DOE/RL-94-150
Revision 3

Bald Eagle Management Plan for the Hanford Site

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

U.S. DEPARTMENT OF ENERGY | Richland Operations Office
P.O. Box 550
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Executive Summary

As a natural resource trustee, the U.S. Department of Energy (DOE) is responsible for fostering conservation and preservation of important biological species, including Bald Eagles (*Haliaeetus leucocephalus*) that occupy the Hanford Site during winter and early spring. The DOE Richland Operations Office (RL) manages Hanford Site resources through its Comprehensive Land Use Plan (CLUP), which is described in the *Hanford Comprehensive Land-Use Plan Environmental Impact Statement* (DOE 1999) and defined in the "Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement" (64 FR 61615). The CLUP consists of a land-use map, land-use designations, land-use policies, and a set of procedures for plan implementation. Several management plans are described in the CLUP, each of which addresses unique resources and key activities that, together, provide a comprehensive approach for managing Hanford Site lands and facilities. The *Bald Eagle Management Plan for the Hanford Site* serves as an implementing control under the CLUP and guides DOE and its contractors in protecting Bald Eagles and their habitat on the Hanford Site.

Bald Eagles, their nest trees, and communal night roosts are protected under the *Bald and Golden Eagle Protection Act of 1940* (BGEPA); *Migratory Bird Treaty Act of 1918*; and Washington State Regulations Revised Code of Washington (RCW) 77.12.650, RCW 77.12.655, and Washington Administrative Code (WAC) 220.610.100, as applicable. Historically, Bald Eagles were also protected under the *Endangered Species Act* and several Washington State regulations; however, the U.S. Fish and Wildlife Service (USFWS) removed the Bald Eagle from its list of endangered and threatened wildlife in 2007 and the Washington Department of Fish and Wildlife (WDFW) down listed the Bald Eagle from threatened to sensitive in 2008 and from sensitive to no status in 2016 because of increased population sizes. USFWS guidance documents still provide management guidelines designed to protect Bald Eagles.

Under the BGEPA, Bald Eagles are protected from "take." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

A further definition of "disturb" is provided by the USFWS: "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."

To ensure Bald Eagle protection under federal and state laws and federal management guidelines, RL places seasonal restrictions on Hanford Site work activities within buffer zones around documented Bald Eagle use areas. Table S-1 provides required buffer zone sizes and temporary access restrictions to these areas. These buffers ensure that Hanford Site activities avoid interference with feeding and sheltering behavior (night roosts) or nest abandonment (nests) and, therefore, "disturbance" under the BGEPA.

Table S-1. Buffer Zone Size and Access Restrictions for Bald Eagle Use Areas on the Hanford Site.

Bald Eagle Use Area	Buffer Zone	Access Restrictions
Communal night roost (Terrestrial and Aircraft)	660 ft (200 m)	Restricted access from November 15 to March 15. Work-related access granted between 9 a.m. and 3 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 (Terrestrial Primary Zone)	660 ft (200 m)	Restricted access from November 15 until nest is abandoned or young fledge, leaving the nest unoccupied.
Nest (Terrestrial with additional Conditioned Zone protection)	660 ft (200 m) + any determined conditioned zone(s)	Restricted access from November 15 until nest is abandoned or young fledge, leaving the nest unoccupied. The conditioned zone buffers will be active until the protected resource is no longer necessary to success of the nest (e.g., an Eagle feeding zone would only be buffered during active salmon spawning periods and when carcasses are present).
Nest (Aircraft)	1,000 ft (305 m) slant distance	With helicopters and fixed winged aircraft, except for authorized biologists trained in survey techniques, avoid operating aircraft within the buffer zone.

The guidelines provided in this plan apply to all DOE contractors, subcontractors, and any other entity performing work on Hanford lands managed by DOE. The RL Site Stewardship Division is responsible for any consultation and/or coordination with the USFWS, WDFW, or both agencies that may be required for activities that cannot be conducted in compliance with these guidelines.

Contents

Figures

Tables

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1.0 Introduction

Resource stewardship is an integral part of U.S. Department of Energy (DOE) responsibilities at the Hanford Site. Appropriate management strategies and actions, based on the best scientific information available, are important components of stewardship and land-use planning at the Site. The *Bald Eagle Site Management Plan for the Hanford Site* is the DOE, Richland Operations Office (RL) implementing control for managing Bald Eagles (*Haliaeetus leucocephalus*) and their habitat under the Hanford Comprehensive Land-Use Plan (CLUP) in *Hanford Comprehensive Land-Use Plan Environmental Impact Statement* (DOE 1999). It is RL's primary management tool for protecting Bald Eagles and their habitats while planning and conducting activities on the Hanford Site related to the *Comprehensive Environmental Response, Compensation, and Liability Act* and *Resource Conservation and Recovery Act of 1976.*

1.1 Purpose and Scope

The purpose of this plan is to provide DOE and its contractors with a consistent management approach to protect and manage Bald Eagles and their habitat on the Hanford Site. The management approach includes inventorying and monitoring known and potential Bald Eagle nesting, communal night roosting, foraging, and perching sites. Through regular monitoring, ecological compliance staff can determine if administrative protections, such as buffer zones and seasonal access restrictions to certain areas, need to be established or if current protections are no longer justified.

The Bald Eagle Management Plan for the Hanford Site incorporates federal and state laws, Hanford Site resource management plans, and applicable federal and state management guidelines to implement a comprehensive strategy for Bald Eagle management on the Hanford Site. Bald Eagles, their nest trees, and communal night roots are protected under the *Bald and Golden Eagle Protection Act of 1940* (BGEPA); *Migratory Bird Treaty Act of 1918* (MBTA); and Washington State Regulations Revised Code of Washington (RCW) 77.12.650, RCW 77.12.655, and Washington Administrative Code (WAC) 220.610.100, as applicable. Although the U.S. Fish and Wildlife Service (USFWS) removed the Bald Eagle from its list of endangered and threatened wildlife in 2007, the species remains a federal species of conservation concern (USFWS 2013). Following federal delisting, the USFWS published new management guidelines for Bald Eagles to advise landowners on ways to comply with regulations associated with the new listing status (USFWS 2007). The Washington Department of Fish and Wildlife (WDFW) down-listed the Bald Eagle from a state-threatened to a state-sensitive species in 2008 and removed Bald Eagles from the Washington State species of concern list in 2016. This Management Plan also assists RL in protecting Bald Eagles under DOE stewardship consistent with the CLUP (DOE 1999) and the *Biological Resources Management Plan* (BRMP) (DOE 2017).

1.2 Roles and Responsibilities

RL is responsible for administering and implementing the Bald Eagle Management Plan for the entire Hanford Site. Each program manager and assistant manager within RL and DOE's Office of River Protection (ORP) is responsible for adhering to the resource management guidance and policies described in this document.

The RL's Site Stewardship Division (SSD) is responsible for defining Hanford's approach to biological resource management and will assist other DOE programs and contractors with interpretation of these

guidelines. The SSD also has the responsibility to act as DOE's primary point of contact for consulting and/or coordinating with the USFWS, WDFW, or both agencies if needed. Implementation of much of this management plan is assigned by RL to the Public Safety and Resource Protection Program, which is currently managed by Mission Support Alliance, LLC (MSA).

1.3 Applicability

The policies and guidance provided in the Bald Eagle Management Plan apply to all Hanford Site actions that occur on lands managed by DOE. This includes central Hanford and portions of the Hanford Reach National Monument, currently managed by RL. All contractors and subcontractors, or any other entity performing work on Hanford lands managed by RL or ORP, will conduct work in accordance with the policies and guidance provided in this management plan.

1.4 Organization

Section 2 of this plan describes Bald Eagle identification, distribution, and ecology. It also provides information on habitat uses on the Hanford Site. Section 3 outlines the current and historical status of the Bald Eagle and describes federal and Washington State Bald Eagle protection laws. Section 4 provides RL's Bald Eagle protection guidelines for the Hanford Site.

2.0 Bald Eagle Distribution, Ecology, and Habitat Uses

This section provides an overview of Bald Eagle identification and distribution, breeding, foraging, and ecology and habitat uses on the Hanford Site. This information is important in understanding issues related to management and protection of Bald Eagles on the Hanford Site.

2.1 Identification and Distribution

Adult Bald Eagles can easily be 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). Until then, juveniles appear dark brown with dark beaks that gradually turn yellow, which results in the birds sometimes being mistaken for mature Golden Eagles (*Aguila chrysaetos*).

Bald Eagles historically occur 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 also found in the Northeast along the Atlantic Coast and in the Chesapeake Bay region, in the Great Lakes states, and in the Pacific Northwest. Eagles residing in northern states, such as Washington, 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. Most are found west of the Cascade Mountains during spring and summer, and more than 80% of active Bald Eagle nest sites in Washington State are located there (Stinson et al. 2001; Watson et al. 2002). During winter, when many eagles move south from Alaska and Canada into Washington, the state eagle population swells to nearly 10% of the total Bald Eagle population of the lower 48 states (Fielder and Starkey 1987). About 75% of wintering Bald Eagles reside west of the Cascades (Fielder and Starkey 1987; Stinson et al. 2001, 2007).

In the eastern Washington region, many Bald Eagles winter along the Columbia River from Pasco upstream to Kettle Falls, around Banks Lake, and along the lower Spokane and Pend Oreille rivers. Almost 10% of this Bald Eagle population can be found along the Hanford Reach of the Columbia River (Fielder and Starkey 1987). In the 1990s, ecologists observed up to 40 individuals in mid-winter along the Hanford Reach (PNNL 2001). During the 2011/2012 and 2012/2013 winter seasons, Hanford biologists found a maximum of about 50 individuals (MSA 2012, 2013) in this area. These numbers continued to grow in recent monitoring years and produced a maximum count of 141 individuals on December 9, 2014 (MSA 2015b). While numbers have tapered off slightly from this high, the annual maximum counts in fiscal years 2016 and 2017 have exceeded 100 individuals (MSA 2017).

2.2 Breeding and Foraging Ecology

Bald Eagle pairs often bond for life. Breeding pairs prefer nests located high in a large tree or other structures with a clear view of a nearby body of water that supports abundant fish populations.

Reproductive chronology varies throughout the Bald Eagle's range. In Washington State, nest building can begin as early as December and young may fledge as late as August. A typical nest will result in one to two chicks fledged annually, although the female may lay one to three eggs. Bald Eagles are sensitive to disturbance during all nest stages, including early nest building, and may abandon a nest if

disturbed (Figure 2-1). Adult eagles are most sensitive to human disturbance during courtship and nest building, egg laying, and incubation (generally February through May) (USFWS 2007), but fledglings also are susceptible to premature flushing from the nest due to disruption.

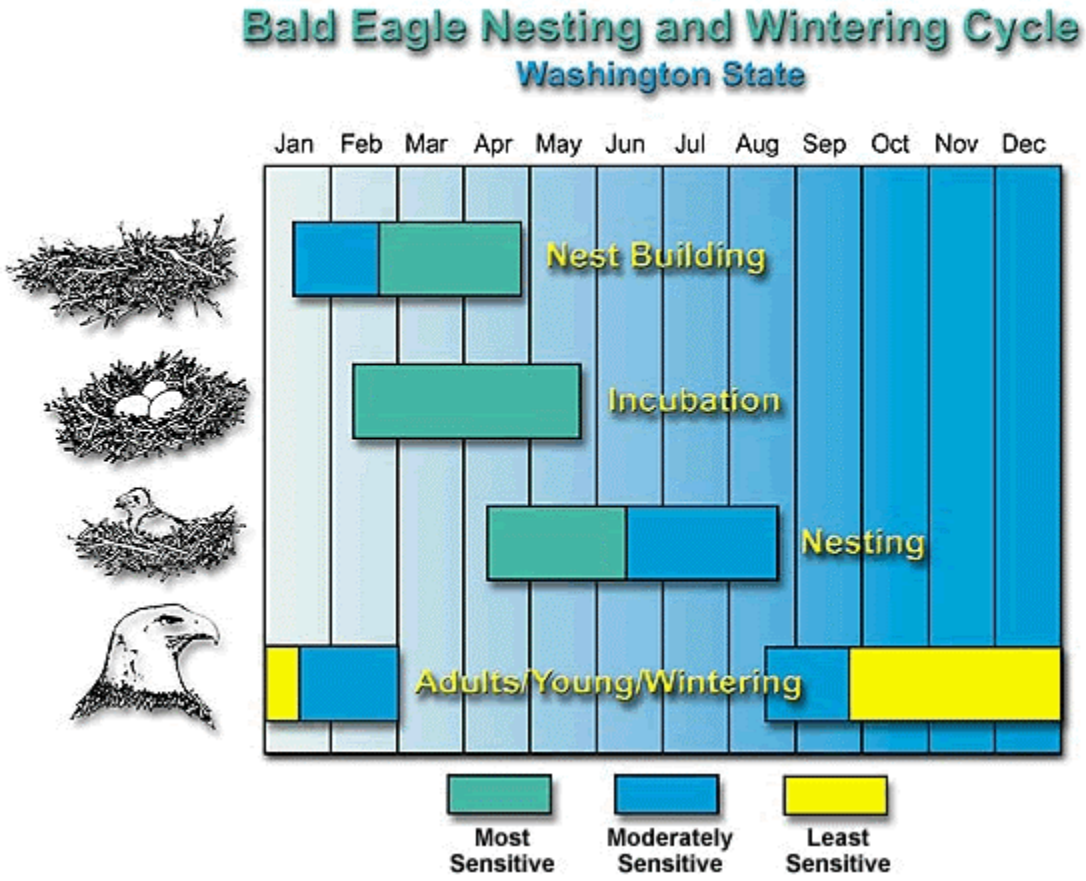

Figure 2-1. Bald Eagle Sensitivity to Disturbance at Different Nesting Stages.

Although fish are the preferred prey, Bald Eagles are opportunists and may target waterfowl during winter and colonial water birds 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.

2.3 Bald Eagle Habitats and Use on the Hanford Site

Bald Eagles occupy the Hanford Reach primarily during the winter months. They arrive in mid-November to take advantage of the abundance of 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, roosting, and nesting. 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 up to a few kilometers inland.

Foraging sites are found where food is concentrated and 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 the carcasses become less abundant later in the winter, eagles begin to prey on wintering waterfowl that congregate in the region. Waterfowl concentrate on shorelines, islands, and slower moving water. On the Hanford Site, these areas generally occur from the old Hanford Townsite upstream to 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.

2.3.1 Communal Night Roosts

Communal night roosts are an important and protected habitat resource on the Hanford Site because they provide Bald Eagles shelter from winter weather and may also serve a social function. The WDFW defined a communal night roost as "a tree or a group of trees in which at least 3 eagles roost for at least two nights during more than one year" (Stinson et al. 2007). This definition distinguishes a communal night roost from a perch used by a territorial pair of eagles.

Preferred roost locations may change throughout winter as eagles switch from eating salmon on the Hanford Site and move to waterfowl concentration areas offsite. During annual Hanford Site roost monitoring (MSA 2012, 2013, 2015a, 2015b, 2017), Hanford biologists document communal night roosts. Many trees onsite are used at irregular intervals but are occupied less than 5 or 10% 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% of the time.

Figure 2-2 shows the eight night roost sites currently managed by RL on the Hanford Site, following the management guidelines described in Section 4. Communal night roost locations have changed throughout the years since the original *Bald Eagle Management Plan for The Hanford Site, South-Central Washington* (DOE 1994). Changes to the roost protections are described in Revision 1 (DOE 2009) and Revision 2 (DOE 2013). In this revision, the Hanford Townsite upstream roost was eliminated because regular monitoring data no longer indicated the site was being used as a night roost. A communal roost buffer was added around the Old Hanford Townsite Substation, just south of the inactive upstream roost. Monitoring data (MSA 2015b, 2017) documented this location as meeting the definition of communal night roost. Hanford biologists will continue to monitor the active night roosts and all other potential roost sites to determine if sites need to be added or removed from the managed and protected communal night roosts.

2.3.2 Nest Sites

Bald Eagles have occupied a number of nest sites on the Hanford Site (Figure 2-3) as far back as the 1960s (William Rickard, PNNL, personal communication). Eagles have historically built nests throughout the winter but have generally abandoned the nest territory and departed from the Hanford Site in mid- to late-March without laying any eggs. A review of the chronology of past nesting activities can be found in Revision 2 of this Management Plan (DOE 2013). More recently, the first known successful nest occurred on the Hanford Site.

In early 2013, a nest was constructed at the Wooded Island night roost site near the Columbia Generating Station (see Figure 2-2). Eagles were regularly observed at the nest through the spring and early summer and two eaglets eventually fledged from this nest in June 2013, making it the first known successful nest

on the Hanford Site. This nest location again successfully produced young in 2014 and 2015. During the winter of 2015/2016 this breeding pair removed the nest material from the roost site and reconstructed the nest on a Bonneville Power Administration (BPA) metal tower inland and west of the roost site and previous nest. The pair again produced two eaglets that successfully fledged from this new location. Once nesting season was completed, RL and BPA successfully obtained a permit from the USFWS to trim and maintain the nest in a way to prevent the nest from becoming a safety and structural hazard. When this plan revision was published in 2017, a Bald Eagle breeding pair was actively incubating eggs at this nest location.

In addition to the nest described above, nest surveys done in early 2017 located three additional new nesting locations.

- One nest is located across the Columbia River from the 100-B/C Area in the upper stretch of the Hanford Reach; this is the first time nesting activity has been identified this far upriver on the Hanford Site. Two adult eagles were initially present at the nest, however, when this plan revision was published, recent monitoring at this nest site failed to show continued use by the adult pair and the nest is believed to have been abandoned.

- The second nest, located at the White Bluffs Upstream roost site, was still active with an adult eagle pair at time of publication. All nesting activity will be monitored until can be determined if the nest is no longer active or the young fledge (the monitoring process described in Section 4.2.1).

- A nest was located on the Franklin County side of the Columbia River on an island labeled as "Savage Island". A breeding pair was photographed in the nest, and then confirmed visually by field staff on a later date.

Successful Bald Eagle nests elsewhere in the vicinity of the Hanford Site are located along the Yakima River south of Richland, approximately 13 mi (21 km) south of the Hanford Site (300 Area), and at the Johnson Creek/Getty's Cove site upstream of Wanapum Dam, approximately 20 mi (32 km) northwest of the Hanford Site.

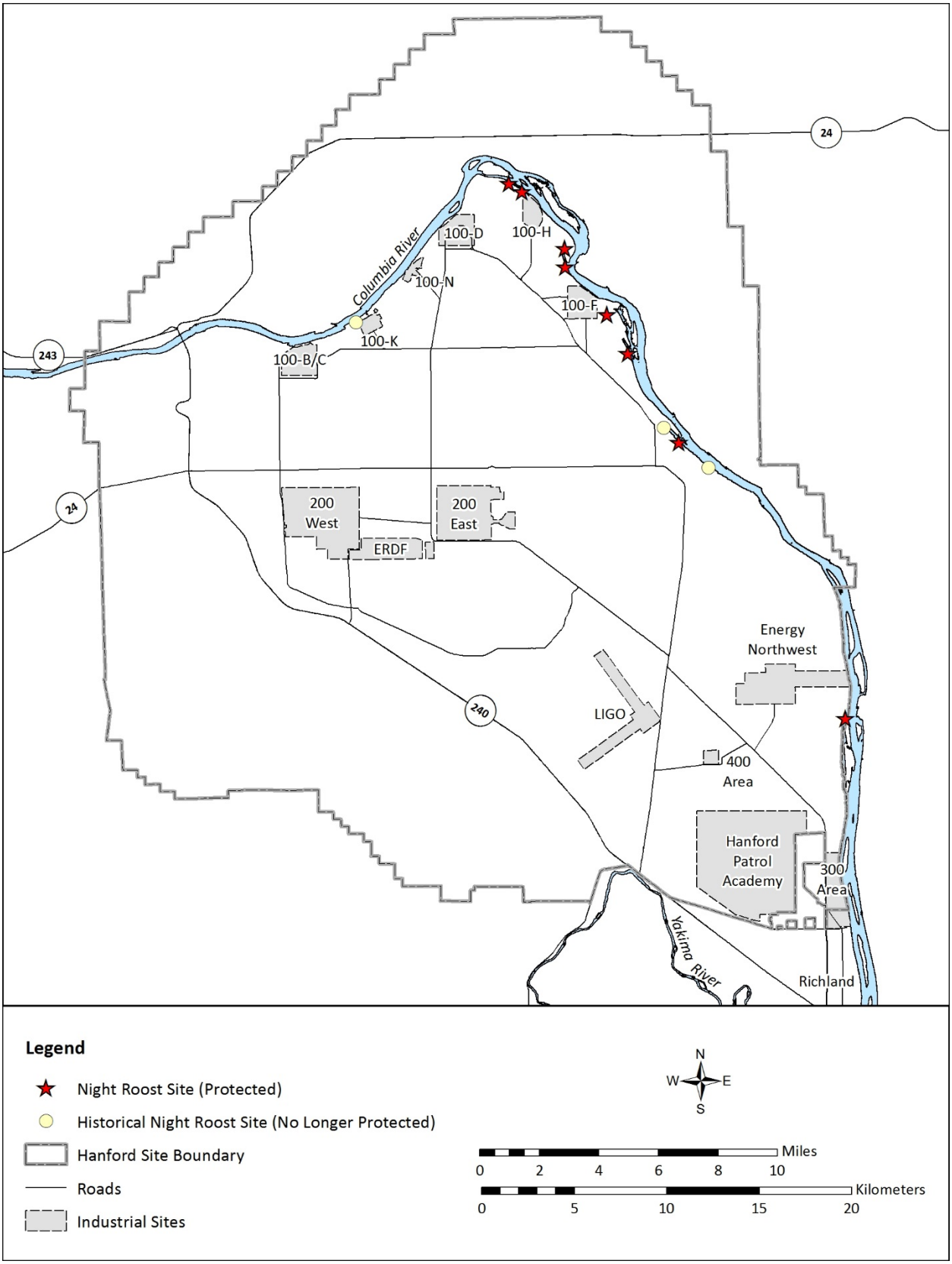

Figure 2-2. Location of Communal Night Roosts on the Hanford Site.

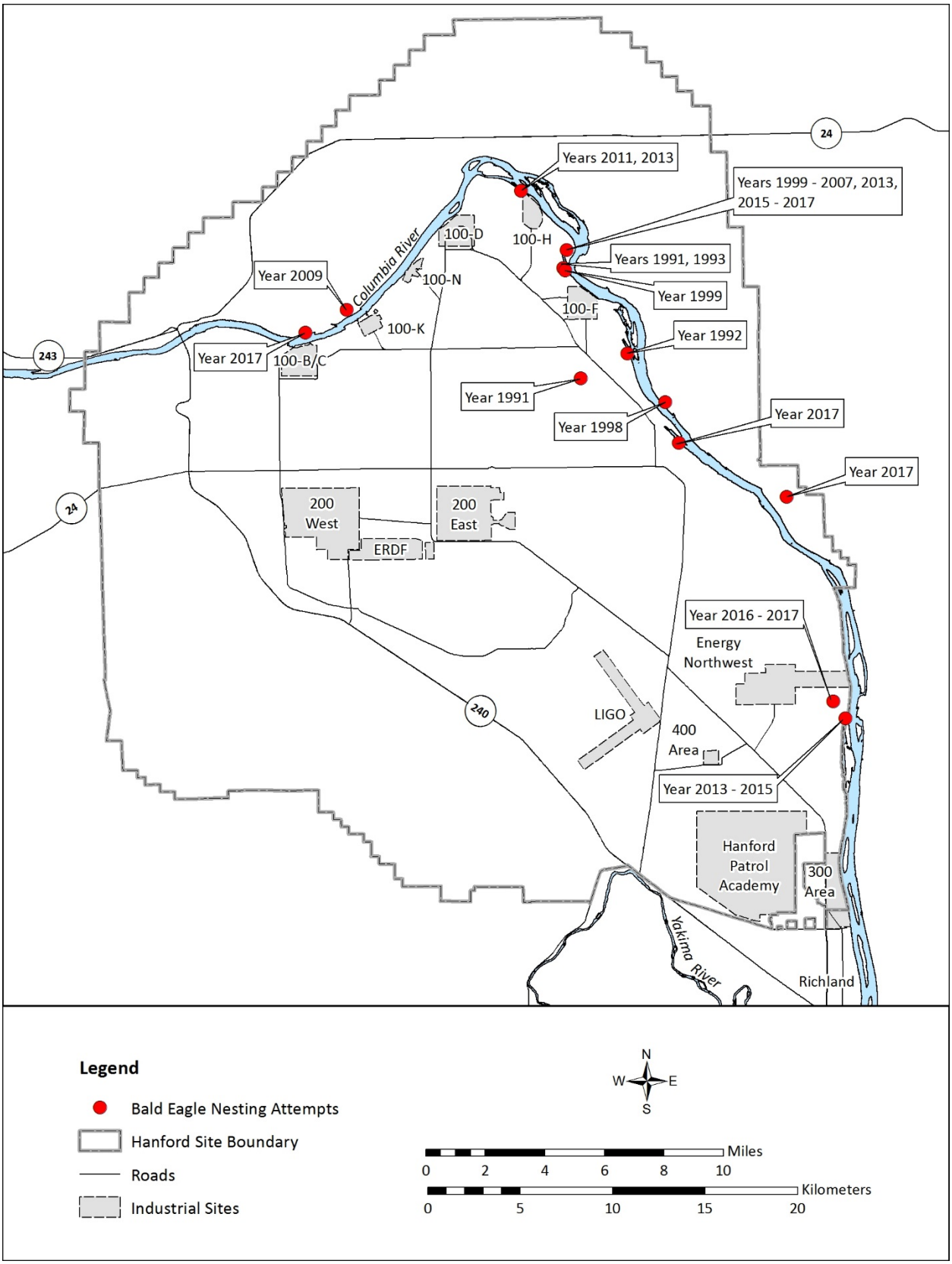

Figure 2-3. Location of Known Bald Eagle Nesting Attempts on the Hanford Site.

3.0 Regulations and Historical Management of Bald Eagles

The Bald Eagle, our national symbol adopted in 1782, represents freedom and democracy to citizens of the United States. Unlike other wildlife species, protection and management of the Bald Eagle dates far back into the history of the United States (Table 3-1). 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*. 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 3-1. Management Chronology of the Bald Eagle on the Hanford Site. (2 Pages)

Year	Event
1782	Bald Eagle accepted as U.S. national emblem
1900	*Lacey Act of 1900* adopted to aid restoration of game and other wild birds
1918	*Migratory Bird Treaty Act of 1918* defined protections for all migratory birds listed
1940	*Bald and Golden Eagle Protection Act of 1940* defined Bald Eagle protections
1967	Southern Bald Eagle populations listed under the *Endangered Species Preservation Act of 1966*
1973	*Endangered Species Act of 1973* 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	Washington State Bald Eagle protection regulations enacted (RCW 77.12.650 and RCW 77.12.655)
1986	*Bald Eagle Protection Plan* rule approved by Washington Fish and Wildlife Commission
1994	*Hanford Site Bald Eagle Management Plan* (DOE/RL-94-150 Rev.0) was published by RL
1995	Bald Eagle downgraded from endangered to threatened throughout lower 48 states
1999	Bald Eagle proposed for delisting by the USFWS
2001	Washington Bald Eagle Status Report published and habitat protection rules revised.
2007	May – National Bald Eagle Management Guidelines published by 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	Bald Eagle downgraded to sensitive in Washington State
2009	September – Rules for take adopted and published by USFWS
2009	September – Revision 1 of the *Hanford Site Bald Eagle Management Plan* issued

Table 3-1. Management Chronology of the Bald Eagle on the Hanford Site. (2 Pages)

Year	Event
2011	Washington State suspended the requirement for site-specific Bald Eagle management plans, unless the Bald Eagle is relisted as threatened or endangered
2013	June - Revision 2 of the *Bald Eagle Management Plan of The Hanford Site* was issued
2016	WDFW published the *Periodic Status Review for the Bald Eagle* (WDFW 2016), which provided the recommendation to the Wildlife Commission to remove the sensitive species status for Washington State
2016	Updates were made to the rules for a Bald Eagle take by the USFWS; the primary change was the allowed duration of permits
2016	September - WDFW proposed a rule change to remove Bald Eagle from the State's sensitive species subcategory (WAC 232-12-011)
2017	January 4, 2017 - the WDFW proposal was adopted as written (see above) and was issued as a permanent rule, removing sensitive species status for the Bald Eagle in Washington State. (WSR 17-02-084)

RCW = Revised Code of Washington
USFWS = U.S. Fish and Wildlife Service
WAC = Washington Administrative Code
WDFW = Washington Department of Fish and Wildlife

3.1 Federal Protection and Guidance

Bald Eagles garnered legal protection beginning with the *Lacey Act of 1900*, which was adopted to aid in the restoration of game and other wild birds whose populations had declined. The *Lacey Act* created civil and criminal penalties for a wide array of violations. Most notably, this Act prohibits trade in wildlife, fish, and plants that have been illegally taken, possessed, transported, or sold.

The MBTA 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 the MBTA and, thus, afforded protection in addition to the *Lacey Act of 1900*. The Bald Eagle was further protected under the BGEPA, which specifically prohibited taking; possessing; selling; purchasing; bartering; offering to sell, 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 federal 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 as endangered under the *Endangered Species Preservation Act of 1966*, the predecessor to the *Endangered Species Act of 1973*. Population declines continued into the

1970s when levels reached their lowest point. In 1978, the Bald Eagle was listed as endangered in 43 of the lower 48 contiguous states. In the other five states, including Washington State, the Bald Eagle 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 as threatened 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).

Although the Bald Eagle was removed from the federal endangered and threatened species list, the species is still protected under federal law by the BGEPA and the MBTA. In May 2007, the USFWS published the National Bald Eagle Management Guidelines to publicize eagle act provisions, advise landowners, land managers, and the 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, the USFWS offered the following three administrative protection strategies:

- Develop limited-access buffers of varying size and shape depending on activity, topography, and historical human tolerance.
- Create landscape barriers (natural vegetation) to screen eagles from human activity.
- Avoid 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; the 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; however, 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 (USFWS 2007). For activities conducted within sight of eagles at the nest, the USFWS recommends a minimum 660-ft (200-m) seasonal protective buffer area. 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 passing motorized boat traffic, should be restricted within 330 ft (100 m) of nest sites.

The USFWS 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 1,000 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.

3.2 Washington State Protection

In Washington State, RCW 77.12.655, "Habitat Buffer Zones for Bald Eagles – Rules," requires the WDFW to adopt and enforce rules defining the extent and boundaries of habitat buffer zones for Bald Eagles. The agency developed the Bald Eagle Protection Rules (WAC 220-610-100) to protect nest and night roost habitat through cooperative efforts and, thereby, maintain the Bald Eagle population in Washington State. Originally, these rules required 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). A site-specific Bald Eagle management plan was required for specific activities within prescribed distances of nest sites and communal roosts (Stinson et al. 2007, Appendix C).

In 2008, the Washington Fish and Wildlife Commission reclassified the Bald Eagle from threatened to sensitive. As a result, the legislature added a condition that the requirements in WAC 220-610-100 apply only when the Bald Eagle is listed as a Washington State threatened or endangered species. However, the rules, including guidelines for developing Bald Eagle management plans (Stinson et al. 2007, Appendix C), continue to provide RL useful guidance for minimizing impacts to nesting and roosting Bald Eagles and complying with the federal BGEPA.

In 2016, the WDFW provided the commission a recommendation in the *Periodic Status Review for the Bald Eagle* (WDFW 2016) to remove the Bald Eagle from the sensitive species list as classified under WAC 232-12-011. The commission filed a proposed rule in 2016 to remove the Bald Eagle from the sensitive species category under WAC 232-12-011, while still being protected as a non-game bird under the same code. In January 2017 the proposal was adopted as a rule without changes (WSR 17-02-084).

The adoptions of the changes under WAC 232-12-011 and WAC 220-610-100 have limited the state's regulation of Bald Eagles within Washington. With the exception of RCW 77.12.655, which states that necessary rules defining the extent and boundaries of habitat buffer zones for Bald Eagles shall be adopted, no state laws or regulations drive the management and protection of eagles on the Hanford Site.

3.3 Historical Buffers and Protection on the Hanford Site

Since 1994, the *Bald Eagle Management Plan for the Hanford Site* has provided DOE and its contractors with guidance for conducting work activities in proximity to Bald Eagle nesting and roosting sites. Each revision of the plan was prepared after consulting federal and state laws current at the time of publication, national and state level guidance, and Hanford resource management documents. The plan uses this information and sets temporal and spatial restrictions on Hanford Site operations to protect eagles and their habitats.

In the initial plan (DOE 1994), human activities were restricted 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 between November 15 and March 15. An exception was made to shorten the distance at a communal roost site near the 100-K Area because eagles at that site tolerated increased human presence and activities and

continued to use the area as a day perch over a number of years. Under the original and revised management guidelines, no administrative protection controls were placed on perch and forage sites. However, intrusive activities involving prolonged use of heavy machinery near perch and forage sites were to be evaluated on a case-by-case basis.

Revision 1 of this management plan was issued in 2009 (DOE 2009), and a supplement to the revision was issued in July 2010 to reflect issues specific to the 100-K Area communal night roost. Revision 1 accounted for the delisting of Bald Eagles under the *Endangered Species Act of 1973* and recognized the state reclassification of Bald Eagles from threatened to sensitive. Revision 1 followed the administrative protection controls provided in the *National Bald Eagle Management Guidelines* (USFWS 2007). These strategies included developing limited access buffers of varying sizes and shapes depending on eagle activities, topography, and historical human tolerance to disturbance and restricting certain activities in eagle use areas during seasons when the eagles are present. Revision 1 also followed then-applicable state *Bald Eagle Protection Rules* (WAC 220-610-100).

Revision 2 retained the administrative protection controls defined in Revision 1. Table 4-1 provides buffer zone sizes and access restrictions for specific eagle habitat uses. The buffer distances were larger than those suggested in the USFWS guidelines (USFWS 2007) because Bald Eagles on the Hanford Site are relatively isolated from humans and isolated eagles are expected to be sensitive to human disturbance. The larger buffers allowed RL to evaluate buffer distances on a case-by-case basis as needed.

4.0 Hanford Site Bald Eagle Protection Guidelines

This section describes the historical and current Bald Eagle protection on the Hanford Site. It also provides specific administrative protection buffers and measures for managing Bald Eagle nest site and communal night roost areas on the Site, and guidelines for perching and foraging areas.

4.1 Hanford Site Buffers and Access Restrictions

Buffers assist RL in complying with take avoidance under the BGEPA by limiting the potential "disturbance" of these areas. This revision of the plan reduces the administrative protection controls defined in Revision 1 (DOE 2009) and Revision 2 (DOE 2013). Table 4-1 provides buffer zone sizes and access restrictions for specific eagle habitat uses. The buffer distances are consistent with those suggested in the national USFWS guidelines (USFWS 2007).

The buffer guidelines allow RL to evaluate access on a case-by-case basis. When projects cannot be completed within the constraints of these restrictions, the RL SSD or its designee will evaluate the work to be performed and determine impacts to the communal roost or nest. Consultation by the SSD with the USFWS, WDFW, or both may be required for activities that cannot be conducted in compliance with this management plan. Such consultation potentially could lead to a special take permit, which may contain specific monitoring and reporting requirements.

The buffers and restrictions are applied to all standard and planned operations occurring on the Hanford Site. Restricted access refers to limited entrance into buffer areas for work purposes only. Emergency response to potential loss of property, loss of life, or loss of contamination control are not bound by said restrictions.

Because active nest locations and preferred communal night roost locations may change over time, MSA's Public Safety and Resource Protection (PSRP) ecological compliance staff regularly reassess eagle use of these areas. Locations of the applied guidance and access restrictions may be modified, as needed, to avoid disturbance of eagles and protect their habitats. When communal roost or nesting locations change, the Hanford Bald Eagle resource site information and protective buffer maps are revised. Up-to-date maps are available at the MSA PSRP website at http://www.hanford.gov/page.cfm/ecologicalmonitoring.

Table 4-1. Buffer Zone Size and Access Restrictions for Bald Eagle Use Areas

Bald Eagle Use Area	Buffer Zone Size	Access Restriction
Communal night roost (Terrestrial and Aircraft)	660 ft (200 m)	Restricted access from November 15 to March 15. Work-related access granted between 9 a.m. and 3 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 (Terrestrial Primary Zone)	660 ft (200 m)	Restricted access from November 15 to until nest is abandoned or young fledge, leaving the nest unoccupied.
Nest (Terrestrial with additional Conditioned Zone protection)	660 ft (200 m) + any determined conditioned zone(s)	Restricted access from November 15 until nest is abandoned or young fledge, leaving the nest unoccupied. The conditioned zone buffers will be active until the protected resource is no longer necessary to success of the nest (e.g., an Eagle feeding zone would only be buffered during active salmon spawning periods and when carcasses are present).
Nest (Aircraft)	1,000 ft (305 m) slant distance	With helicopters and fixed winged aircraft, except for authorized biologists trained in survey techniques, avoid operating aircraft within the buffer zone.

4.1.1 Nest Site Management

As Table 4-1 shows, two protection zones apply to managing active Bald Eagle nest areas on the Hanford Site.

- A protected zone (primary zone) protects and screens the nest tree based on site topography and tolerance to human activities. Seasonal access within a protected or primary zone—represented by a 660-ft (200-m) buffer surrounding the nest—is prohibited beginning November 15 and ending when the nest is no longer occupied. A nest is considered no longer occupied when monitoring efforts confirm it has been abandoned or when the young have fledged and no longer use the nest.

- A conditioned zone (secondary zone) further screens and protects nest sites beyond the primary zone and includes alternate nest locations, perch trees, and/or feeding zones that are crucial to the success of the nest and may be impacted by site activities. The conditioned zone would include the primary protected zone; the overall shape and size are determined by the distribution of perches, roosts, feeding areas and other known alternative nest locations within a reasonable distance.

Projects potentially impacting eagle habitat resources within the primary or the conditioned zone are subject to an ecological review to determine potential adverse impacts. Informal consultation by RL's SSD with the USFWS migratory bird office may be warranted if potential impacts to an active nest cannot be avoided. Such consultations normally result in special take permits.

As described in Section 2.2, Bald Eagles are sensitive to disturbance during all nest stages, including early nest building, and may abandon a nest if disturbed (Figure 2-1). Adult eagles are most sensitive to human disturbance during courtship and nest building, egg laying, and incubation (USFWS 2007), but fledglings also are susceptible to premature flushing from the nest due to disruption.

Access restriction signs are placed on roads at each access point into the nest buffer zone as soon as a nest is observed and observers document a pair of eagles using the nest. (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 are considered by SSD on a case-by-case basis, and may include consultation with the USFWS migratory bird office, which may result in the issuance of a special permit. Case-by-case evaluations are made upon project request to RL SSD or their designee, currently the MSA PSRP group. The case-by-case evaluation considers the work to be performed during the requested access, observed eagle acclimation to ongoing disturbance in the area, potential impacts to the communal roost or nest, and any consultation with USFWS and/or WDFW.

The USFWS generally recognizes that a Bald Eagle nest site is considered active for 5 years following occupation by a pair of eagles during the breeding season (USFWS 2007). Therefore, the 660-ft (200-m) nest site buffers are maintained (at least during the winter through spring season) for 5 years following documented occupation. A nest is 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 2015).

To protect Bald Eagle nesting, RL creates protective buffer zones and restricts access to nesting areas from November 15 until nests are abandoned or young have fledged. Current Hanford nest site information and protective buffer maps are available on the MSA PSRP website at http://www.hanford.gov/page.cfm/ecologicalmonitoring.

4.1.2 Communal Night Roost Management

Communal night roosts are protected with a 660-ft (200-m) buffer around each roost (Figure 4-1). Because roosts may consist of several nearby trees, buffers are set at 660 ft (200 m) generally from the center point of each tree that significantly contributes to the roost site (determined via regular monitoring). This revision of the plan currently recognizes eight active communal Bald Eagle night roosts; generalized locations are shown in Figure 2-2 with 660-ft (200-m) buffered areas shown in Figure 4-1.

Access restriction signs are placed on roads at each access point into the roost buffer zones between November 15 and March 15 each year. Activities that produce noise, visual effects, or landscape modifications should be conducted outside of the roosting period (November 15 to March 15). The buffer zone signs provide information about entry restrictions and a point of contact. All Hanford Site personnel must notify the point of contact prior to entry into a roost buffer zone. During the seasonal closure, work-related access may be permitted within the communal roost buffers between the expanded daytime hours of 9:00 a.m. and 3:00 p.m. (0900-1500 hours), following notification of the designated point of contact (376-BIRD).

4.1.3 Foraging and Perch Site Management

Bald Eagles forage throughout the Hanford Reach. Currently, there are no restrictions on activities located near foraging or daytime perching sites if they occur outside the 660-ft (200-m) buffers established for nest sites or night roosts. Additional monitoring may identify major foraging sites outside existing protection buffers. If identified, methods 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, falls under the guidance of BRMP (DOE 2017) and the *Hanford Reach National Monument Final Comprehensive Conservation Plan and Environmental Impact Statement*

(USFWS 2008). All actions occurring within that boundary are addressed through the ecological compliance process for the Hanford Site.

4.2 Management Plan Monitoring

The monitoring program provides the basis for changes to this Management Plan. Prior to reduction of the buffers in this revision, surveys were performed to ensure the reduction from a 0.25-mi (400-m) (Revision 2) to a 660-ft (200-m) (this revision) buffer would not have a negative impact on Hanford Site Bald Eagles. Hanford Site biologists performed disturbance surveys on the night roost areas between 660 ft (200 m) and 0.25 mi (400 m). The disturbance was created by performing simulations that would mimic work most often logged as entering the buffers during permitted hours. Eagle behavior and the number of individual birds present remained unchanged during multiple evaluations of these disturbances. The surveys suggested that while the eagles on the Hanford Site are relatively isolated from humans, they have become acclimated to the workscope and limited presence of workers up to 660 ft (200 m) of the night roosts.

In addition to the reduction of roost buffers, communal roost access has been expanded from 10:00 a.m. to 2:00 p.m. to 9:00 a.m. to 3:00 p.m. based on recent monitoring at the roost locations. Monitoring was performed during both morning and evening hours during boat surveys of eagles along the Hanford Reach and with use of trail cameras focused on roost locations. Monitoring suggested that the birds return to roost locations very near sunset and leave roost locations to begin foraging shortly after sunrise. These data suggest that expanded hours of access will not adversely impact the eagles congregating at the roosts.

Bald Eagles are sensitive to human disturbance throughout the breeding cycles, from courtship through the fledging of young birds. Because of these nesting sensitivities, ecological compliance staff begin monitoring nest sites as soon as possible after a nest structure or nest building is first observed. Monitoring efforts include observations of 1 hour in duration, or until the survey determines the nest to be active, at regular intervals (approximately 1 to 2 times per month). Observers 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, stick carrying, nest tending, or pair bonding. Nest monitoring continues until the nest is deemed abandoned by continued lack of eagle presence or a nest is determined to be occupied. A nest is 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 2015).

Ecological compliance staff regularly monitor known and potential communal night roost sites to determine if administrative protections need to be established at new roost sites or if they are no longer justified at existing locations. Monitoring is conducted routinely, with the frequency depending on fiscal year monitoring priorities. To differentiate between night roost and daytime perch locations, all night roost monitoring is 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, is initiated at a new roost site if monitoring determines the presence of three or more eagles on at least 2 nights during a year, or if continued monitoring over 2 or more years determines the site is occupied as a night roost by one or more eagles at least 30% of the time. Administrative protections and access restrictions are to be discontinued at sites where monitoring over two or more years indicates night roost occupancy by one or more eagles occurs less than 30% of the time, and there is little or no indication of use by more than two eagles.

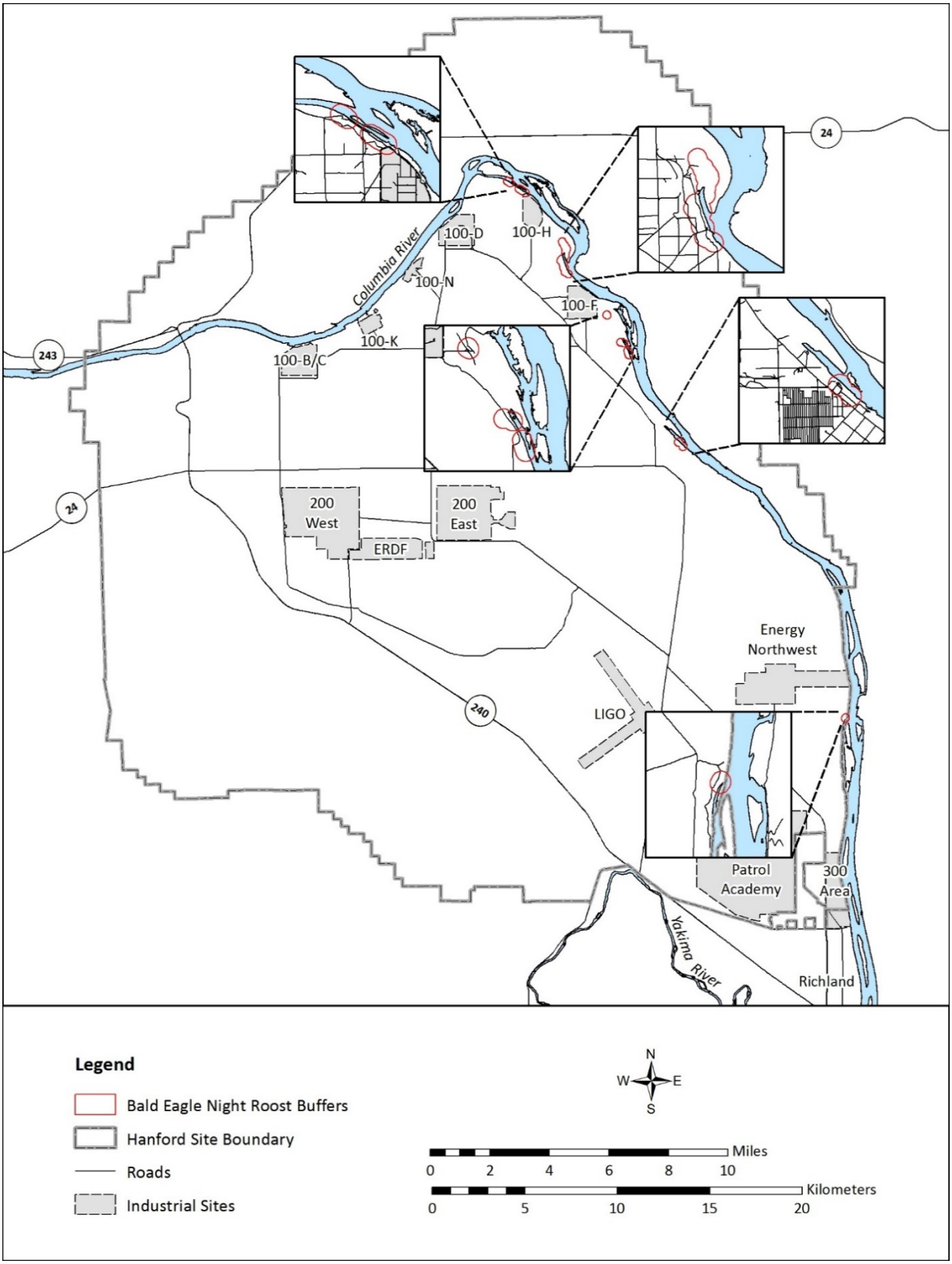

Figure 4-1. Seasonal Bald Eagle Night Roost Buffers on the Hanford Site.

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