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TECHNICAL MEMORANDUM

DATE: October 15, 2018

TO: Kristen Goland – Pacific Wind Development LLC

FROM: Joel Thompson and Kori Hutchison - WEST, Inc.

RE: 2018 Northern Goshawk Nest Survey Results, Fountain Wind Project, CA

Introduction

Pacific Wind Development LLC contracted Western EcoSystems Technology, Inc. (WEST) to provide biological survey support for the development of the proposed Fountain Wind Project (Project). The Project is located within a Project area that encompasses approximately 32,000 acres (12,950 hectares) of private land in central Shasta County, California. The primary land use within the Project area is commercial timber production. The dominant vegetation type in the Project area is early seral mixed coniferous forest (post-fire and unburned), with smaller amounts of mixed montane chaparral, and mixed montane riparian forest/scrub. Dominant overstory species include a combination of white fir (*Abies concolor*), Douglas fir (*Pseudotsuga menziesii*), incense cedar (*Calocedrus decurrens*), ponderosa pine (*Pinus ponderosa*), sugar pine (*P. lambertiana*), and California black oak (*Quercus kelloggii*). Late seral forest is largely lacking within the Project area due to both fire and commercial timber harvest activities.

Northern goshawk (goshawk; *Accipiter gentilis*) is currently designated as a California Species of Special Concern (CDFW 2018), and according to the California Natural Diversity Database (CNDDDB), occurrence areas that encompass historical nest sites associated with four goshawk territories (territories 54, 50, 66, and Cow Creek) have been documented within the Project area (Figure 1). The last documented nesting activity within these four occurrence areas, according to CNDDDB data, was in 2003, 1997, 1997, and 2003, respectively (CDFW 2018). While surveys conducted by the timberland owners in the mid-2000s indicated some continued use of territory 54 by goshawks, surveys found no evidence of use at the other three territories at that time (R. Klug, LandVest Inc., personal communication). This is consistent with information provided in the Cedar Boots timber harvest plan (THP-16-077-SHA; CDF 2018a), which was approved in October 2017 and overlaps three of the goshawk occurrence areas (50, 66, and Cow Creek). The THP indicates that none of the three sites (50, 66, Cow Creek) are currently active and that the last known surveys were conducted on the southern site (Cow Creek based on the location



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description provided) in 2006, 2007, and 2008, with no detections (CDF 2018a). The THP further indicates that no goshawks were detected during layout of this THP or previous THPs in the area (CDF 2018a). No other surveys have been conducted more recently within the Project area (R. Klug, personal communication). The THP approval process is considered a certified equivalent of the California Environmental Quality Act (CEQA); therefore, consideration of impacts to northern goshawk provided during the THP approval process for the Cow Creek THP should be considered equivalent to meeting the CEQA standards for that THP (CDF 2018b).

Given that the Project is located on private lands managed for timber production and the most likely direct impact to potentially suitable goshawk nesting habitat would be timber harvest in preparation of turbine pads or road construction, the California Forest Practice Rules (CFPR; CDF 2018b) were consulted in regard to protection of goshawk nests that could be impacted by timber harvest activities, and how those protections may influence survey efforts. According to the CFPR (sections 919.3, 939.3, 959.3), a minimum buffer area of five to 20 acres (equivalent to a 262- to 525-ft [80- to 160-m] radius circle) should be maintained around active goshawk nests when considering timber harvest in proximity to known active nests. Any such buffer applied should include known nest and perch trees, along with screen trees and replacement trees (CDF 2018b).

Northern goshawks have been detected within the Project area during fixed-point large bird use surveys and incidentally by WEST biologists in 2017 and 2018, totaling five observations between April 2017 and May 2018. Potential risk to goshawks from Project operations (i.e., potential collision impact with turbines) will be evaluated based on flight height and abundance data collected during fixed-point bird use surveys. However, goshawk nest sites have been documented historically within the Project area (CDFW 2018), and although the most recent survey data indicate that at least three of the four occurrence areas have been inactive in recent years, surveys for goshawk were conducted in 2018 to provide a more current assessment of potential presence of active nests within the four historical occurrence areas. Based on reviews of aerial imagery within the Project area, habitat within these historical occurrence areas appear to represent the most suitable nesting stands in close proximity (e.g., within 160 m) to areas of potential disturbance based on the most current Project layout as of the date of this report. This memo provides the methods and results of the 2018 surveys.

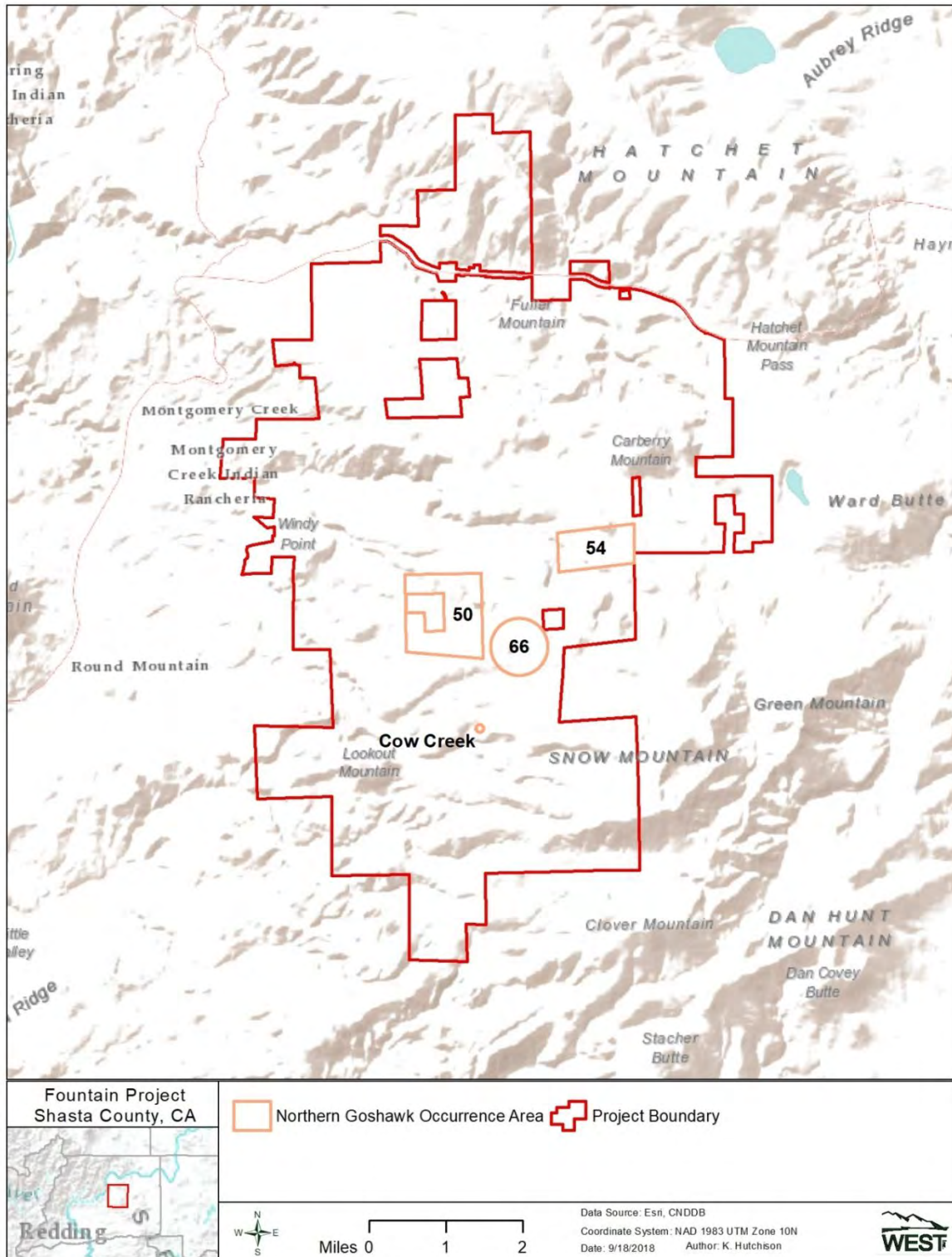


Figure 1. Historical northern goshawk occurrence areas, as depicted by the California Natural Diversity Database (CNDDDB), within the Fountain Wind Project, Shasta County, California. Occurrence areas are labeled consistent with CNDDDB territory names (i.e., territories, 50, 54, 66, and Cow Creek).

Methods

Field surveys were conducted in the four historical goshawk occurrence areas to assess the potential for occupancy in 2018 utilizing survey techniques described in the Northern Goshawk Inventory and Monitoring Technical Guide (Woodbridge and Hargis 2006). Surveys included two separate methods implemented during the two most vocal stages in the breeding chronology of this species. Dawn acoustical surveys were conducted during the courtship/nest-building stage (February – April), and broadcast acoustical surveys were conducted during the nestling/fledging stage (June – July; Woodbridge and Hargis 2006).

Dawn acoustical surveys are a passive monitoring technique where surveyors are positioned at “listening stations” in close proximity to known nests or patches of suitable habitat (Woodbridge and Hargis 2006). Dawn acoustical surveys were conducted at listening stations in April 2018 and consisted of an approximately 2-hour listening session beginning 0.5-hour prior to sunrise in each of the four occurrence areas (CDFW 2018; Figure 2). Prior to conducting dawn acoustical surveys, WEST biologists searched within the historical occurrence areas for the presence of previously marked nest trees and nests suitable for use by goshawks. Listening stations were located at known nest trees when possible or in close proximity to historical nest tree locations if the known nest tree could not be found (Figure 2).

Broadcast acoustical surveys were conducted in June in all four historical goshawk occurrence areas (CDFW 2018). These surveys consisted of walking transects spaced 200 meters apart in all suitable habitat within the occurrence areas as depicted by the CNDDDB data. Surveyors searched for signs of nesting (e.g., nest structures, whitewash, prey remains) while walking transects and stopped periodically (e.g., approximately every 200 m) to broadcast goshawk calls and listen for responses (Woodbridge and Hargis 2006).

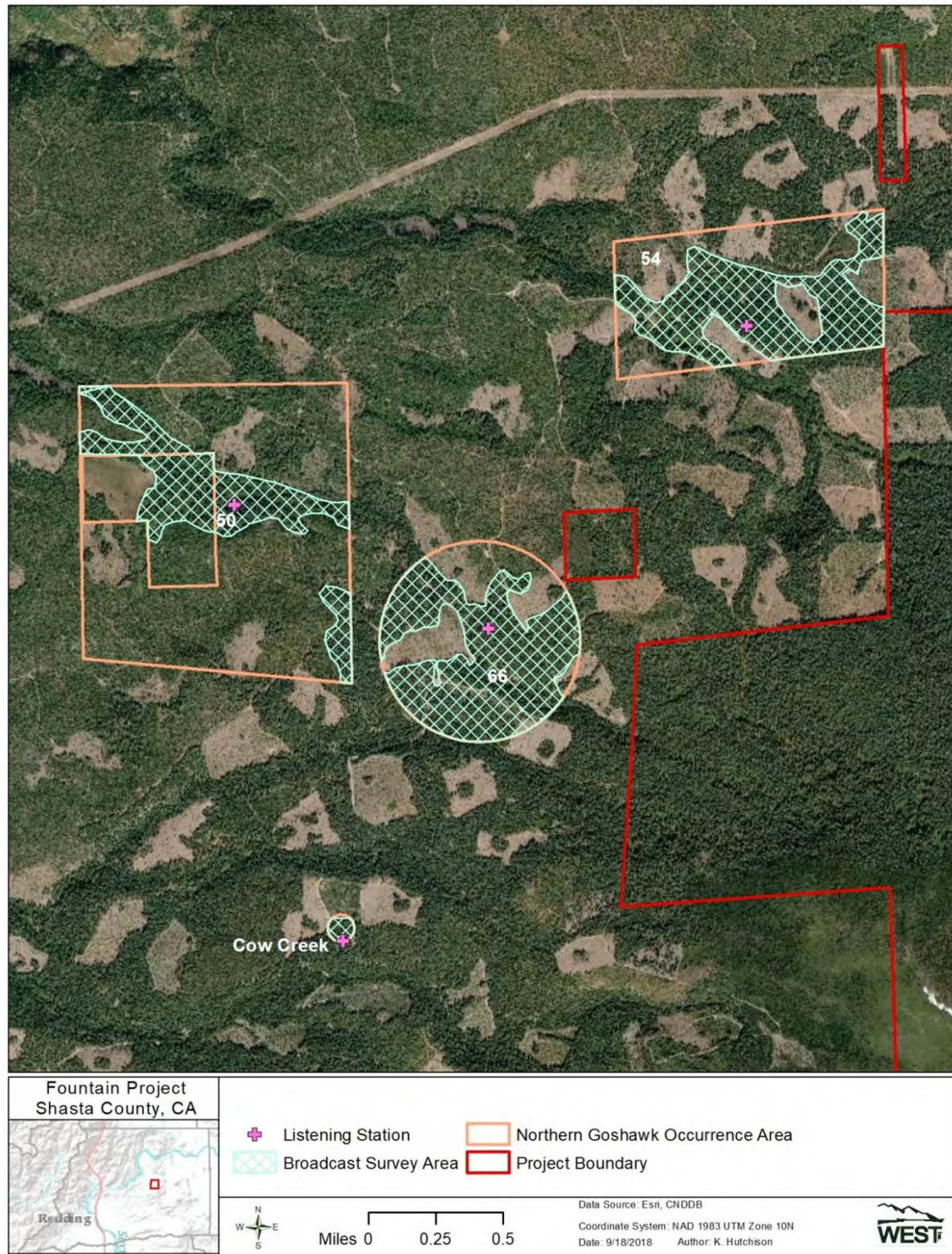


Figure 2. Location of northern goshawk occurrences as provided by the CNDDB, listening stations, and broadcast survey areas within the Fountain Wind Project, Shasta County, California. Occurrence areas are labeled consistent with CNDDB territory names (i.e., territories, 50, 54, 66, and Cow Creek).

Results

Two previously documented nest trees were located during field surveys, one each in occurrence areas associated with territories 50 and 54. One nest tree contained a nest that was occupied by a great horned owl (*Bubo virginianus*) and the other was a broken-top snag no longer capable of supporting a nest.

Dawn acoustical surveys were conducted in each of the four historical goshawk occurrence areas from April 18 – 20, 2018 (Table 1). No visual or auditory detections of goshawks were recorded and no evidence of nesting goshawks was observed during the dawn acoustical surveys.

Table 1. Results of dawn acoustical surveys conducted in historical northern goshawk occurrence areas, as provided by the CNDDDB, from April 18 – 20, 2018 at the Fountain Wind Project, Shasta County, California.

Occurrence Area / Territory ID	Survey Date	Survey Time (minutes)	Detections
50	18 April 2018	137	0
54	18 April 2018	120	0
Cow Creek	19 April 2018	120	0
66	20 April 2018	120	0
Total		497	0

Broadcast acoustical surveys were conducted in suitable habitat within the four historical goshawk occurrence areas from June 23 – 25, 2018 (Table 2). No visual or auditory detections of northern goshawks were recorded and no evidence of nesting northern goshawks was observed during the broadcast acoustical surveys.

Table 2. Results of broadcast acoustical surveys conducted in historical northern goshawk occurrence areas, as provided by the CNDDDB, from June 23 – 25, 2018 at the Fountain Wind Project, Shasta County, California.

Occurrence Area / Territory ID	Survey Date	Survey Time (minutes)	Detections
50	23 June 2018	124	0
54	24 June 2018	146	0
Cow Creek	25 June 2018	139	0
66	25 June 2018	127	0
Total		536	0

Discussion and Conclusions

Previously documented goshawk nest trees were only found in two of the four historical goshawk occurrence areas, one of which was no longer suitable for supporting a goshawk nest and the other which contained a nest that was occupied by a great horned owl. No other marked historical nest trees were located during searches conducted prior to or during surveys, nor

were any other stick nests located that were consistent with the size, structure, and placement of nests typically used by goshawks. Based on the results of surveys conducted in historical goshawk occurrence areas in 2018, the likelihood of nesting goshawks appears to be low within the surveyed areas. This data supports the findings reported in THP-2-16-077-SHA (CDF 2018a), which indicate a lack of goshawk activity in the vicinity of the occurrence areas in recent years.

Surveys focused on historical goshawk occurrence areas, therefore the results are not broadly applicable across the Project area. However, habitat within the historical occurrence areas appears to represent the most suitable nesting stands in close proximity to areas of potential disturbance as of the date of this report, with much of the goshawk habitat in closest proximity to the Project slated for harvest as a part of the Cedar Boots THP (2-16-077-SHA). The CFPR (CDF 2018b) provide guidance on the protection of goshawk nests to ensure protection of both the nest site and nesting birds from the effects of timber operations. If final Project layouts result in direct impacts (e.g., harvesting) to suitable goshawk nesting habitat, then additional surveys, as described in Woodbridge and Hargis (2006), may need to be completed prior to construction to ensure nesting sites are appropriately protected (e.g., consistent with CFPR guidance [CDF 2018b]).

Literature Cited

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