APPENDIX G

2008 SPOTTED OWL SURVEYS

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COYOTE CREST PROJECT
TETRA TECH EC, INC. / EVERPOWER WIND HOLDINGS, INC.

Prepared for:

TETRA TECH, EC, Inc.
Portland, Oregon

Prepared by:

Biota Pacific Environmental Sciences, Inc.
Bothell, Washington

April 2010
Project 108

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1.0 INTRODUCTION

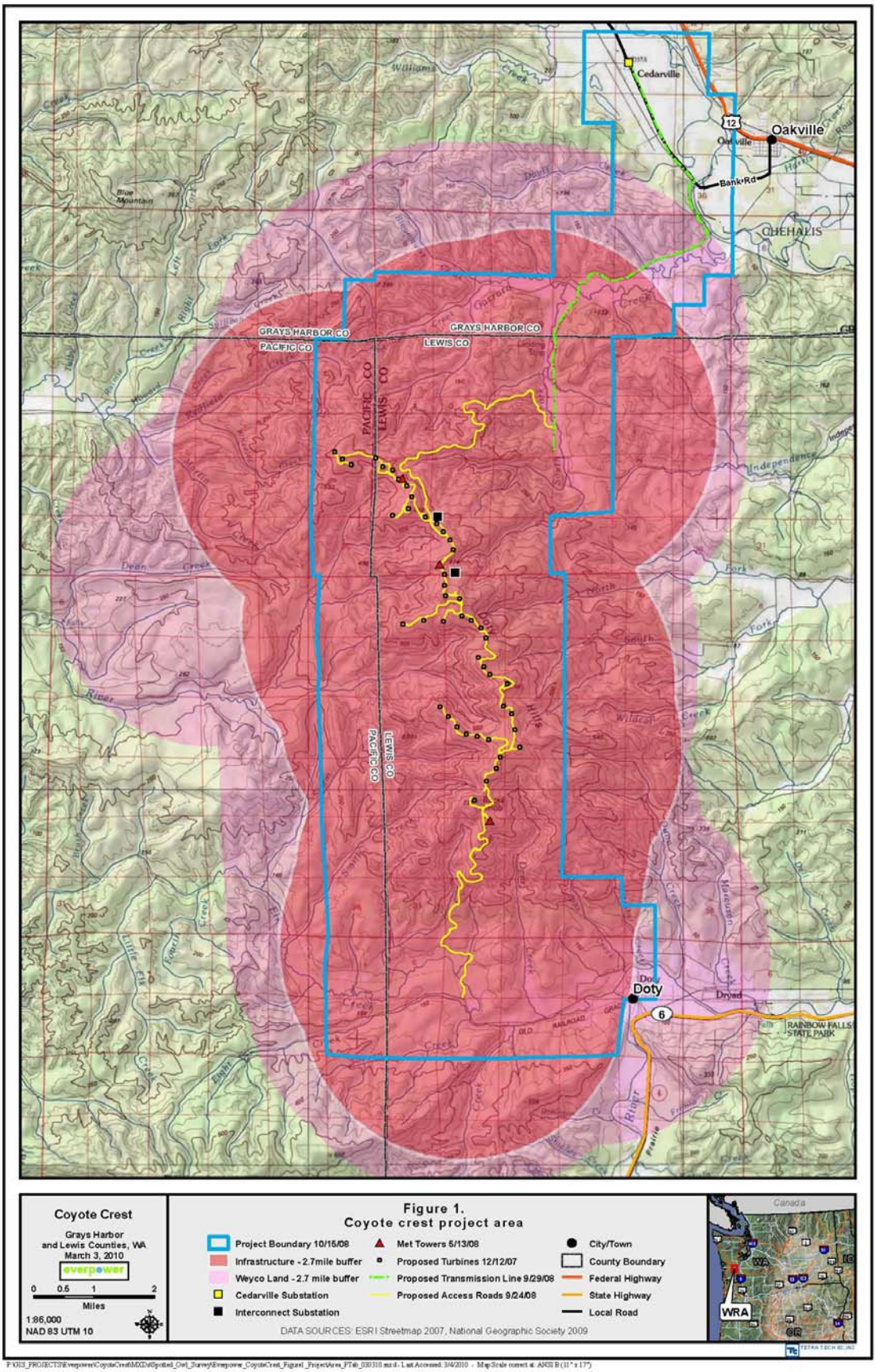
Everpower Wind Holdings, Inc. is proposing to develop the Coyote Crest wind generation facility (the project) in southwest Washington. Biota Pacific Environmental Sciences, Inc. (Biota Pacific) was contracted to conduct a habitat evaluation and surveys for the northern spotted owl (*Strix occidentalis caurina)* in support of the project. The spotted owl is listed as threatened under the Federal Endangered Species Act. The median annual home range for the spotted owl in southwest Washington is equivalent to a 2.7-mile-radius circle. Therefore, the study area extends 2.7 miles from the proposed project features (Figure 1).

The northern spotted owl is a forest raptor primarily found in mature and old-growth conifer-dominated forests of the Pacific Northwest. The majority of the study area consists of lands managed by the Washington Department of Natural Resources (WDNR) or private companies for timber production. The remaining area contains residential/developed property, other agriculture, small woodlots, and transportation corridors. The Priority Habitats and Species Database, maintained by the Washington State Department of Fish and Wildlife (WDFW), reports three spotted owl site centers within the study area (Table 1). Two of the site centers have a regulatory status of resident territorial single and one has a status of single, status unknown. Outside the study area, another four site centers are within 2.7 miles of the study area boundary. Three of these sites have pair or reproductive pair status, with one having a status of resident single.

Table 1. Spotted owl site centers within the Coyote Crest study area (Washington Department of Fish and Wildlife 2010).

WDFW SITE NAME	WDFW REFERENCE NUMBER	STATUS	LAST YEAR STATUS
Dunn Creek	1104-104665	Single, status unknown	1994
Moss Creek-North River	787-100314	Resident territorial single	1995
Seven Creek – Elk Creek	1042-104069	Resident territorial single	1994

As part of the habitat evaluation, forest stands were reviewed for their potential to support spotted owl foraging, roosting, and nesting, using best professional judgment. Stands having characteristics that were determined to have a reasonable opportunity for spotted owl use were included for survey and are referred to as surveyable habitat. In general, surveyable habitat included conifer-dominated stands having a closed canopy (>50%), dominants and codominants having a minimum mean dbh of 10 inches, and an area below the live crown that would allow for spotted owl movement. Determinations of surveyable habitat were made by biologists with more than 10 years of experience surveying for spotted owls. Surveyable habitat should not be assumed to meet the definition of suitable habitat in the Washington Forest Practice Rules (Washington Administrative Code 222-16.


Cedarville
Oakville
Bank Rd
CHEHALIS
GRAYS HARBOR CO
PACIFIC CO
LEWIS CO
Doty
RAINBOW FALLS STATE PARK
Coyote Crest
Grays Harbor and Lewis Counties, WA
March 3, 2010
everpower
0 0.5 1 2
Miles
1:86,000
NAD 83 UTM 10
Figure 1.
Coyote crest project area
Project Boundary 10/15/08
Infrastructure - 2.7mile buffer
Weyco Land - 2.7 mile buffer
Cedarville Substation
Interconnect Substation
Met Towers 5/13/08
Proposed Turbines 12/12/07
Proposed Transmission Line 9/29/08
Proposed Access Roads 9/24/08
City/Town
County Boundary
Federal Highway
State Highway
Local Road
DATA SOURCES: ESRI Streetmap 2007, National Geographic Society 2009
Canada
WA
WRA
OR

Following the completion of the habitat evaluation and initiation of the surveys, the project design was changed. The change effectively shifted the southern extent of the study area north. Consequently, this report includes methods and results for the entire area evaluated and surveyed.

2.0 METHODS

2.1 Spotted Owl Habitat Evaluation

The spotted owl habitat evaluation was conducted on forested lands within 2.7 miles of the proposed project features within Grays Harbor, Lewis and Pacific counties, Washington. The evaluation's intent was to identify habitat with a reasonable likelihood to support spotted owl nesting, roosting, or foraging. The evaluation was conducted in two phases: 1) orthophotograph review and 2) field evaluation.

The orthophotographs used for the review were prepared using 2006 aerial photograph imagery. The review placed forest stands into three categories:

1) Stands of surveyable habitat, consisting of stands with large conifer trees and an uneven canopy.

2) Potentially surveyable habitat, consisting of closed-canopy conifer forest with relatively large trees and uniform canopies.

3) Unsuitable habitat, consisting of open forest stands, hardwood-dominated stands and stands of young forest.

Final determination of habitat conditions for potentially surveyable habitat was completed during the field review. The review consisted of visiting selected portions of potentially surveyable stands to subjectively review the forest conditions. The review did not cover entire stands or attempt to statistically sample stand characteristics. Stands were classified using the reviewer's "best professional judgment". In general, stands were classified as surveyable habitat if they had closed canopies, were conifer-dominated, and had a relatively open fly-way under the live crown.

Once a stand was determined to have characteristics of surveyable habitat, it was reviewed in a landscape context. The stands' size, habitat quality (surveyable vs. potential nesting habitat), shape, immediate surroundings (recent clearcut vs. young forest), and distance to other surveyable habitat was considered. Very small stands (< 3 acres) generally needed to be within 300 feet of other surveyable habitat to be included in the survey. Stands more than 0.25 mile from other suitable habitat generally needed to be at least 10 acres to be included in the survey. The final determination was made on a case-by-case basis.

2.2 Spotted Owl Survey Station Layout

Survey station layout followed the guidelines provided in the U.S. Fish and Wildlife Service Protocol for Surveying Proposed Management Activities that may Impact Northern Spotted Owls (U.S. Fish and Wildlife Service 1991, revised 1992). Survey stations were placed up to 0.5 mile apart to cover all surveyable habitat within the study area. Station spacing was influenced by topography and stream locations. To maximize

efficiency, stations were placed along existing roads when ever possible. Areas that could not be adequately surveyed from roads were surveyed from stations along trails or cross-country hiking routes. All survey stations and hiking routes were flagged to assure consistent coverage.

2.3 Spotted Owl Survey

Spotted owl surveys were conducted consistent with the first year of a 2-year survey described in the U.S. Fish and Wildlife Protocol for Surveying Proposed Management Activities that may Impact Northern Spotted Owls (U.S. Fish and Wildlife Service 1991, revised 1992). All surveyors had prior spotted owl survey experience or were trained by experienced spotted owl surveyors and met the qualifications in the protocol. Of the eight individuals collecting survey data, four were first-year surveyors and four had at least 2 years of prior experience. The crew leader had 12 years of prior spotted owl survey experience. Three complete survey visits spanning the breeding season were conducted in 2008. One of the three visits was conducted during the month of June. Survey stations were called for a minimum of 10 minutes. If hearing was interrupted (e.g., wind gust, jet over-flight) during the calling period, the survey period was extended to compensate for interruptions. Survey at a station consisted of alternating between broadcasting spotted owl calls and listening for responses. Spotted owl calls were primarily broadcast using a digital game caller, but “hoot flutes” or voice (used by experienced voice callers only) were also used periodically. Responses from all owl species were recorded on the survey data forms. The bearing and estimated distance was recorded for each responding owl and used to map the owl’s estimated location. Follow-up visits were conducted on unknown *Strix* responses.

3.0 RESULTS AND DISCUSSION

3.1 Spotted Owl Habitat Evaluation

The habitat review covered a mix of private and State forest land. The review of orthophotography was conducted consistently across ownerships, but was most accurate for private timberlands. Stands identified as potentially suitable habitat on State lands during the orthophotography review were more consistently found to be suitable for survey than on private lands. While the stands’ canopies appeared to be relatively uniform, similar to those on private timberlands, the trees were often larger and at times had a second canopy layer developing. Consequently, the number of stands identified for field review was expanded to include more stands on State land than were originally classified during the orthophotograph review.

Habitat conditions are not consistent in some of the larger forest blocks identified as surveyable habitat. Tree size and density would vary within these areas of continuous forest. Conditions within the drainages often provided surveyable habitat, while habitats on the upper slopes and along ridgelines were dense and not suitable for survey. The habitat assessment did not try to delineate between these varying conditions, but survey stations were placed to cover the larger areas of surveyable habitat within these blocks. A small amount of potentially surveyable habitat was on ownership for which we did not have access and could not be adequately reviewed or surveyed from adjacent accessible areas. These areas did not represent large areas of contiguous habitat and should not substantially affect the adequacy of the survey.

A total of 15,108 acres of habitat were classified as surveyable land (Figure 2). Approximately 480 acres of potential habitat were not completely reviewed in the field. These acres were on ownership that was not accessible for review or survey. They were reviewed to the extent possible from adjacent land for which we had access. The total number of acres is relatively small relative to spotted owl's median annual home range; the largest block consists of a few hundred acres and is an estimated 0.5 miles from the nearest site center (status resident single). Both the habitat and the closest site center are outside the study area for the current project design. These acres also tend to be adjacent to rural developed areas with homes or other forms of agriculture.

3.2 Spotted Owl Survey Station Layout

The current study area and most of the surveyable habitat are within six townships. A total of 309 survey stations were used to cover the habitat surveyed in 2008 (Figure 2). The study area was divided into six survey areas to facilitate completing a survey visit within the 7-day period prescribed by the protocol. With only a few exceptions, survey areas follow township boundaries. The number of survey stations within each survey area ranges from 21 to 99 (Table 2). Adjacent townships (e.g., T14N, R05W and T14N, R06W) were called within the same 7-day period when scheduling and weather conditions permitted.

Table 2. Number of survey stations in each of six survey areas.

SURVEY AREA	NUMBER OF SURVEY STATIONS
T13N, R05W	87
T13N, R06W	33
T14N, R05W	99
T14N, R06W	21
T15N, R05W	31
T15N, R06W	38
TOTAL	309

3.3 Spotted Owl Survey

No spotted owls were detected during surveys conducted in 2008 for the Coyote Crest project; however, great horned and barred owls were documented during the 2008 survey season (Table 3). The National Council of Air and Stream Improvement (NCASI) had placed a radio transmitter on a male spotted owl in a site center adjacent to, but not within, the project survey area.

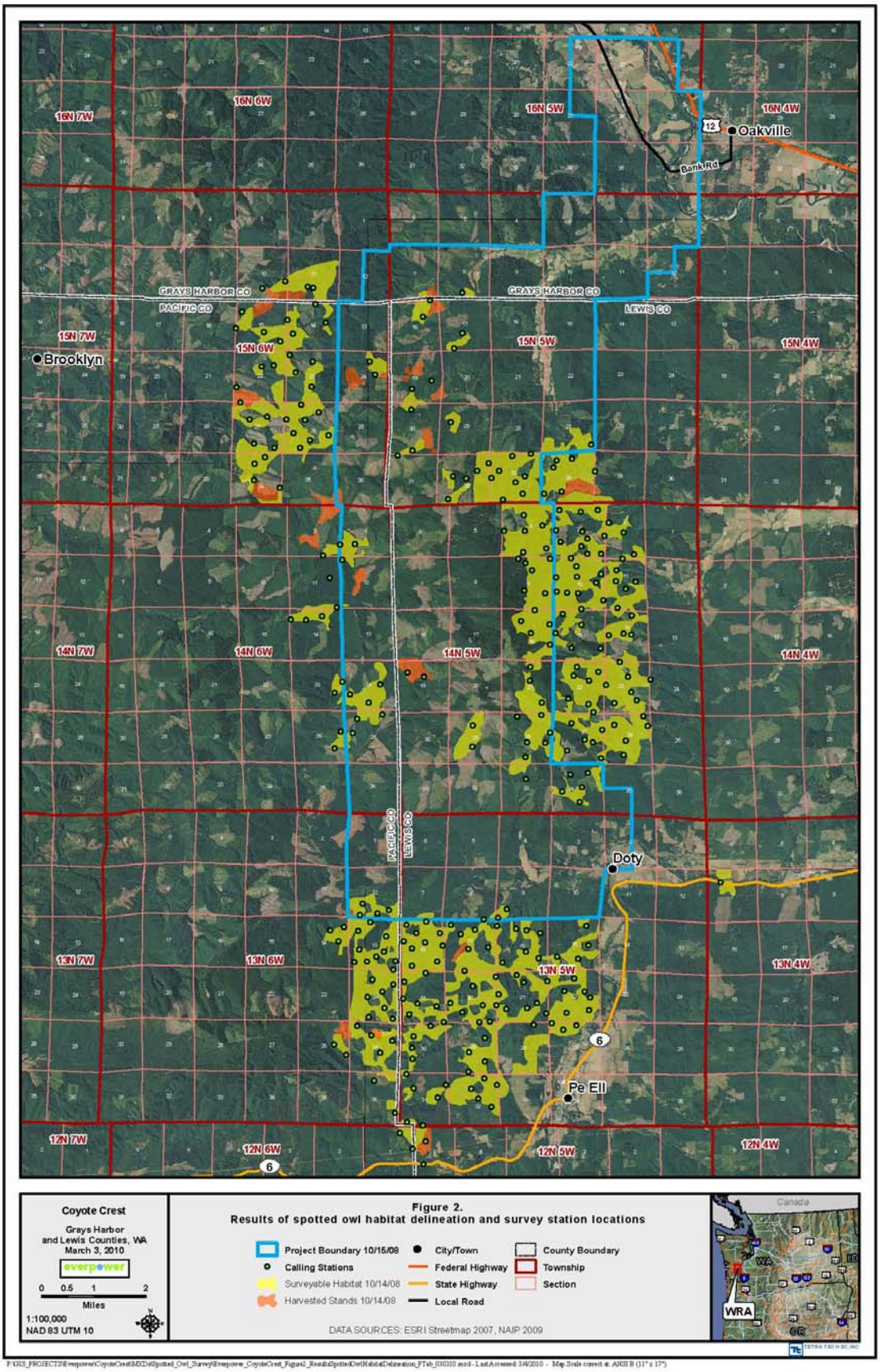

16N 7W
16N 6W
16N 5W
16N 4W
Oakville
12
Bank Rd
GRAYS HARBOR CO
PACIFIC CO
LEWIS CO
15N 7W
15N 6W
15N 5W
15N 4W
Brooklyn
14N 7W
14N 6W
14N 5W
14N 4W
Doty
13N 7W
13N 6W
13N 5W
13N 4W
6
Pe Ell
12N 7W
12N 6W
12N 5W
12N 4W
Coyote Crest
Grays Harbor
and Lewis Counties, WA
March 3, 2010
everpower
0 0.5 1 2
Miles
1:100,000
NAD 83 UTM 10
Figure 2.
Results of spotted owl habitat delineation and survey station locations
Project Boundary 10/15/08
Calling Stations
Surveyable Habitat 10/14/08
Harvested Stands 10/14/08
City/Town
Federal Highway
State Highway
Local Road
County Boundary
Township
Section
DATA SOURCES: ESRI Streetmap 2007, NAIP 2009
Canada
WA
ID
WRA
OR

Table 3. Summary of spotted owl, barred owl and great horned owl detections by survey area.

SURVEY AREA	SURVEY VISIT	DATE	COMMENTS
T13N, R05W	1	May 19-22	No spotted, barred or great horned owl detections.
	2	June 16-18	No spotted owls detected. A single barred owl was located in the SE¼ of Section 31.
	3	August 12-14	No spotted owls detected. A *Strix* species unknown was heard in the NW¼ of Section 32 on August 13, but no owls were located during the follow-up. Single barred owls were located in Sections 9, 17 and 28. A possible barred owl pair was located in Section 21.
	4	August 20	A single barred owl was detected in the NE¼ of Section 31.
	5	August 26	No spotted, barred or great horned owl detections.
	6	September 2	No spotted, barred or great horned owl detections.
T13N, R06W	1	May 19-22	No spotted, barred or great horned owl detections.
	2	June 16-17	No spotted, barred or great horned owl detections.
	3	August 6-7	No spotted, barred or great horned owl detections.
T14N, R05W	1	May 5-8	No spotted, barred or great horned owl detections.
	2	June 9-12	No spotted owls located. Reproductive barred owls located in the SE¼ of Section 2.
	3	July 22-24	No spotted owls were located. An unknown *Strix* was located the NW¼ of Section 3 on July 22, but no owls were found during the follow-up.
	4	August 20	No spotted, barred or great horned owl detections.
	5	August 26	No spotted, barred or great horned owl detections.
	6	August 29	No spotted, barred or great horned owl detections.
T14N, R06W	1	May 7	No spotted owls located. A single barred owl was located in the NE¼ of Section 14.
	2	June 2-4	No spotted owls located. A single barred owl was located in the SW¼ of Section 1.
	3	July 29	No spotted owls located. A single barred owl was located in the SW¼ Sections 1 and the SE¼ of Section 24.
T15N, R05W	1	May 7	No spotted, barred or great horned owl detections.
	2	June 2-4	No spotted owl detections. A single great horned owl was located in the SE¼ of Section 17.
	3	July 21-22	No spotted, barred or great horned owl detections.
T15N, R06W	1	May 12-13	No spotted, barred or great horned owl detections.
	2	June 2-3	No spotted, barred or great horned owl detections.
	3	July 21-22	No spotted owls located. A single barred owl was located twice in the NW¼ of Section 34.

During the 2008 survey season, the aforementioned male spotted owl moved to, and was relatively stationary near, the Seven Creek site center within the project area. The male was found dead by NCASI during the season (D. Rock, NCASI, personal communication).

The following subsections provide more detailed survey results for each of the six survey areas.

3.3.1 Township 13 North, Range 05 West

No spotted owls were located during three complete survey visits conducted from 19 May to 14 August 2008. A contact call from an unknown *Strix* species was heard during Visit 3 on August 13. A single note call was heard during the follow-up the next day, but no owls were located. A single barred owl was detected during the first of three additional visits conducted around the location of the unknown *Strix* detection. Single barred owls were heard during two of the three visits in Sections 9, 17, 28 and 31 (Table 3). Two barred owls were heard in the northwest quarter of Section 21, but gender was not determined. This could have been a barred owl pair; a possible pair interchange call was heard. Three additional visits (visits 4, 5 and 6) were conducted to cover all surveyable habitat within 0.5 mile of the *Strix* unknown detection. A single barred owl was located during Visit 4.

3.3.2 Township 13 North, Range 06 West

No spotted owls, barred owls, or great horned owls were located during three complete survey visits conducted from 19 May to 7 August 2008 (Table 3).

3.3.3 Township 14 North, Range 05 West

No spotted owls were detected during three complete survey visits conducted from 5 May to 29 July 2008. A reproductive barred owl pair and an unknown *Strix* were located in Section 2 and Section 3, respectively. No owls were located during the follow-up for the unknown species; though the initial follow-up was not conducted until 7 days following the initial detection (Table 3). Three additional visits (visits 4-6) were conducted to cover all surveyable habitat within 0.5 mile of the unknown *Strix* detection. No owls were located during any of the three additional visits. In addition to the owl responses, a goshawk was detected during one visit to the eastern half of Section 9. The bird was seen, and was also heard making alarm call. Behavior of the goshawk indicated a nest may be present in the area.

3.3.4 Township 14 North, Range 06 West

No spotted owls were located during three survey visits conducted from 7 May to 29 July 2008. Single barred owls were heard on all three visits and located in sections 1, 14 and 24 (Table 3).

3.3.5 Township 15 North, Range 05 West

No spotted owls were located during three survey visits conducted from 7 May to 22 July 2008. A single great horned owl was located in Section 17 (Table 3).

3.3.6 Township 15 North, Range 06 West

No spotted owls were located during three visits conducted from 12 May to 22 July, 2008. Single barred owls were located on two occasions in Section 34 (Table 3).

4.0 REFERENCES

U.S. Fish and Wildlife Service. 1991. Protocol for surveying proposed management activities that may impact northern spotted owls. 7 March 1991; revised 17 March 1992. 17 p.

Washington Administrative Code (WAC). 2008. Forest Practices Rules, Title 222 WAC. Washington Department of Natural Resources, Olympia. Available online at: http://www.dnr.wa.gov/Publications/fp_rules_ch222-16wac.pdf. Accessed March 5, 2010.

Washington Department of Fish and Wildlife. 2010. Priority habitats and species database search, April 14, 2010. Olympia, Washington.