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Hanford Site Raptor Nest Monitoring Report for Calendar Years 2024 and 2025

Prepared by
J.J. Nugent
C.T. Lindsey
Hanford Integration Mission Solutions, LLC

Date Published
September 2025

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Contract No. 89303320DEM000031

Approved for Public Release;
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P.O. Box 943
Richland, Washington 99352

APPROVED
By Janis Aardal at 8:20 am, Nov 05, 2025

Release Approval Date

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1.0 INTRODUCTION

The U.S. Department of Energy, Hanford Field Office (HFO), 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 HFO activities. Ecological monitoring data provide baseline information about the plants, animals, and habitats under HFO stewardship at the Hanford Site required for decision making under the *National Environmental Policy Act of 1969* (NEPA) and *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*. DOE/EIS-0222, *Final Hanford Comprehensive Land Use Plan Environmental Impact Statement*, (CLUP) evaluates the potential environmental impacts associated with implementing a comprehensive land-use plan for the Hanford Site for at least the next 50 years and ensures that HFO, its contractors, and other entities conduct activities on the Hanford Site in compliance with NEPA.

The vision for the HFO-managed portion of the Hanford Site focuses not only on the cleanup of nuclear facilities and waste sites but on the protection of groundwater and the Columbia River, as well as the restoration of the Hanford Site lands for access and use (DOE/RL-2009-10). HFO works closely with partners (e.g., the U.S. Fish and Wildlife Service and National Park Service) to enable use of the Hanford Site land consistent with the CLUP. As the Hanford Site moves toward accomplishing this vision, monitoring the ecological resources present to determine whether there is a need for conservation and/or protection of any resources will be critical for making informed decisions for responsible site stewardship.

The CLUP identifies DOE/RL-96-32, *Hanford Site Biological Resources Management Plan*, (BRMP) as the primary implementation document for managing and protecting natural resources on the Hanford Site:

> *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.*

HFO places priority on monitoring plant and animal species or habitats that fit into one or more of the categories below:

- Regulatory protections or requirements
- Rare and/or declining species (i.e., federally or state-listed endangered, threatened, or sensitive)
- Significant interest to federal, state, or tribal governments or the public.

The BRMP ranks wildlife species and habitats (Levels 0–5) based on the level of concern for each resource. The nest sites of the Ferruginous Hawk (*Buteo regalis*), a Washington State

endangered species, are ranked as a Level 4 resource in the BRMP. Although the Bald Eagle (*Haliaeetus leucocephalus*) is no longer on the federal or Washington State threatened and endangered species lists, it is protected under the *Bald and Golden Eagle Protection Act of 1940* and their nest and roost sites are a Level 4 resource. Level 4 resources are essential to the biological diversity of the Hanford Site and the Columbia Basin Ecoregion. The management goal of Level 4 resources is preservation, with a high level of status monitoring. The nest sites of the Burrowing Owl, a Washington State candidate species, are classified as a Level 3 resource in the BRMP. Level 3 resources are important resources to the biological diversity of the Hanford Site and the Columbia Basin Ecoregion. The management goal for Level 3 is conservation with a moderate level of status monitoring.

Nesting raptor surveys fulfill the obligations described in the Memorandum of Understanding between the U.S. Department of Energy and U.S. Fish and Wildlife Service Regarding the Implementation of Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds" (DOE and FWS 2013) 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

Raptors are apex predators that can significantly change the dynamics of an ecosystem by controlling prey species' populations. As top-level predators, raptors are also much more susceptible to environmental stressors such as toxins, habitat loss or degradation, and human disturbance. The number and diversity of nesting raptors in an area can be an indicator of environment health.

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 1-1). Two of these species are listed on the Washington State threatened and endangered species list. The Ferruginous Hawk (*Buteo regalis*) is an endangered species, and the Burrowing Owl (*Athene cunicularia*) is a candidate species. The Bald Eagle has been determined sufficiently recovered and has been removed from the federal and Washington State threatened and endangered species lists but is still afforded protection under the *Bald and Golden Eagle Protection Act of 1940*. Raptor species on the Hanford Site are also given protection under the *Migratory Bird Treaty Act of 1918* (MBTA). The legal safeguards provided raptors has promoted HFO to document and protect nest locations to avoid disturbance during the nesting season and track populations over time to determine potential impacts of Hanford operations on these species.

Table 1-1. Species of Nesting Raptors of the Hanford Site

Common Name	Scientific Name	Status [a]
Ferruginous Hawk	*Buteo regalis*	Washington State Endangered
Swainson's Hawk	*Buteo swainsoni*	None
Red-tailed Hawk	*Buteo jamaicensis*	None
Prairie Falcon	*Falco mexicanus*	None
American Kestrel	*Falco sparverius*	None
Northern Harrier	*Circus cyaneus*	None
Bald Eagle	*Haliaeetus leucocephalus*	None
Osprey	*Pandion haliaetus*	None
Great Horned Owl	*Bubo virginianus*	None
Long-eared Owl	*Asio otus*	None
Short-eared Owl	*Asio flammeus*	None
Burrowing Owl	*Athene cunicularia*	Washington State Candidate
Barn Owl	*Tyto alba*	None

[a] Species status retrieved from WDFW 2024
NOTE: All species are protected under the *Migratory Bird Treaty Act of 1918*

The creation of the Hanford Site likely has benefited many raptor species from restrictions on public access, livestock grazing, and agriculture for the past 82 years. Prior to European settlement, trees occurred only sporadically on the Hanford Site along riparian zones. Species such as the American Kestrel (*Falco sparverius*), Great Horned Owl (*Bubo virginianus*), Long-eared Owl (*Asio otus*), Red-tailed Hawk (*Buteo jamaicensis*), Swainson's Hawk, Ferruginous Hawk, and Bald Eagle have benefited from the trees people planted near now-abandoned homesteads, townsites, and previous army encampment sites. Human-made structures on the Hanford Site have also provided nesting habitat for a variety of raptors: Barn Owls (*Tyto alba*) in abandoned structures; Red-tailed Hawks and Great Horned Owls on the outside of decommissioned reactor buildings; and Red-tailed, Swainson's, and Ferruginous Hawks and Bald Eagles on transmission towers and wooden utility poles. Ospreys are a more recent addition to the list of nesting raptors on the Hanford Site (first year 2000); ospreys have benefited from nest platforms built for their use (Poston et al. 2001).

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 and Gable mountains, Gable Butte, and Yakima and Umtanum ridges. Northern Harriers (*Circus cyaneus*) nest primarily on the ground in wetland areas, which 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. This species nests on the ground in marshes, grasslands, and tundra areas supporting dense cyclic populations of small mammals (Wiggins et al. 2020). Short-eared Owls have also been found nesting around Benson Ranch on the Fitzner/Eberhardt Arid Lands Ecology Reserve in the 1970s (1975 through 1978) (Fitzner et al. 1981) but no recent nesting Short-eared Owls have been observed onsite.

Bald Eagles appear 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. Prior to 2013, some pairs of Bald Eagles attempted to nest on the Hanford Site, but most left the area

in the spring without successfully raising young when their food sources diminished (DOE/RL-94-150). In 2013, the first successful Bald Eagle nest was documented on the Hanford Site (HNF-55187). The number of nesting Bald Eagles has gradually increased on the Hanford Site since 2013 (HNF-68963).

Since 1973, HFO and the Washington State Department of Fish and Wildlife (WDWF) have conducted nesting raptor surveys on the Hanford Site (Olendorff 1973; Fitzner et al. 1977; Fitzner 1978, 1980a, 1980b; 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. 1999; Poston et al. 2000, 2001; Clayton 2005). These surveys, however, were not conducted systematically and were not consistent in the area chosen for monitoring; depending on the year, surveys included either the entire area or a small section (i.e., only the HFO-managed portion) of the Hanford Site or only 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 HFO and was reproduced annually from 2013 to 2016 (HNF-53073; HNF-56769; HNF-58717; HNF-59755; HNF-60469) and in 2022 (HNF-69974).

1.2 OBJECTIVES

The focus of this report is to document the distribution and abundance of nesting raptors on the HFO-managed portion of the Hanford Site. Raptor nest surveys provide land managers with specific locations of nest sites so that the nests can be avoided and disturbances minimized during the nesting season. Long-term trends in nesting raptor populations also allow for the assessment of potential impacts from Hanford Site operations.

1.3 SCOPE

The scope of the work in 2024 was to document the distribution and abundance of as many nesting raptors species as possible on the HFO-managed portion of the Hanford Site. The scope of the work in 2025 was to document the distribution and abundance of nesting Ferruginous Hawks on the HFO-managed portion of the Hanford Site. The 2024 survey methods used to document the distribution and abundance of as many nesting raptors species as possible are described in Section 2.0. These methods are likely to detect most species of nesting raptors on the Hanford Site but with varying degrees of success (Table 1-2) and with some highlights summarized in the text below.

Table 1-2. Nest Site Selection of Raptors on the Hanford Site and Likelihood of Detecting Nests during 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, Buildings	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, Utility Structures	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

The survey methods are likely to detect most individual nest sites for Red-tailed, Swainson's, and Ferruginous Hawks; Prairie Falcons; Bald Eagles; Ospreys; and Great Horned and Long-eared Owls.

The species noted below nest in less conspicuous areas, and a high proportion of individual nest sites for these species are not likely to be detected using the described methods. Specific methods will be developed for these species should their regional status decline.

- Burrowing Owls nest in burrows in the ground; the survey methods described are not optimal for documentation of this species' nest sites. Nesting Burrowing Owls are assessed in a separate monitoring effort.

- Northern Harriers and Short-eared Owls are ground-nesting birds with difficult to detect nests and are, thus, not likely to be assessed accurately using the defined survey methodology. Short-eared Owls may not nest within the current survey area.

- American Kestrels are secondary cavity nesters; 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: Red-tailed, Swainson's, and Ferruginous. These species build large stick nests on trees, cliffs, rock outcrops, utility poles, transmission towers, and sometimes buildings. 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 the birds. Although Common Ravens are not

considered raptors, they perform a similar ecological role and are protected under the MBTA. Most Common Raven nests are detected with the prescribed survey methods and are included in this report.

Raptor nesting season on the Hanford Site extends over 6 months, generally from March through August. Fitzner et al. (1981) found that Great Horned Owls were the earliest in season nesters on the Hanford Site with an average egg laying date of March 15. In 2015, Great Horned Owls were discovered tending a nest with one egg on the 105-KE Reactor on January 14; however, this nest was observed depredated on January 22. Fitzner et al. (1981) also found that American Kestrels were the latest in season 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 can be inferred. Surveys were conducted in late May and early June to detect the greatest number of raptor nests, during which time all species occupy their respective nesting territories and are most readily detectible.

Table 1-3. First-egg Dates for Raptor Species Known to Nest on the Hanford Site

	Hanford Site [a]			Statewide [b]		
Species	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 (Jan 14) [c]	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

[a] Fitzner et al. 1981
[b] Burke Museum (2023)
[c] In 2015, Great Horned Owls were observed tending a nest with one egg on January 14; however, the egg was found depredated on January 22.
- = No data available for this species on the Hanford Site.

2.0 METHODS

2.1 SURVEYS IN 2024

Nests were located using foot and vehicular surveys in 2024. Surveys were conducted on the HFO-managed portion of the Hanford Site excluding an area south of 200-East Area (BC Controlled Area and Central Landfill) (Figure 2-1). HFO-managed lands include the Central Hanford, McGee Ranch, Riverland, dunes areas, 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.

Nest searches occurred in late May and early June, during which time all species occupy their respective 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. Nest site coordinates were taken using a handheld global positioning system or Google Earth on a smart phone. Areas in which nest sites were not easily accessible in the field, such as high cliffs, were later adjusted on maps in a Geographic Information System. Field personnel spent as little time as possible at each nest site to avoid disturbing the birds. Nest searches were not conducted during inclement weather. During cold or wet weather, field personnel avoided flushing incubating adult birds. Flushing adult birds at these times may cause nest failures.

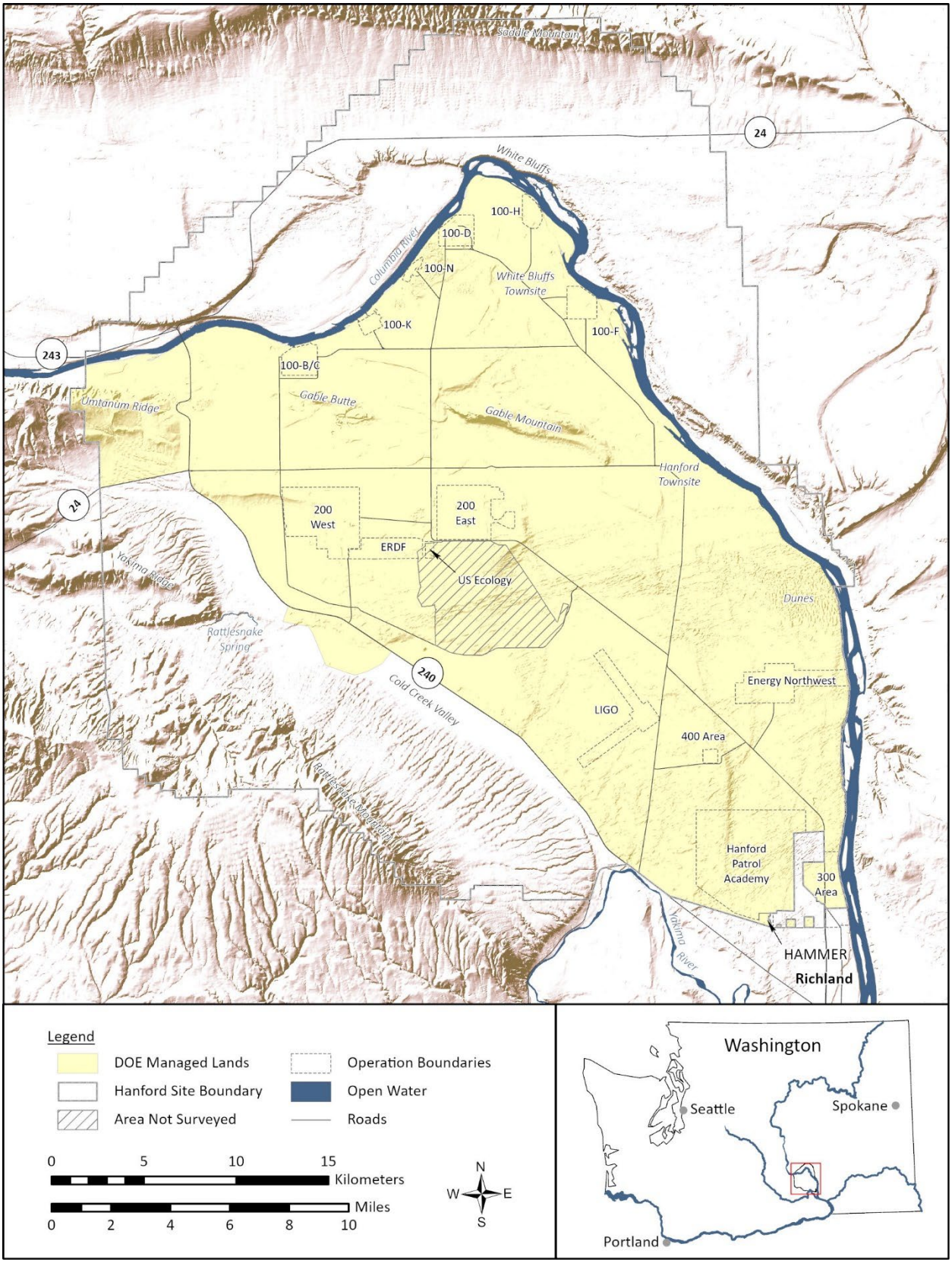

Figure 2-1. Area Surveyed for Raptor and Raven Nests on HFO-managed Portion of the Hanford Site in 2024

2.2 SURVEYS IN 2025

In 2025, surveys were conducted for Ferruginous Hawk nests only. The identification of active nests sites during annual surveys allows for the protection of nesting Ferruginous Hawks.

HFO coordinated with WDFW to determine occupancy and productivity of all traditional Ferruginous Hawk nesting territories on the HFO-managed portion of the Hanford Site in 2025. WDFW is required to report on the status of Ferruginous Hawks every five years to verify whether the species' current listing is justified or whether a reclassification is needed (WAC 220-610-110).

Seventeen traditional Ferruginous Hawk nesting territories have been identified on the HFO-managed portion of the Hanford Site (Figure 2-2). All 17 traditional Ferruginous Hawk nesting territories were surveyed using adapted WDFW protocols (Hayes and Watson 2025). One occupancy survey was conducted at each territory in late April. The occupancy surveys included visiting historical nests, scoping all potential nest structures in the vicinity of historical nests, scanning ground and elevated perches for adult birds and hiking through territories to elicit defensive behavior of adults that may otherwise not be detected. Territories were thoroughly searched. An occupancy survey was concluded early if Ferruginous Hawks were detected or if a territory was being occupied by another competing species (e.g., Red-tailed Hawks, Prairie Falcons, Common Ravens). The productivity survey was conducted in June when most young are 2 to 5 weeks old. Surveyors visited the occupied territories, counted the young at each nest and aged them based on plumage (Moritsch 1985).

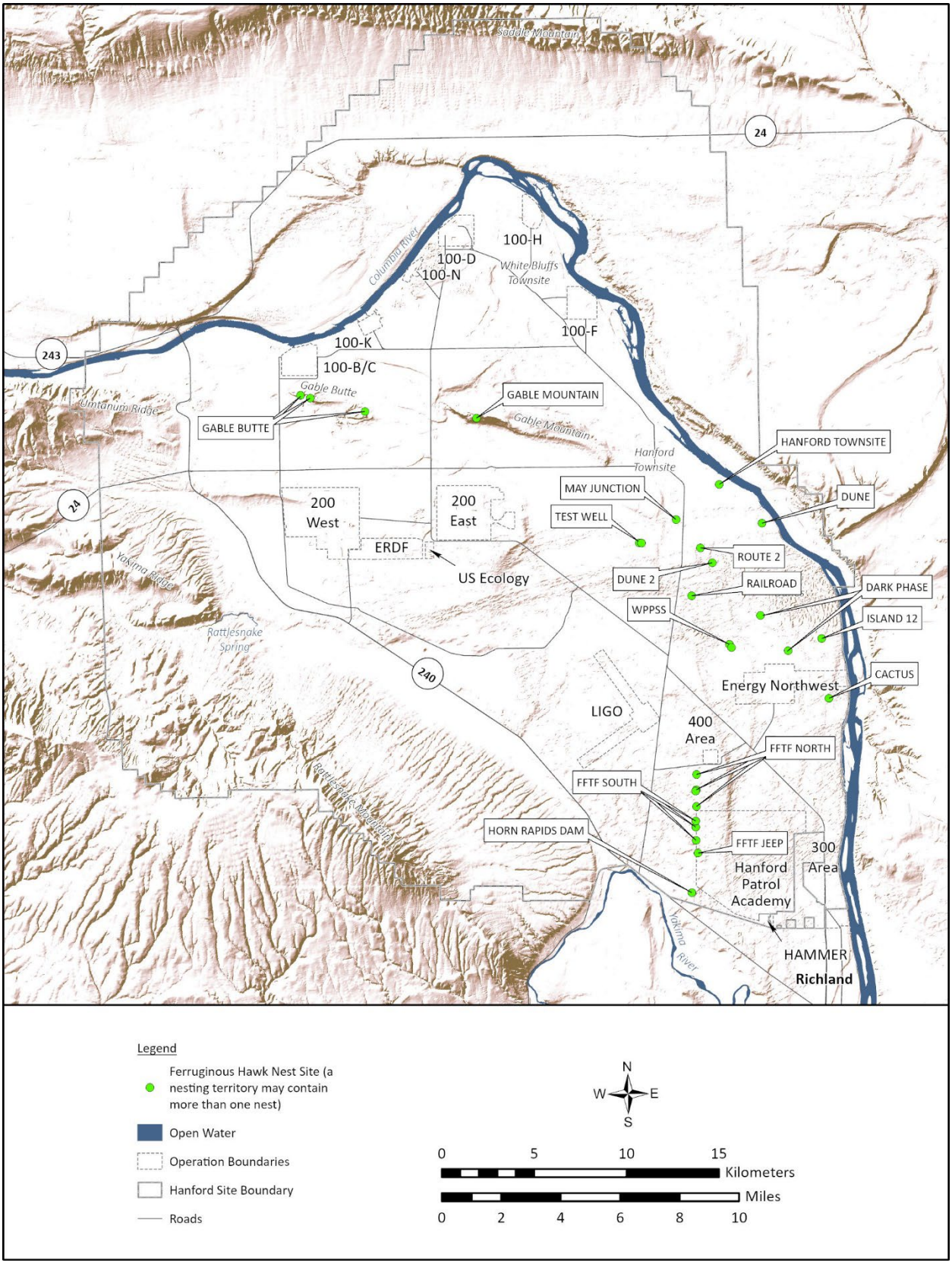

Figure 2-2. Seventeen Traditional Ferruginous Hawk Nesting Territories Identified on the HFO-managed Portion of the Hanford Site

3.0 RESULTS

3.1 SURVEYS IN 2024

Nest surveys were conducted on 11 days from May 13 through May 30, 2024 (specifically, May 13-16, May 20–23, and May 28-30). A total of 130 nest sites were recorded in 2024 (Table 3-1). Approximately 4% of the raptor and raven nests located in 2024 were on naturally-occurring substrates such as cliffs and naturally-established trees along the Columbia River. The majority of raptor and raven nests were found on artificial structures. Raptor nest locations found in 2024 are displayed in Figure 3-1, and Common Raven nest sites found in 2024 are shown in Figure 3-2. In an additional study, 36 active Burrowing Owl nests were recorded on HFO-managed lands in 2024. Twenty-six of these nests were in artificial burrow systems (ABS) built for their use and six nests were found in a natural burrows. A total of 30 (25 ABS, 5 natural) nests were successful in 2024. Details pertaining to Burrowing Owl nests and status on the Hanford Site are described in the Hanford Annual Site Environmental Report for Calendar Year 2024 (DOE/HFO-2025-12).

Table 3-1. Nest Substrates Used by Raptors and Ravens on HFO-managed Portion of the Hanford Site in 2024

Species	Tree	Cliff	Transmission Tower	Electrical Substation	Utility Pole	Communications Tower	Meteorological Tower	Siren Tower	Nest Platform	Railroad Crossing Sign	Building	Total
Ferruginous Hawk			4									4
Swainson's Hawk	14		2									16
Red-tailed Hawk	1	1	7									9
Prairie Falcon		2										2
American Kestrel [a]	1			1							1	3
Bald Eagle	4		2									6
Osprey									3			3
Great Horned Owl	3											3
Barn Owl											2	2
Common Raven [b]	15		54	2	3	1	1	1		1	4	82
Total	**38**	**3**	**69**	**3**	**3**	**1**	**1**	**1**	**3**	**1**	**7**	**130**

[a] Nests of American Kestrels are difficult to find; therefore, nest numbers likely represent minimums.
[b] Common Ravens are technically not raptors but occupy a similar ecological niche and are protected under the *Migratory Bird Treaty Act of 1918*.

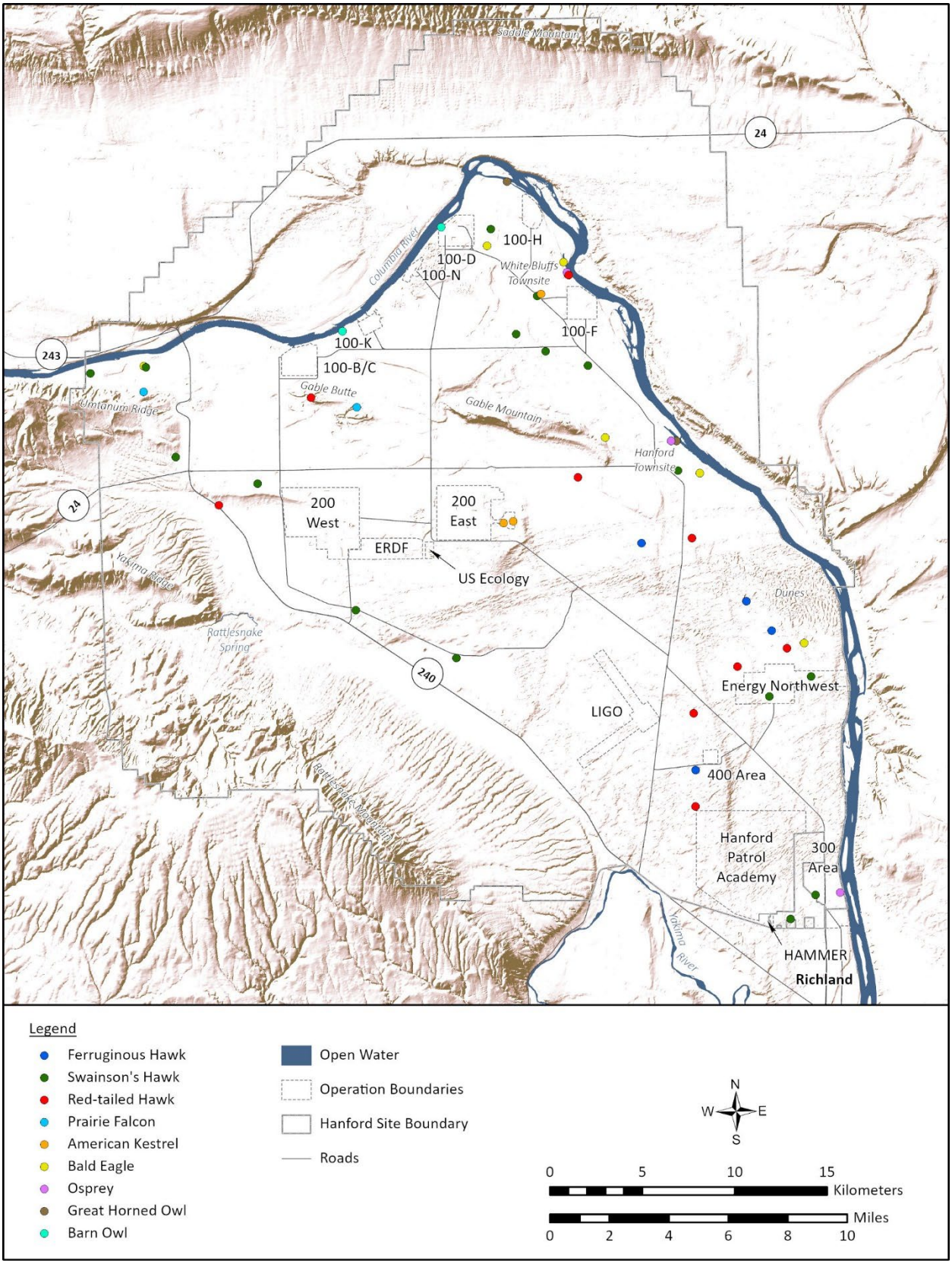

Figure 3-1. Raptor Nests Located on HFO-Managed Portion of the Hanford Site in 2024

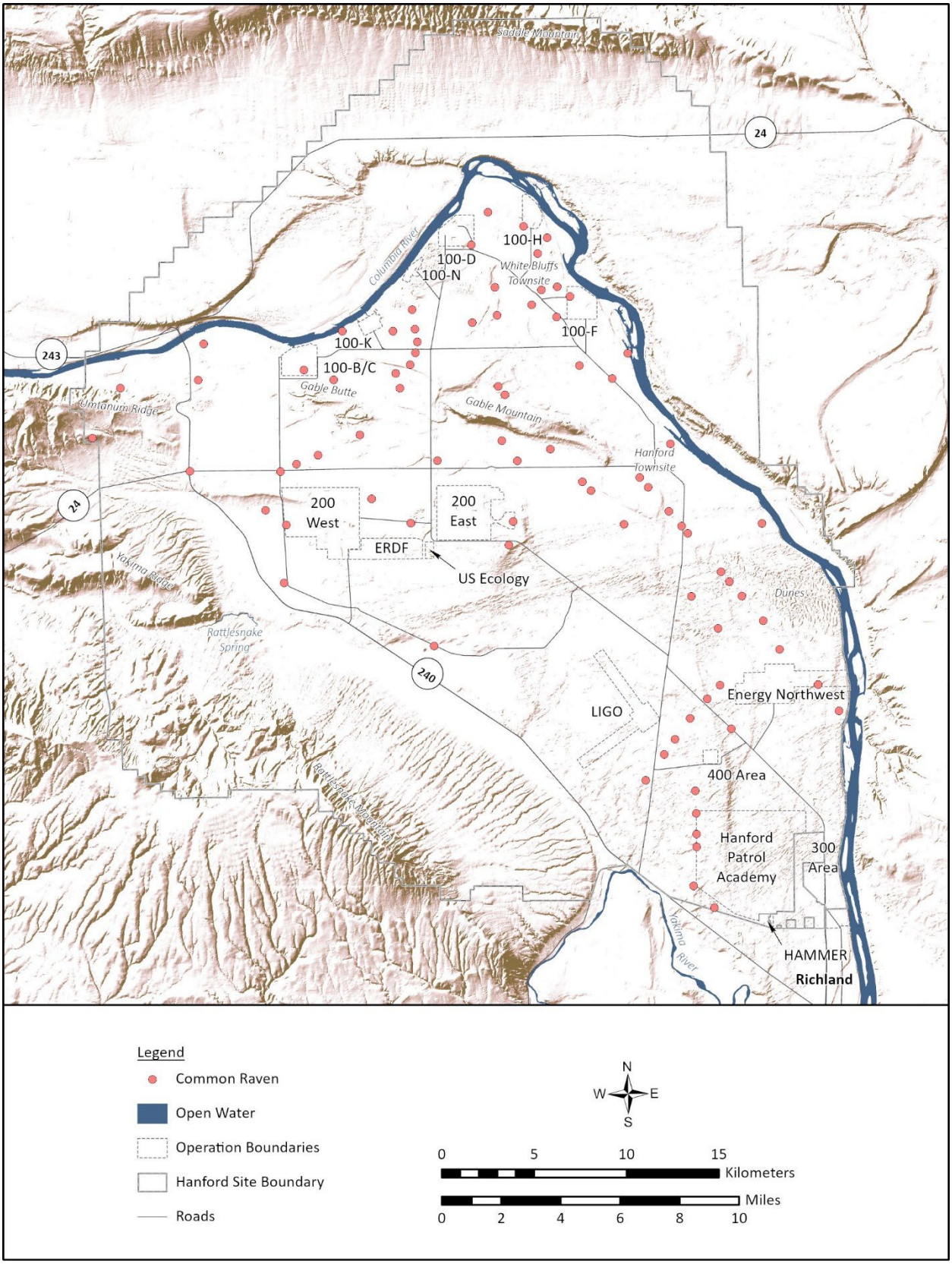

Figure 3-2. Common Raven Nests Located on HFO-Managed Portion of the Hanford Site in 2024

3.2 SURVEYS IN 2025

Six occupied Ferruginous Hawk nests were located on the HFO-managed portion of the Hanford Site in surveys conducted on May 28 and May 29, 2025 (Figure 3-3). The nests were found in five territories including one nest in the Dune 2, Test Well, FFTF North, and FFTF South territories and two nests in the Dark Phase territory. All nests were on 230 kV transmission towers. The success and productivity of the nests were assessed on June 11, 2025. No young were observed at the Dune 2 and FFTF South nests. The Test Well and the Dark Phase (North) nests each had three young estimated to be about 32 to 36 days old. The FFTF North nest contained three young that were over 40 days old. The Dark Phase (South) nest had fallen from the tower and one young was found alive on the ground estimated to be over 40 days old. It was assumed that ten young were produced on HFO-managed lands of the Hanford Site in 2025.

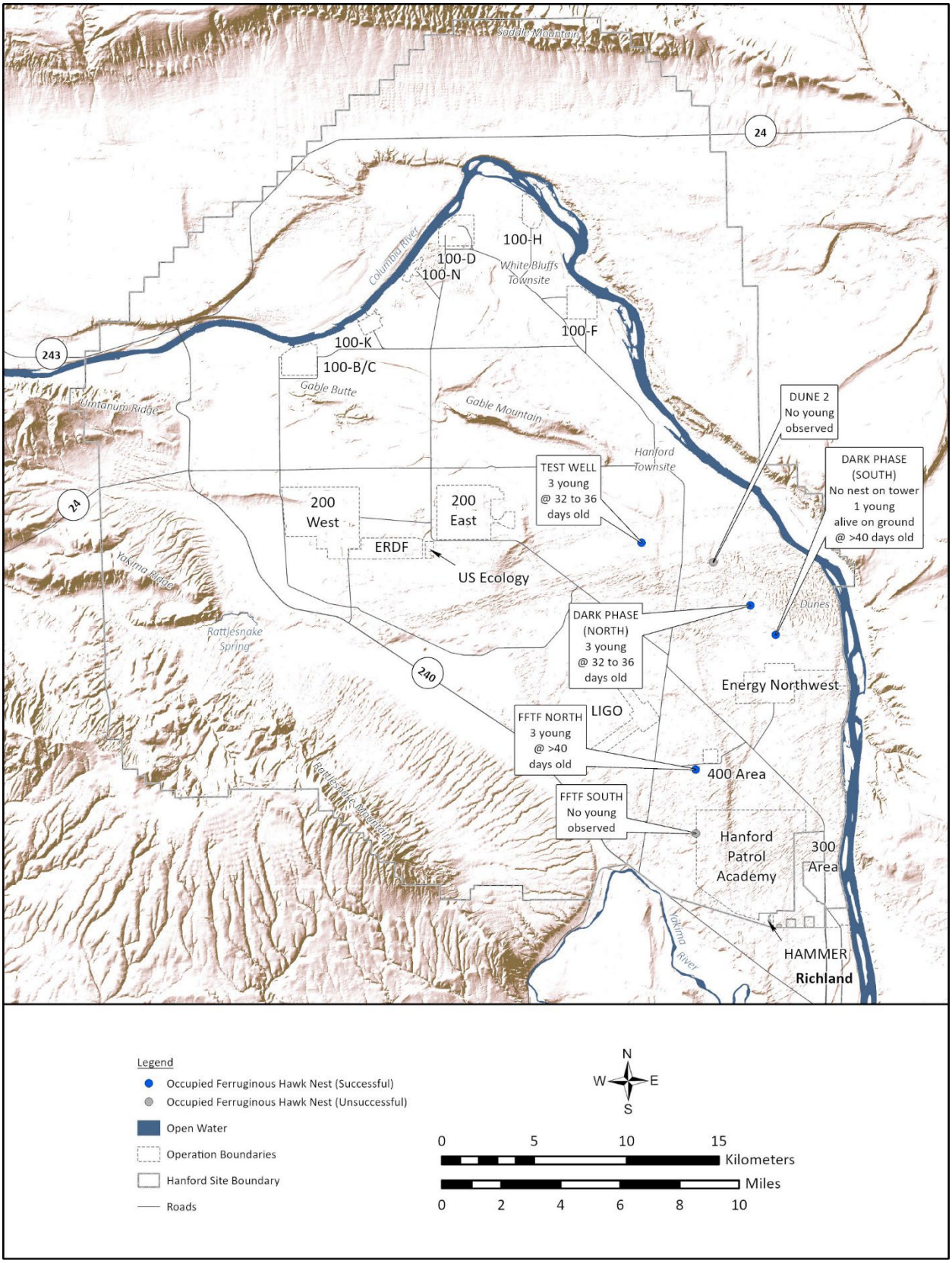

Figure 3-3. Results of Occupancy (May 28 and 29) and Productivity (June 11) Surveys of Ferruginous Hawk Nests on the HFO-managed Portion of the Hanford Site in 2025

4.0 DISCUSSION

Nests of nine raptor species (Ferruginous, Swainson's, and Red-tailed Hawks; Prairie Falcons; American Kestrel; Bald Eagles; Ospreys; Great Horned and Barn Owls) as well as Common Ravens were located in 2024. No nests of Long-eared Owls were found in 2024. A comparison of the number of raptor and raven nest sites located in 2024 to the numbers found in 2012 through 2016 and 2022 is presented in Figure 4-1. Ferruginous Hawk nests found in 2025 are also shown in Figure 4.1.

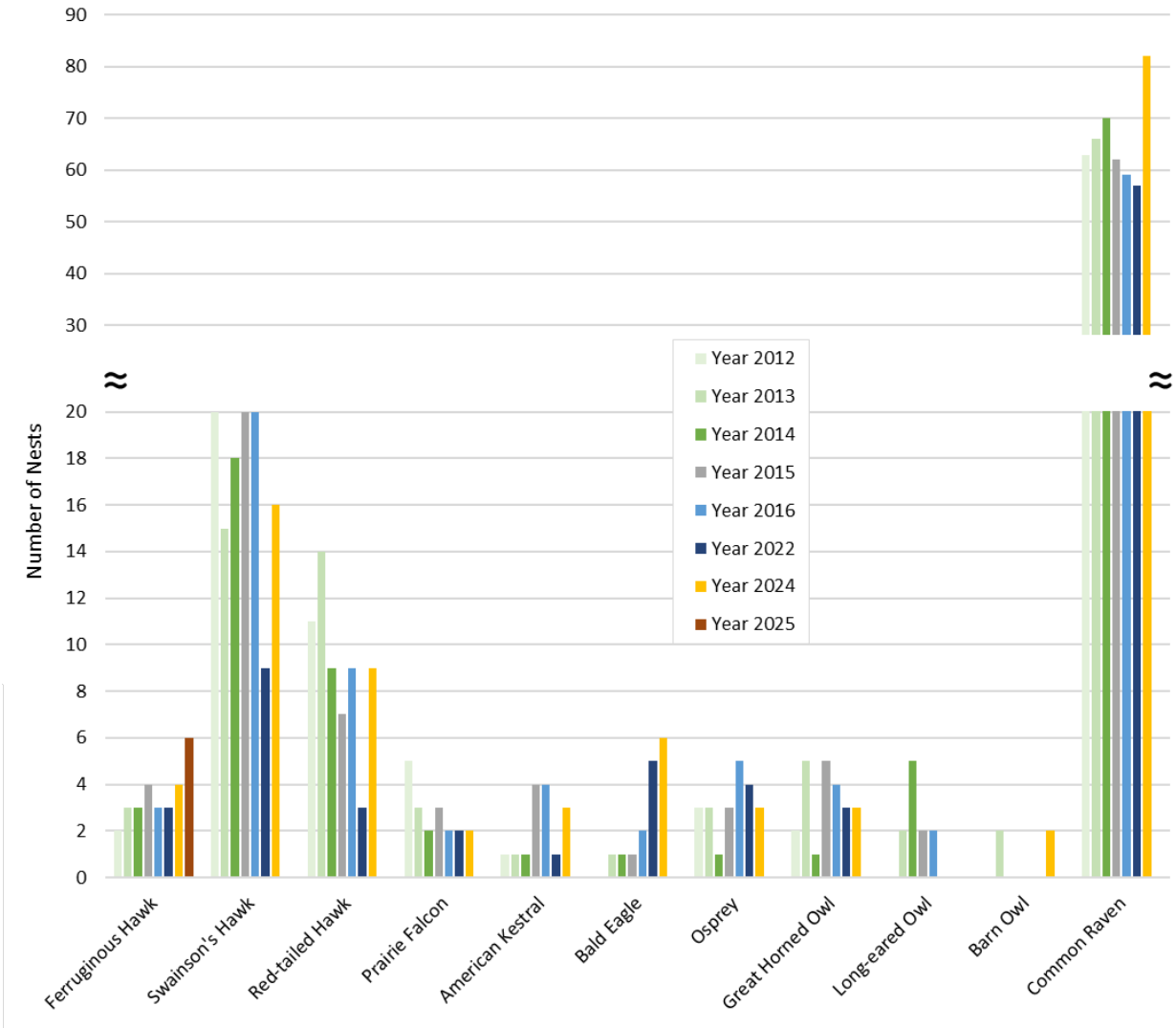

Figure 4-1. Number of Raptor and Raven Nest Sites Located on the HFO-managed Portion of the Hanford Site in 2012 through 2016, 2022 and 2024 (Chart also shows Ferruginous Hawk nests found in 2025)

Ferruginous Hawks occupied four nest sites on the HFO-managed portion of the Hanford Site in 2024 and six nest sites in 2025. The six Ferruginous Hawk nests located in 2025 was the highest number seen between the years 2012 and 2025 where typically two to four nests were found per

year. Productivity surveys performed on the six nests on June 11, 2025 found that four of the nests were successful and produced a total of ten young. This number is the most young since recent productivity surveys began in 2016 (Table 4-1).

Sixteen Swainson's Hawk nests were observed in 2024 which was an increase from the nine nests found in 2022. The range in the number of nests found in the years between 2012 and 2024 was 9 to 20 nests per year and is consistent with the range in the number of nests found in the past 51 years (9 to 23 nests per year). The preferred nesting substrate of the Swainson's Hawks on the Hanford Site is the planted tree. These trees are slowly disappearing, succumbing to old age, pests and disease, lack of water, and fire. It is common to observed one or two pairs of Swainson's Hawks nesting on small wooden utility pole in a given year but in recent years the species has been found nesting on the larger steel transmission towers. In 2024, two Swainson's Hawks nests were located on transmission towers.

Nine Red-tailed Hawk nests were found in 2024 which was increase from three nests seen in 2022. The three nests in 2022 was the lowest number of nests recorded in the past 51 years where 7 to 19 nests per year have been seen. The low number of nesting Red-tailed Hawk in 2022 may have been an indication that prey populations were depressed on the Hanford Site in 2022.

Two Prairie Falcon nests were found in 2024, a number unchanged from 2022. Nests were found on the basalt cliffs on Gable Butte and Umtanum Ridge. The number and location of Prairie Falcon nests documented on the Hanford Site has remained relatively unchanged in the past 51 years (2 to 5 nests per year).

Three American Kestrel nest was located in 2024. The actual number of nesting American Kestrels on the Hanford Site was undoubtedly higher but the methods of this survey likely would not detect them.

Six Bald Eagle nests were documented in 2024, the highest number since the first successful nest was recorded in 2013. The number of nesting Bald Eagles has been steadily increasing on the Hanford Site. Additional information on Bald Eagle use of the Hanford Site will be provided in a separate report with expected availability in 2025.

Three Osprey nests were recorded on the Hanford Site in 2024; all were on nest platforms. Typically, one to five Osprey nests per year have been observed on the Hanford Site in the years between 2012 and 2022.

Three Great Horned Owl nests were found on the Hanford Site in 2024, which was similar to the numbers observed in the years between 2012 and 2022 (1 to 5 nests per year). Two Barn Owl nests were recorded on the Hanford Site in 2024, which was also comparable to the years between 2012 and 2022 (0 to 2 nests per year). No Long-eared Owl nests were observed in 2024 which was consistent to the years between 2012 and 2022 (0 to 5 nests per year).

Table 4-1. Fate and Number of Young Produced in Ferruginous Hawk Nests Found on the HFO-managed Portion of the Hanford Site from 2012 and 2025

Nest Site	Nest Structure	Year													
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
FFTF Jeep	Transmission Tower	◌	◌	◌	◌	● (2)	O	O[a]	-	†	-	-	-	-	-
FFTF South	Transmission Tower	-	-	-	-	-	-	-	-	†	-	-	-	-	O
FFTF North	Transmission Tower	-	◌	◌	◌	-	-	● (2)	O	†	● (2)	● (1)[d]	● (1)[e]	◌	● (3)
Dark Phase (South)	Transmission Tower	-	-	-	◌	● (2)	● (1)	● (2)	◌[b]	†	O[c]	O	O	◌	● (1)
Dark Phase (North)	Transmission Tower	-	-	-	-	-	-	-	-	†	-	-	-	◌	● (3)
Dune2	Transmission Tower	◌	◌	◌	◌	● (2)	● (1)	● (2)	● (2)	†	● (2)	-	● (2)	-	O
Test Well	Transmission Tower	-	-	-	-	-	-	-	● (2)	†	-	-	● (2)	◌	● (3)
May Junction	Transmission Tower	-	◌	◌	-	-	-	-	-	†	-	-	-	-	-
White Bluffs Townsite	Tree	-	-	-	-	-	†	†	†	†	†	● (1)	-	-	-

● Nest occupied and successful

O Nest occupied and abandoned or unsuccessful

◌ Nest occupied but fate of nest unknown

\- No occupied nest

† No survey completed

Number in parentheses is the number of young produced in the nest

[a] Nest had 2 young on May 22/Nest was down and no young seenon June 13

[b] Nest had 3 young on May 30/Nest was dilapidated and no young on June 20

[c] 1 dead young estimated to be 32 to 36 days old at time of death was found on the ground on June 8

[d] 1 dead and 1 alive young were found on the ground on June 23/Alive young estimated to be >40 days old

[d] 1 dead and 1 alive young were found on the ground on June 22/Alive young estimated to be >40 days old

Eighty-two Common Raven nests were recorded on the Hanford Site in 2022, which was well above the range of nests found in the years between 2012 and 2022 (59 to 70 nests per year). Common Ravens exploit the most diverse nesting substrates and are certainly the most numerous nesting species on the Hanford Site in 2024 during this study.

Liner regression models were used to evaluate whether the number of nests for each species of raptor on the Hanford Site is changing over time, including monitoring years 2012, 2013, 2014, 2015, 2016, 2022, and 2024. Each species was analyzed independently. The number of nests is not significantly correlated to year for any species ($p>0.05$) except for the Bald Eagle (Figure 4-2). There is strong indication that the number of Bald Eagle nests is increasing over time {(nests=-990.2+.4922*year), (R-sq=98.43%), ($p<0.001$)}. Bald Eagles repeatedly tried and failed to nest successfully on the Hanford Site until 2013. Possible factors contributing to increased nesting success may include enhanced conditions for eagles, such as better food availability. Additionally, there might be a genetic advantage among eagle offspring born on-site, which could involve adaptations to local conditions, such as high summer temperatures.

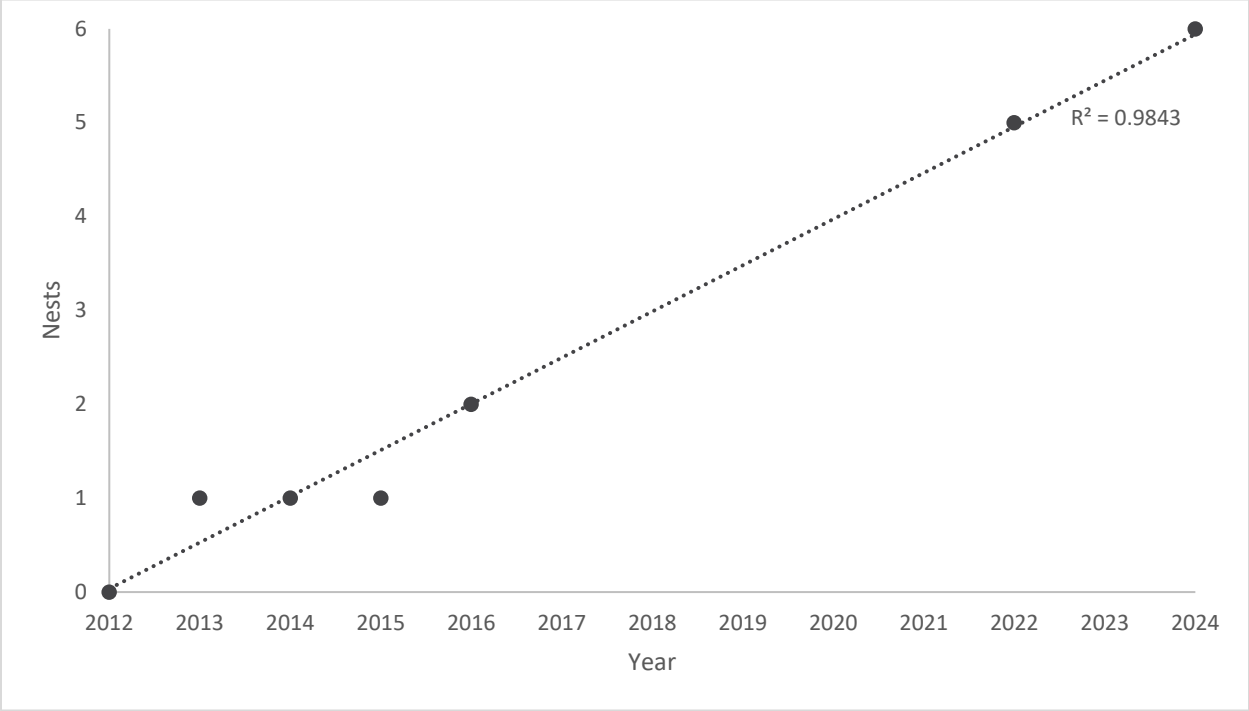

Figure 4-2. Change in Annual Bald Eagle Nesting Success Over Time (2012-2024) at Hanford.

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