

Hanford Site Raptor Nest Monitoring Report for Calendar Year 2014



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

Contractor for the U.S. Department of Energy
under Contract DE-AC06-09RL14728



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Mission Support Alliance

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1.0 Introduction

The U.S. Department of Energy, Richland Operations Office (DOE-RL) conducts ecological monitoring on the Hanford Site to collect and track data needed to ensure compliance with an array of environmental laws, regulations, and policies governing DOE activities. Ecological monitoring data provide baseline information about the plants, animals, and habitats under DOE-RL stewardship at Hanford required for decision-making under the *National Environmental Policy Act* (NEPA) and *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA). The *Hanford Site Comprehensive Land Use Plan* (CLUP, [DOE/EIS-0222-F](#)) which is the Environmental Impact Statement for Hanford Site activities, helps ensure that DOE-RL, its contractors, and other entities conducting activities on the Hanford Site are in compliance with NEPA.

The Hanford Site Biological Resources Management Plan (BRMP, [DOE/RL 96-32 Rev 1](#)) is identified by the CLUP as the primary implementation control for managing and protecting natural resources on the Hanford Site. According to the CLUP, the BRMP

“provides a mechanism for ensuring compliance with laws protecting biological resources; provides a framework for ensuring that appropriate biological resource goals, objectives, and tools are in place to make DOE an effective steward of the Hanford biological resources; and implements an ecosystem management approach for biological resources on the Site. The BRMP provides a comprehensive direction that specifies DOE biological resource policies, goals, and objectives.”

DOE-RL places priority on monitoring those plant and animal species or habitats with specific regulatory protections or requirements; or that are rare and/or declining (federal or state listed endangered, threatened, or sensitive species); or are of significant interest to federal, state, or tribal governments or the public. The BRMP ranks wildlife species and habitats (Levels 0-5), providing a graded approach to monitoring biological resources based on the level of concern for each resource. The Ferruginous Hawk (*Buteo regalis*) is a Washington State threatened species. Ferruginous Hawks are ranked as Level 4 resources in the BRMP along with Bald Eagles (*Haliaeetus leucocephalus*) which are Washington State sensitive and a federal species of concern. Level 4 resources are considered essential to the biological diversity of the Hanford Site and the Columbia Basin Ecoregion. The management goal of Level 4 resources is preservation and requires a high level of status monitoring.

The nesting raptor surveys also support the obligations described in the Memorandum of Understanding between the U.S. Department of Energy (DOE) and the United States Fish and Wildlife Service (USFWS) *Regarding the Implementation of Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds”* by conducting research and other activities for the preservation and enhancement of habitat for migratory birds, maintenance of bird populations, and minimization of human impacts on native species.

1.1 Background

The Hanford Site supports a large and diverse community of raptorial birds (Fitzner et al. 1981), with 26 species of raptors observed on the Hanford Site. Thirteen raptor species have been recorded nesting on the Hanford Site, including eight species of diurnal raptors and five species of owls (Table 1). Several of these species are on state and federal threatened and endangered species lists ([WDFW 2015](#)). The Ferruginous Hawk is a Washington State threatened species. The Bald Eagle is a Washington State sensitive species and a federal species of concern. The Burrowing Owl (*Athene cunicularia*) is a Washington State candidate species. Swainson's Hawks (*Buteo swainsoni*), Prairie Falcons (*Falco mexicanus*), and Ospreys (*Pandion haliaetus*) are Washington State monitored species. Raptor species on the Hanford Site are also afforded protection under the Migratory Bird Treaty Act (MBTA). Because of the status of these species and their protection under the MBTA, DOE-RL documents and protects nest locations to avoid disturbance during the nesting season and tracks populations over time to determine potential impacts of Hanford operations on these species.

Table 1. Status of Nesting Raptors of the Hanford Site

Species		Species Status	
Common Name	Scientific Name	State	Federal
Ferruginous Hawk	<i>Buteo regalis</i>	Threatened	None
Swainson's Hawk	<i>Buteo swainsoni</i>	Monitored	None
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None	None
Prairie Falcon	<i>Falco mexicanus</i>	Monitored	None
American Kestrel	<i>Falco sparverius</i>	None	None
Northern Harrier	<i>Circus cyaneus</i>	None	None
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Sensitive	Species of Concern
Osprey	<i>Pandion haliaetus</i>	Monitored	None
Great Horned Owl	<i>Bubo virginianus</i>	None	None
Long-eared Owl	<i>Asio otus</i>	None	None
Short-eared Owl	<i>Asio flammeus</i>	None	None
Burrowing Owl	<i>Athene cunicularia</i>	Candidate	None
Barn Owl	<i>Tyto alba</i>	None	None

The creation of the Hanford Site has likely benefited many raptor species, due to restrictions on public access, livestock grazing, and agriculture for the past 71 years. Prior to European settlement, trees occurred only sporadically on the Hanford Site, along riparian zones. Species such as American Kestrels (*Falco sparverius*), Great Horned Owls (*Bubo virginianus*), Long-eared Owls (*Asio otus*), Red-tailed Hawks (*Buteo jamaicensis*), Swainson's Hawks, Ferruginous Hawks, and Bald Eagles have benefited from the trees that people planted near now-abandoned homesteads, townsites, and previous army encampment sites. Human-made structures have also provided nesting habitat for a variety of raptors. Barn Owls (*Tyto alba*) have been found nesting in abandoned buildings on the Hanford Site. Red-tailed Hawks have been observed nesting on the outside of decommissioned reactor buildings, and Red-tailed Hawks, Swainson's Hawks, and Ferruginous Hawks have also benefited from the nesting habitat provided by transmission towers and wooden utility poles. Ospreys, which are recent additions to the list of nesting raptors on the Hanford Site (first year 2000), have benefited from nest platforms built for their use.

Some species of raptors nest on the Hanford Site in low numbers due to the natural lack of suitable nesting habitats, food sources, or nesting substrates. For instance, Prairie Falcons nest primarily on cliffs, which, on the Hanford Site, are limited to Rattlesnake Mountain, Gable Mountain, Gable Butte, Yakima Ridge, and Umtanum Ridge. Northern Harriers (*Circus cyaneus*) nest primarily on the ground in wetland areas that are also limited on the Hanford Site. Ospreys subsist on live fish and consequently are restricted to areas along the Columbia River.

Short-eared Owls (*Asio flammeus*) are common winter visitors to the Hanford Site, but rarely nest onsite. Short-eared owls nest on the ground in marshes, grasslands, and tundra areas supporting dense cyclic populations of small mammals ([Wiggins et al. 2006](#)). Short-eared Owls have been found nesting around Benson Ranch on the Fitzner/Eberhardt Arid Lands Ecology Reserve (Fitzner et al. 1981), but have not been observed nesting anywhere else onsite.

Bald Eagles occur on the Hanford Site primarily during the winter months when they congregate to feed on post-spawned fall Chinook salmon (*Oncorhynchus tshawytscha*) carcasses that wash up along the shores of the Columbia River and waterfowl that winter in the area. While pairs of Bald Eagles do attempt to nest on the Hanford Site, most individuals leave the area in the spring, when their food sources diminish, without successfully raising young (USDOE 2009). In 2013, the first successful Bald Eagle nest was documented on the Hanford Site; this nest was used again in 2014 ([Cranna et al. 2015](#)).

Surveys of nesting raptors have been conducted on the Hanford Site since 1973 by the DOE-RL and Washington Department of Fish and Wildlife (WDFW) (Olendorff 1973; Fitzner et al. 1977; Fitzner 1978, 1980, Fitzner et al. 1981; Poole et al. 1988; Fitzner and Newell 1989; Nugent 1995; Leary 1996; Dirkes and Hanf 1998; Leary et al. 1998; Dirkes et al. 1998, 1999; Poston et al. 2000, 2001; Clayton 2005). However, these surveys were not conducted systematically, and were not consistent in the area chosen for monitoring. Some years included only the DOE-RL managed portion of the Hanford Site, some years included either the entire Hanford Site or a portion of the Hanford Site, and some years only included known nest locations. The previous surveys were not conducted every year, and the species documented during those surveys included different subsets of raptors. A consistent approach for long-term monitoring of nesting raptors was initiated in 2012 for the portions of the Hanford Site managed by DOE-RL ([Nugent et al. 2013](#)) and reproduced in 2013 ([Nugent et al. 2014](#)) and 2014.

1.2 Objectives

The focus of this annual report is to document the distribution and abundance of nesting raptors on the DOE-RL managed portions of the Hanford Site. Annual surveys provide land managers with specific locations of nest sites so nests can be avoided and disturbances minimized during the nesting season. Long-term trends in nesting raptor populations also allow assessment of the possible impacts of Hanford Site operations.

1.3 Scope

The survey methods described in Section 2.0 are likely to detect the majority of species of nesting raptors on the Hanford Site, but with varying degrees of success (Table 2).

- The survey methods are likely to detect a majority of individual nest sites for Red-tailed Hawks, Swainson's Hawks, Ferruginous Hawks, Prairie Falcons, Bald Eagles, Ospreys, Great Horned Owls, and Long-eared Owls.
- Some species nest in sites that are less conspicuous and a high proportion of individual nest sites for these species are not likely to be detected using these methods.
 - Burrowing Owls nest in burrows in the ground and the methods described here are not optimal for documentation of these nest sites. Separate monitoring efforts were instituted for Burrowing Owls in 2012 and 2013 ([Wilde et al. 2012](#); [Wilde et al. 2014](#)). In 2014, a partial review of Burrowing Owls nest sites on the Hanford Site was conducted and data are provided in this report.
 - Northern Harriers and Short-eared Owls are ground nesting birds and their nests are difficult to detect, and are thus not likely to be accurately assessed using this methodology. Short-eared Owls may not nest within the current survey area.
 - American Kestrels are secondary cavity nesters and most nest sites are not detected using these survey methods.
- The most conspicuous raptors nesting on the Hanford Site are the three species of *Buteo* Hawks: the Red-tailed Hawk, Swainson's Hawk, and Ferruginous Hawk. These species build large stick nests on trees, cliffs, rock outcrops, utility poles and transmission towers. The largest number of raptor nest sites detected with these methods belong to *Buteo* Hawks.
- Common Ravens (*Corvus corax*) also build large stick nests that are difficult to distinguish from *Buteo* Hawk nests without the presence of birds. Common Ravens are not considered raptors, but perform a similar ecological role and are protected under the MBTA. The majority of Common Raven nests are detected with these survey methods and are included in this report.

Raptor nesting season on the Hanford Site extends over six months, generally from March through August (Fitzner et al. 1981). Fitzner et al. (1981) found that Great Horned Owls were the earliest nesters on the Hanford Site, with an average egg laying date of March 15. American Kestrels were the last nesters with an average laying date of May 25. First-egg dates for raptor species known to nest on the Hanford Site are provided in Table 3. Although these data are limited and dated, survey timing could be inferred. In order to detect the greatest number of raptor nests, surveys were conducted in late May and early June when all species were occupying nesting territories.

Table 2. Nest Site Selection of Raptors on the Hanford Site and Likelihood of Detecting Nests during Annual Surveys

Species	Nest Site Selection	Likely to Detect Nests if Present?	Likely to Detect Most Nests?
Ferruginous Hawk	Trees, Cliffs/Rock Outcrops, Utility Structures	Yes	Yes
Swainson's Hawk	Primarily Trees, but also Utility Structures	Yes	Yes
Red-tailed Hawk	Trees, Cliffs/Rock Outcrops, Utility Structures	Yes	Yes
Prairie Falcon	Primarily Cliffs	Yes	Yes
American Kestrel	Primarily Secondary Cavities in Tree	Yes	No
Northern Harrier	Primarily on Ground in Wetland Vegetation but also Dry Grasslands	No	No
Bald Eagle	Large Trees, Nest Platforms, Cliffs	Yes	Yes
Osprey	Large Trees, Nest Platforms, Cliffs	Yes	Yes
Great Horned Owl	Primarily in Trees in Nests Built by Other Species	Yes	Yes
Long-eared Owl	Primarily in Trees in Nests Built by Other Species	Yes	Yes
Short-eared Owl	Primarily on Ground in Dry Sites	No	No
Burrowing Owl	Primarily in Burrows Dug by Other Animals but also Human-made Structures (e.g., Culverts, Artificial Burrows)	Yes	No
Barn Owl	Existing Cavities in Trees, Cliffs/Rock Outcrops, Caves, Buildings	Yes	Yes

Table 3. First-egg Dates for Raptor Species Known to Nest on the Hanford Site

Species	Hanford Site ¹			Statewide ²		
	Number of Records	Earliest First-egg Date	Latest First-egg Date	Number of Records	Earliest First-egg Date	Latest First-egg Date
Ferruginous Hawk	-	-	-	23	Mar 28	Apr 30
Swainson's Hawk	39	Apr 28	May 20	28	Apr 28	May 31
Red-tailed Hawk	19	Mar 30	Apr 20	46	Feb 23	May 09
Prairie Falcon	3	Apr 15	May 24	126	Mar 09	May 18
American Kestrel	4	May 08	Jun 18	30	Mar 26	Jun 20
Northern Harrier	2	Apr 07	Apr 25	14	Mar 26	May 24
Bald Eagle	-	-	-	26	Mar 01	May 10
Osprey	-	-	-	26	Apr 16	Jun 21
Great Horned Owl	5	Mar 05	Apr 27	28	Feb 11	Apr 28
Long-eared Owl	7	Mar 20	May 21	41	Mar 06	Jun 03
Short-eared Owl	-	-	-	7	Mar 18	May 30
Burrowing Owl	6	Apr 08	-	12	Mar 23	Jun 08
Barn Owl	-	-	-	6	Mar 04	May 14

¹Fitzner et al. 1981²[The Burk Museum, University of Washington](#)

2.0 Methods

Nests were located using foot and vehicular surveys. Surveys were conducted on the DOE-RL managed lands of the Hanford Site excluding portions of the 200 Area (Figure 1). DOE-RL managed lands include central Hanford, McGee Ranch and Riverland areas, the dunes area, and the southern shoreline of the Columbia River. All elevated substrates in the surveyed areas were searched for nests. Suitable nesting structures included trees, cliffs and rock outcrops, utility poles and transmission towers, abandoned buildings, and nest platforms. The distribution of nesting substrates on DOE-RL managed portions of the Hanford Site is provided in Figure 2. Nest searches occurred in late May and early June when all species occupy nesting territories. Some nest sites were also recorded during other, unrelated, ecological surveys. A nest was considered occupied if adult birds were tending a recently built nest or eggs or young were present. A Trimble Global Positioning System (GPS) with sub-meter accuracy was used to record nest site coordinates. Coordinates for nest sites not easily accessible in the field, such as high cliffs, were later adjusted on maps in a Geographic Information System (GIS). Field personnel spent as little time as possible at each nest site to avoid disturbing the birds. During cold or wet weather, field personnel avoided flushing incubating adult birds. Flushing adult birds at this time may cause nest failures. Nest searches were not conducted during inclement weather.

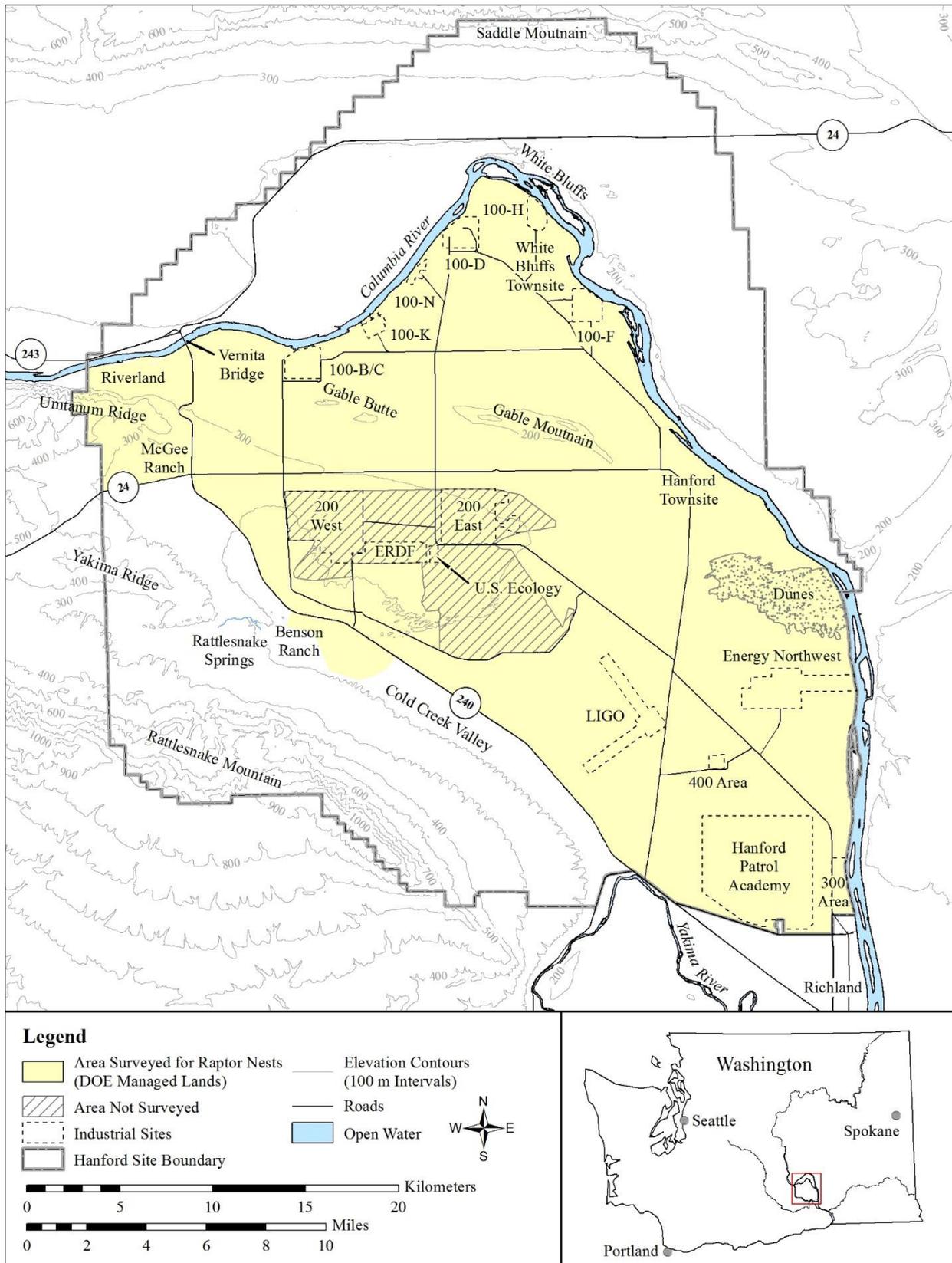


Figure 1. Area Surveyed for Raptor Nests on DOE-RL Managed Lands of the Hanford Site in 2014

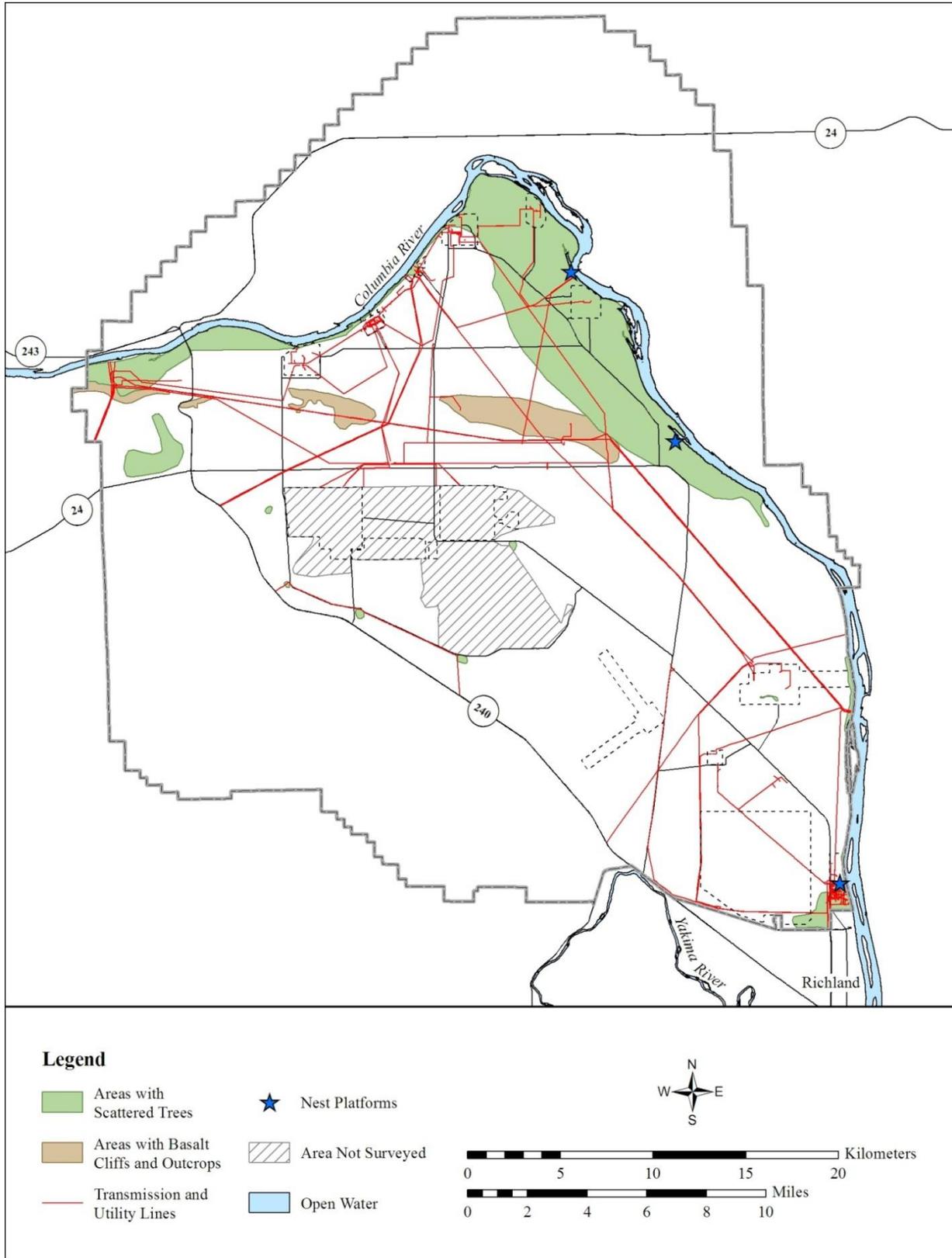


Figure 2. Distribution of Nesting Substrates on DOE-RL Managed Lands of the Hanford Site

3.0 Results

Nest surveys were conducted on 12 days from May 12, 2014 through June 5, 2014 (May 12, May 14, May 15, May 19-22, May 27-29, June 4, and June 5). Nests observed during other ecological monitoring efforts are also presented here. A total of 122 nest sites were recorded in 2014 including 3-Ferruginous Hawks, 18-Swainson's Hawks, 9-Red-tailed Hawks, 2-Prairie Falcons, 1-American Kestrel, 1-Bald Eagle, 1-Osprey, 1-Great Horned Owl, 5-Long-eared Owls, 11-Burrowing Owls (only two Burrowing Owl nest sites were located using the methods described in this report; nine nest sites were found during project specific ecological surveys), and 70-Common Ravens. Nest substrates used by raptors and ravens on DOE-RL managed lands are shown in Table 4. Approximately eleven percent of the raptor and raven nests located in 2014 were on naturally occurring substrates such as cliffs, mammal burrows, and naturally established trees along the Columbia River. All raptor nest sites located in 2014 are displayed in Figure 3. Common Raven nest sites found in 2014 are shown in Figure 4.

Table 4. Nest Substrates Used by Raptors and Ravens on DOE-RL Managed Lands of the Hanford Site in 2014

Species	Tree	Cliff	Transmission Tower	Utility Pole	Electrical Substation	Nest Platform	Instrument Tower	Communications Tower	Building	Irrigation Pipe	Mammal Burrow	Artificial Burrow	Total
Ferruginous Hawk			3										3
Swainson's Hawk	15		1	2									18
Red-tailed Hawk	3	1	4						1				9
Prairie Falcon		2											2
American Kestrel	1												1
Bald Eagle	1												1
Osprey						1							1
Great Horned Owl	1												1
Long-eared Owl	5												5
Burrowing Owl*										2	3	6	11
Common Raven**	12	1	45	7	2		1	1	1				70
Total	38	4	53	9	2	1	1	1	2	2	3	6	122
*Burrowing Owls were recorded in separate monitoring reports in 2012 and 2013 (Wilde et al. 2012 ; Wilde et al. 2014).													
**Common Ravens are not technically raptors but occupy a similar ecological niche and are protected under the Migratory Bird Treaty Act.													

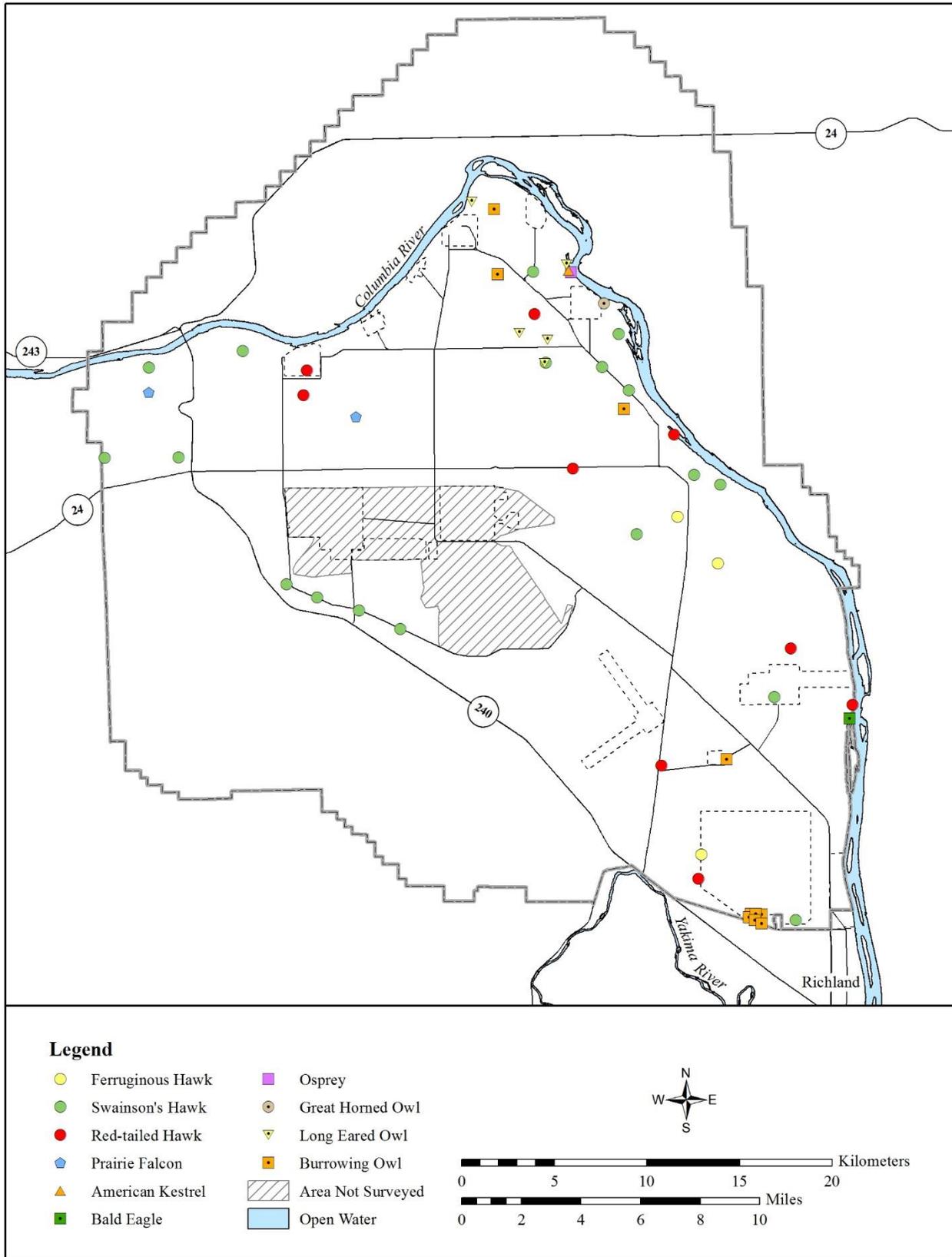


Figure 3. Raptor Nests Located on DOE-RL Managed Lands of the Hanford Site in 2014

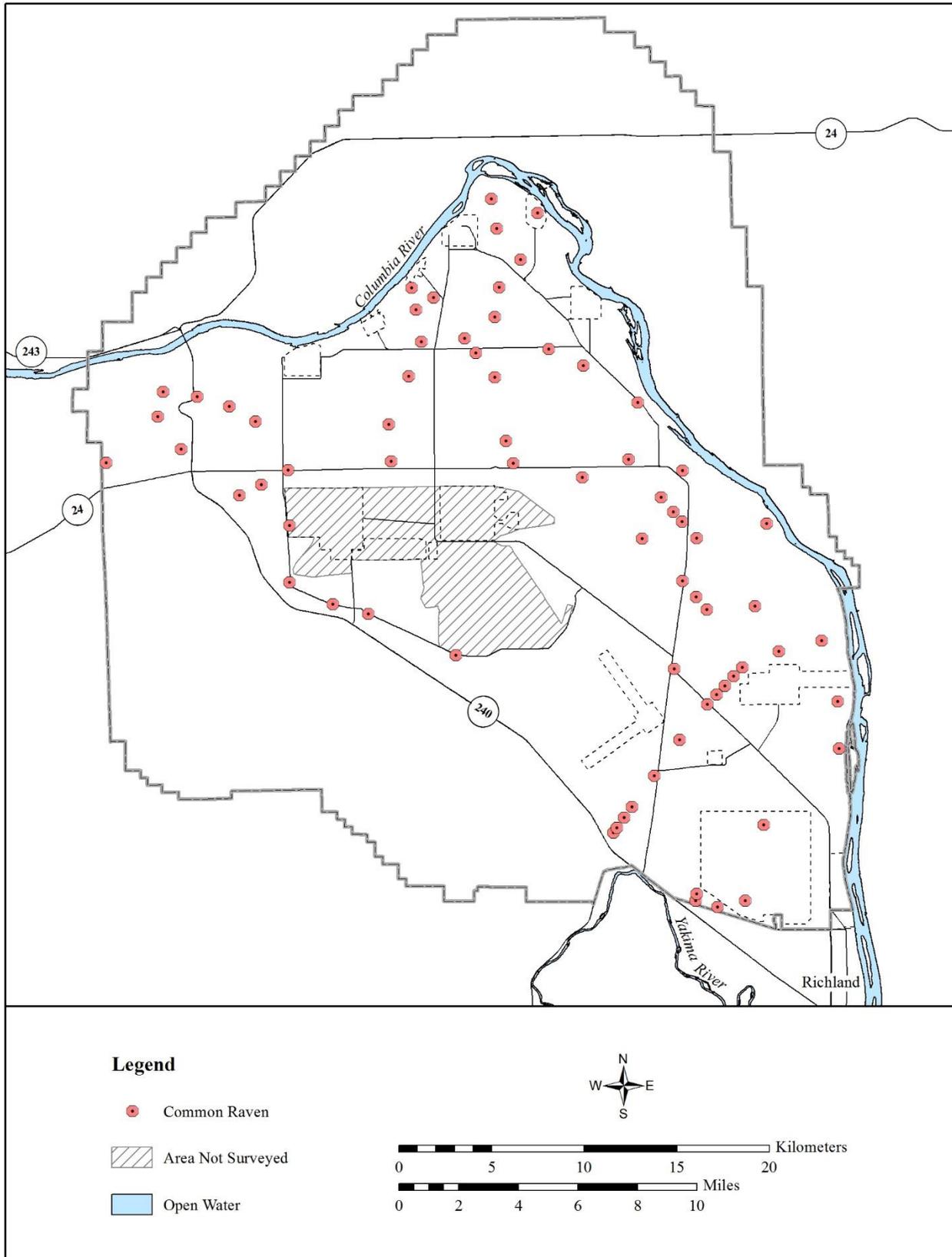


Figure 4. Common Raven Nests Located on DOE-RL Managed Lands of the Hanford Site in 2014

4.0 Discussion

Survey methods used in 2014 were consistent with the methods used in 2012 and 2013 ([Nugent et al. 2013](#); [Nugent et al. 2014](#)). Nests of 10 raptor species (Ferruginous Hawks, Swainson’s Hawks, Red-tailed Hawks, Prairie Falcons, American Kestrel, Bald Eagles, Ospreys, Great Horned Owls, Long-eared Owls, and Burrowing Owls), as well as Common Ravens, were located in 2014. It is likely that all or most of the nests on the DOE-RL managed portions of the Hanford Site for the majority of these species with the exception of American Kestrels and Burrowing Owls were detected during the 2014 survey. A comparison of the number of raptor and raven nest sites located in 2012 through 2014 is presented in Figure 5. A summary of the number of raptor and raven nest sites reported on the Hanford Site from the years 1973 through 2014 is provided in Table 5.

The first known successful Bald Eagle nest was documented on the Hanford Site upstream of Wooded Island in 2013. The nest site was successful again in 2014. Surveyors conducting sampling activities on the Columbia River observed a pair of eagle fledglings perched near the nest on July 10, 2014 ([Cranna et al. 2015](#)).

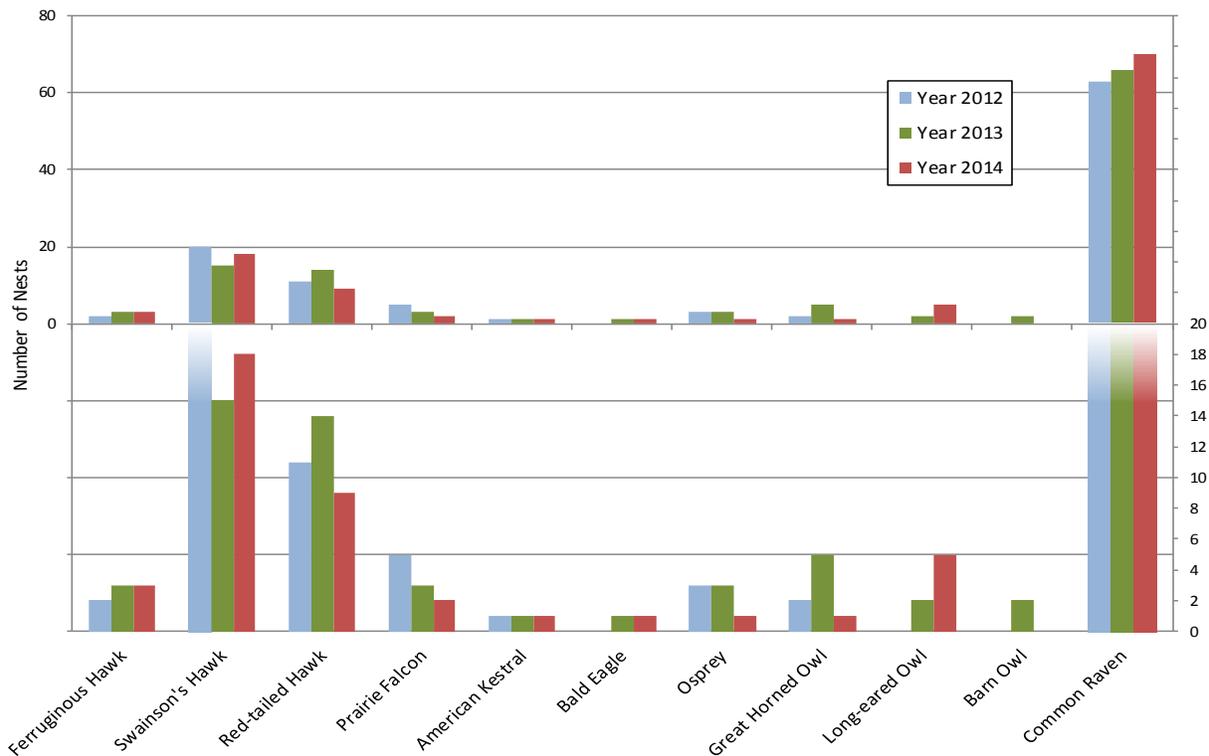


Figure 5. Number of Raptor and Raven Nest Sites Located on DOE-RL Managed Lands of the Hanford Site in 2012 through 2014

Table 5. Number of Raptor and Raven Nest Sites reported on the Hanford Site from the Years 1973 through 2014

Survey Years	Source	Species													
		Ferruginous Hawk	Swainson's Hawk	Red-tailed Hawk	Prairie Falcon	American Kestrel	Northern Harrier	Bald Eagle	Osprey	Great Horned Owl	Long-eared Owl	Short-eared Owl	Burrowing Owl	Barn Owl	Common Raven
1973	Olendroff (1973)		10 [10]	9 [12]	2 [2]					7 [7]	1 [1]				
1975 to 1978	Fitzner (1980) and Fitzner et al. (1981)	[1]	14 to 16 [15 to 18]	7 to 19 [9 to 25]	[4]	[10]*	[5]*			2 to 4 [3 to 5]	2 to 6 [3 to 8]	[1 to 2]*	13 to 22* [20 to 26]*	1 to 2 [2]	[9 to 11]
1987	Poole et al. (1988)		23 [36]												
1987 and 1988	Fitzner and Newell (1989)	4 to 7													
1991 to 1993	Nugent (1995)	8 to 10 [11]	14 [22 to 25]	13 [20 to 25]											
2000	Poston et al. (2001)							1							
2005	Clayton (2005)	4	9	14											45
2010	WDFW (2012)	2													
2012	Nugent et al. (2013)	2	20	11	5	1*			3	2					63
2013	Nugent et al. (2014)	3	15	14	3	1*		1	3	5	2			2	66
2014	This Report	3	18	9	2	1*		1	1	1	5		11*		70

Number in brackets is the number of nests found in those years on the entire Hanford Site.
 Number not in brackets is the number of nests found in those years in the area of our survey which includes the DOE-RL managed lands of the Hanford Site excluding portions of the 200 Area (Figure 1).
 *Nests of American Kestrels, Northern Harriers, Short-eared Owls, and Burrowing Owls are difficult to find and nest numbers likely represent minimums.

In 2014, Ferruginous Hawks were observed at the same three nest sites that were occupied in 2013. All three nest sites were located on 230 kV transmission towers. Similar to 2013, adult Ferruginous Hawks were seen at one of the nest sites at different times throughout the breeding season, but it was unclear if they were actively defending the territory and no young were ever observed in or near the nest. Nesting Ferruginous Hawks were uncommon on the Hanford Site prior to 1987, with only one or two pairs nesting each year on basalt outcroppings on the side hills of Rattlesnake Mountain (Fitzner and Newell 1989). In 1987, four pairs of Ferruginous Hawks were observed nesting on the relatively new 230 kV transmission towers associated with the Washington Public Power Supply System reactors (now known as Energy Northwest). Construction of the transmission towers began in 1976 and lines were energized between December 1976 and July 1981. In 1988, seven Ferruginous Hawk nests were observed on 230 kV transmission towers and one in a tree. In 1991, 1992, and 1993, 11-active Ferruginous Hawk nests were reported on the entire Hanford Site (8 to 10 active nests in the area of our survey) each year (Fitzner et al. 1994; Nugent 1995). The majority of these nests were located on transmission towers. A steady decrease in the number of nesting Ferruginous Hawks on the Hanford Site has occurred since the 1990s. Clayton (2005) reported four nesting pairs on transmission towers in 2005 and Washington Department of Fish and Wildlife (Per. Comm. M. Livingston, WDFW, April 11, 2012) documented only two nesting pairs on transmission towers in 2010.

Ferruginous Hawks are especially sensitive to human disturbance and incursion into their nesting areas. On the Hanford Site, nesting Ferruginous Hawks are protected using WDFW guidelines (WDFW 2004). Buffer zones of 1000 meters (m) [3281 feet (ft)] are established around active nests. Road closure signs are placed in the roads where they intersect with the 1000 m (3281 ft) buffers. Nest areas are protected from all human disturbance within 250 m (820 ft) between March 1 and May 31, and within 1000 m for prolonged (>0.5 hours) activities during the entire nesting and fledging season (March 1 to August 15). The data collected during this survey allow for the identification and protection of nesting Ferruginous Hawks.

Eighteen Swainson's Hawk nests were found in 2014, which was similar to the previous two years (20 in 2012 and 15 in 2013). These numbers were within the range (nine to 23 nests) found in our survey area in the last 41 years. The number of Red-tailed Hawk nests located in 2014 (nine) was fewer than observed the previous two years (11 in 2012 and 14 in 2013) but within the range (seven to 19 nests) found in our survey area in the past 41 years.

Two Prairie Falcon nests were found in 2014, which was less than the previous two years (five in 2012 and three in 2013). Both nests were found on the basalt cliffs, one on Gable Butte and one on Umtanum Ridge. The number and location of Prairie Falcon nests on the Hanford Site has remained relatively constant over the years. Olendroff (1973) observed seven (two in our survey area) Prairie Falcon nests along the stretch of cliffs from Gable Butte to the Yakima-Benton County Line in 1973 while Fitzner et al. (1981) found no more than four pairs nesting in any one year (1975 through 1978) on the entire Hanford Site.

American Kestrel nest site numbers are expected to be much greater than the one nest detected during this survey. As secondary cavity nesters, American Kestrels have many opportunities (holes and crevices on trees, cliffs, buildings, and other structures) for nesting on the Hanford Site, but the effort to find these nests would be considerable.

Ospreys were observed nesting on the Hanford Site for the first time in 2000 (Poston et al. 2001). In 2014, one Osprey nest was observed on the nest platform near White Bluffs boat launch. Three nests were found in 2012 and 2013; it is unclear why the nest platforms in the 300 Area and the Hanford Townsite were not occupied in 2014 as they were in 2012 and 2013 but major clean-up activities near the 300 Area nest platform may be responsible for that nest not being used in 2014.

One Great Horned Owl nest was detected in a tree adjacent to the Columbia River in the vicinity of the 100-F reactor in 2014, which was a decrease from the five found 2013 and the two found in 2012. A range of two to seven Great Horned Owl nests in a year have been reported in our survey area in the last 41 years.

Five Long-eared Owl nests were located in 2014, an increase from the two found in 2013 and zero found in 2012. All five nests were located in trees in the area from just south of Route 1 to northeast of 100-D and east to White Bluffs boat launch. A range of one to six Long-eared Owl nests in a year have been observed in our survey area in the last 41 years.

No Barn Owl nests were detected in 2014; two nests were found in 2013 and none were observed in 2012. Barn Owl nest numbers have always been infrequent on the Hanford Site. Fitzner et al (1981) documented one or two Barn Owl nests each year in the area of our survey from 1975 to 1978. No Short-eared Owl nests were detected in the years 2012 through 2014. Short-eared owls rarely nest on the Hanford Site.

All burrowing owl nests located in 2014 were incidental observations; therefore, the number of burrowing owl nests recorded in 2014 should be considered incomplete. Eleven Burrowing Owl nest sites were located in 2014; two nest sites were located using the methods described in this report and an additional nine nest sites were found during other ecological surveys. Separate monitoring efforts for Burrowing Owls were conducted in 2012 and 2013 ([Wilde et al. 2012](#), and [Wilde et al. 2014](#)). A total of 39 active burrows were observed on DOE-RL managed lands of the Hanford Site in 2012 and 50 active burrows in 2013.

Nesting Common Ravens appear to have increased significantly on the Hanford Site in recent years. Seventy raven nests were located in 2014, 66 in 2013, and 63 in 2012 compared to 45 nests located by Clayton (2005) in 2005 and 9 to 11 nests located on the entire Hanford Site each year by Fitzner (1980) from 1975 to 1978. Only one of 70 nests found in 2014, one of 66 nests in 2013 and three of the 63 nests found in 2012 were on naturally occurring cliff substrates. The majority of raven nests were found on transmission towers or utility poles.

5.0 References

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