufus	bobcat	wildcat	

Class <u>Mammalia</u> (4)				
Family	Genus and species	Common name	Other names	Notes
Cervidae	Cervus nannodes	tule elk	<u>elk</u>	
	Odocoileus hemionus columbianus	black-tailed deer	<u>deer</u>	
Antilocapridae	Antilocapra americana	pronghorn	<u>antelope</u>	

Class Pisces (1)

Family	Genus and species	Common name	Other names	Notes
Petromyzontidae	Entosphenus tridentatus	Pacific lamprey	eel	
Acipenseridae	Acipenser transmontanus	white sturgeon		
	Acipenser medirostris	green sturgeon		(n.12)
Clupeidae	*Alosa sapidissima	American shad	shad	1871
	Oncorhynchus tshawytscha	Chinook salmon	king salmon	(n.13)
Salmonidae	Oncorhynchus keta	chum salmon	dog salmon	(n.14)
	Oncorhynchus kisutch	Coho salmon	silver salmon	(n.15)
	Oncorhynchus gorbuscha	pink salmon	humpback salmon	(n.16)
	Salmo gairdneri	rainbow trout	steelhead	(n.17)
	*Salmo trutta	brown trout		1893
	*Salmo fontinalis	Eastern brook trout		1872
	Hypomesus transpacificus	surf smelt		
Osmeridae	Cyprinus carpio	carp		
Cyprinidae	Rhinichthys osculus	speckled dace	minnow (?)	
	Mylopharodon conocephalus	hardhead	"pike" (?)	
	Orthodon microlepidotus	Sacramento blackfish	"small pike" (?)	
	Pogonichthys macrolepidotus	splittail		
	Lavinia exilicauda	hitch		

Class Pisces (2)

Family	Genus and species	Common name	Other names	Notes
Cyprinidae	Hesperoleucus symmetricus	California roach	" <u>shiner</u> " (?)	
	Hesperoleucus venustus	Venus roach		(n.18)
	Ptychocheilus grandis	Sacramento squawfish	" <u>big pike</u> "	
	Gila bicolor	Tuichub	<u>chub</u> , Sacramento channel minnow	
	Gila crassicauda	thicktail chub	<u>chub</u>	
Catostomidae	Catostomus occidentalis	Sacramento sucker	<u>sucker</u>	
Ictaluridae	*Ictalurus catus	white catfish	<u>catfish</u> , fork- tailed catfish	1874
	*Ictalurus nebulosus	brown bullhead	<u>catfish</u> , square- tailed catfish, Sacramento cat	1874
Poeciliidae	*Gambusia affinis	mosquitofish		1922
Gasterosteidae	Gasterosteus aculeatus	threespine stickleback		
	Cottus asper	prickly sculpin	} <u>bullhead</u> , muddler, (n.19) <u>small catfish</u> , tadpole, etc.	
	Cottus asperimus	rough sculpin		
	Cottus gulosus	rifle sculpin		
Serranidae	*Roccus saxatilis	striped bass		1879

Class Pisces (3)

Family	Genus and species	Common name	Other names	Notes
Centrarchidae	Archoplites interruptus	Sacramento perch	<u>perch</u>	
	*Lepomis macrochirus	bluegill		1890
	*Lepomis cyanellus	green sunfish		1890
	*Lepomis gibbosus	pumpkinseed		1908
	*Lepomis microlophus	redear sunfish		?
	*Pomoxis nigromaculatus	black crappie		1891
	*Pomoxis annularis	white crappie		1891
	*Chaenobryttus gulosus	warmouth bass		1908, 1921
	*Micropterus salmoides	largemouth bass		1874
	*Micropterus dolomieu	smallmouth bass		1874
Percidae	*Perca flavescens	yellow perch		1891
Embiotocidae	Hysterothorax traski	tule perch	<u>small perch</u> (?)	(n.20)
	Mugilidae	Mugil cephalus	striped mullet	

The fish listed fall into the following categories:

1. anadromous: lamprey, sturgeons, shad, salmon, steelhead, striped bass
2. marine but ascending the river mouths: smelt, mullet
3. freshwater: all others

Class Reptilia

Family	Genus and species	Common name	Other names	Notes
Testudinidae	Clemmys marmorata	Western pond turtle	<u>turtle</u>	
Emydinae	Sceloporus graciosus	sagebrush lizard		(n.21)
Iguanidae	Sceloporus occidentalis	Western fence lizard		(n.22)
Scincidae	Eumeces skiltonianus	Western skink		
Eumeces	Eumeces gilberti	Gilbert's skink		(n.23)
Teiidae	Cnemidophorus tigris	Western whiptail		
Anguinidae	Gerrhonotus coeruleus	Northern alligator lizard		(n.24)
Gerrhonotus	Gerrhonotus multicarinatus	foothill alligator lizard, Southern alligator lizard		
Boidae	Charina bottae	rubber boa		(n.25)
Colubridae	Diadophis amabilis	Western ring-necked snake		(n.26)
Coluber	Coluber constrictor	Western yellow-bellied racer		
Masticophis	Masticophis lateralis	striped racer		(n.27)
Lampropeltis	Lampropeltis getulus	common kingsnake		(n.28)
Lampropeltis	Lampropeltis zonata	mountain kingsnake		(n.29)
Pituophis	Pituophis catenifer	Pacific gopher snake, bullsnake		
Thamnophis	Thamnophis sirtalis	common garter snake		
Thamnophis	Thamnophis elegans	Western garter snake, water snake		(n.30)
Viperidae	Crotalus viridus	Western rattlesnake		

Class Amphibia

Family	Genus and species	Common name	Other names	Notes
Ambystomatidae	Ambystoma tigrinum californiense	tiger salamander		
Salamandridae	Taricha torosa	California newt	water dog	
	Taricha granulosa	rough-skinned newt	"	(n.31)
Plethodontidae	Ensatina eschscholtzii	Eschscholtz's salamander	ensatina	(n.32)
	Batrachoseps attenuatus	California slender salamander		(n.33)
	Aneides lugubris	arboreal salamander		(n.34)
Pelobatidae	Scaphiopus hammondi	Western spadefoot toad		
Ranidae	Rana boylei	yellow-legged frog		(n.35)
	Rana aurora	red-legged frog		(n.36)
	*Rana catesbeiana	bullfrog	<u>frog</u>	1905-1915
Bufo	Bufo boreas	Western toad	<u>toad</u>	
Hylidae	Hyla regilla	Pacific tree frog	<u>frog</u>	(n.37)

Common name(s)	Birds (1)	Scientific name	Notes
Western Canada goose, big goose, honker		<i>Branta canadensis</i>	
cackling Canada goose, gray goose, etc.		<i>B. c. minima</i>	
white-fronted goose, spotted goose, etc.		<i>Anser albifrons</i>	
snow goose, white goose, etc.		<i>Chen hyperborea</i>	
Ross' goose, small white goose		<i>Chen rossii</i>	
black brant, small dark goose, etc.		<i>Branta nigricans</i>	(n.38)
whistling swan		<i>Olor columbianus</i>	
mallard		<i>Anas platyrhynchos</i>	
pintail		<i>Anas acuta</i>	
green-winged teal		<i>Anas carolinensis</i>	
cinnamon teal		<i>Anas cyanoptera</i>	
redhead		<i>Aythya americana</i>	
canvasback		<i>Aythya valisineria</i>	
shoveler		<i>Spatula clypeata</i>	
wood duck		<i>Aix sponsa</i>	
ruddy duck		<i>Oxyura jamaicensis</i>	
Western grebe		<i>Aechmophorus occidentalis</i>	
pied-billed grebe, helldiver		<i>Podilymbus podiceps</i>	
American coot, mudhen		<i>Fulica americana</i>	
common merganser, "loon"		<i>Mergus merganser</i>	
common loon		<i>Gavia immer</i>	
double-crested cormorant, cormorant		<i>Phalacrocorax penicillatus</i>	
white pelican, pelican		<i>Pelecanus erythrorhynchos</i>	
great blue heron, fish crane		<i>Ardea herodias</i>	

Birds (2)

Common name(s)	Scientific name	Notes
black-crowned night heron, night heron, etc.	<i>Nycticorax nycticorax</i>	
green heron	<i>Butorides virescens</i>	
sandhill crane	<i>Grus canadensis</i>	
common egret	<i>Casmerodius albus</i>	
snowy egret	<i>Leucophoyx thula</i>	
gull	<i>Larus spp.</i>	
American bittern	<i>Botaurus lentiginosus</i>	
common snipe	<i>Capella gallinago</i>	
greater yellowlegs	<i>Totanus melanoleucus</i>	
spotted sandpiper	<i>Actitis macularia</i>	
killdeer	<i>Charadrius vociferus</i>	
American avocet	<i>Recurvirostra americana</i>	
black-necked stilt	<i>Himantopus mexicanus</i>	
turkey vulture, buzzard	<i>Cathartes aura</i>	
California condor	<i>Gymnogyps californianus</i>	
golden eagle	<i>Aquila chrysaetos</i>	
bald eagle	<i>Haliaeetus leucocephalos</i>	
red-tailed hawk	<i>Buteo jamaicensis</i>	
Swainson's hawk	<i>Buteo swainsoni</i>	
marsh hawk	<i>Circus cyaneus</i>	
prairie falcon, bullet hawk	<i>Falco mexicanus</i>	
sparrow hawk, kestrel	<i>Falco sparverius</i>	
osprey, fish hawk	<i>Pandion haliaetus</i>	
Cooper's hawk, bird hawk	<i>Accipiter cooperii</i>	
sharp-shinned hawk	<i>Accipiter striatus</i>	
band-tailed pigeon	<i>Columba fasciata</i>	(n.39)
mourning dove, dove	<i>Zenaidura macroura</i>	
trilling nighthawk, common nighthawk	<i>Chordeiles minor</i>	

Birds (3)

Common name(s)	Scientific name	Notes
poorwill	<i>Phalaenoptilus nuttallii</i>	
great horned owl, hoot owl	<i>Bubo virginianus</i>	
barn owl	<i>Tyto alba</i>	
screech owl	<i>Otus asio</i>	
burrowing owl	<i>Speotyto cunicularia</i>	
pygmy owl	<i>Glaucidium gnoma</i>	
short-eared owl, tule owl	<i>Asio flammeus</i>	
California quail, valley quail	<i>Lophortyx californicus</i>	
mountain quail	<i>Oreortyx pictus</i>	
blue grouse, dusky grouse	<i>Dendragapus obscurus</i>	
belted kingfisher	<i>Megaceryle alcyon</i>	
Western meadowlark, lark	<i>Sturnella neglecta</i>	
raven	<i>Corvus corax</i>	
common crow	<i>Corvus brachyrhynchos</i>	
scrub jay, California jay	<i>Apelocoma coelurescens</i>	
Steller's jay, crested jay	<i>Cyanocitta stelleri</i>	
yellow-billed magpie, magpie	<i>Pica nuttalli</i>	
red-shafted flicker, yellowhammer	<i>Colaptes cafer</i>	
acorn woodpecker, California woodpecker	<i>Melanerpes formicivorus</i>	
pileated woodpecker	<i>Dryocopus pileatus</i>	
Lewis' woodpecker	<i>Asyndesmus lewis</i>	
Nuttall's woodpecker	<i>Dendrocopos nuttalli</i>	
downy woodpecker	<i>Dendrocopos pubescens</i>	
red-breasted sapsucker	<i>Sphyrapicus varius (in part)</i>	
white-breasted nuthatch	<i>Sitta carolinensis</i>	

Birds (4)

Common name(s)	Scientific name	Notes
roadrunner	<i>Geococcyx californianus</i>	
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	
red-winged blackbird	<i>Agelaius phoeniceus</i>	
yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	
Bullock's oriole	<i>Icterus bullockii</i>	
loggerhead shrike	<i>Lanius ludovicianus</i>	
mockingbird	<i>Mimus polyglottos</i>	
California thrasher, "mockingbird"	<i>Toxostoma redivivum</i>	
yellow-breasted chat	<i>Icteria virens</i>	
cliff swallow	<i>Petrochelidon pyrrhonota</i>	
tree swallow	<i>Iridoprocne bicolor</i>	
robin	<i>Turdus migratorius</i>	
hummingbird	family Trochilidae, including locally: { <i>Calypte anna</i> { <i>Selasphorus</i> spp. { <i>Archilocus alexandri</i>	
plain titmouse	<i>Parus inornatus</i>	
Western bluebird	<i>Sialia mexicana</i>	
Western kingbird, bee martin	<i>Tyrannus verticalis</i>	
ash-throated flycatcher	<i>Myriarchus cinerascens</i>	
black phoebe	<i>Sayornis nigricans</i>	
(small flycatchers)	{ <i>Empidonax</i> spp. { <i>Contopus sordidulus</i>	
horned lark	<i>Eremophila alpestris</i>	
phainopepla	<i>Phainopepla nitens</i>	
black-headed grosbeak	<i>Pheucticus melanocephalus</i>	
American goldfinch	<i>Spinus tristis</i>	
house finch, linnet	<i>Carpodacus mexicanus</i>	
yellowthroat	<i>Geothlypis trichas</i>	
crowned sparrows	<i>Zonotrichia</i> spp.	
lark sparrow	<i>Chondestes grammacus</i>	

Birds (5)

Common name(s)	Scientific name	Notes
brown towhee	Pipilo fuscus	
rufous-sided towhee	Pipilo erythrophthalmus	
chipping sparrow	Spizella passerina	
Oregon junco	Junco oreganus	
wrens	Troglodytes spp.	
long-billed marsh wren	Telmatodytes palustris	
wrentit	Chamaea fasciata	
common bushtit	Psaltriparus minimus	
blue-gray gnatcatcher	Polioptila caerulea	

Plants (1)

Common name(s)	Scientific name	Notes
digger pine	<i>Pinus sabiniana</i>	
sugar pine	<i>Pinus lambertiana</i>	
Ponderosa pine, yellow pine	<i>Pinus ponderosa</i>	
knobcone pine	<i>Pinus attenuata</i>	
Douglas fir	<i>Pseudotsuga menziesii</i>	
incense cedar	<i>Libocedrus decurrens</i>	
redwood	<i>Sequoia sempervirens</i>	
California juniper	<i>Juniperus californica</i>	
McNab cypress	<i>Cupressus macnabiana</i>	
California nutmeg	<i>Torreya californica</i>	
valley oak, bottom oak, mush oak, California white oak, roble	<i>Quercus lobata</i>	
blue oak, hill oak, white oak	<i>Quercus douglasii</i>	
Oregon oak, mountain white oak	<i>Quercus garryana</i>	
California black oak	<i>Quercus kelloggii</i>	
interior live oak, encina	<i>Quercus wislizenii</i>	
scrub oak	<i>Quercus dumosa</i>	
canyon live oak, golden oak, maul oak	<i>Quercus chrysolepsis</i>	
tanoak, tan-bark oak	<i>Lithocarpus densiflora</i>	
tree ash, Oregon ash	<i>Fraxinus latifolia</i>	
big-leaved maple, broad-leaf maple	<i>Acer macrophyllum</i>	
California sycamore	<i>Platanus racemosa</i>	
white alder	<i>Alnus rhombifolia</i>	
Fremont cottonwood	<i>Populus fremontii</i>	

Plants (2)

Common name(s)	Scientific name	Notes
California laurel, bay tree, pepperwood	<i>Umbellularia californica</i>	
silk tassel, feverbush	<i>Garrya fremontii</i>	
California buckeye toyon, Christmas berry	<i>Aesculus californica</i> <i>Heteromeles arbutifolia</i>	
madrone	<i>Arbutus menziesii</i>	
Pacific willow, black willow	<i>Salix lasiandra</i>	} (n.40)
black willow	<i>Salix gooddingii variabilis</i> (= <i>S. nigra</i>)	
red willow	<i>Salix laevigata</i>	
sandbar willow, basket willow	<i>Salix hindsiana</i>	
arroyo willow	<i>Salix lasiolepis</i>	
---	<i>Salix breweri</i>	
mule fat	<i>Baccharis viminea</i>	
California redbud	<i>Cercis occidentalis</i>	
Pacific dogwood	<i>Cornus nuttalli</i>	
tree tobacco	* <i>Nicotiana glauca</i>	(n.41)
Indian tobacco	{ <i>Nicotiana bigelovii</i> <i>Nicotiana attenuata</i> (?)	
chamise	<i>Adenostoma fasciculatum</i>	
buck brush	<i>Ceanothus cuneatus</i>	
manzanita, Parry manzanita	<i>Arctostaphylos manzanita</i>	
whiteleaf manzanita, sticky manzanita, etc.	<i>Arctostaphylos viscida</i>	
blueberry elder, elderberry	<i>Sambucus mexicana</i>	
California blackberry	<i>Rubus vitifolius</i>	
California wild rose	<i>Rosa californica</i>	
chaparral pea	<i>Pickeringia montana</i>	
mountain mahogany, birchleaf mahogany	<i>Cercocarpus betuloides</i>	

Plants (3)

Common name(s)	Scientific name	Notes
Western choke-cherry	<i>Prunus demissa</i>	
Western serviceberry	<i>Amelanchier alnifolia</i>	
coffeeberry, California buckthorn	<i>Rhamnus tomentella</i>	
hollyleaf redberry, holly buckthorn	<i>Rhamnus ilicifolia</i>	
buttonbush	<i>Cephalanthus californicus</i>	
poison oak	<i>Rhus diversiloba</i>	
skunkbush sumac, skunkberry, sourberry	<i>Rhus trilobata</i>	
yerba santa, mountain balm	<i>Eriodictyon glutinosum</i>	
milkweed	<i>Asclepias speciosa</i>	
wild hemp	<i>Apocynum</i> sp.	
mugwort wormweed, wormwood	<i>Artemisia vulgaris</i>	
slim nettle	<i>Urtica holosericea</i>	
spikenard	<i>Aralia californica</i> (?)	
wild grape	<i>Vitis californica</i>	
wild cucumber, big root, man root	<i>Marah</i> sp.	
Clematis	<i>Clematis ligusticifolia</i>	
chaparral honeysuckle	<i>Lonicera interrupta</i> (?)	
Angelica	<i>Angelica tomentosa</i>	
cowparsnip	<i>Heracleum lanatum</i>	
blue dicks	<i>Brodiaea pulchella</i>	
harvest brodiaea	<i>Brodiaea coronaria</i>	
camas	<i>Camassia quamash</i>	
wild onion	<i>Allium</i> sp.	
tulare root	<i>Carex</i> sp. (?)	
wire grass	<i>Juncus</i> sp.	
foxtail	<i>Alopecurus</i> spp. (?)	
wild oats	* <i>Avena fatua</i> , etc.	

Plants (4)

Common name(s)	Scientific name	Notes
turkey mullein	<i>Croton setigerus</i>	
miner's lettuce	<i>Montia perfoliata</i>	
bulrush, common tule	<i>Scirpus acutus</i>	
cattail	<i>Typha latifolia</i>	
horsetail, scouring rush.	<i>Equisetum hiemole</i>	
spike rush	<i>Heleocharis</i> sp. (?)	
soap root, soap plant	<i>Chlorogalum pomeridianum</i> (also <i>Fritilaria</i> sp. ?)	
poppy	<i>Eschscholtzia californica</i> (also <i>Oenothera</i> spp.)	
lowland shooting star	<i>Dodecatheon patulum</i>	
birdseye gilia	<i>Gilia tricolor</i>	
--- ("pale flower")	<i>Gilia capitata</i>	
hayfield tarweed (white)	<i>Hemizonia rudis</i>	
rosin weed (yellow)	<i>Calycadenia</i> sp.	
pennyroyal	<i>Monardella</i> sp.	
vinegar weed	<i>Trichostema lanceolatum</i>	
purple owl's clover	<i>Orthocarpus purpurascens</i>	
fiddleneck	<i>Amsinckia gloriosa</i>	
buckwheat	<i>Eriogonum nudum</i> (?)	
sunflower	<i>Wyethia augustifolia</i> (?)	
lace-pod	<i>Thysanocarpus elegans</i>	
filaree	* <i>Erodium</i> spp.	
blue vervain	<i>Verbena lasiostachys</i> (?)	
common mullein	<i>Verbascum thapsus</i>	
mistletoe	<i>Phoradendron flavescens</i>	
birdsfoot cliffbrake	<i>Pellaea mucronata</i>	

Notes to Appendix F

1. The Lasiurus bats are distinguished from most of the other bats by their habit of roosting in trees. Also, Lasiurus cinereus in particular is the largest bat in Central California, its 128-146 mm length contrasting with the 74-85 mm of the common California myotis. The other bats would be difficult to distinguish without capturing and carefully examining them; they are virtually impossible to tell apart on the fly.
2. The gray squirrel is an acorn eater, frequenting the oak woodlands.
3. The chickaree is a pinenut eater, generally confined to the yellow pine forest at higher elevations than the gray squirrel.
4. The harvest mouse occurs in a great variety of habitats at many elevations.
5. The white-footed mice (Peromyscus spp.) are segregated somewhat by habitat, but are otherwise difficult to distinguish. The brush mouse (P. boylii) stays in chaparral and other shrub habitats. The pinyon mouse (P. truei) stays in the oak woodland in Patwin territory. The deer mouse (P. maniculatus) occurs more widely.
6. The meadow mouse is a "lemming-like" mouse, noted for large cyclic variations in its population, as well as its swimming ability.
7. The wolf has long been extinct in the area.
8. The red fox has spread into Patwin territory from further north. It is now seen there fairly frequently.
9. Extinct in California since 1925, and even longer in the coast ranges.
10. Very rare now in the coast ranges.
11. Uncommon now.
12. The green sturgeon is much smaller than the white sturgeon and probably does not ascend the river as far.
13. This is by far the largest salmon in California. The Chinook reaches 100 lbs. and was once abundant in the Sacramento drainage.

14. The chum salmon was also abundant, but reached only 12 lbs. or so.
15. The Coho salmon is small, reaching only 8 lbs.
16. The pink salmon only occasionally ran the Sacramento River. It is also small, reaching 6 lbs.
17. The steelhead is the large anadromous variety of the rainbow trout. Smaller rainbows are endemic to the local streams.
18. The Venus roach is a subspecies of the California roach; found in the Napa and Russian River drainages.
19. The sculpins, especially Cottus asper and C. asperrimus, are very difficult to tell apart.
20. A small perch, only 4" to 5" long.
21. The sagebrush lizard is confined to higher elevations.
22. This is the common scaly lizard in California. Males occasionally attain rather large sizes.
23. The Gilbert's skink was probably outside of Hill Patwin territory--its range is further inland.
24. The Northern alligator lizard frequents damper habitats and higher elevations than the Southern.
25. The rubber boa is found mostly at higher elevations.
26. The ring-necked snake is not found in the Central Valley.
27. A common, diurnal and salient snake in the foothill belt.
28. Widespread, with black and white bands.
29. Confined to the yellow pine belt and higher; has black, red and yellow bands.
30. Thamnophis spp. are very difficult to identify. T. sirtalis is mostly a meadow snake, whereas T. elegans occurs in both terrestrial and aquatic varieties. Thamnophis are the only aquatic snakes in Patwin territory.
31. The rough-skinned newt is virtually identical to the common California newt.
32. Ensatinas occur in the yellow pine belt and the oak woodland.

33. Occurs in the foothill belt and the valley.
34. The arboreal salamander is confined largely to the coast live oak woodland--thus it is only a marginal species in the southernmost corner of Patwin territory.
35. Occurs in the foothill belt.
36. Uncommon; in the foothill belt.
37. Tiny (1 1/4" - 2"); common, with variable color skin.
38. The black brant is not common in California. It breeds along the arctic coasts and winters along the coast further south, only occasionally straying inland. Thus, the identification in the taxonomies is suspect.
39. The Patwin names for the band-tailed pigeon have also been applied to the escaped domestic pigeon or rock dove (Columba livia).
- 40.
- | | type | ht. | range | leaves |
|---------------|----------------|-----------------|----------|--|
| S. lasiandra | tree | 6-15 m | <8000 ft | top dark green
bot glaucous |
| S. gooddingii | tree | 6-10 m
(-20) | <2000 ft | grayish green |
| S. laevigata | tree | 5-15 m | <5000 ft | top light green
bot paler |
| S. hindsiana | shrub | 2-7 m | <3000 ft | gray-silky-villous |
| S. lasiolepis | shrub
-tree | 2-10 m | <7000 ft | top dark green
bot pubescent to
glaucous |
| S. breweri | shrub | ~ 1 m | <4500 ft | top dull green
bot gray tomentose |
41. Nicotiana glauca is an introduced species, now common in wastelands and disturbed soils. Poisonous.