

# Appendix C. Bald and Golden Eagle Protection Act

The bald eagle was removed from the federal list of endangered and threatened species on August 9, 2007 (72 FR 37346). While not listed under the ESA, the bald eagle is still protected under the Bald and Golden Eagle Protection Act (Eagle Act). As such, for project manager's convenience, this appendix provides information on the protection of bald eagles under the Eagle Act.

## C.1 Listing, Critical Habitat Designation, and Delisting



The bald eagle (*Haliaeetus leucocephalus*) is currently a Species of Concern for the U.S. Fish and Wildlife Service (USFWS) and a sensitive species within the State of Washington by the Washington Department of Fish and Wildlife. The bald eagle was federally listed in 1978 as an endangered species in all states except Michigan, Minnesota, Wisconsin, Washington, and Oregon, where it was designated as threatened (USDI 1978). The listing was a result of a decline in the bald eagle population throughout the lower 48 states. The decline was largely attributed to the widespread use of dichloro-diphenyl-trichloro-ethane (DDT) and other organochlorine compounds, in addition to habitat loss, harassment and disturbance, shooting, electrocution from power lines, poisoning, and a decline in the food base.

The bald eagle was reclassified in 1995 from endangered to threatened as a result of a significant increase in numbers of nesting pairs, increased productivity and expanded distribution (USDI 1994). Since 1989, the bald eagle nesting population increased at an average rate of about 8% per year (USDI 1999b). The national average for fledglings per occupied breeding area is greater than 1. Because of the increase in the number of breeding pairs, the bald eagle was removed from the list of threatened and endangered species list on August 9, 2007.

Of the 7 states covered in the Pacific Recovery Area, Washington State supports the largest breeding and wintering populations (USDI 1986). In 2001, 684 nest territories were occupied in Washington (WDFW 2003, unpub. data). Most nesting territories in Washington are located on the San Juan Islands, along the coastline of the Olympic Peninsula, and along the Strait of Juan de Fuca, Puget Sound, Hood Canal, and the Columbia River. Wintering concentration areas in Washington are along salmon spawning streams and waterfowl wintering areas (Stinson et al. 2001).

## C.2 Species Information

### Life History

The bald eagle is a bird of aquatic ecosystems. It frequents estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats. Fish is the major component of its diet, but it also eats waterfowl, seagulls, and carrion. The species may also use prairies if adequate food is available. Bald eagle habitats encompass both public and private lands.

Bald eagles usually nest in trees near water, but are known to nest on cliffs and (rarely) on the ground. Nest sites are usually in large trees along shorelines in relatively remote

areas that are free of disturbance. The trees must be sturdy and open to support a nest that is often 5 feet (1.5 m) wide and 3 feet (0.9 m) deep. Adults tend to use the same breeding areas year after year, and often the same nest, though a breeding area may include 1 or more alternate nests. In winter, bald eagles often congregate at specific wintering sites that are generally close to open water and offer good perch trees and night roosts.

It is presumed that once they mate, the bond is long-term, though documentation is limited. Variations in pair bonding are known to occur. If one mate dies or disappears, the other will accept a new partner. The female bald eagle usually weighs 10 to 14 pounds (4.5 to 6.4 kg) and is larger than the male, which weighs 8 to 10 pounds (3.6 to 4.5kg). Bald eagle wings span 6 to 7 feet (1.8 to 2.1 m).

Bald eagle pairs begin courtship about a month before egg-laying. In the south, courtship occurs as early as September, and in the north, as late as May. The nesting season lasts about 6 months. Incubation lasts about 35 days and fledging takes place at 11 to 12 weeks of age. Parental care may extend 4 to 11 weeks after fledging (Wood et al. 1998). The fledgling bald eagle is generally dark brown except for the underwing linings, which are primarily white. Between fledging and adulthood, the bald eagle's appearance changes with feather replacement each summer. Young dark bald eagles may be confused with the golden eagle, *Aquila chrysaetos*. The bald eagle's distinctive white head and tail are not apparent until the bird fully matures, at 4 to 5 years.

As they leave their breeding areas, some bald eagles stay in the general vicinity while most migrate for several months and hundreds of miles to their wintering grounds. Young eagles may wander randomly for years before returning to nest in natal areas.

Wintering bald eagles often roost at communal sites that give shelter during inclement weather. Bald eagles may roost communally in single trees or large forest stands of uneven ages. Bald eagles may remain at their daytime perches throughout the night as well, but bald eagles typically gather at large communal roosts in the evening.

Communal night roosting sites are traditionally used year after year and are characterized by favorable microclimatic conditions. Roost trees are usually the largest and have the most open structure (Keister and Anthony 1983, Watson and Pierce 1998). They are often located in areas that provide a more favorable microclimate during inclement weather (Knight et al. 1983, Keister et al. 1985, Watson and Pierce 1998). Prey sources may be available in the general vicinity, but for roosting, close proximity to food is not as critical as the need for shelter.

### **C.3 Species Occurrence in Action Areas**

Bald eagles occur as year-round residents in Washington. Resident and wintering populations of bald eagles are known to occur in the action areas identified in this SBE. Bald eagles use the area throughout the year, including the breeding and wintering seasons.

Bald eagle foraging habitat, both summer and winter, occurs throughout western Washington. The action areas contain ample active eagle foraging habitat (perch site along shorelines and accessibility to fish) and can support the species in both winter and summer (Stinson et al. 2001).

#### **North Seattle/Puget Sound**

No bald eagle nests are known to be located in this action area.

#### **Elliott Bay**

Six bald eagle nests are located in the Elliott Bay action area. Five are located within Discovery Park and one located along Magnolia Bluff. Two of these nests have been regularly surveyed and have been active with young being produced. All the nests have been surveyed and have been found active (WDFW 2010b).

#### **Lake Washington Ship Canal**

Two bald eagle nests are located in the Ship Canal action area. Both are located near Green Lake and the Woodland Park Zoo. Both nests have been active over the past 10 years (WDFW 2010b).

#### **Lower Green/Duwamish**

One active bald eagle nest is located in the Lower Green Duwamish action area, along Marginal Way (WDFW 2010b).

#### **North Lake Washington**

Three bald eagle nests are located in the North Lake Washington action area. Two nests are near Wolf Bay. The third nest is near the University Village. Two of these nests were constructed since 1997. No survey has been conducted to see if young have been produced. No information is available on the third nest and whether it is active.

#### **South Seattle/Puget Sound**

Two bald eagle nests are located in the South Seattle/Puget Sound action area. One bald eagle nest is located near Lincoln Park. The other nest is located near Seacrest Marina Park. Both nests are still active (WDFW 2010b).

#### **South Lake Washington**

Seven bald eagle nests are located in the South Lake Washington action area. One is located in Deadhorse Canyon and may be located within Lakeridge. Three nests are located within Seward Park. All nests are active. Three nests are located near the Broadmoor Golf Course and the University of Washington Arboretum. Two of these nests have been found active and one inactive (WDFW 2010b).

## **C.4 Effects of the Action on Bald Eagles**

### **Effects on Nesting Eagles**

#### **Disturbance**

Nesting territories within an action area are subject to disturbance from construction and potential long-term project use. Any potentially disturbing activity in excess or under the right conditions can alter a bald eagle's normal behavior or induce nesting failure (Grubb and King 1991). The response of nesting eagles to human activity can range from behavioral, such as flushing or reduced nest attendance, to nest failure (Fraser et al. 1985, McGarigal et al. 1991, Grubb and King 1991, Grubb et al. 1992, Anthony et al. 1995, Steidl and Anthony 1996, Watson and Pierce 1998). The magnitude of the response varies inversely with distance and increases with disturbance duration, the number of vehicles or pedestrians per event, visibility, sound, and position relative to affected eagle (Grubb and King 1991).

Bald eagles vary in their sensitivity to disturbance, but generally nest away from human disturbance (Stinson et al. 2001). Watson and Pierce (1998) found that vegetative screening and distance were the 2 most important factors determining the impact of disturbances. Heavy vegetative screening can dramatically reduce eagle response to human

activity. Human activities that are distant, of short duration, out of sight, few in number, below the nest, and quiet have the least impact (Grubb and King 1991). Parson (1994) reported that successful nests had lower densities of human residences within about 295 feet (90 m) than unsuccessful nests. Larger set-back distances for buildings have been correlated with greater eagle use. Hodges et al. (1984) reports that in coastal British Columbia, adult eagles and active nests were found in higher than expected numbers in undisturbed habitat, and that disturbed habitat with no remnant old-growth contained far fewer adult birds and no active nests. Grubb et al. (1992) reported the threshold for alert response was about 1,800 feet (549 m) [and for flight response was about 650 feet (195 m)] for breeding bald eagles in Michigan and Arizona, with vehicles and pedestrians eliciting the highest response frequencies.

Bald eagle tolerance of disturbance may depend in part on prior experience and the level of the nesting population relative to carrying capacity. Disturbance experiments conducted by Steidl and Anthony (2000) suggested that bald eagles habituated somewhat over 24 hours to camping about 330 feet (100 m) from nests, but the tendency was not cumulative, with each disturbance being essentially independent of the last. Bald eagles exhibit strong year-to-year fidelity to a nest territory and have been shown to be reluctant to abandon a territory despite increased disturbance and habitat alteration (Stinson et al. 2001). A small but apparently growing number of bald eagles in Washington have been exhibiting an unexpected tolerance to human presence and activities, and nesting successfully in close proximity to homes (Watson et al. 1999). However, this may be the result, in part, from a local shortage of nesting habitat. Nest site fidelity may be stronger when the population is at carrying capacity and no vacant suitable sites are available (Stinson et al. 2001).

Bald eagles may be deterred from nesting, perching, foraging, or wintering within 0.25-mile (0.4 km) of project sites if there will be increases in pedestrian and vehicular traffic. An increase in traffic is not anticipated within Seattle because most areas within the City are already highly urbanized. However, an increase in activity due to future projects less than 0.25-mile (0.4 km) from bald eagle nests can affect bald eagle behavior indirectly through the associated increase in pedestrian activity (Watson and Pierce 1998). Studies have shown pedestrian traffic is more disturbing than auto traffic or aircraft (Fraser et al. 1985, Grubb and King 1991, Grubb et al. 1992).

Pile driving generates the highest noise level of all common construction activities (Bolt et al. 1971). Noise measurements of impact driving of steel piles taken by Washington State Ferries at the Anacortes terminal recorded Lmax readings (peak sound emitted from a source) that averaged between 105 to 115 dB at 50 feet (15.3 m) (Visconty 2000). Heavy equipment operation for road construction generates noise levels of 77 to 96 dB at 50 feet (15.3 m). A general equation of noise propagation for pulsed sound in air is that there is a 7.5 dB loss for each doubling of distance in areas of soft (forested) ground cover. Noise begins to disturb most birds at 80 to 85 dB, and the sound level threshold for the flight response is around 95 dB (Awbrey and Bowles 1990).

Bottorff et al. (1987) observed bald eagle behavior in response to wood or steel pile driving and determined that impact driving of steel piles may have flushed bald eagles at 4,000 feet (1,219 m). Stanford et al. (1997) determined density and distribution of bald eagles during construction of a dam on the Ohio River and documented a significant reduction in bald eagle numbers within 1 mile (1.6 km) of the construction site. The mean distribution of bald eagles also shifted from a point 0.5-mile (0.8 km) upstream from the dam construction site to a point 1.5 miles (2.4 km) upstream. Pile driving was identified as the most notable disturbance during construction of the dam. Impact driving of steel

piles could result in a flight response for any bald eagles within a 1-mile (1.6 km) radius of a project site.

Adequate incubation time and adult perch time near the nest were the best predictors of bald eagle nest success in Washington (Watson and Pierce 1998). Incubation time for bald eagles must be above certain minimum levels and without excessive exposure of eggs in order for embryos to grow and hatch. Exposed eggs weaken the embryos and reduce hatchability (Watson and Pierce 1998). Human or natural events that increase egg exposure by flushing incubating bald eagles for extended periods can cause embryos to die and nests to fail (Watson and Pierce 1998). Disturbance reduces the time bald eagles spend incubating, and decreased incubation time reduces nesting success. Pile driving within 1 mile (1.6 km) and any activity within 656 feet (200 m) of the nest during incubation could cause a flush response, which would reduce incubation time and may affect nest success.

After eggs hatch, Watson (1993) suggested that regular disruption by aircraft or other human activities could result in reduced attentiveness and nest failure due to reduced brooding and feeding of young. In Alaska, humans camping about 330 feet (101 m) from nests for 24 hours caused clear and consistent changes to behavior, including a reduction of 29% in the amount of prey fed to nestlings (Steidl and Anthony 2000). Pile driving within 1 mile (1.6 km) and any human activity that occurs within 656 feet (200 m) of the nest during the nestling period could result in reduced brooding and feeding of young, which could result in nest failure.

### **Habitat**

Assuming the presence of an adequate food supply, the single most critical habitat factor associated with bald eagle nest locations and success is the presence of large super-dominant trees (Watson and Pierce 1998). The average life expectancy of nests is 5 to 20 years. Therefore, bald eagles need trees of similar stature located nearby to serve as replacement nest trees if a nesting territory is to persist (Stinson et al. 2001). Anthony and Isaacs (1989) recommended a 0.25-mile (0.4 km) primary buffer zone around nests to minimize the vulnerability of the nest area to blowdown from wind, fire, disease, and insect infestation. They also recommended against road building, hiking trails, and boat launches less than 0.25 mile (0.4 km) from bald eagle nests, based on their finding that such alterations or the associated human activities were correlated with reduced nest success. Habitat alteration that removes large trees and prevents their replacement could prevent bald eagles from nesting within 0.25-mile (0.4 km) of a project site.

Projects that result in permanent facilities or increased activity will result in increases in both noise and visual disturbance of bald eagles in any adjacent suitable habitat. Fraser et al. (1985) concluded that “Chronic disturbance results in disuse of areas of human activity . . . thus, human activities that chronically exceed the limits of eagle tolerances, may be considered a form of habitat destruction.” Passive displacement may impact habitat that otherwise is undegraded. Passive displacement occurs when human use prevents eagles from using a site (Stinson et al. 2001). Passive displacement has not been widely investigated, but may be more prevalent and important than active disturbance that briefly affects birds (McGarigal et al. 1991, Anthony et al. 1995).

Loss of vegetation around the nests could have long-term negative impacts to the nests themselves by reducing protective screening. Watson and Pierce (1998) found that the presence of vegetation that concealed nests dramatically affected disturbance response. Removal of screening vegetation could expose nestlings and increase noise and visual disturbance of adults and juveniles.

## **Effects on Wintering Eagles**

### **Disturbance**

Wintering bald eagles use all of the Seattle action areas. Disturbances that cause wintering eagles to flush can result in reduced food intake, increased energy expenditure during critical winter periods, and forced use of marginal habitat (Stalmaster and Kaiser 1997).

### **Habitat**

Bald eagles commonly use all Seattle action areas for foraging and nest in all areas except Elliott Bay and North Seattle/Puget Sound action areas. Nesting bald eagles exhibit consistent daily foraging patterns and use of the same perches as they do during the winter (Stalmaster 1987). Perch trees provide bald eagles with some security (Stalmaster and Kaiser 1998). Bald eagles most often forage close to shoreline perch trees (Buehler 2000).

The removal of perch trees from within 250 feet (76 m) of foraging habitat would reduce security and disrupt bald eagle foraging patterns during winter. The result would be reduced feeding and increased energy consumption for both adult and juveniles, which could lead to lower body weights and reduced survival (Hansen and Hodges 1985, Stalmaster and Kaiser 1998).

## **C.5 Permitting Process for Take of Bald Eagles**

The Eagle Act prohibits the “taking” of bald eagles, including their parts, nests, or eggs. Take under the Eagle Act is defined as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. Disturb has further been defined as to agitate or bother an eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (72 FR 31132).

The USFWS has developed a permitting process to improve management of bald eagles under the Eagle Act. Two types of permits are available to protect public safety and manage activities or projects that may disturb or otherwise incidentally “take” bald eagles or their nests, while maintaining stable or increasing populations. Permits will only be granted when they are compatible with this goal.

When the bald eagle was listed under the ESA, a permit was available to take eagles incidental to an otherwise lawful activity. But when the eagle was removed from ESA protection in 2007, there were no provisions for issuing permits under the Eagle Act for activities that could disturb or otherwise incidentally take bald eagles. The growing population of bald eagles could significantly curtail legal human activities if such permits were not available.

The first permit type may be issued only where the “take” – in this case referring to the disturbing, or harming of eagles – is associated with, but not the purpose of an activity, such as commercial or residential real estate development. The second permit type governs removal of bald eagle nests under limited circumstances, including removal of nests that create safety concerns on or near airports. Deliberate killing of eagles will not be allowed under either permit types.

Any person or entity carrying out activities that may result in take as defined in the Bald and Golden Eagle Act will need to obtain a permit through the USFWS. The permitting process will occur directly between the City of Seattle and the USFWS.

## C.6 Permit Process

If your project will involve construction near a bald eagle nest or roosting tree, a permit may be needed if the project will disturb eagles. The following are general guidelines for determining whether a project may disturb bald eagles.

1. No known bald eagle nest trees, perch trees, or roost trees will be felled or modified.
2. Suitable bald eagle habitat will not be removed within 0.25 miles (approximately 400 meters) of nest or roost sites.
3. Potential eagle perches (large snags, dead top trees or other suitable sites) within 0.5 mile (800 meters) of nests or roosts will not be felled.
4. Work activities will not take place within 330 feet (approximately 100 meters) of active nests/roosts that are out of line of sight, or within 660 feet (approximately 200 meters) from nests/roosts that are in the line of sight during periods of eagle use, unless surveys demonstrate that the nest or roost is not being used. Critical nesting periods generally fall between January 1 and August 31. The wintering period is October 15 through March 15.
5. Pile driving, both impact and vibratory, will not occur within 0.5 mile (800 meters) during the active breeding season (January 1 through August 31) when active nests are in line of sight, and 1.0 mile (1.6 km) when nests are out of line of sight.

For projects that do not meet the above guidelines, a permit from the USFWS is needed. Applications for permits under the Eagle Act can be found at the USFWS's website at:

For permits regarding the disturbance of bald eagles: <http://www.fws.gov/forms/3-200-71.pdf>.

For permits regarding the removal of an eagle nest: <http://www.fws.gov/forms/3-200-72.pdf>.

Send application to the:  
U.S. Fish and Wildlife Office  
Migratory Bird Regional Permit Office  
911 N.E. 11th Avenue  
Portland, OR 97232-4181  
Phone #: (503) 872-2715

## C.7 Bald Eagle Work Windows

To minimize disturbance and harassment of bald eagles, the following work windows should be followed. Determine the distance from the nearest point of the project to the location of documented bald eagle nests, roosts and foraging habitat (Table 4-3).

Table 4-3

Approved work windows and activity distances for bald eagles in the Seattle action areas<sup>1</sup>

Location/Activity	Distance from location	Window
In line of sight	>=660 feet	Wintering period <sup>2</sup> October 15 – March 15
		Nesting period January 1 – August 31
Out of line of sight	>330 feet	Same as above
Pile driving (both impact and vibratory)	> 0.5 mile (800 m), out of line of sight	Jan 1 – Aug 31
	> 1 mile (1.6 km), in line of sight	
Source: USFWS 2015		

<sup>1</sup>Action areas are described in Section 2 of this SBE.

<sup>2</sup>Work is scheduled during the wintering period (October 15 through March 15) and/or the nesting period (January 1 through August 31) or **is restricted to a very short period of time to minimize disturbance**. ‘Important wintering areas’ are defined as documented communal roost sites and concentration areas of waterfowl and/or fish that attract large numbers of bald eagles. Screening activities from view (with vegetation or topography) or maintaining 0.5 mile (800 m) distance can minimize potential disturbance.

Follow general conservation measures:

- If habitat removal is proposed, the quantity of habitat removed is limited to a very small amount (therefore insignificant and discountable).
- Noise and activity levels of a proposed activity are kept within ambient levels already present at a site. If bald eagles at a site are tolerant of levels of existing activities, disturbance may be insignificant.