Title

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Author

Carey, Marion

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Marion Carey (360-705-7404, careym@WSDOT.wa.gov), Washington State Department of Transportation, P.O. Box 47331, Olympia, WA 98504 USA

Abstract: Protected wildlife species that utilize the Washington State Department of Transportation (WSDOT) bridges and structures may be susceptible to impacts from routine maintenance and inspection activities. In response to community-driven concerns related to the conservation of protected terrestrial species and due to the lack of existing guidance for bridge related activities, WSDOT expanded their Highway Maintenance Environmental Compliance Guidance for Protected Terrestrial Species to include guidance for bridges. Two documents were developed, one document specific to bridge inspection activities, and one specific to maintenance activities. The guidance is performance outcome based, and requires that inspection and maintenance activities avoid adverse impacts to nesting protected birds and other wildlife. The guidance has been implemented and is successfully being used by bridge inspection and maintenance staff.

Introduction

Protected wildlife species that utilize the Washington State Department of Transportation (WSDOT) bridges and structures may be susceptible to impacts from routine maintenance and inspection activities. In response to community-driven concerns related to the conservation of protected terrestrial species and due to the lack of existing guidance for bridge related activities, WSDOT expanded their Highway Maintenance Environmental Compliance Guidance for Protected Terrestrial Species to include guidance for bridges. Two documents were developed, one document specific to bridge inspection activities, and one specific to maintenance activities. The maintenance activity guidance is region specific, as different regions are subjected to different climatic conditions and may encounter different species. The bridge inspection guidance is a statewide document used by all the bridge inspectors. Guidance is necessary because WSDOT owns over 3,000 bridges, at least 15% of which are occupied during some part of the year by wildlife. In addition, most maintenance and inspection activities need to occur in spring and summer – the same timeframe that many wildlife species are using the bridges for nesting. This has resulted in conflicts between protected species and WSDOT activities.

Development of the Guidance

The guidance documents were developed with the assistance of appropriate personnel from both the maintenance and bridge inspection offices who provided information on the types of activities they normally conduct and the types of species they often encounter. Because of the diversity of activities, diversity of structures and the variety of ways each activity can be conducted; the guidance is performance outcome based. The performance outcomes were developed to insure compliance with state and federal laws addressing protected species. Laws addressed by the guidance include the federal Migratory Bird Treaty Act (MBTA) and Washington State Regulations: Fish and Wildlife Enforcement Code, Chapter 77.15 RCW. The MBTA is administered by the U.S. Fish and Wildlife Service, and makes it illegal to take, possess, import, export, transport, sell, purchase or barter any migratory bird or the parts, nests, or eggs of such a bird without a permit. Nests are covered when they contain eggs or young. There are over 972 species of birds protected under this act, thus all birds which may be found on state bridges, except for rock doves, English house sparrows and European Starlings are protected.

The Washington state Fish and Wildlife Enforcement Code, Chapter 77.15 RCW. prohibits the unlawful taking of endangered and protected fish or wildlife. The regulation stipulates that a person is guilty of unlawful taking if they hunt, fish, possess, or maliciously kill protected /endangered fish or wildlife or if the person possesses of maliciously destroys the eggs or nests of wild birds except when authorized by permit. The regulation results in the protection of all birds except for black-billed magpie, American crow, European starling and the English house sparrow. This regulation is more stringent that the MBTA, as it protects empty nests, not just nests containing eggs or young. Thus between these two regulations, almost all of the birds and nests occurring on state bridges are protected. WSDOT obtains a yearly permit to allow for the removal of empty swallow and other common species nests from bridges.

To help insure compliance with the laws protecting wildlife, the guidance identifies sensitive seasons for commonly encountered wildlife, and identifies of sensitive non-disturbance zones. Sensitive seasons are defined as the time of year that the species are engaged in activities that are very sensitive to disturbance such as nesting. Sensitive zones are defined as the spatial boundary around an active nest site where the majority of hunting, perching and feeding activities occur during nesting season, and in which the species might be more sensitive to disturbance. Best Management Practices (BMPs) were developed based on the performance outcomes, sensitive seasons and sensitive zones. The BMPs were designed to meet the performance outcomes.

Both documents also contain guidance on what to do if the work activities are not covered by or if they cannot be completed by following the guidance. In those instances, regional biologists will be called in to develop a site specific, activity specific BMP plan. The site-specific BMP plan focuses on completing the work without disturbance to protected species during their sensitive times. If work activities are unable to meet the performance standards, and must be completed during a sensitive season and within a sensitive zone, then appropriate permits will need to be obtained to insure compliance with state and federal regulations. The guidance does not apply in emergency situations, because separate procedures were previously developed for emergency maintenance and inspection actions.

Bridge Inspection Guidance

The bridge inspection guidance is specific to the nine inspection activities performed by the bridge inspectors. These range from visual inspections using a Under Bridge Inspection Truck (UBIT) and boats, to pre inspection cleaning, ultrasonic and dye penetrant testing, drilling of timber members, and the use of focused lights. Impacts from these activities can range from minor (inspecting bridge piers is unlikely to impact ospreys nesting on the top of the structure, to major (pre-inspection cleaning can result in the accidental removal of a nest). The three performance outcomes the inspectors must avoid are: (1.) Removal of nests containing eggs or young. (2.) Activities which cause the death of adult or young birds –i.e. activities which would cause pre-fledge young to leave nest prematurely or adults to abandon eggs or young. And (3.) Removal (without replacement) of nests, which are used by protected birds year after year. An example of a nest that must not be removed without replacement is an osprey nest.

The document provides species specific information for species which are commonly encountered on WSDOT bridges. This includes peregrine falcons (there are 13 bridges with nesting peregrines), ospreys (there are 8 bridges supporting nesting ospreys), Pelagic cormorants (there is one bridge which supports over 300 nesting pairs of cormorants), owls (the second most common species nesting on bridges after swallows), swallows, and pigeon guillemots (there is one bridge which supports a colony of guillemots).

For each species or species group, specific information on nesting characteristics is given. This includes identifying the nesting season (ie. March 15- October 15), the sensitive period (including the number of days incubation occurs and the number of days between hatching and fledging), nest structure description, a description of where the nest is often located on the structure, nest guarding behavior, and the number of known bridges in the state occupied by the species.

Specific inspection recommendations are made for each specific species or species group. The most restrictive recommendation is the single bridge supporting pelagic cormorants. Due to the large number of cormorants on the structure, inspection is recommended to occur outside the nesting season. Unfortunately, this colony has a extended nesting season with eggs and young occurring on the bridge from March 15 through October 15. Nesting season peaks in July, when there are over 300 active nests with eggs or young.

Ospreys and peregrines have the second most restrictive set of BMP recommendations. These include (listed in order of preference): 1. Inspect the bridge outside nesting season. 2. If inspection during the nesting season is required, inspect outside the incubation and fledging period. (This requires that actual nesting status of the individuals nesting on the bridge be known or determined prior to the inspection). 3. If inspection during the incubation or nestling period is required, inspect the portions of the bridge that are not used for nesting, remaining outside a site specific sensitive nesting zone. (i.e. Inspecting below the bridge on bridges occupied by osprey, or above the bridge on bridges occupied by peregrine falcons.) The sensitive nest zone will be determined by the biologist who will also supervise the inspection to monitor the behavior of the birds. If disturbance appears like to occur, the biologist could require the inspection to stop. 4. On rare occasions inspection near an active nest may be required. In this case a site specific BMP plan will be developed by a biologist to address the inspection activities.

To date most bridge inspections on bridges occupied by peregrines and ospreys have occurred outside the nesting season or incubation and fledging timeframes. We did have one case where peregrine falcons initiated nesting just prior to inspection, and inspection was able to occur in the early part of the nesting season. A project occurring on the bridge outside the nesting season, prevented the moving of the inspection date.

No timing restrictions are recommended for the inspection of bridges containing owls or swallows. Observations of active swallow nests during inspections indicate the inspections are only slightly disruptive to incubating and feeding activities. Inspectors tend to move across the structure in a quickly and smoothly, spending just a few minutes in each area resulting in minor, short term disturbance to these species.

While biologists have not been able to monitor bridge inspections occurring on bridges with nesting owls, feedback from the bridge inspectors indicates that barn owls are fairly tolerant of disturbance, returning to their nests very quickly after the inspectors have moved on. Local Department of Fish and Wildlife biologists have indicated very little concern over inspection activities and barn owl nests, indicating that they are even tolerant of having nests moved. Barn owls are the most common owl found nesting on WSDOT bridges. Most other owls that have been encountered (great horned, screech and saw-whet) were utilizing the bridges for roosting.

One technique to allow an inspection to occur during the nesting season is to develop a site-specific BMP inspection plan. This plan is developed in coordination with the biologist and the bridge inspectors. It considers the time of year the inspection is planned at, the status of the species within the nesting cycle, and the location of the nest or nests. The biologist will conduct a site visit to determine the statues of the nest, and the potential sensitive nest zone. It may be that the inspection can be allowed to occur with out any restrictions, or some restrictions may be required.

The guidance is designed to function as a planning document. The bridge inspectors use it in setting the yearly inspection schedule. Every January, the bridge inspection scheduler contacts Headquarters Biology with the list of bridges that contain known peregrine and osprey nests that may need to be inspected during the nesting season. The list is

then sent out to the appropriate regional biologists. The regional biologists monitor the nesting status of the bridges and coordinate the inspection with the bridge inspection office.

The goal of the guidance is to avoid inspecting the bridges occupied by nesting protected species during the nesting season. However, with over 3,000 bridges which require inspection every two years, it is not always possible to avoid inspecting during the nesting season, and thus the recommendations were developed to give a greater priority of avoiding the nesting season to species with the greatest sensitivity.

The Bridge Maintenance Guidance

Bridge maintenance differs from bridge inspection in the breath of activities that can occur and the length of time the activities can take to complete. Activities that are covered in this guidance range from regular bridge structure cleaning and debris removal to touch up or repair painting, sandblasting , deck maintenance, structure maintenance, expansion joint maintenance, bridge mechanism maintenance, electrical maintenance and hydraulic maintenance. In addition the guidance is specific to each WSDOT region, as different regions may have different species occupying the bridges. For instance only one region has bridges with cormorants and pigeon guillemots, while other regions have busy-tailed wood rats or dippers. A list of bridges that are known to be occupied by nesting wildlife is included along with the sensitive time frames for each species.

The maintenance guidance is also performance outcome based. The outcomes that must be avoided include: 1. Conducting work activities that create sources or noise or visual disturbance close to the nests of protected birds that result in adult nesting birds to flush-pushing eggs or young off the nest, or to abandon or show prolonged inattention to nests with eggs or young. 2. Conducting maintenance work activities that create sources of noise or visual disturbance that result in young flushing prematurely from the nest leading to their demise. 3. Destruction or removal of nests containing eggs or young of protected species. 4. Removal without replacement of nests that are used year after year by a protected species, this includes osprey nests but not swallow nests. 5. Noise or visual disturbance that causes a maternal bat colony to leave a maternal roost site.

The maintenance guidance is similar to the inspection guidance in that it identifies sensitive nesting or breeding seasons for all the species known to occupy bridges in the region and it identifies a restrictive zone for each species. The restrictive zone is the area in which work should not be conducted, as it would be disruptive to the breeding activities. Zone sizes are set by the sensitivity of the species, disturbance potential of the activity, and the amount of time the activity will occur. Long term, noisy activities in sites with very sensitive species result in larger restricted zones than short term, quite activities in sites with less sensitive species.

When bridge maintenance activities cannot meet the performance outcomes, the biologist is contacted and a site-specific BMP plan is developed. These plans focus on the activities, the species, and try to develop methods that would allow the project to move forward while protecting species. In rare instances, when the work must be conducted and BMPs cannot protect the species, a wildlife management plan may be necessary. These plans are developed when nest intervention or removal is required.

Wildlife management plans require the approval of and permits from the wildlife regulatory agencies, the US Fish and Wildlife Service and the State of Washington Department of Fish and Wildlife.

Implementation

Implementation of the guidance required the creation of several supporting documents including a user guide, guidance to regional biologists on how to create site-specific BMP and wildlife management plans and obtain permits, decision making flow charts and presentation materials. Training was conducted for each user group on the appropriate guidance. Supporting documents showing typical nesting locations, and pictures of the eggs for each commonly encountered avian species was also developed. Since these are living documents, biologists are monitoring typical maintenance and bridge inspection activities to determine if sensitive zones for each species are adequate or if they require modification.

Conclusion

The guidance has been extremely well received by both maintenance and bridge inspection personnel. Reports from the regional biologists indicate that the guidance is being used and that they have successfully responded to several requests for assistance. Over 3,000 bridges have been inspected using this guidance with the need for just two bridge specific BMP plans. The guidance will continue to be modified as necessary and regular trainings will be provided to insure that all bridge maintenance and inspection staff are familiar with it.

Biological Sketch: Marion Carey is the Fish and Wildlife Program Manager in the Environmental Services Office of the Washington State Department of Transportation. She has been with the Department for 12 years. Marion and her staff participate in Endangered Species Act consultations, develop guidance for WSDOT consultants on how to write Biological Assessments, develop state wide policy on wildlife issues, monitor wildlife research projects, monitor deer and elk motor vehicle collisions, engage in habitat connectivity planning, and addressing Migratory Bird Treaty Act issues.