



TECHNICAL MEMORANDUM

DATE: September 19, 2018

TO: Kristen Goland –Pacific Wind Development LLC

FROM: Joel Thompson - WEST, Inc.

RE: 2018 Eagle Nest Status Survey Report, Fountain Wind Project, California

Introduction

Pacific Wind Development LLC (Pacific Wind) is developing the proposed Fountain Wind Project (Project) in Shasta County, California. To address potential impacts to nesting golden eagles (*Aquila chrysaetos*) and/or bald eagles (*Haliaeetus leucocephalus*), the U.S. Fish and Wildlife Service (USFWS) recommends conducting eagle nest monitoring within survey areas that extend up to 10 miles (mi; 16 kilometers [km]) from proposed wind energy facilities prior to construction (USFWS 2013). Pacific Wind contracted Western EcoSystems Technology, Inc. (WEST) to provide biological support for the development of the proposed Project, and in 2017 WEST conducted aerial surveys for eagle and other raptor nests within 10- and 2-mi buffers of the Project, respectively (WEST 2018). In 2018, due to concerns raised by California Department of Wildlife (CDFW) regarding the need for a Memorandum of Understanding to conduct aerial surveys for eagles, 2018 eagle nest status surveys were conducted from the ground, as discussions regarding aerial surveys had not been resolved prior to the nesting season. The following memorandum describes the methods and results of eagle nest surveys conducted in support of the Project in 2018.

Methods

Ground-based eagle nest status surveys were conducted by WEST biologists in April 2018 at all previously documented bald eagle nests within the 10-mi survey area that were accessible by public road and viewable from a public access-point. Each survey lasted for a minimum of four hours, unless the nest was documented as being occupied earlier in the survey period (USFWS 2013). Each accessible bald eagle nest was visited once during the 2018 nesting season.

Nest status for the 2018 nesting season was classified based on the terminology of Steenhof et al. (2017). A nest was considered “occupied” if it contained eggs, young, or an incubating eagle, or had a pair of eagles on or near it, or had been recently repaired or decorated (Steenhof et al. 2017). Occupied nests were further classified as “in-use” if eggs had been laid, as evidenced by the presence of an incubating bird, eggs, young, or any other indication that eggs had been laid in the current year (Steenhof et al. 2017). For 2018, a status of “unknown” was assigned to any nest that could not be surveyed due to access issues, or that was not confirmed as occupied, as a single visit in April was considered insufficient to classify a nest as unoccupied for the season.

Results and Discussion

Ten bald eagle nests previously documented in 2017 were surveyed in 2018 (Table 1, Figure 1). Five of the 10 nests were determined to be occupied, two of which were further classified as in-use (Table 1; Figure 1). The occupancy status could not be confirmed for the five remaining nests surveyed in 2018; therefore they were classified as unknown status in 2018 (Table 1, Figure 1). Three nests surveyed in 2017 were not surveyed in 2018 due to lack of access (Table 1; Figure 1).

At each occupied nest, adult(s) were observed in incubating or brooding position, or perched in close proximity to the nest (e.g., in the nest tree; Table 1). For the two nests further classified as in-use, two nestlings were observed in Nest 178 (age not determined) and an adult was observed in incubating/brooding posture at Nest 308. Photographs of the five occupied eagle nests are included in Appendix A.

Adult bald eagles were observed during surveys conducted at 167b, 167c, and 157; however, no adults were observed visiting any of the three nests, nest trees, or trees in the immediate vicinity of these nests during the 4- or 6-hr long surveys conducted at these nest sites (Table 1). These three nests were therefore all classified as status unknown.

The five bald eagle nests documented as being occupied during 2018 surveys were all 5.0 mi (8.0 km) or more from the Project area boundary (Figure 1). Nest 299 (2.9 mi [4.7 km]) and Nest 58 (4.2 mi [6.8 km]) are both closer to the Project area boundary, but the status of both were unknown in 2018.

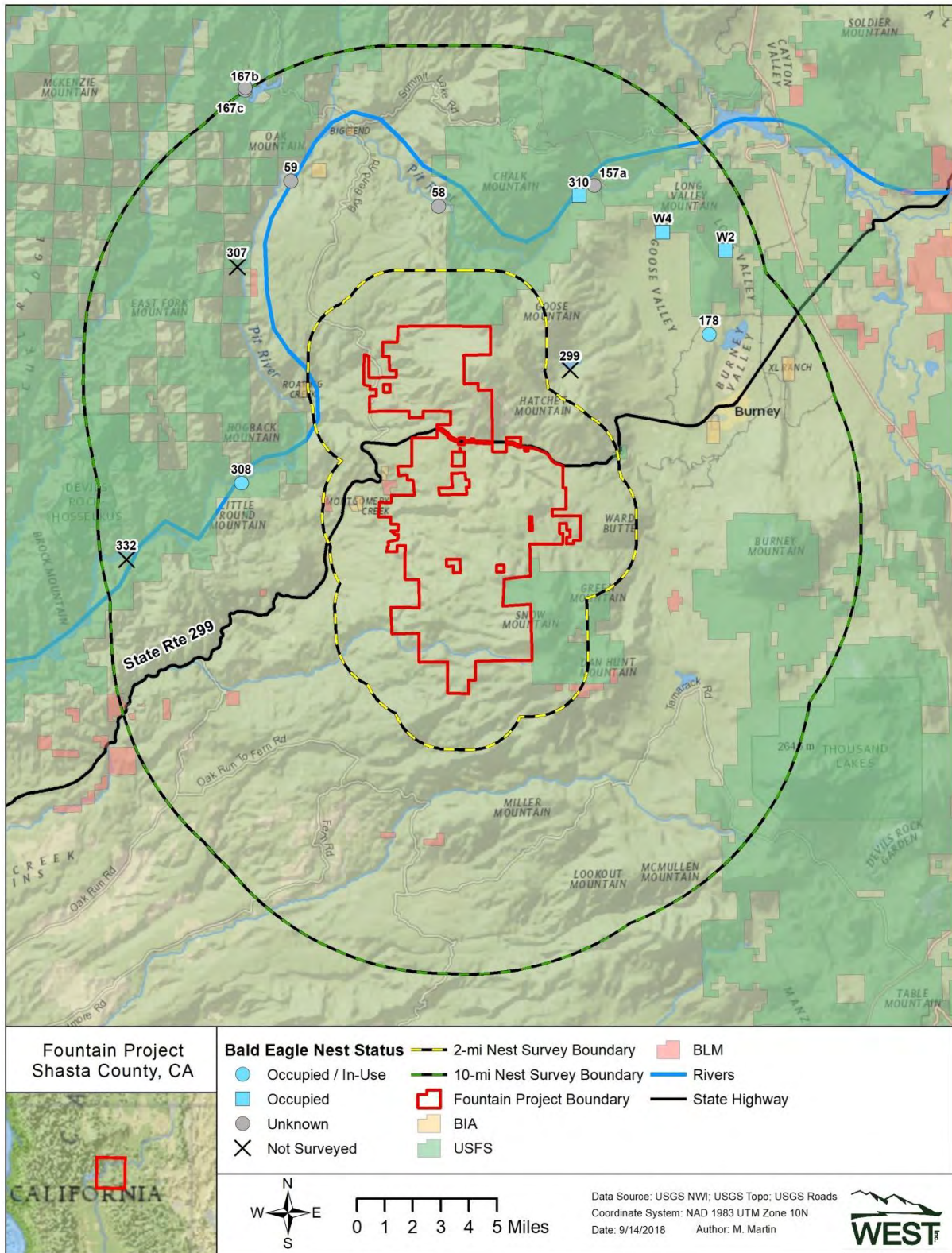


Figure 1. Summary of the 2018 eagle nest status survey results for the Fountain Wind Project, Shasta County, California. (BIA = Bureau of Indian Affairs, BLM = Bureau of Land Management, USFS = U.S. Forest Service)

Table 1. Summary of the 2018 bald eagle nest status surveys conducted within a 10-mile buffer of the Fountain Wind Project, Shasta County, California. Additional details on 2017 nest status surveys are available in the 2017 nest survey report (WEST 2018).

Nest ID ¹	Species	2017 Nest Status ²	2018 Nest Status ²	2018 Survey Date	Comments
310	Bald eagle	Occupied / In-use	Occupied	April 19	Two adults observed perched in nest tree, but not on nest
W4	Bald eagle	Occupied / In-use	Occupied	April 22	Adult observed landing on nest, but not confirmed as incubating/brooding/tending young
W2	Bald eagle	Occupied	Occupied	April 21	Adults seen in nest tree, but not on the nest
178	Bald eagle	Occupied / In-use	Occupied / In use	April 21	Adult(s) observed, two nestlings
308	Bald eagle	Unoccupied	Occupied / In use	April 19	Adult(s) in incubating/brooding position
58	Bald eagle	Occupied / In-use	Unknown	April 19	No activity observed during 4-hour survey
59	Bald eagle	Occupied / In-use	Unknown	April 25	Nest not visually located, but no activity observed in area during 4-hour survey
157	Bald eagle	Occupied / In-use	Unknown	April 18	Pair observed flying in the area, but no adults visited the nest or nest tree during the 4-hour survey
167b	Bald eagle	Occupied	Unknown	April 23	Nest not visually located; Nest is close to Nest 167c; Pair of adults observed flying on one occasion, but no activity observed at nest location during 6-hour survey
167c	Bald eagle	Unoccupied	Unknown	April 23	Nest not visually located; Nest is close to Nest 167b; Pair of adults observed flying on one occasion, but no activity observed at nest location during 6-hour survey
307	Bald eagle	Occupied / In-use	Not surveyed / Unknown	not surveyed	Not accessible
332	Bald eagle	Occupied / In-use	Not surveyed / Unknown	not surveyed	Not accessible
299	Bald eagle	Occupied / In-use	Not surveyed / Unknown	not surveyed	Not accessible

¹ IDs preceded by W indicate nests newly discovered by WEST during surveys. All other IDs are consistent with historical IDs provided by California Department of Fish and Wildlife.

² Highest level of reproductive status determined for a breeding season: **Occupied** = contained eggs, young, or an incubating eagle, or had a pair of eagles on or near it, or had been recently repaired or decorated. **In-use** = an occupied nest in which eggs were laid, as evidenced by the presence of an incubating bird, eggs, young, or any other indication that eggs had been laid in the current year. **Unoccupied** = no sign of nesting or territory occupancy in the current nesting season, based on at least two visits. **Unknown** = nest was not located or status as occupied/unoccupied could not be confirmed as defined herein (e.g., only a single visit in 2018).

REFERENCES

- Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance. US Fish and Wildlife Service (USFWS). February 2010. Available online at: http://steinadlerschutz.lbv.de/fileadmin/www.steinadlerschutz.de/terimGoldenEagleTechnicalGuidanceProtocols25March2010_1_.pdf
- Steenhof, K. M.N. Kochert, C.L. McIntyre, and J.L. Brown. 2017. Coming to Terms about Describing Golden Eagle Production. *Journal of Raptor Research*, 51(3):378-390.
- US Fish and Wildlife Service (USFWS). 2013. Eagle Conservation Plan Guidance: Module 1 - Land-Based Wind Energy, Version 2. US Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management. April 2013. Executive Summary and frontmatter + 103 pp. Available online at: <https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>
- Western EcoSystems Technology, Inc. (WEST). 2018. 2017 Raptor Nest Survey Report for the Fountain Wind Project, California. Technical Memorandum - Prepared for Pacific Wind Development LLC. Prepared by WEST, Inc. September 14, 2018.

Appendix A: Photographs of Occupied Bald Eagle Nests Documented During Nest Status Surveys Conducted in 2018 at the Fountain Wind Project, Shasta County, California.



Nest 308, located approximately 5.0 mi (8.0 km) west of the Fountain Wind Project, Shasta County, California.



Nest 310, located approximately 5.6 mi (9.0 km) northeast of the Fountain Wind Project, Shasta County, California.



Nest 178, located approximately 7.8 miles (12.6 km) east of the Fountain Wind Project, Shasta County, California.



Nest W4, located approximately 7.0 mi (11.3 km) northeast of the Fountain Wind Project, Shasta County, California.



Nest W2, located approximately 8.8 mi (14.2 km) northeast of the Fountain Wind Project, Shasta County, California.