

Bald Eagle Management Plan for the Hanford Site, South Central Washington



Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management



United States
Department of Energy
P.O. Box 550
Richland, Washington 99352

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Release Approval

Date

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Foreword

Bald eagles (*Haliaeetus leucocephalus*) occupy the U.S. Department of Energy Hanford Site in south-central Washington annually during winter and early spring. The 1994 version of the *Bald Eagle Site Management Plan for the Hanford Site, South-Central Washington* guided Hanford Site contractors conducting work in proximity to bald eagles for almost 15 years. The primary management tools employed to protect bald eagles and their habitat for planning and conducting activities on the Hanford Site related to the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* and/or *Resource Conservation and Recovery Act of 1976* were seasonal restrictions of work activities within a buffer zone around known eagle use areas.

The bald eagle was removed from the federal threatened and endangered species list in July 2007, and was down-listed from threatened to sensitive in the state of Washington in 2008. However, federal laws, including the *Bald and Golden Eagle Protection Act of 1940* and the *Migratory Bird Treaty Act of 1918*, as well as the *Washington Administrative Code (WAC)*, still provide protection for eagles, their nest trees, and communal night roosts. Following delisting, new management guidelines for bald eagles were published by the U.S. Fish and Wildlife Service (USFWS) to advise landowners on how to comply with the regulations associated with the new listing status. These changes were accounted for in Revision 1 of the *Hanford Site Bald Eagle Management Plan*, published in 2009.

This revision of the management plan continues the management guidelines described in Revision 1, provides updated information about the location of protected resources, and clarifies decision criteria regarding implementation of the management guidelines. It also addresses recent changes in the status and management of the bald eagle and the implications of these changes to Hanford Site operations.

If Hanford Site activities in the vicinity of documented bald eagle use areas are carried out in accordance with this plan (Table F-1), such actions will not affect eagles or their habitat. Consultation or coordination with the USFWS or the Washington Department of Fish and Wildlife (WDFW), or both agencies, is required for activities that cannot be conducted in compliance with these guidelines.

Table F-1. Spatial and Temporal Restrictions Used to Protect Bald Eagles on the Hanford Site

Bald Eagle Use Area	Buffer Zone Size	Temporal Restrictions
Night roost	0.25 mi (400 m)	Restricted access from November 15 to March 15. Work-related access granted between 10 a.m. and 2 p.m. after notification of Hanford Site ecological compliance staff.
Perch	No restrictions	No restrictions.
Forage	No restrictions	No restrictions unless major foraging areas are identified.
Nest	0.25 mi (400 m)	Restricted access from November 15 until nest becomes unoccupied.
Nest	0.25 mi (400 m) + conditioned zone	Project impact review required and outside agency consultation advised within protected and conditioned zones around a nest site during all months.

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1.0 The Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*), our national symbol, represents freedom and democracy in the United States. The listing of the eagle on the federal threatened and Endangered species list, and its subsequent recovery and de-listing in the lower 48 contiguous states, is one of the most visible success stories for wildlife management and the *Endangered Species Act of 1973*. This document provides an overview of bald eagle distribution, behavior, and ecology important to understanding the issues related to management and protection of this species on the Hanford Site. This information is used to define the actions that constitute the U.S. Department of Energy, Richland Operations Office (DOE-RL) policy regarding bald eagle protection and management on the Hanford Site.

1.1 Identification and Distribution

Adult bald eagles are easily identified by their dark bodies, white head and tail, and bright yellow beak. However, young eagles do not attain this distinctive plumage until the fifth or sixth year of life (Buehler 2000). Before this change, juveniles are dark brown with dark beaks that gradually turn to yellow and are sometimes mistaken for mature golden eagles (*Aquila chrysaetos*).

Bald eagles historically occurred throughout North America. Widespread and fairly abundant, bald eagles are associated with aquatic habitats and are typically more numerous in coastal areas where food resources are most abundant (Buehler 2000). Alaska has the most bald eagles, but many are found along the Atlantic coast, in the Chesapeake Bay region and the Northeast, in the Great Lakes states, and in the Pacific Northwest. Eagles residing in the north are often migratory and may be concentrated in areas where seasonal food is readily abundant. Conversely, eagles in the southern United States may be largely resident (Buehler 2000).

Bald eagles occur throughout Washington State during all parts of the year. During spring and summer, most are found west of the Cascade Mountains, and more than 80 percent of the active bald eagle nest sites in the state are located there (Stinson et al. 2001; Watson et al. 2002). During winter, many eagles move south from Alaska and Canada. This migration swells the Washington State eagle population to nearly 10 percent of the total bald eagle population of the lower 48 states (Fielder and Starkey 1987). As in summer, most wintering bald eagles (about 75 percent) reside west of the Cascades (Fielder and Starkey 1987; Stinson et al. 2001, 2007). In eastern Washington, many bald eagles winter along the mainstem of the Columbia River from Pasco upstream to Kettle Falls, around Banks Lake, and along the lower Spokane and Pend Oreille rivers. Almost 10 percent of this eastern Washington bald eagle population can be found along the Hanford Reach of the Columbia River (Fielder and Starkey 1987); up to 40 individuals were observed in mid-winter during the 1990s (PNNL 2001). Monitoring during the 2011-12 and 2012-13 winter seasons (MSA 2012, 2013) found a maximum of about 50 individuals.

1.2 Breeding and Foraging Ecology

Bald eagle pairs often bond for life. Preferred nest locations are high in a large tree or other structure that has a clear view of a nearby water body that supports abundant fish populations.

Reproductive chronology varies throughout their range. In Washington State, nest building may begin as early as December, and young may fledge as late as August. A typical nest will result in a single chick fledged annually, although one to three eggs may be laid. Eagles are most sensitive to human activity and disturbance during the nesting season, although disturbance to eagles during winter may also exacerbate physiological stresses typical during the winter season.

Although fish are the preferred prey, bald eagles are opportunistic and may target waterfowl during winter and colonial waterbirds during spring and summer. Bald eagles are also known to eat carrion, aquatic and terrestrial mammals, and crustaceans (Buehler 2000). Large concentrations of salmon and waterfowl attract bald eagles to the Hanford Reach during winter.

1.3 Biology of the Bald Eagle on the Hanford Site

Bald eagles occur on the Hanford Reach primarily during the winter months. They arrive in mid-November to take advantage of the abundance of upriver bright fall Chinook salmon (*Oncorhynchus tshawytscha*) carcasses that wash up along the Columbia River shoreline, islands, and various flats. Wintering eagles use different habitats for various daily activities, including perching, foraging, and roosting. Although bald eagles may be observed far from water, they typically occupy habitats within 0.25 mi (400 m) of the Columbia River and use trees growing along the shoreline for perching and roosting. During daylight, eagles are often observed perching in trees, usually near foraging sites. Trees selected for perching may grow singly or in groves and may be along the river or a few kilometers inland. Foraging sites are found where food is concentrated and where there is little human disturbance. In early winter, salmon carcasses that wash up on shallow-sloped shoreline areas downstream of spawning sites are the eagles' primary food source. As salmon carcasses become less abundant later in the winter, eagles begin to prey upon wintering waterfowl that congregate in the region. Waterfowl concentrate on shorelines, islands, and slower-moving water where there is little human disturbance. On the Hanford Site, these areas generally occur from the old Hanford Town Site upstream to the Vernita Bridge. This stretch is closed to hunting and fishing from late October through the end of January and receives little recreational boat traffic during winter months. Large offsite waterfowl concentrations are found on reservoir pools above McNary, Priest Rapids, and Wanapum dams.

Communal night roosts are an important and protected habitat resource because they provide shelter from winter weather and may also serve a social function. For management purposes, a communal night roost is defined by the WDFW as a tree or a group of trees in which at least three eagles roost for at least two nights during more than one year (Stinson et al. 2007). This definition differentiates communal roosts from a perch used by a territorial pair of eagles. However, most agencies, such as the USFWS, do not have a specific definition of what constitutes a night roost. Preferred roost locations may change through winter as eagles switch from eating salmon to waterfowl and redistribute to be near waterfowl concentration areas off the Hanford Site. Based on Hanford Site roost monitoring (MSA 2012, 2013), it is clear that some sites are important roost locations, even if they do not often have 3 or more eagles present. Many trees on site are used at irregular intervals, but are occupied less than 5 or 10 percent of the

time, and then by only one or two eagles. The sites that are clearly important roost sites are used more regularly, and are typically occupied by one or more eagles at least 30 percent of the time.

Six primary night roosts were identified along the Hanford Reach in the original Hanford Site Bald Eagle Management Plan (DOE/RL 1994) and two more (downstream Hanford Town Site and Wooded Island) were added in Revision 1 of the Bald Eagle Management Plan (DOE/RL 2009). A clump of black locust (*Robinia pseudoacacia*) growing on the river shore immediately upstream of the 100-K Area perimeter fence was the most upstream roost, while a clump of black cottonwood (*Populus trichocarpa*) growing adjacent to Wooded Island about 1.5 mi (2.4 km) downstream from the Columbia Generating Station water intake was the farthest downstream roost (Figure 1).

Regular monitoring during the Fiscal Year (FY) 2011 and FY 2012 winter seasons identified two additional winter roost sites (Figure 1). One of these, at the White Bluffs boat launch, was a re-establishment of a historical communal roost area that had ceased to function as a roost site because it was within the nesting territory associated with the former nest on the White Bluffs peninsula. This site was identified by Eisner (1991) as an important night roost. The second recently identified new roost site (Upstream 100-F Island), located near the southeast corner of the 100F Area, frequently had more than three roosting eagles in FY 2011. In FY 2012, it was occupied by one or more eagles at least 1/3 of the time, but was more rarely occupied by three or more birds. Signs have been posted at both of these sites to restrict vehicular and personnel access during the winter roosting season.

Two sites previously considered to be night roosts are no longer being managed with signs and access restrictions. The grove of trees near the northwest corner of 100K Area was listed as a night roost in the original bald eagle management plan, with the claim that “Two adult eagles have been seen using this site for roosting since the mid-1980s.” No specific data were cited, nor have any been found to corroborate that eagles use the site as a night roost, as opposed to a day perch. Eisner (1991) classified this location as a major perch but a minor roost. In an analysis based on Eisner’s data print-outs, Simmons (1995 unpublished memo) found that eagles were present at the 100K roost site at only 2 of 17 (12 percent) of the observations (it is not clear if these observations were made during evening or morning roost periods or during the day). Subsequent monitoring conducted in support of construction and site remediation actions (by various site contractors), during boat surveys of the Hanford Reach by Pacific Northwest National Laboratory (PNNL), and during incidental monitoring (mainly by PNNL) found that the site is often occupied during the day (44 to 78 percent of the time), but observations near sunrise or sunset detected eagles on only 5 out of 40 monitoring events (12 percent); none of these observations were of more than two eagles, and most were of one eagle. Regular monitoring during FY 2012 and FY 2013 found eagles roosting at the site 2 out of 10 and 2 out of 15 monitoring periods, respectively, for a two year average of 16 percent occupancy, and 3 of the 4 observations were of only one eagle. The occurrences were separated by several weeks each year, indicating no period of increased importance for the site. These data suggest that, although the 100K site may be an important day-perch site, it is not significantly different from a number of other trees along the Hanford Reach that are used as occasional night roosts. Based on these data, continued protection of the site as a night roost is not justified.

The downstream Hanford Town Site roost started to receive administrative protection based on monitoring conducted during 2006 and 2007 (PNNL 2008). Overall, there has been much less monitoring at this location than at 100K, but the available data, including Eisner (1991) and data collected between 2011 and 2013 (MSA 2012, 2013) suggest that the area is used on an infrequent basis (less than 20 percent of observations) as a night roost, and only by single eagles. These results suggest that the site is not significantly different from a number of other trees along the Hanford Reach that are used as occasional night roosts. Based on these data, continued protection of the downstream Hanford Town Site location as a night roost is not justified. The monitoring data cited in PNNL 2008 appear to be primarily daytime observations that indicate the area is a common daytime perch site.

Figure 1 shows all of the sites that are currently managed as night roosts on the Hanford Site, following the management guidelines described in Section 3. Hanford Site biologists will continue to regularly monitor the active night roosts, and all other potential roost sites, to determine if any other sites needed to be added or removed from the group that are actively managed and protected.

Bald eagles have occupied a number of nest sites on the Hanford Site (Figure 2) as far back as the 1960s (William Rickard, PNNL, personal communication). In 1991, two pairs were observed attempting to nest, one near the White Bluffs boat launch and another south-southwest of the 100F Area and more than 3 mi (5 km) from the river (DOE-RL 1994). Additional nests were constructed at the site near the White Bluffs boat launch in 1993 and 1999. In 1992, a nest attempt was made adjacent to the Columbia River south of the 100F area (DOE/RL 1994). A pair of bald eagles returned annually between 1999 and 2007 to tend a nest located on the White Bluffs peninsula, at the site of one of the most important historical communal night roosts (DOE-RL 1994). In 2010-11, a nest was built, and subsequently abandoned, within the downstream 100H communal night roost near 100-H Area. A second nest was built nearby in early 2013, but no eagles were ever observed near the nest. In early 2013, a new nest was constructed at the Wooded Island night roost site. Eagles were regularly observed at the nest through early spring, and were still present at the site as of the publication of this management plan revision. Two nest attempts were noted on opposite shore of the Columbia River, in portions of the Hanford Site managed by the USFWS. One nest was noted across from the Hanford Town Site in 1998, and another was noted across from the 100K Area in 2009. To date, there have been no known successful nests on the Hanford Site, as most are abandoned by late spring, and no young have been observed at any nest. The eagles often build the nest throughout the winter but eventually abandon the nest territory and depart the Hanford Site in mid to late-March.

Current nest site information and protective buffer maps are available at the Mission Support Alliance Public Safety and Resource Protection website at <http://www.hanford.gov/page.cfm/EcologicalMonitoring>.

Successful bald eagle nests elsewhere in the region are located along the Yakima River south of Granger, Washington, approximately 25 mi (40 km) southwest of the Hanford Site, and at the Johnson Creek/Getty's Cove site upstream from Wanapum Dam, approximately 20 miles (32 km) northwest of the Hanford Site. Another nest has been constructed and used for several

recent years on Goose Island, just upstream of the Priest Rapids Dam (about 6 miles [10 km] west of the Hanford Site), but has not been successful (Turner 2013). The nest near Granger was first noted to fledge an eaglet in 2000 (Livingston and Hames 2001) and it appears to have been successful at least as recently as 2009 (WDFW 2012). The nest near Wanapum Dam produced young each year between 2010 and 2012 (Turner 2013).

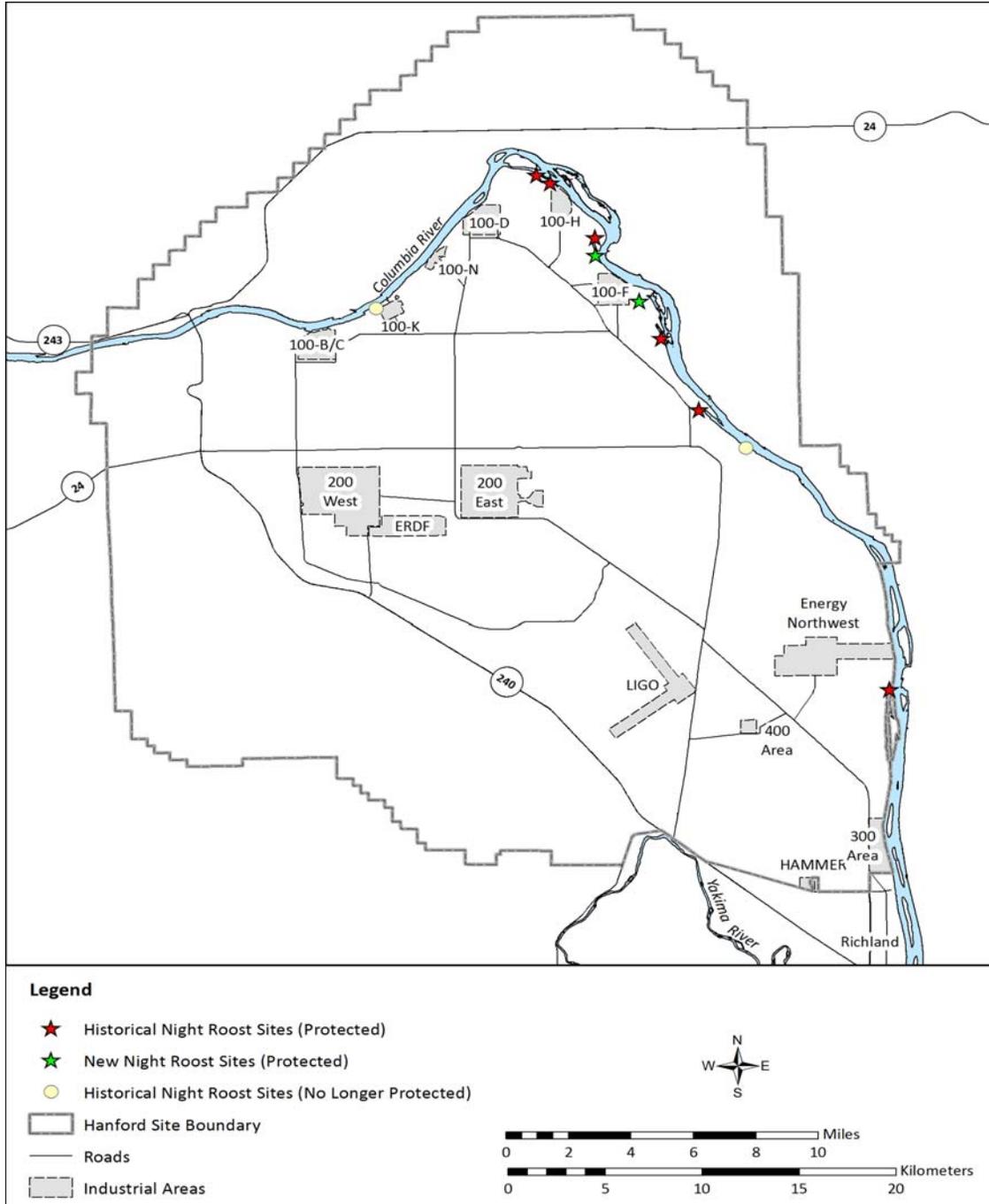


Figure 1. Historical and Current Sites Protected as Bald Eagle Communal Night Roosts on the Hanford Site

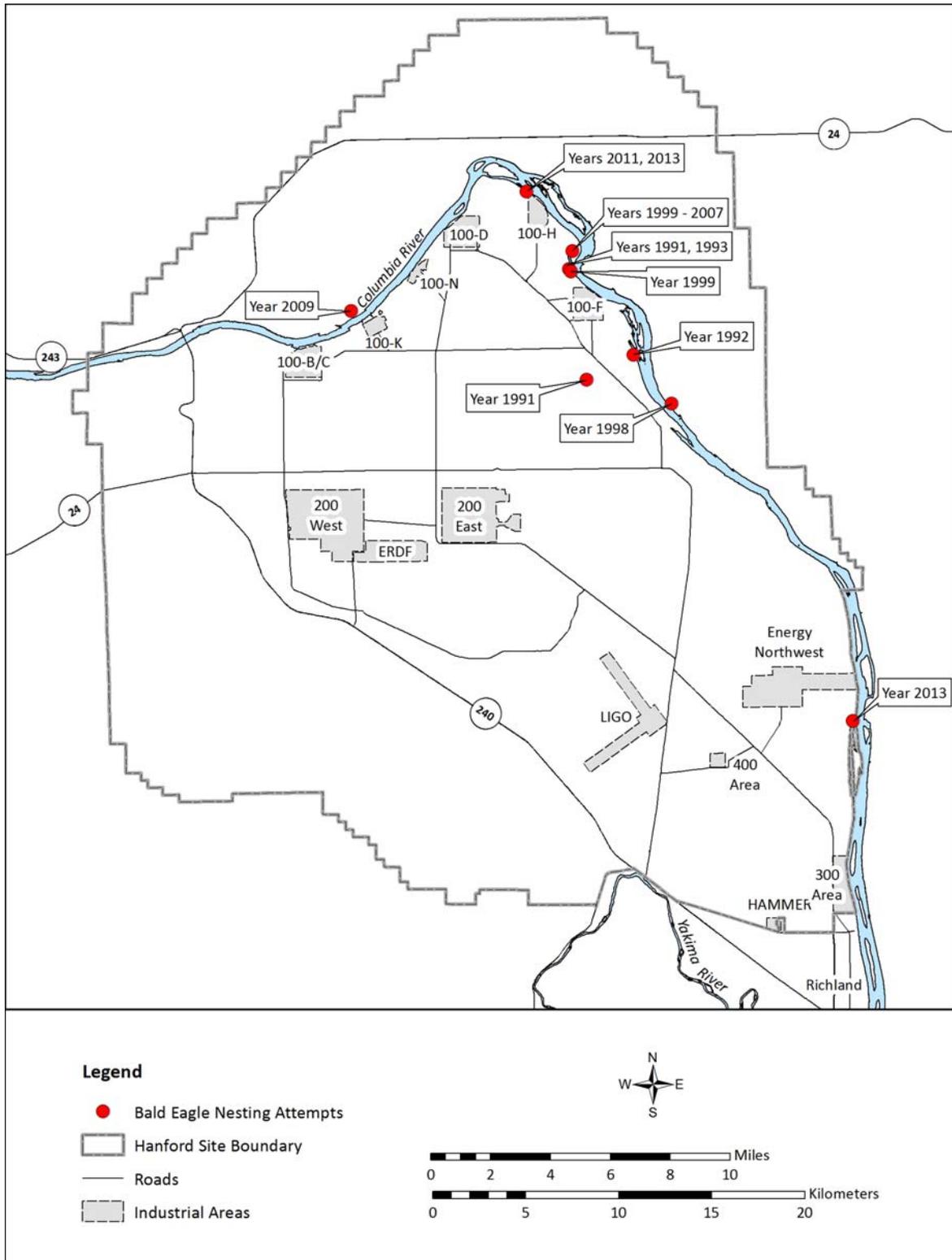


Figure 2. Location of Known Bald Eagle Nesting Attempts on the Hanford Site

2.0 Status and Historical Management

Unlike all other wildlife species, protection and management of the bald eagle dates far back into the history of the United States. The bald eagle was accepted as our national emblem in 1782 (Table 1) when the Great Seal of the United States was adopted: an eagle clutching a bundle of arrows in one talon and an olive branch in the other. Although the bald eagle was removed from the federal list of endangered and threatened species, federal and state regulations and guidelines continue to provide protection for these birds.

Table 1. Management Chronology of the Bald Eagle

Year	Event
1782	Bald eagle accepted as the U.S. national emblem.
1900	<i>Lacey Act of 1900</i> adopted to aid restoration of game and other wild birds.
1918	<i>Migratory Bird Treaty Act of 1918</i> defined protections for all migratory birds listed.
1940	<i>Bald and Golden Eagle Protection Act of 1940</i> defined specific bald eagle protections.
1967	Southern bald eagle populations listed under the <i>Endangered Species Preservation Act of 1966</i> .
1973	<i>Endangered Species Act of 1973</i> enacted by Congress.
1978	Bald eagle listed as endangered in 43 of lower 48 states.
1979	Winter eagle surveys initiated in Washington State.
1980	Eagle nest surveys initiated in Washington State.
1984	“Protection of bald eagles and their habitats – Cooperation required” <i>Revised Code of Washington (RCW) 77.12.650</i> and “Habitat buffer zones for bald eagles – Rules” (RCW 77.12.655) enacted by Washington State.
1986	Bald Eagle Protection Plan rule approved by the Washington Fish and Wildlife Commission.
1994	Hanford Site Bald Eagle Management Plan (DOE/RL-94-150 Rev.0) published by DOE-RL
1995	Bald eagle downgraded from endangered to threatened throughout the lower 48 states.
1999	Bald eagle proposed for delisting by the USFWS.
2001	Washington <i>Bald Eagle Status Report</i> published and habitat protection rules revised.
2007	May – <i>National Bald Eagle Management Guidelines</i> published by the USFWS.
2007	June – Proposed rules for take published by the USFWS.
2007	July – Bald eagle delisted from the Endangered species Act by the USFWS.
2008	January – Bald eagle downgraded to sensitive in Washington State by the Washington Fish and Wildlife Commission.
2009	September – Rules for take adopted and published by the USFWS.
2009	September – Revision to Hanford Site Bald Eagle Management Plan (DOE/RL-94-150, Rev 1) published by DOE-RL
2011	April – Washington State suspends requirement for site-specific bald eagle management plans unless bald eagles are listed as threatened or endangered

2.1 Federal Protection

Bald eagles garnered legal protection beginning with the *Lacey Act of 1900* (16 U.S.C. 701), which was adopted to aid in the restoration of game and other wild birds where populations had declined. The *Migratory Bird Treaty Act of 1918* (16 U.S.C. 703) made it illegal to:

”. . . pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird.”

The bald eagle was classified as migratory under this act and thus afforded protection in addition to the *Lacey Act of 1900*. The bald eagle was further protected under the *Bald and Golden Eagle Protection Act of 1940* (16 U.S.C. 668–668d), which specifically prohibited taking, possessing, selling, purchasing, bartering, offering to sell or purchase or barter, transporting, exporting, or importing at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest, or egg of these eagles with limited exceptions. In spite of these protections, bald eagle populations declined throughout the 1900s from various human-related activities, including habitat destruction, persecution, and pesticide use. In 1967, southern bald eagle populations were listed under the *Endangered Species Preservation Act of 1966* (P.L. 89/669, 80 Stat. 926), the predecessor to the *Endangered Species Act of 1973* (16 U.S.C. 1531). Population declines continued into the 1970s when levels reached their lowest point. In 1978, the bald eagle was listed as endangered in the lower 48 contiguous states except in five states (including Washington) where it was listed as threatened (43 FR 6233). The ban of the pesticide DDT, which was implicated as a causative factor of raptor population declines, coupled with protections afforded by the *Endangered Species Act* listing, allowed eagle populations to recover sufficiently by 1995 to be reclassified to threatened status throughout the lower 48 states (60 FR 36000).

Eagles have reestablished territories in each of the lower 48 states and continued to recover beyond established goals. As a result, the USFWS proposed to delist the bald eagle in 1999 (64 FR 36454); the delisting became final on July 9, 2007 (72 FR 37346). By 2007, there were almost 10,000 nesting pairs in the lower 48 states, including 840 in Washington State during 2005 (72 FR 37346, Stinson et al. 2007).

Although the bald eagle was removed from the federal endangered and threatened species list, the species is still protected under federal law by the *Bald and Golden Eagle Protection Act* and the *Migratory Bird Treaty Act*. In May 2007, the USFWS published the *National Bald Eagle Management Guidelines* to publicize eagle act provisions, advise landowners, land managers, and public of the potential for eagle disturbance, and encourage nonbinding land-management practices that benefit bald eagles (USFWS 2007). Within these guidelines, the term *disturb* was defined as:

“To agitate or bother a bald or golden 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.”

Impacts to habitat that occur when eagles are not present that result in decreased productivity are also considered disturbance. To avoid disturbance of bald eagles at nest sites, three administrative protection strategies were offered:

1. limited-access buffers of varying size and shape, depending on activity, topography, and historical human tolerance,
2. landscape barriers (natural vegetation) to screen eagles from human activity,
3. avoidance of certain activities during the seasons when eagles are present.

The USFWS acknowledges that a great amount of uncertainty exists with respect to nesting eagle disturbance and that size and shape of protective buffers will vary, depending on topography, cover, nest height, and historical tolerances of eagles when exposed to potentially disturbing human activities (USFWS 2007). Bald eagles in one location may be accustomed to activities such as routine vehicle or pedestrian traffic on roadways near the nest, yet other eagles may be sensitive to the same or similar activities that are intermittent, occasional, or irregular. Visibility of activities or structures to eagles is often a factor when evaluating disturbance potential.

Federal guidance recommends seasonal restrictions around nest sites for activities that are temporary in nature. For activities conducted within sight of eagles at the nest, a minimum 660-ft (200-m) seasonal protective buffer is recommended. This includes off-road vehicle traffic, construction, and equipment installation. Loud and disruptive activities should be conducted during the non-breeding season. Activities not as potentially disruptive, such as non-motorized human entry or motorized boat traffic passing by, should be restricted within 330 ft (100 m).

Recommendations for avoiding disturbance at communal roost sites include restricting explosive use within 1 mi (1.6 km) and locating aircraft corridors no closer than 1000 ft (305 m) when eagles are congregating. The USFWS also acknowledges that many states may have regulations more protective of bald eagles and their habitats.

2.2 Washington State Protection

RCW 77.12.655 establishes the need for protection buffers for bald eagles, and the extent of those buffers may vary by case. WAC 232-12-292 establishes Bald Eagle Protection Rules to protect habitat through cooperative efforts and thereby maintain the population of the bald eagle in Washington State. These rules require a management plan for land development, forest practices, or other potentially disturbing activities on state and private lands near eagle nests and roosts (Stinson et al. 2007). The Washington Fish and Wildlife Commission reclassified the bald eagle from threatened to sensitive in 2008, and subsequently modified WAC 232-12-292 in 2011 such that it only applies if the bald eagle is listed as threatened or endangered. Thus WDFW

does not currently enforce the Washington State Bald Eagle Protection Rules. However, the rules presented in WAC 232-12-292 and the guidelines for Bald Eagle Management Plans (available as Appendix C in Stinson et al. 2007) provide useful guidance for minimizing impacts to nesting and roosting bald eagles, and for compliance with the *Bald and Golden Eagle Protection Act*.

The now-suspended Washington State Bald Eagle Protection Rules include guidance for both nest and night roost protection. The standard bald eagle management plan restricted certain disruptive activities within 800 ft (244 m) of an eagle nest, as well as within a riparian buffer zone within 250 ft (76 m) of the shoreline and within 0.25 mi (400 m) of an eagle nest (RCW 77.12.655). All known perch trees greater than or equal to 24 in. (61 cm) in diameter and all cottonwoods (*Populus* spp.) at least 20 in. (51 cm) in diameter must be retained within a 250-ft (76-m) shoreline buffer. A site-specific bald eagle management plan was required for specific activities within 0.25 mi (400 m) of a communal roost (Stinson et al. 2007, Appendix C).

3.0 Hanford Site Bald Eagle Protection Guidelines

3.1 Historical Protection

From 1994 through 2008, management actions and guidelines that pertained to bald eagles on the Hanford Site were prescribed in the original *Bald Eagle Site Management Plan for the Hanford Site, South-Central Washington* (DOE-RL 1994). This document provided Hanford Site contractors with guidance for conducting work activities in proximity to bald eagles. The plan followed the federal guidelines that existed at the time of publication and set temporal and spatial restrictions on Hanford Site operations to protect the eagles and their habitats on the site. Human activities were restricted between November 15 and March 15 within 0.5 mi (800 m) in line-of-sight and 0.25 mi (400 m) not in line-of-sight of all active nest sites and communal night roosts. An exception was made to shorten this distance at a communal roost site near 100-K Area. Eagles at that site were tolerant of human presence, as demonstrated by the continued use of the area by eagles, at least as a day perch, in proximity to increasing human activities over a number of years. Under the 1994 management guidelines, no administrative controls were placed on perch and forage sites. However, intrusive activities involving prolonged use of heavy machinery were evaluated on a case-by-case basis.

Revision 1 of the *Bald Eagle Management Plan for the Hanford Site, South-Central Washington* (DOE-RL 2009), was published in 2009, and a supplement to Rev. 1 was issued in July 2010 to deal with management issues specific to the 100 K area night roost. Revision 1 accounted for the delisting under the *Endangered Species Act of 1973*, and recognized the Washington State reclassification from threatened to sensitive. Revision 1 utilized the USFWS *National Bald Eagle Management Guidelines* (USFWS 2007), but did not account for the suspension of the Washington State Bald Eagle Protection Rules (WAC 232-12-292). Thus, exclusion buffer size for night roosts was set based on the now-suspended state guidelines.

3.2 Current Protection

The buffer distances described in DOE/RL-94-150 Rev. 1 (Table 2) will continue to be maintained on the Hanford Site. These buffer distances are larger than suggested in the USFWS *Bald Eagle Management Guidelines* (USFWS 2007). However, because of their relative isolation from humans, eagles on the Hanford Site tend to be sensitive to human disturbance, and often have been observed flushing from roost areas by disturbances greater than 400 m (0.25) away. Strict adherence to the national bald eagle management guidelines does not absolve an agency of responsibility for take under the *Bald and Golden Eagle Protection Act*, thus the larger buffers provide a greater degree of compliance assurance. Maintenance of these 400 m (0.25 mi) buffers should not have a significant impact on site activities, because most remedial actions within affected areas have been completed, and most site roads that are affected by the 400 m (0.25 mi) buffer would still be affected by smaller buffers. Because of the difference between the buffers established here and the USFWS guidelines, the DOE has some leeway for case-by-case evaluation or modification when needed.

Active nest locations and preferred communal night roost locations may change over time. Eagle use of habitats on the site will be reassessed on a regular basis, and site guidance and access restrictions will be modified as needed to avoid disturbance of eagles and to protect their habitats.

Consultation with the USFWS or the WDFW, or both, is required for activities that cannot be conducted in compliance with this management plan. Such consultation could potentially lead to a special take permit. For example, CH2MHill Plateau Remediation Company maintains a permit issued by the USFWS (MB30480A) to cover potential take if off-hours access is required into the 100HX pump and treat system (located adjacent to the 100H roost sites). Such special permits will likely have specific monitoring and reporting requirements.

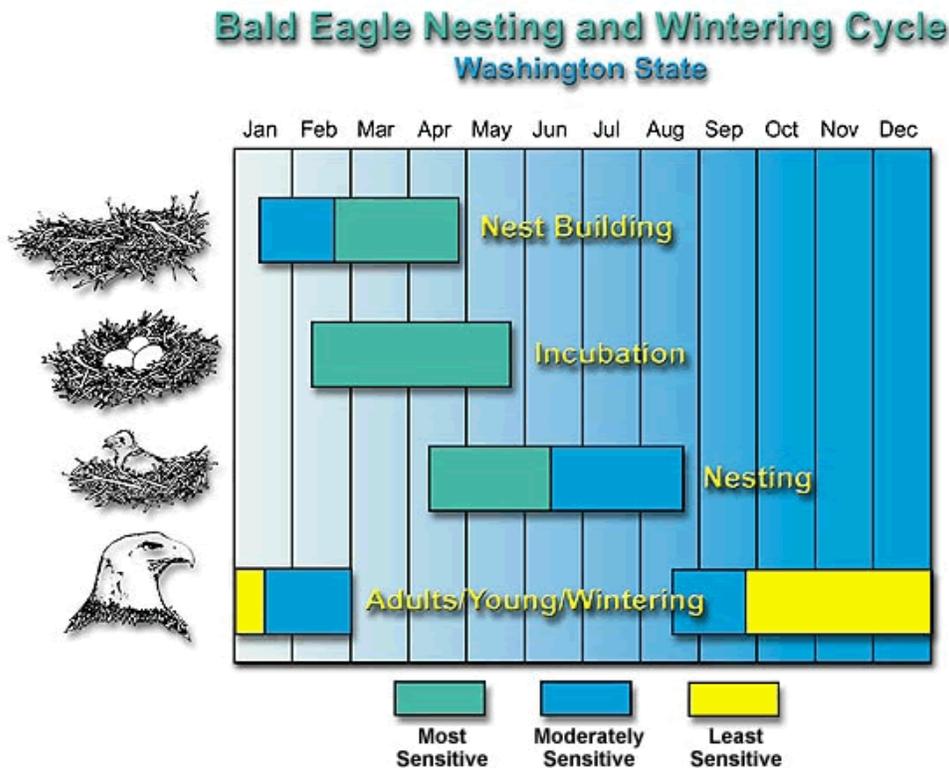
Table 2. Restrictions Recommended to Protect Bald Eagles on the Hanford Site

Bald Eagle Use Area	Buffer Zone Size	Temporal Restrictions
Night roost	0.25 mi (400 m)	Restricted access from November 15 to March 15. Work-related access granted between 10 a.m. and 2 p.m. after notification of Hanford Site ecological compliance staff.
Perch	No restrictions	No restrictions.
Forage	No restrictions	No restrictions unless major foraging areas are identified.
Nest	0.25 mi (400 m)	Restricted access from November 15 to March 15, or until nest abandonment or fledging of young, whichever is later.
Nest	0.25 mi (400 m) + conditioned zone	Project impact review required, and outside agency consultation advised within protected and conditioned zones around a nest site during all months.

3.2.1 Nest Site Management

Two protection zones are applicable to active bald eagle nests. Seasonal access within a *protected* or primary zone represented by a 0.25-mi (400-m) buffer surrounding the nest is prohibited beginning on November 15 and ending when the nest is no longer occupied, which historically has been around March 15 the following year (Table 2). A *conditioned* or secondary zone is established to protect habitat such as perches, roosts, and alternative nest sites. The conditioned zone includes the protected zone, and the overall shape and size are determined by the distribution of perches, roosts, and other known alternative nest locations. Projects potentially impacting eagle habitat resources within the conditioned zone are subject to an ecological review to determine potential adverse impacts. Informal consultation with the USFWS migratory bird office leading to special take permits may be warranted if there are potential impacts to an active nest.

Eagles are sensitive to disturbance during all nest stages, including the early nest building, and may abandon a nest if disturbed (Figure 3). Bald eagles are most sensitive to human disturbance during the earlier stages of the nesting cycle, especially during courtship and nest building, egg laying and incubation (USFWS 2012), but fledglings are also susceptible to premature flushing from the nest due to disruption.



**Figure 3. Bald Eagle Sensitivity To Disturbance At Different Nesting Stages
(From WDFW 2013)**

Monitoring of nest sites will commence as soon as possible after a nest structure is first observed. Monitoring efforts will include observations of at least one-hour duration at regular intervals. Observers will note the presence of adult birds in the vicinity of the nest, and any behaviors suggesting that nesting is likely. Nesting behaviors may include territorial defense, carry sticks, tending the nest, or pair bonding.

Access restriction signs will be placed at each road access point into the nest buffer zones as soon as a nest is observed and documented to be used by a pair of eagles (it is not uncommon to observe what appears to be a new nest, but never see eagles associated with it). The buffer zone signs provide information about the road closure and a point of contact. In general, no access is allowed near occupied nest sites until the nest is no longer occupied. Exceptions will be on a case-by-case basis, will likely include consultation with the USFWS migratory bird office, and may require special permit from USFWS.

USFWS generally recognizes that a bald eagle nest site is considered active for five years following occupation by a pair of eagles during the breeding season. Therefore, the 0.25-mi (400-m) nest-site buffer will be maintained (during at least the winter through spring season) for five years following occupation. A nest will be considered to be occupied if the pair of eagles continues to use the nest after May 10, which is the latest first-egg date recorded for bald eagles in Washington State (Burke Museum 2012).

3.2.2 Communal Night Roost Management

Communal night roosts are protected with a 0.25-mi (400-m) buffer around each roost. Because roosts may consist of several nearby trees, buffers are set at 400 m from the center point of each of the trees that significantly contribute to the roost site (as determined via regular roost monitoring). Seven communal night roosts were identified in the last management plan revision (DOE-RL 2009) (Figure 1). Regular monitoring during the 2011-12 and 2012-13 winter seasons provided the basis to drop two of these sites (100K and the downstream Hanford Town Site) (See Section 1.3) and add two new sites (White Bluffs boat launch and upper 100-F Island) (MSA 2012, 2013). Access restriction signs are located at each road access point into roost buffer zones between November 15 and March 15 each year, and provide information about entry restrictions and provide points of contact. All Hanford Site personnel must notify the point of contact prior to entry into roost buffer zones. During the seasonal closure, work-related access may be permitted within the communal roost buffers between the daytime hours of 10:00 a.m. and 2:00 p.m., following notification of the designated point of contact.

The current map of bald eagle roost sites is provided in Figure 4 and will be updated and maintained at the Mission Support Alliance Public Safety and Resource Protection website at: <http://www.hanford.gov/page.cfm/EcologicalMonitoring>.

Known and potential communal night roost sites will be regularly monitored to determine if administrative protections need to be established at new roost sites, or if they are no longer justified at existing locations. Monitoring will be conducted weekly to bi-weekly, depending on

available budget. To differentiate between night-roost and daytime perch locations, all night roost monitoring will be conducted either in the evening between one-half hour before sunset until dark, or in the morning between first light and one-half hour after sunrise.

Administrative protection, such as installation of signs and access restrictions will be initiated at a new roost site if monitoring determines the presence of three or more eagles on at least two nights during a year, or if continued monitoring over two or more years determines that the site is occupied at night by one or more eagles at least 30 percent of the time as night roosts.

Administrative protections and access restrictions will be discontinued at sites where monitoring over two or more years indicates night-roost occupancy by one or more eagles is less than 30 percent of the time and there is little or no indication of use by more than two eagles.

3.2.3 Foraging and Perch Sites

Bald eagle foraging occurs throughout the Hanford Reach. There are no restrictions on activities occurring near foraging or daytime perching sites if they occur outside the 0.25-mi (400-m) buffers established for nest sites or night roosts. Additional monitoring may identify major foraging sites outside existing protection buffers; if identified, means to restrict access will be evaluated and implemented to the degree practical. Management of bald eagle habitat, including protection of trees within 0.25 mi (400 m) of the Columbia River shoreline, would fall under guidance of the Hanford Site Biological Resources Management Plan (DOE-RL 2013) and the *Hanford Reach National Monument Final Comprehensive Conservation Plan and Environmental Impact Statement* (USFWS 2008).

3.3 Conclusion

If Hanford Site activities in the vicinity of documented bald eagle nest and night roost sites are carried out in accordance with this plan, such actions will not affect eagles or their habitat.

Consultation or coordination with the USFWS or the WDFW, or both, is required for activities that cannot be conducted in compliance with these guidelines.

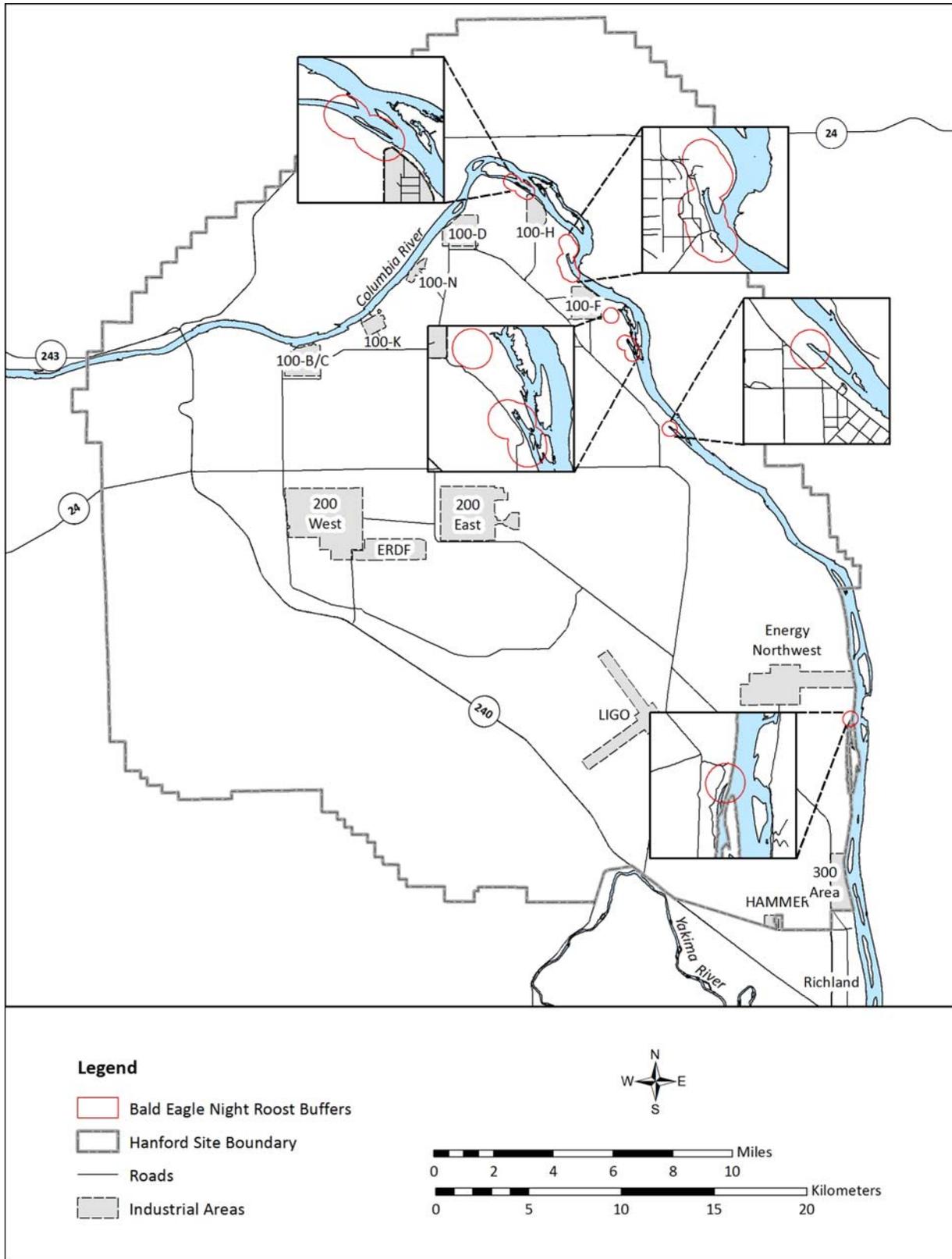


Figure 4. Seasonal Bald Eagle Protection Buffers on the Hanford Site

4.0 References

43 FR 6233. Endangered and Threatened Wildlife and Plants; Determination of certain Bald Eagle Populations as Endangered or Threatened. February 14, 1978.

60 FR 36000. Endangered and Threatened Wildlife and Plants; Final Rule to Reclassify the Bald Eagle from Endangered to Threatened in All of the Lower 48 States. July 12, 1995.

72 FR 37346. Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the lower 48 States from the List of Endangered and Threatened Wildlife. July 9, 2007.

Bald and Golden Eagle Protection Act of 1940, United States Code Title 16, Chapter 5A, Subchapter II Section 668.

Buehler, D. A. 2000. "Bald Eagle (*Haliaeetus leucocephalus*)." In *The Birds of North America*, No. 506, A Poole and F Gill (eds). The Birds of North America, Inc., Philadelphia, Pennsylvania.

Burke Museum. 2012. Washington Birds Breeding Phenology Project. University of Washington. Accessed 11/28/2012: <http://www.burkemuseum.org/ornithology/phenology>

U.S. Department of Energy (DOE-RL). 1994. *Bald Eagle Site Management Plan for the Hanford Site, South-Central Washington*. DOE/RL-94-105 Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

U.S. Department of Energy (DOE-RL). 2009. Bald Eagle Management Plan for the Hanford Site, South-Central Washington. DOE/RL-94-150 Rev. 1. U.S. Department of Energy, Richland Operations Office, Richland, Washington.

U.S. Department of Energy (DOE-RL). 2013. *Hanford Site Biological Resources Management Plan*. DOE/RL-96-32 Rev. 1. U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Eisner, S. A. 1991. *Bald Eagles Wintering Along the Columbia River in South Central Washington: Factors Influencing Distribution and Characteristics of Perch and Roost Trees*. Master's Thesis, University of Montana, Missoula, Montana.

Endangered Species Act of 1973. Public Law 93-205, as amended, 16 USC 1531 et seq.

Fielder, P. C. and R. G. Starkey. 1987. "Bald Eagle Winter Abundance and Distribution in Eastern Washington." *Northwest Science*. 61(4):226–232.

Lacey Act of 1900 (16 U.S.C. 701).

Migratory Bird Treaty Act. 1918. Chapter 128, as amended, 40 Stat. 755, 16 USC 703-712 et. seq.

Mission Support Alliance (MSA). 2012. *Bald Eagle Monitoring Report for Fiscal Year 2012*. HNF-52464. August, 2012. Mission Support Alliance, Richland, WA. Available at: http://www.hanford.gov/files.cfm/HNF-52464_-_Rev_00.pdf

Mission Support Alliance (MSA). 2013. *Hanford Site Bald Eagle Monitoring Report for Fiscal Year 2013*. HNF-55187. May, 2013. Mission Support Alliance, Richland, WA.

Livingston, M. F. and T. R. Hames. 2001. "Successful Bald Eagle Nesting and Fledging on Lower Yakima River, Washington." *Northwest Science* 75(4):417–418.

Pacific Northwest National Laboratory (PNNL). 2001. *Hanford Environmental Report for Calendar Year 2000*. PNNL-13487. U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: <http://msa.hanford.gov/msa/FileDisplay.cfm?FileID=1408&confirm=true>

Pacific Northwest National Laboratory (PNNL). 2008. Hanford site Environmental Report for Calendar Year 2007. PNNL-17603. U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at <http://msa.hanford.gov/msa/FileDisplay.cfm?FileID=1442>

Revised Code of Washington (RCW) 77.12.655. Habitat Buffer Zones For Bald Eagles – Rules. Available at: <http://apps.leg.wa.gov/rcw/default.aspx?cite=77.12.655>

Stinson, D. W., J. W. Watson, and K. R. McAllister. 2001. *Washington State Status Report for the Bald Eagle*. Washington Department of Fish and Wildlife, Olympia, Washington.

Stinson, D. W., J. W. Watson, and K. R. McAllister.. 2007. *Status Report for the Bald Eagle*. Washington Department of Fish and Wildlife, Olympia, Washington. Available at <http://wdfw.wa.gov/publications/00315/>

Turner, B. 2013. *Priest Rapids Hydroelectric Project No. 2114 2013 Annual Report for the Bald Eagle Perch/Roost Protection Plan Pursuant FERC Article 414*. April 2013. Grant County Public Utility District No. 2, Ephrata, WA.

U.S. Fish and Wildlife Service (USFWS). 2007. *National Bald Eagle Management Guidelines*. U.S. Fish and Wildlife Service, Midwest Region. Available at <http://www.fws.gov/northeast/ecologicalservices/eagle.html>

U.S. Fish and Wildlife Service (USFWS). 2008. *Hanford Reach National Monument Final Comprehensive Conservation Plan and Environmental Impact Statement*. U.S. Fish and Wildlife Service, Mid-Columbia River National Wildlife Refuge Complex, Burbank, Washington. Available at <http://digitalmedia.fws.gov/cdm/ref/collection/document/id/427>

U.S. Fish and Wildlife Service (USFWS). 2012. Bald Eagle Biology. USFWS Pacific Region Website. Available at: <http://www.fws.gov/pacific/eagle/biology.html>

Washington Administrative Code (WAC). 232-12-292. Bald Eagle Protection Rules. Available at: <http://apps.leg.wa.gov/wac/default.aspx?cite=232-12-292>

Watson, J. W., D. Stinson, K. R. McAllister, and T. E. Owens. 2002. "Population Status of Bald Eagles Breeding in Washington at the End of the 20th Century." *Journal of Raptor Research* 36:161–169.

Washington Department of Fish and Wildlife (WDFW). 2012. Bald Eagle Territory History, Emerald Road.

http://wdfw.wa.gov/conservation/bald_eagle/territory/territory.php?id=1349&orderby=SurveyYearDESC

Washington Department of Fish and Wildlife (WDFW). 2013. Bald Eagle Nesting and Wintering Cycle, Washington State.

<http://wdfw.wa.gov/wildwatch/eaglecam/graphics/chart2.gif>