

<b>DOCKETED</b>	
<b>Docket Number:</b>	23-OPT-01
<b>Project Title:</b>	Fountain Wind Project
<b>TN #:</b>	253168
<b>Document Title:</b>	2023 California Spotted Owl Surveys_111323
<b>Description:</b>	N/A
<b>Filer:</b>	Caitlin Barns
<b>Organization:</b>	Stantec Consulting Services, Inc.
<b>Submitter Role:</b>	Applicant Consultant
<b>Submission Date:</b>	11/16/2023 3:09:31 PM
<b>Docketed Date:</b>	11/16/2023

# 2023 CALIFORNIA SPOTTED OWL SURVEYS

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## Fountain Wind Project Shasta County, California



**Prepared for:**

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**November 13, 2023**



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## **REPORT REFERENCE**

Thompson, J., and S. Hanson. 2023. 2023 California Spotted Owl Surveys, Fountain Wind Project, Shasta County, California. Prepared for CG Fountain Wind LLC, Houston, Texas. Prepared by Western EcoSystems Technology, Inc. (WEST), Corvallis, Oregon. November 13, 2023.

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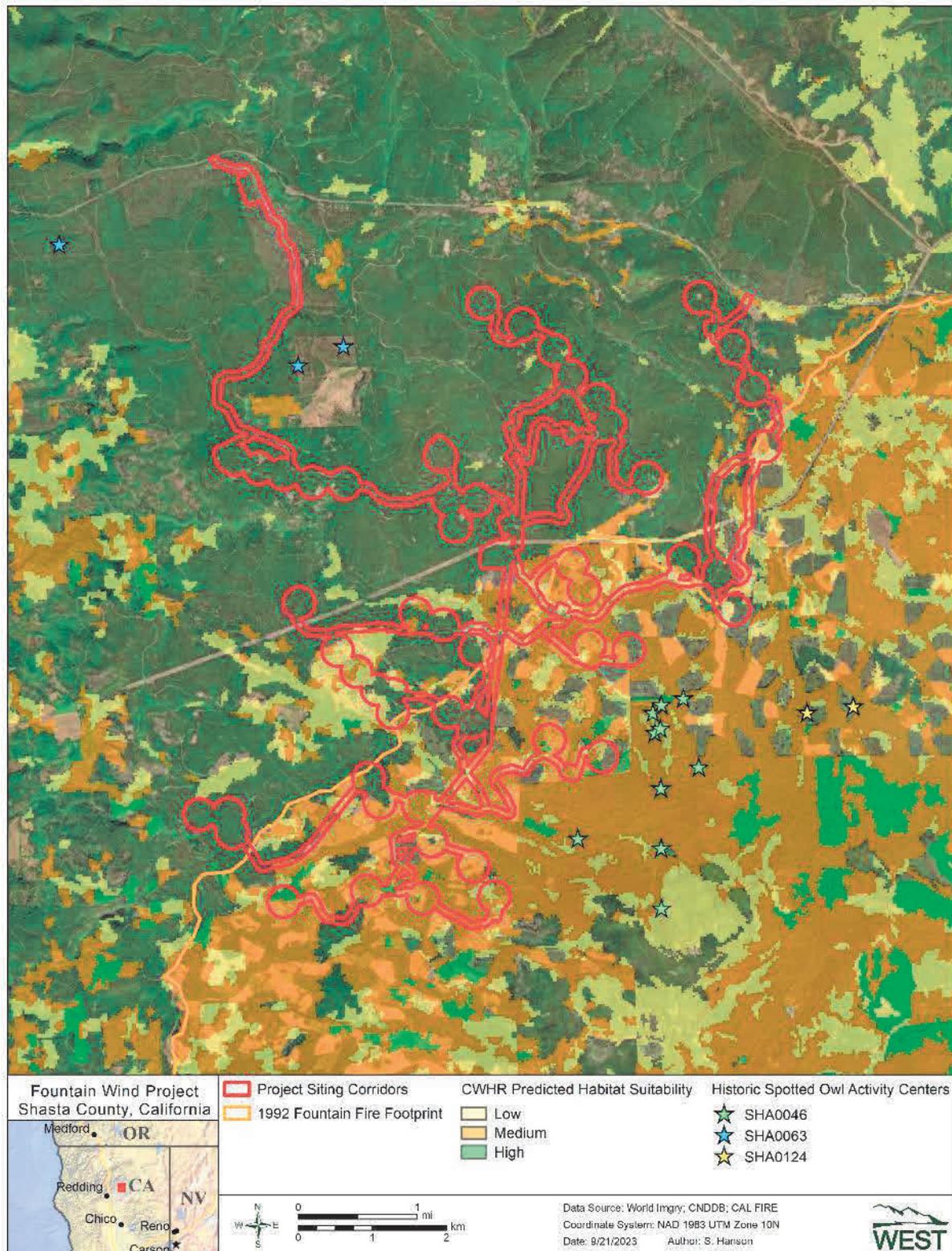
Appendix A. California Spotted Owl Survey Datasheets for the Fountain Wind Project

## INTRODUCTION

CG Fountain Wind LLC (Fountain Wind) is proposing to develop the Fountain Wind Project (Project), in Shasta County, California. In 2021, Western EcoSystems Technology, Inc. (WEST) performed California spotted owl (CSO; *Strix occidentalis occidentalis*) surveys at the Project (Thompson and Hanson 2021) as part of pre-construction surveys designed to support Project permitting at the County level. CSO surveys in 2021 documented nesting activity associated with the historical CSO activity center (SHA0046) located on US Forest Service lands east of the Project (Figure 1), but no CSO activity within the Project. In early 2023, the California Energy Commission (CEC) commenced a review of the Project's application for site certification, which includes the review of potential Project impacts under the California Environmental Quality Act (CEQA). At the request of the CEC, Fountain Wind committed to conducting a second year of CSO surveys at the Project to help inform the CEC's CEQA analysis. Fountain Wind and WEST coordinated with the CEC on a CSO survey plan provided to the CEC in June 2023 and revised in July 2023. The following report describes the methods and results of CSO surveys conducted by WEST at the Project in 2023.

## PROJECT AND SURVEY AREA

The Project is located on private timberlands in central Shasta County, California (Figure 1). The primary land use within the Project and surrounding area is commercial timber production. The dominant vegetation type in the Project Siting Corridors (Figure 1) 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 absent from the Project Siting Corridors due to both historical wildfire and commercial timber harvest activities (Figure 1). Habitat suitability models (CDFW 2021) for CSO indicate potentially suitable habitats are limited to the eastern and southern portions of the Project; however, much of the predicted suitable spotted owl habitat in or near the Project has been harvested in recent years under one or more approved timber harvest plans (Figure 1).



**Figure 1. Historical California spotted owl occurrences and predicted suitable spotted owl habitat near the Fountain Wind Project in Shasta County, California, as obtained from the California Natural Diversity Database (CNDDDB) and California Wildlife Habitat Relationships (CWHR).**

## METHODS

Protocol surveys for CSO were conducted in areas of predicted suitable nesting and roosting habitats located within a 0.25-mile (mi) buffer of the Project Siting Corridors, which include all areas of potential disturbance associated with proposed Project infrastructure (e.g., roads, underground collection, turbine pads, etc.). Field surveys largely aligned with the *Protocol for Surveying Proposed Management Activities that may Impact Northern Spotted Owls – 2012 Revision*, which is endorsed by the USFWS (Northern Spotted Owl [NSO] Protocol; USFWS 2012); however, the survey area included only a 0.25-mi buffer of disturbance areas, consistent with the 2021 surveys. The 0.25-mi buffer is consistent with NSO survey protocols for disturbance only projects, as well as avoidance buffers identified in the Draft and Final Environmental Impact Reports (EIRs) released by Shasta County during an earlier evaluation of the Project, which found impacts to CSO to be less than significant (Shasta County 2021). The Draft and Final EIRs included a minimization measure that specified a no-impact buffer of 0.25 mi around active CSO nests or unsurveyed CSO habitats during the nesting season. This 0.25-mi buffer is also consistent with Mitigation Measures in the Final EIR for the nearby Hatchet Ridge Wind Project (Shasta County 2007). While the Project will have some impact on forests considered potentially suitable for CSO, these impacts will be disjunct and dispersed along linear rights-of-way, typically consisting of less than five acres in each location (e.g., a turbine pad or road through a small stand) where potentially suitable habitats are impacted. Most of the Project will have no direct impact on CSO habitat and will only result in disturbance (e.g., construction noise). Given that habitat impacts are minimal, disjunct, and dispersed across the Project, and previously prescribed avoidance buffers were 0.25 or less, the 0.25 survey buffer was chosen to define the CSO survey area again in 2023.

CSO survey points were largely confined to the southern and eastern portions of the Project and 0.25-mi buffer, as suitable habitat is lacking in the previously burned areas in the northwestern portion of the Project (Figure 2). Survey stations used in 2023 were consistent with those used in 2021 (Thompson and Hanson 2021), with stations spaced such that they provided full coverage of all targeted potentially suitable habitat patches within the 0.25-mi buffer (Figure 2). While only 30 survey stations were needed to sufficiently cover the current Project and 0.25-mi survey buffer, all 36 survey points surveyed in 2021 (which included a slightly larger Project area) were surveyed again in 2023. This included six points located 0.5 to 1.2 mi south of the Project that extended survey coverage beyond the described 0.25-mi survey buffer along the southern edge of the Project (Figure 2).

CSO surveys were conducted by acoustic playback of spotted owl vocalizations using digital callers (e.g., Cabela's® Outfitter Series Predator Caller by FoxPro) loaded with a variety of spotted owl calls made available by the USFWS. Surveys consisted of a minimum 10-minute survey period at each point, during which calls (typically 3-4 calls) were played, alternated with 1-2-minute-long listening periods. A variety of both male and female calls were used. Each round of surveys (i.e., one complete survey of all 36 points) was separated by at least seven days.

Due to heavy winter and spring snows, initiation of spotted owl surveys throughout the region was delayed due to access limitations, largely precluding early season surveys in April and May across the region. Access at the Project opened up in late May and six rounds of surveys were conducted during the June-August portion of the spotted owl survey period.

When a CSO response was recorded, a daytime follow-up visit was conducted to attempt to locate the CSO and identify an activity center (e.g., roost or nest). If the initial follow-up survey did not result in confirmation of a CSO activity center, at least two additional surveys were conducted in the area to ensure a total of at least three daytime or nighttime follow-up surveys of the response area. Completion of these additional surveys resulted in more than six visits to some survey points when a detection occurred late in the survey season (e.g., during visits 4–6).

One known historical activity center is present within 0.5 mi of the Project. This activity center (MASTEROWL# SHA0046; CDFW 2023; Figure 1) has consistently been occupied, with data dating back to the late 1980's. Over this time period, the activity center (including the CSO nest detected during the 2021) has moved around the contiguous block of higher quality habitat located just east of the Project in the Lassen National Forest, with the various activity centers approximately 0.4–0.75 mi from the nearest proposed Project disturbance (Figures 1 and 2). In the recent past, this activity center has been monitored by the adjacent landowner (Sierra Pacific Industries [SPI]; CDFW 2023), and SPI staff indicated they would be monitoring this activity center again in 2023. WEST coordinated with SPI regarding this activity center as necessary to minimize disturbance to the resident pair in 2023.

## RESULTS

CSO surveys were conducted between June 19 and September 8, 2023 (Table 1). Detailed survey results by round are presented below, with survey datasheets included as Appendix A.

**Table 1. Results of California spotted owl acoustic playback surveys conducted between June 19 and August 29, 2023, at the Fountain Wind Project, Shasta County, California.**

Survey Dates	Result
June 19–21, 2023	Female detected, not found during follow-up
June 28–29, 2023	No detections
July 10–11, 2023	No detections
July 19–21, 2023	Pair and single female detected, not found during follow-up
August 2–4, 2023	Female and male detected, not found during follow-up
August 28–29, 2023	No detections
September 8, 2023	No detections

### Round 1: June 19-21, 2023

A full round of surveys was completed at all points from June 19-21. On June 20, during the first round of surveys, a female CSO was heard from point 29 just south of the Project, its estimated location being outside the 0.25-mi survey buffer and approximately 0.3 mi from the nearest

proposed disturbance (a road right of way) and 0.5 mi south of the nearest proposed turbine (Figure 2). A daytime follow-up visit was conducted the next day (June 21) to relocate the owl and determine its residency/nesting status, however no CSO was detected.

### **Round 2: June 28–29, 2023**

A full round of surveys was completed at all points June 28–29, which included the area around the June 20 CSO detection. No CSO were detected during this second round of surveys.

### **Round 3: July 10-11, 2023**

A full round of surveys was completed at all points from July 10-11, which again included the area around the June 20 CSO detection. No CSO were detected during this third round of surveys. Western screech owls (*Megascops kennicottii*) were detected from survey points 4, 8, and 10 on July 10 and from point 26 on July 11, and one great horned owl (*Bubo virginianus*) was detected from point 33 on July 11 (Appendix A).

### **Round 4: July 19-21, 2023**

A full round of surveys was completed at all points from July 19-21. On July 19, a CSO pair was detected during surveys at point 5 along the eastern edge of the Project (Figure 2). The location of the pair was estimated to be approximately one mile northeast of the 2021 nest associated with activity center SHA0046 and approximately 0.4 mi from the nearest proposed turbine, which is located in an area of young regenerating forest that is not CSO habitat (Figures 1 and 2). The detection was approximately 0.9 mi from the nearest proposed disturbance within potentially suitable CSO habitat, (i.e., mature forest) which was also associated with a road right of way near survey point 6 (Figures 1 and 2). A daytime follow-up visit was conducted the following day (July 20); however, no CSO were located. Later in the night of July 20, a female CSO was heard from point 34 during surveys along the southern edge of the Project, its location estimated to be approximately one mi south of the nearest proposed turbine (Figure 2). A daytime follow-up visit was conducted in this area the next day (July 21); however, the CSO was not detected.

On July 19, a western screech owl was detected from point 10 and great horned owls were heard from points 21 and 29 (Appendix A). A western screech owl was also detected on July 20 from point 16 (Appendix A).

### **Round 5: August 2-4, 2023**

A full round of surveys was completed at all points from August 2-4. On August 4, a CSO pair was heard from point 29 during surveys along the southern edge of the Project, their location estimated to be outside of the 0.25-mile survey buffer. The detections were near the previous CSO detection from June 20, 0.3–0.7 mi south of the nearest proposed disturbance (a road right of way) and 0.5–0.7 mi south of the nearest proposed turbine. A daytime follow-up visit was conducted the following day (August 5); however, no CSO were detected.

### Round 6: August 28-29, 2023

A full round of surveys was completed at all points from August 28-29, inclusive of the area around the August 4 CSO detection. No CSO were detected.

### Additional Surveys: September 8, 2023

A final round of surveys was conducted on September 8 in the vicinity of the last CSO detection that occurred on August 4. Nighttime surveys were conducted from the four survey points most proximal to the August 4 detection (points 26, 29, 30, and 31; Figure 2). No CSO were detected during the September 8 visit, which was the third survey in the vicinity of the August 4 detection.

## DISCUSSION

In addition to the CSO surveys conducted by WEST, the underlying land management company, FWS Forestry (FWS), also conducted CSO surveys in the vicinity of the Project in 2023. FWS focused their survey efforts on potentially suitable CSO habitat on lands they manage south of the Pit River, excluding the area being surveyed by WEST for the Project (FWS 2023). FWS initiated and completed their surveys during the late nesting season (July–August 2023). WEST coordinated with FWS on surveys in adjacent areas to avoid duplication of efforts and to minimize potential harassment of CSO, as appropriate. FWS recorded CSO detections in the same general area as those documented by WEST to the south of the Project. FWS reported detections of a female CSO on July 14 and July 28, in areas south of point 34 (Figure 2). These two detections were approximately 0.9 and 1.4 mi south of the nearest proposed turbine, respectively. FWS also conducted follow-up visits on these detections and, like WEST's results, failed to find any CSO roost or nest locations.

Given the combined survey results of WEST and FWS in areas south of the Project, the repeated detections of a female CSO and one detection of a pair (male and female) suggests presence of at least one occupied CSO territory outside the southern Project boundary. However, because no CSO were located during follow-up daytime visits, no roost or nest locations were identified and nesting status could not be determined. The central location amidst all the 2023 detections south of the Project is a stand of timber between Little Cow Creek and the North Fork Little Cow Creek to the east of point 34, the entirety of which is outside the 0.25-mi survey boundary associated with the Project (Figure 2).

Similarly, the CSO pair detected east of the Project on July 19 suggests the presence of an occupied territory, likely associated with historical activity centers SHA0046 or SHA0124 (Figures 1 and 2). However, due to the lack of detections during the daytime follow-up survey (i.e., identification of a roost or nest location) or during subsequent acoustic surveys, an activity center could not be established, and nesting status was unknown. The adjacent landowner (SPI) also conducted surveys in the area east of the project and reported only a single male CSO detection during their efforts in 2023. Their one detection was of the banded male CSO associated with activity center SHA0046, which was located approximately 0.5 mi southeast of the 2021 nest

location associated with the activity center (Figure 2). SPI also indicated continued presence of barred owls in the historical CSO activity center SH0124, located further to the east.

Based on the results of surveys conducted in areas of potentially suitability CSO habitat in 2021 and 2023, the likelihood of CSO nesting within the Project or surrounding 0.25-mi buffer appears to be low. The two years of survey data are consistent with the historical data and support an earlier CSO risk assessment prepared for the Project in 2020 (Hutchison and Chatfield 2020), which indicated a low risk of impacts to spotted owls given the generally low habitat suitability across most of the Project, the fragmented nature of the higher quality habitat present within the Project, and the lack of spotted owl activity documented in the Project area in recent years.

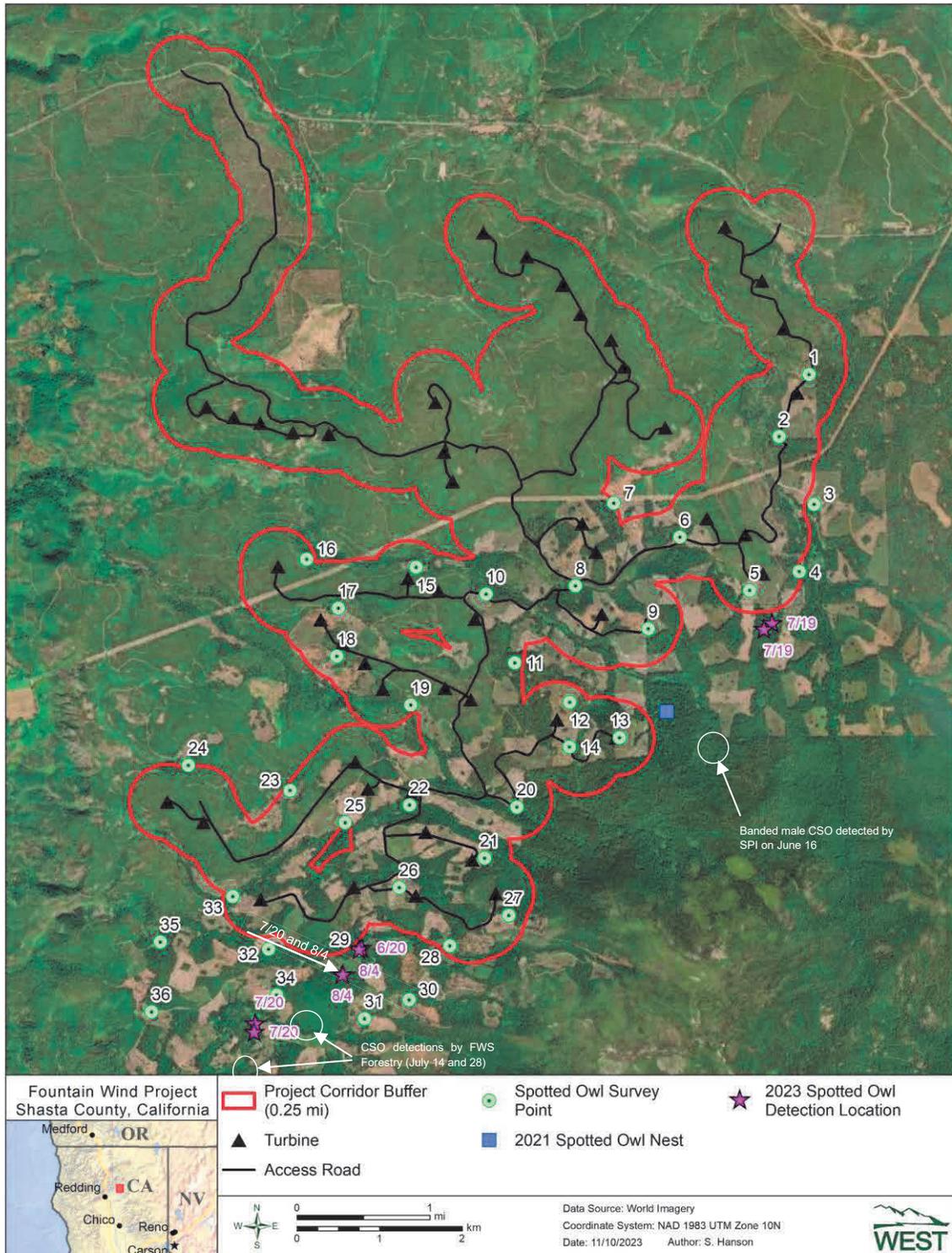


Figure 2. Spotted owl survey stations and detections at the Fountain Wind Project, Shasta County, California. Northern portions of the Project do not include suitable spotted owl nesting habitat and were not surveyed. Areas of CSO detections by the land management company (FWS Forestry) and neighboring landowner (Sierra Pacific Industries [SPI]) are also called out (white circular areas and arrows).

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**Appendix A. California Spotted Owl Survey Datasheets for the Fountain Wind Project**

# Fountain NSO Form

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Contractor: West, Inc

Crew: R. Voetsch

Visit # 1

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 6 Day: 19, 2022

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)		Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End					Initial	Final	WGS84-GPS data only					
1	N	20:42	20:52	N											
3	N	21:06	21:16	N											
2	N	21:22	21:32	N											
4	N	21:49	21:59	N											
5	N	22:12	22:22	N											
6	N	22:29	22:39	N											
7	N	22:44	22:54	N											
8	N	23:01	23:11	N											
10	N	23:36	23:46	N											
16	N	00:05	00:15	N											
15	N	00:26	00:36	N											
17	N	00:41	00:51	N											
18	N	00:57	01:07	N											
19	N	01:15	01:25	N											
24	N	01:47	01:57	N											
33	N	02:04	02:14	N											
35	N	02:20	02:30	N											
36	N	02:37	02:47	N											

Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response      Sex: M = male, F = female, U = unknown      Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls

# Fountain NSO Form

Page 1 of 2

Survey Area: Fountain  
 Contractor: West, Inc

Owl Site(s): \_\_\_\_\_  
 Crew: E. Vaetsch

Visit # 1

Weather (circle): Clear Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

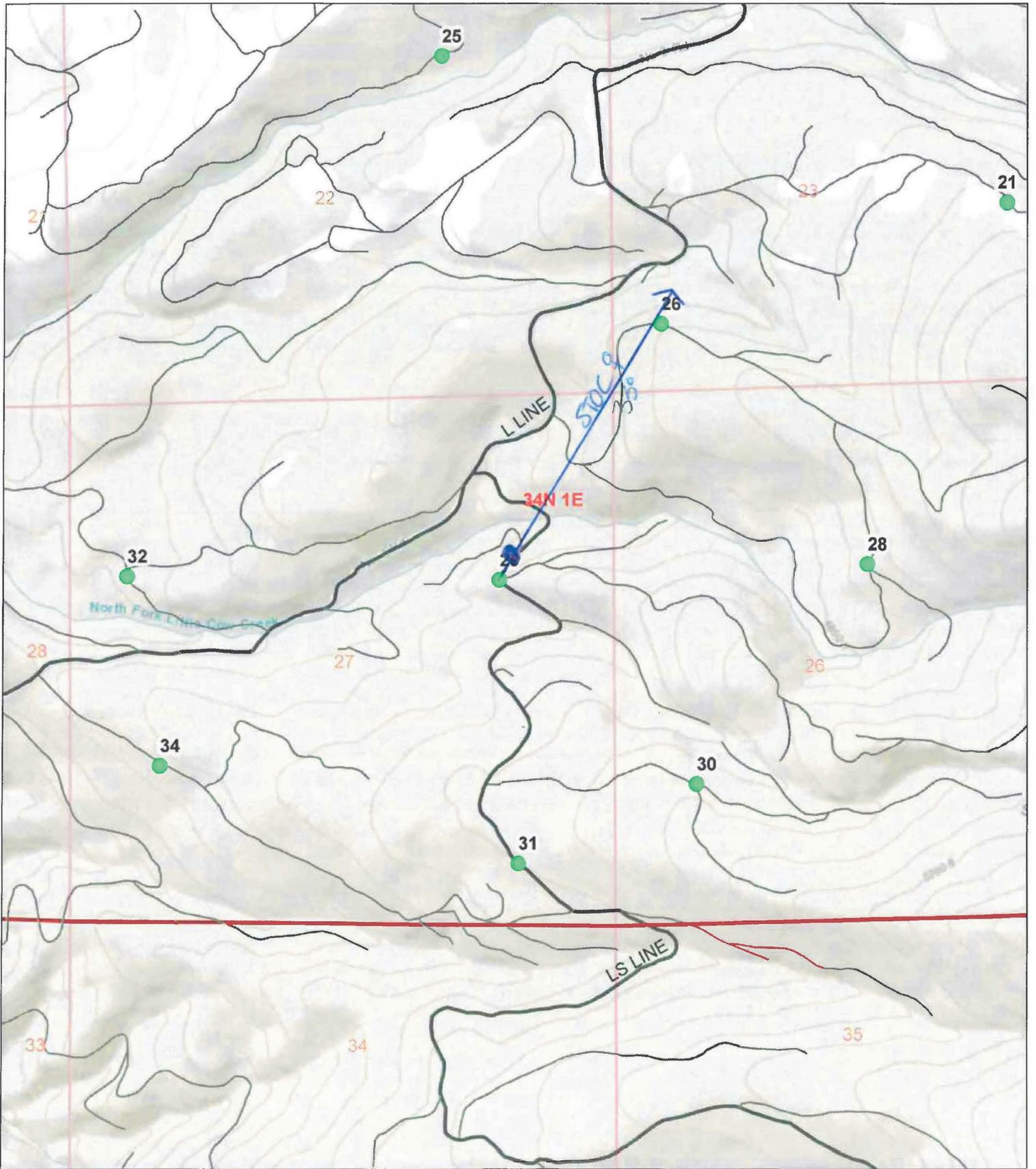
Month: 6 Day: 20, 2023

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
9	N	20:57	21:07	N										
11	N	21:31	21:41	N										
12	N	21:48	21:58	N										
14	N	22:04	22:14	N										
13	Y	22:36	22:46	N			13 is a hike due to downed trees (1.1 mi, 23 min RT)							
20	N	23:07	23:17	N										
22	N	23:23	23:33	N										
23	N	23:48	23:58	N										
25	N	00:08	00:18	N										
21	N	00:35	00:45	N										
28	N	01:02	01:12	N										
27	N	01:20	01:30	N										
26	N	01:37	01:47	N										
29	N	01:58	02:28	A	F	A	STOC	C, 4, B	02:07	02:20	33°	100ft	40.775312	-121.842042

**Time:** All times are in military format (midnight is 2400).  
**Resp. Codes:** N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response      **Sex:** M = male, F = female, U = unknown      **Age:** A = adult, S = subadult, J = juvenile  
**Species Codes:** STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = *Strix*-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
**Call Type(s):** 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-*Strix* owls



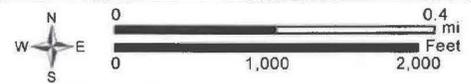
Fountain Wind Project  
Shasta County, California

• Medford OR

- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

● :STOC (F,A) @ 33°, 100ft @ 207

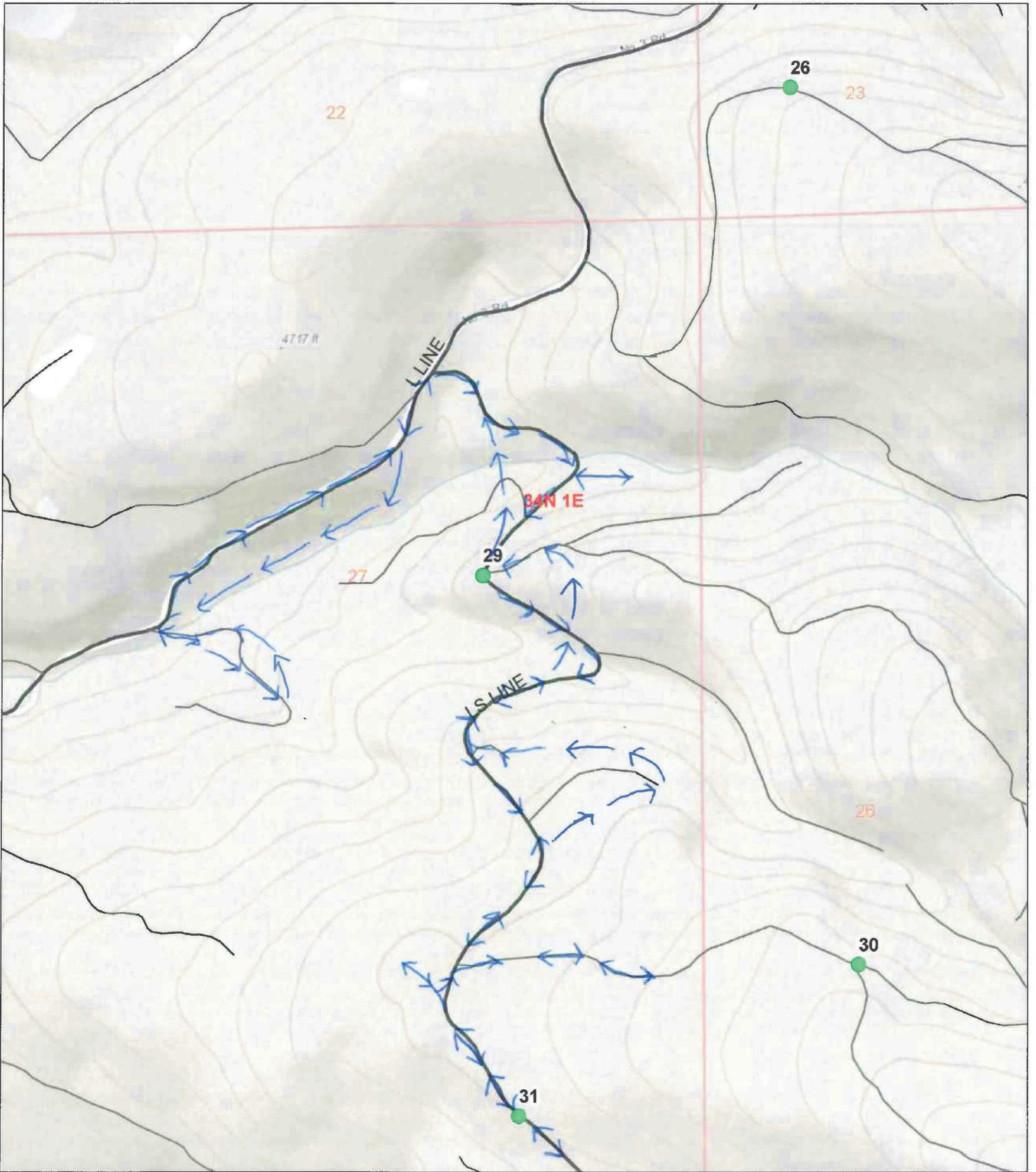
6/20/2023



Data Source: World topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson







- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

→ Route Searched

6/21/23

Data Source: World Topo  
 Coordinate System: NAD 1983 UTM Zone 10N  
 Date: 9/20/2023      Author: S. Hanson





# Fountain NSO Form

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Contractor: West, Inc

Crew: R. Voetsch

Visit # 2

Weather (circle): Clear Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 6 Day: 28, <sup>2023</sup>~~2022~~

Wind (circle): Light air (1-3 mph) Calm (<1 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)		Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End					Initial	Final	WGS84-GPS data only					
1	N	20:46	20:56	N											
3	N	21:10	21:20	N											
2	N	21:26	21:36	N											
4	N	21:48	21:58	N											
5	N	22:10	22:20	N											
6	N	22:26	22:36	N											
7	N	22:41	22:51	N											
8	N	22:56	23:06	N											
10	N	23:10	23:20	N											
15	N	23:30	23:40	N											
16	N	23:50	24:00	N											
17	N	00:06	00:16	N											
18	N	00:25	00:35	N											
19	N	00:48	00:58	N											
24	N	01:18	01:28	N											
33	N	01:36	01:46	N											
35	N	01:54	02:04	N											
36	N	02:11	02:21	N											

Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response      Sex: M = male, F = female, U = unknown      Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = *Strix*-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-*Strix* owls

# Fountain NSO Form

Page 1 of 1

Survey Area: Fountain  
 Contractor: West, Inc

Owl Site(s): \_\_\_\_\_  
 Crew: R. Voetsch

Visit # 2

Weather (circle): Clear Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 6 Day: 29, 2023

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
11	N	20:50	21:00	N										
12	N	21:09	21:19	N										
14	N	21:29	21:39	N										
13	Y	21:57	22:07	N			13 is a hike (1.1 mi, 24 min RT)							
20	N	22:27	22:37	N										
23	N	22:51	23:01	N										
25	N	23:11	23:21	N										
22	N	23:28	23:38	N										
21	N	23:50	24:00	N										
27	N	00:22	00:32	N										
28	N	00:44	00:54	N										
26	N	01:00	01:10	N										
29	N	01:21	01:31	N										
30	N	01:43	01:53	N										
31	N	02:01	02:11	N										
32	N	02:26	02:36	N										
34	N	02:44	02:54	N										
9	N	03:30	03:40	N										

Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response      Sex: M = male, F = female, U = unknown      Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls

# Fountain NSO Form

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Visit # 3

Contractor: West, Inc

Crew: S. Jones

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

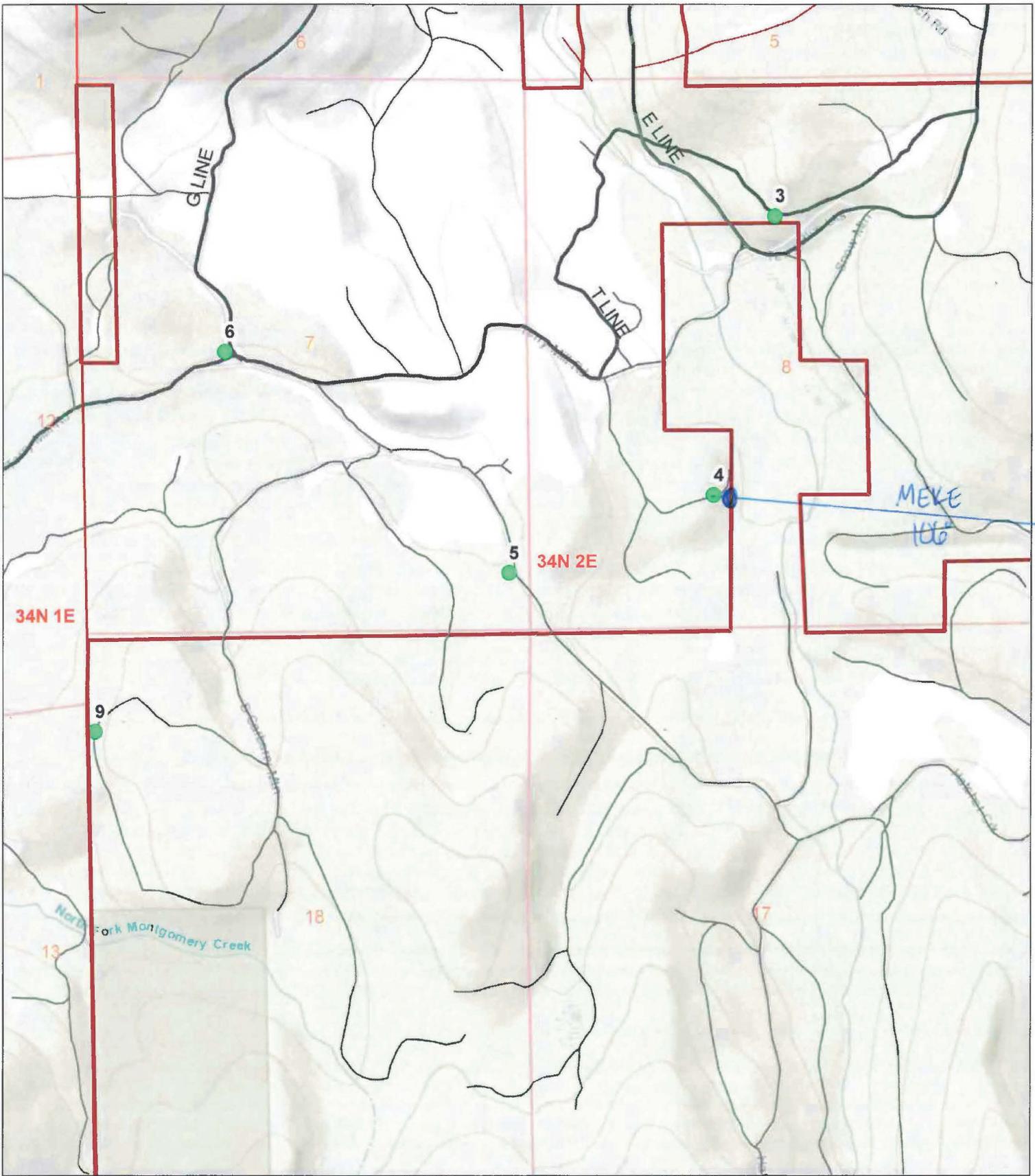
Month: 7 Day: 10, <sup>2023</sup>~~2022~~ SUN

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
1		2147	2157	N										
3		2214	2224	N										
2		2234	2244	N										
4		2301	2311	A	U	A	MEKE	Stan	2301	2306	106°	100	40.815671	-121.778133
5		2322	2332	N										
6		2354	0004	N										
7		0009	0019	N										
8		0024	0034	A	U	A	MEKE	Stan	0030	0033	172°	100	40.814287	-121.810530
10		0037	0047	A	U	A	MEKE	Stan	0041	0047	4°	200	40.814288	-121.823595
17		0053	0103	N										
15		0109	0119	N										
16		0141	0151	N										

**Time:** All times are in military format (midnight is 2400).  
**Resp. Codes:** N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response  
**Sex:** M = male, F = female, U = unknown  
**Age:** A = adult, S = subadult, J = juvenile  
**Species Codes:** STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = *Strix*-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
**Call Type(s):** 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-*Strix* owls



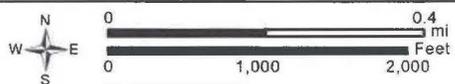
Fountain Wind Project  
Shasta County, California



- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

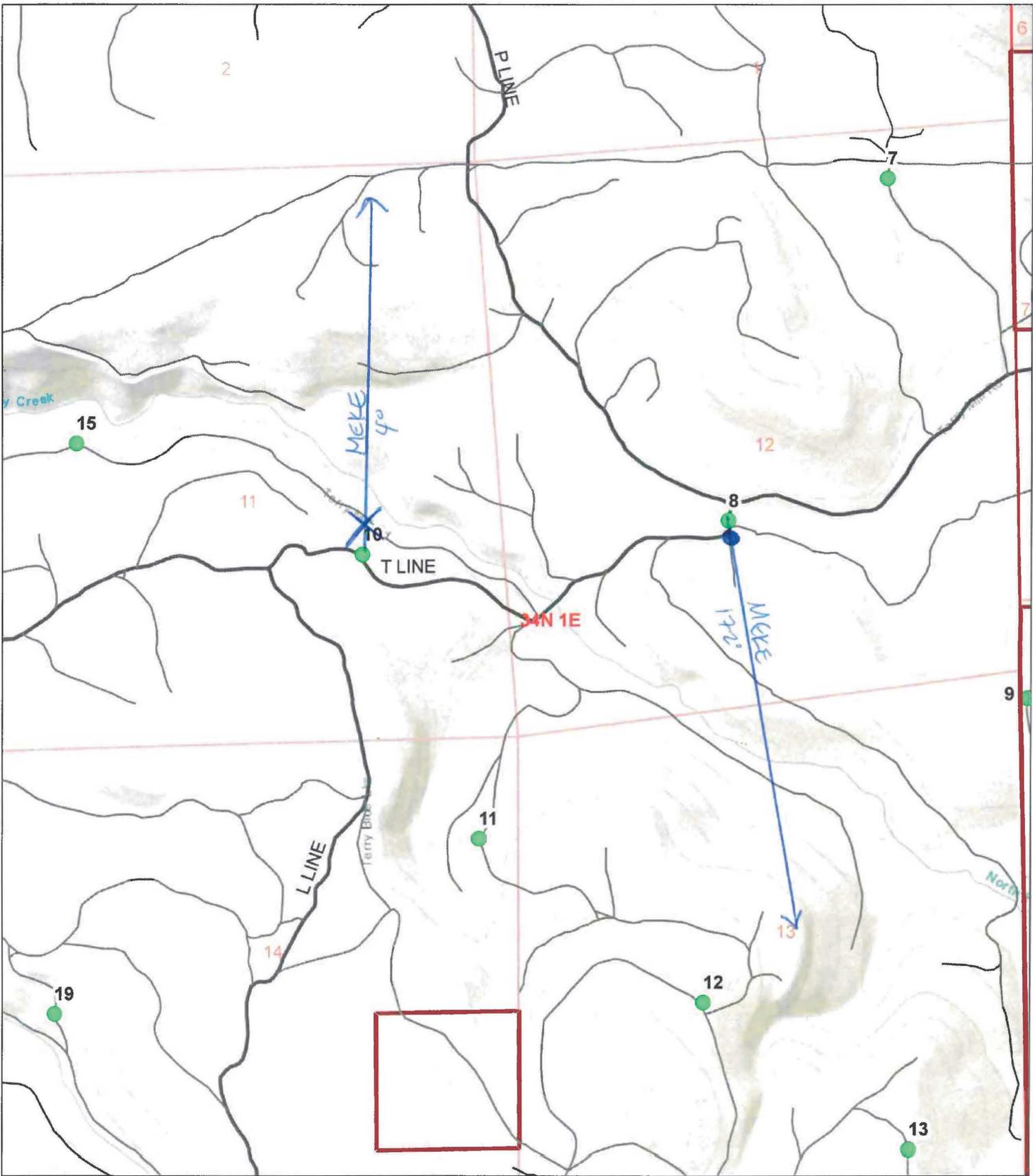
●: MEKE (U,A) @ 106°, 100ft @ 2301

7/10/23



Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson





Fountain Wind Project  
Shasta County, California



Project Boundary

Mainlines

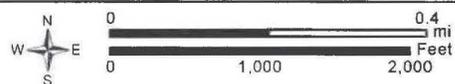
Other Roads

● CSO Survey Station

●: MEKE (U.A) @ ~~106° 100ft @ 0031~~  
172°, 100 ft @ 0030

X: MEKE (A.U) @ 4°, 200ft @ 0041

7/10/23

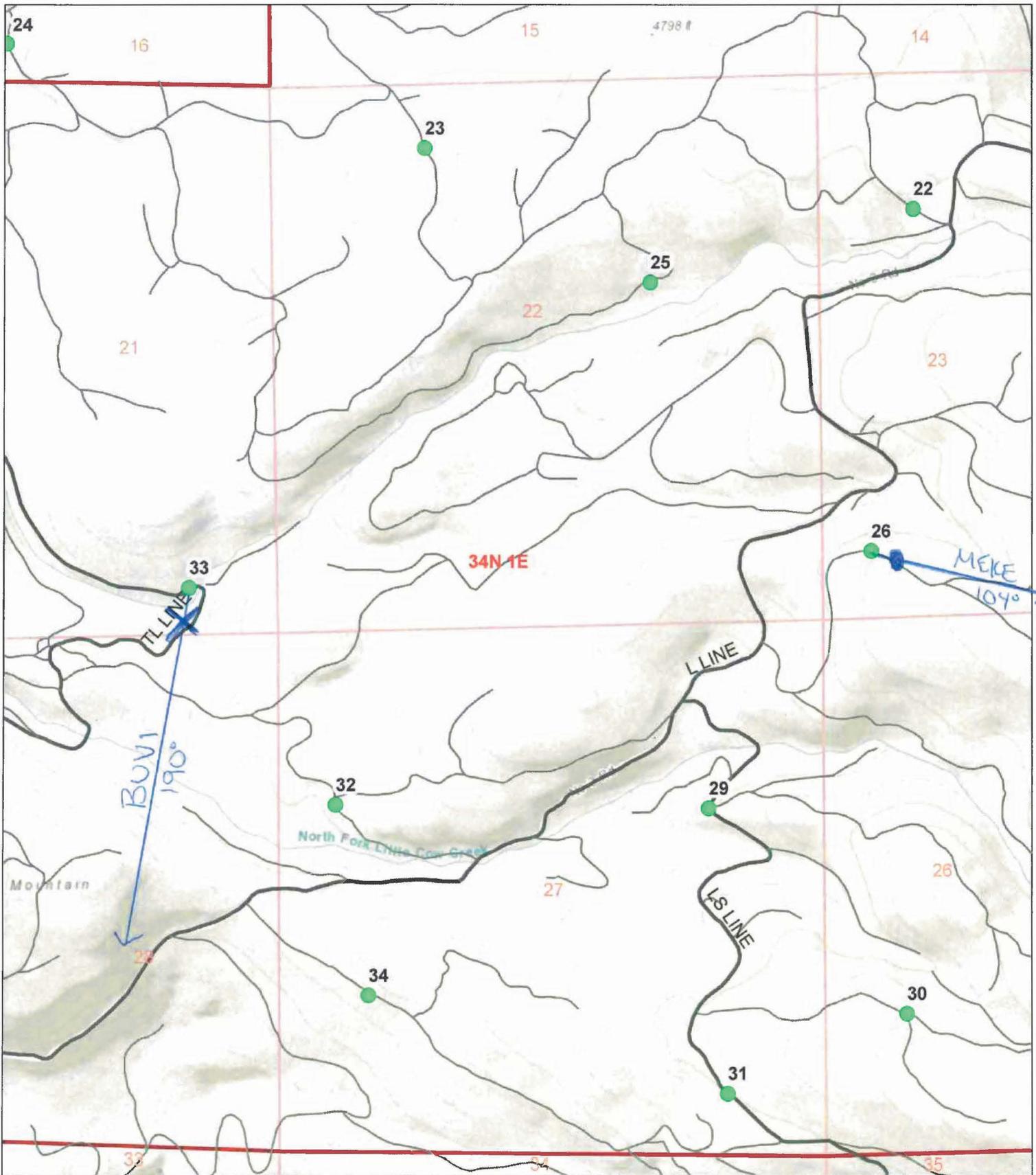


Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson









- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

X: BUVI (U.A) @ 190°, 202ft @ 2353  
●: MEKE (U.A) @ 104°, 202ft @ 0212

7/11/23

Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson

# Fountain NSO Form

Page 1 of 5  
 Visit # 4

Survey Area: Fountain  
 Contractor: West, Inc

Owl Site(s): \_\_\_\_\_  
 Crew: R. Voetsch

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 7 Day: 19, 2023

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
1	N	20:36	20:46	N										
3	N	21:01	21:11	N										
2	N	21:18	21:28	N										
4	N	21:44	21:54	N										
5	N	22:07	22:18	A	F	A	STOC	B, 4, A	22:15	22:18	148°	1500ft	40.810185	-121.782551
				A	M	A	STOC	4, L, A	22:15	22:18	148°	1500ft	40.810185	-121.782551
							Heard again from 602620/4578528 ↓							
				A	F	A	STOC	A, L	22:30	22:31	188°	700ft	40.809528	-121.783709
				A	M	A	STOC	4	22:30	22:31	188°	700ft	40.809528	-121.783709
7	N	23:06	23:16	N										
8	N	23:29	23:39	N										
10	N	23:43	23:53	A	U	A	MEKE	STAN	23:50	23:53	13°	1000ft	40.816500	-121.823503
22	N	00:04	00:14	N										
25	N	00:25	00:35	N										
23	N	00:46	00:56	N										
21	N	01:21	01:31	A	M	A	BUVI	STAN	01:30	01:31	11°	1000ft	40.787649	-121.824414
27	N	01:57	02:07	N										
28	N	02:11	02:21	N										
26	N	02:26	02:36	N										
31	N	02:47	02:57	N										

**Time:** All times are in military format (midnight is 2400).  
**Resp. Codes:** N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response  
**Sex:** M = male, F = female, U = unknown  
**Age:** A = adult, S = subadult, J = juvenile  
**Species Codes:** STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
**Call Type(s):** 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls

# Fountain NSO Form

Page 2 of 5

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Visit # 4

Contractor: West, Inc

Crew: R. Voetsch

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

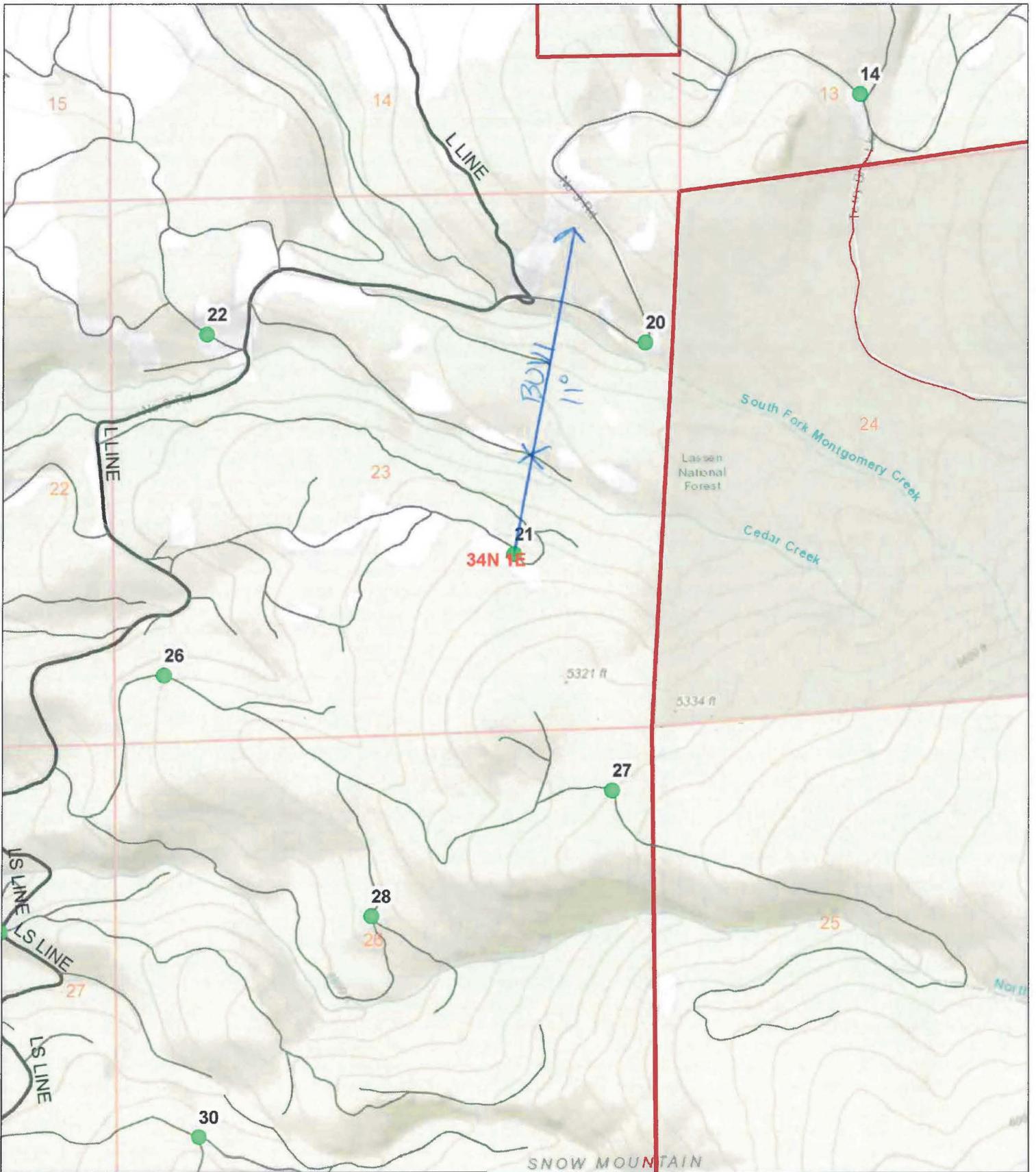
Month: 7 Day: 19, 2022

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
30	N	03:03	03:13	N										
29	N	03:20	03:30	A	M	A	BUVI	STAN	03:24	03:28	331°	1200ft	40.777525	-121.845285

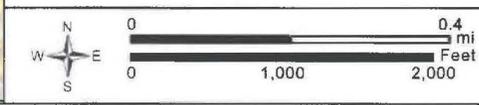
Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response  
 Sex: M = male, F = female, U = unknown  
 Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = *Strix*-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-*Strix* owls



Fountain Wind Project  
Shasta County, California

- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

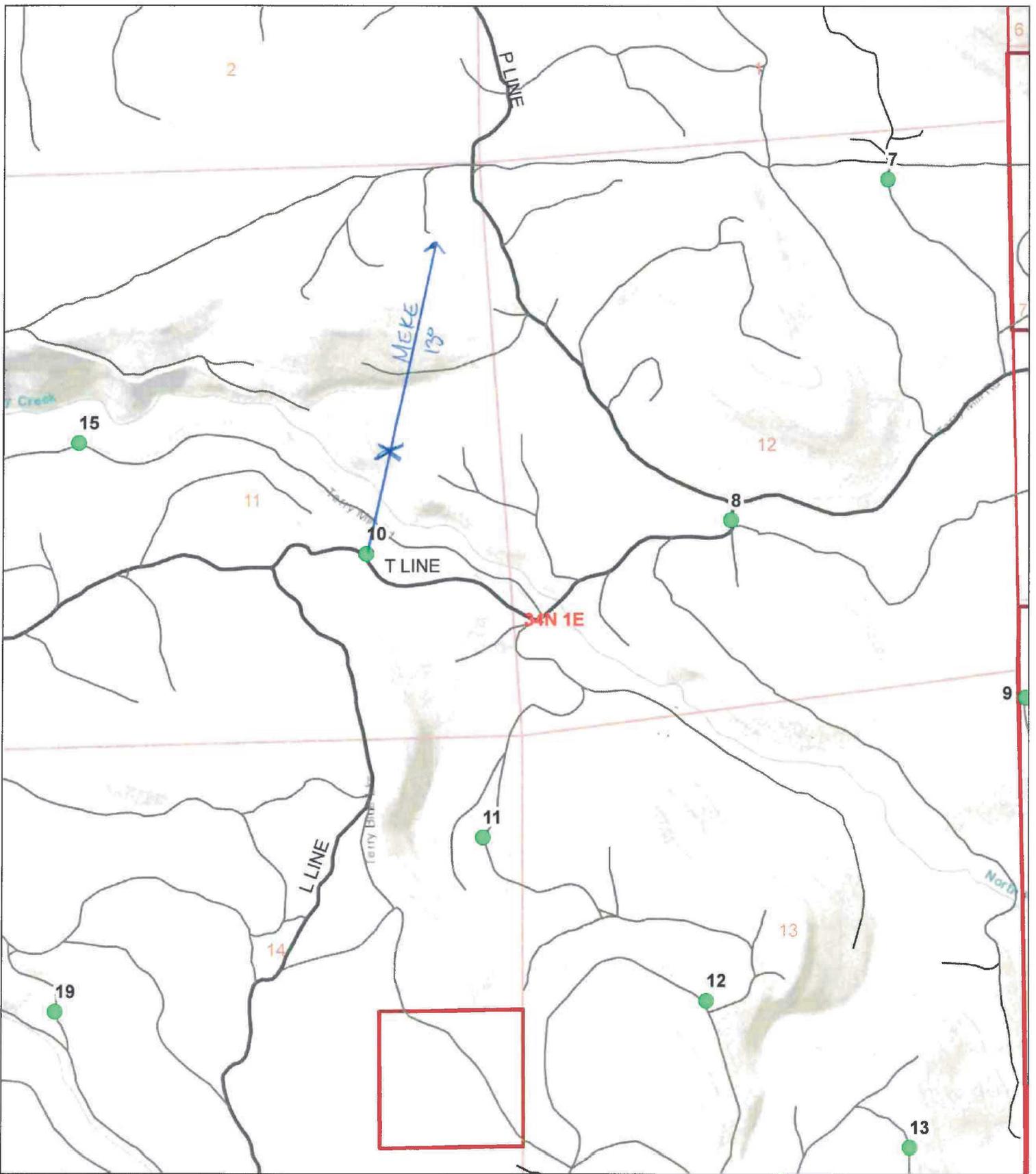
X: BUVI (U.A) @ 11°, 1000ft @ 0130



Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson

7/19/23



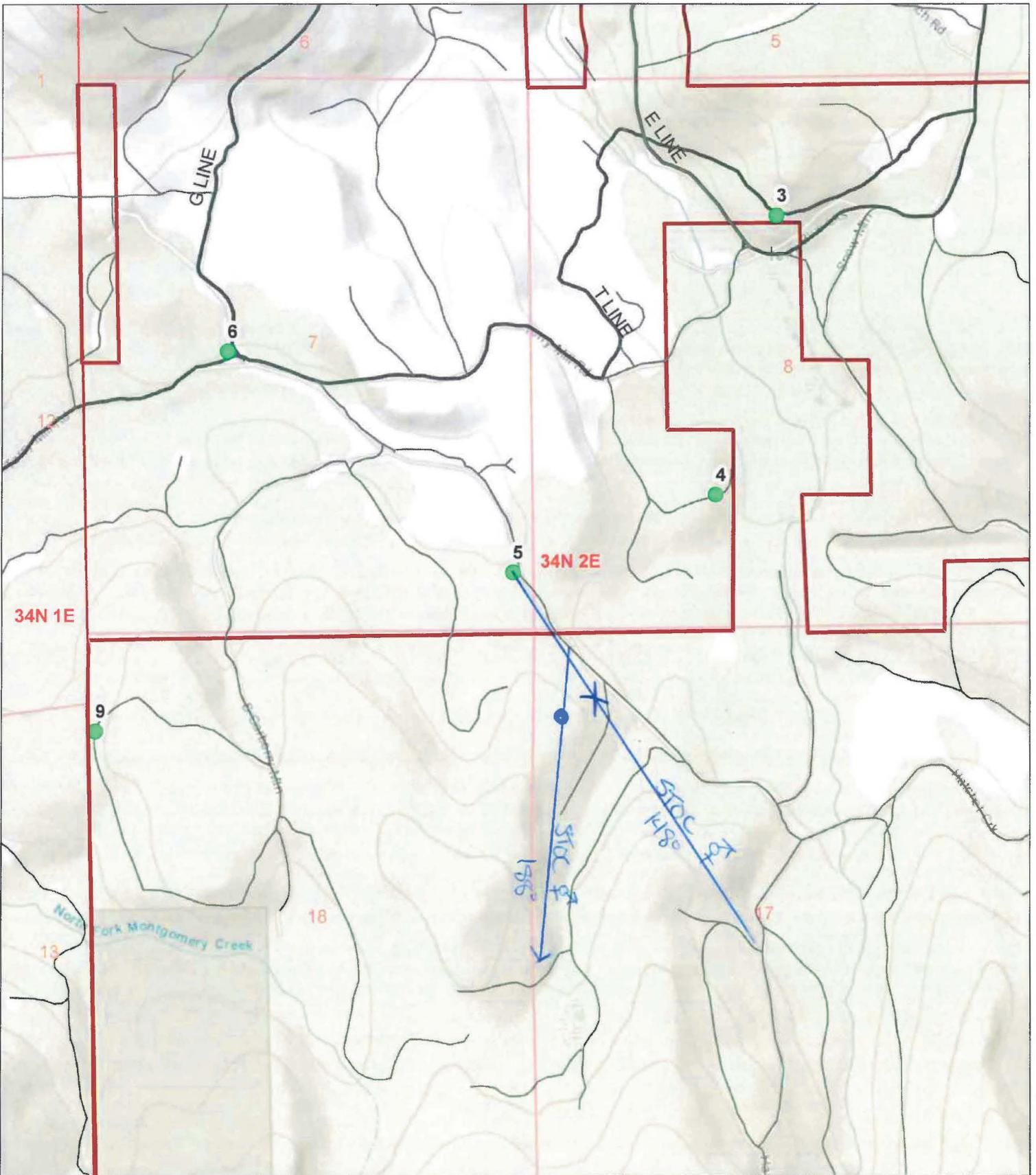


- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

X: MEKE (A,U) @ 13°, 1000ft @ 2350

7/19/23

Data Source: World Topo  
 Coordinate System: NAD 1983 UTM Zone 10N  
 Date: 9/20/2023      Author: S. Hanson



Fountain Wind Project  
Shasta County, California

Medford OR

- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

X: STOC(A, ♀) @ 148°, 1500 ft @ 2215  
First detection

●: STOC(A, ♀) @ 188°, 700ft @ 2231  
2nd detection

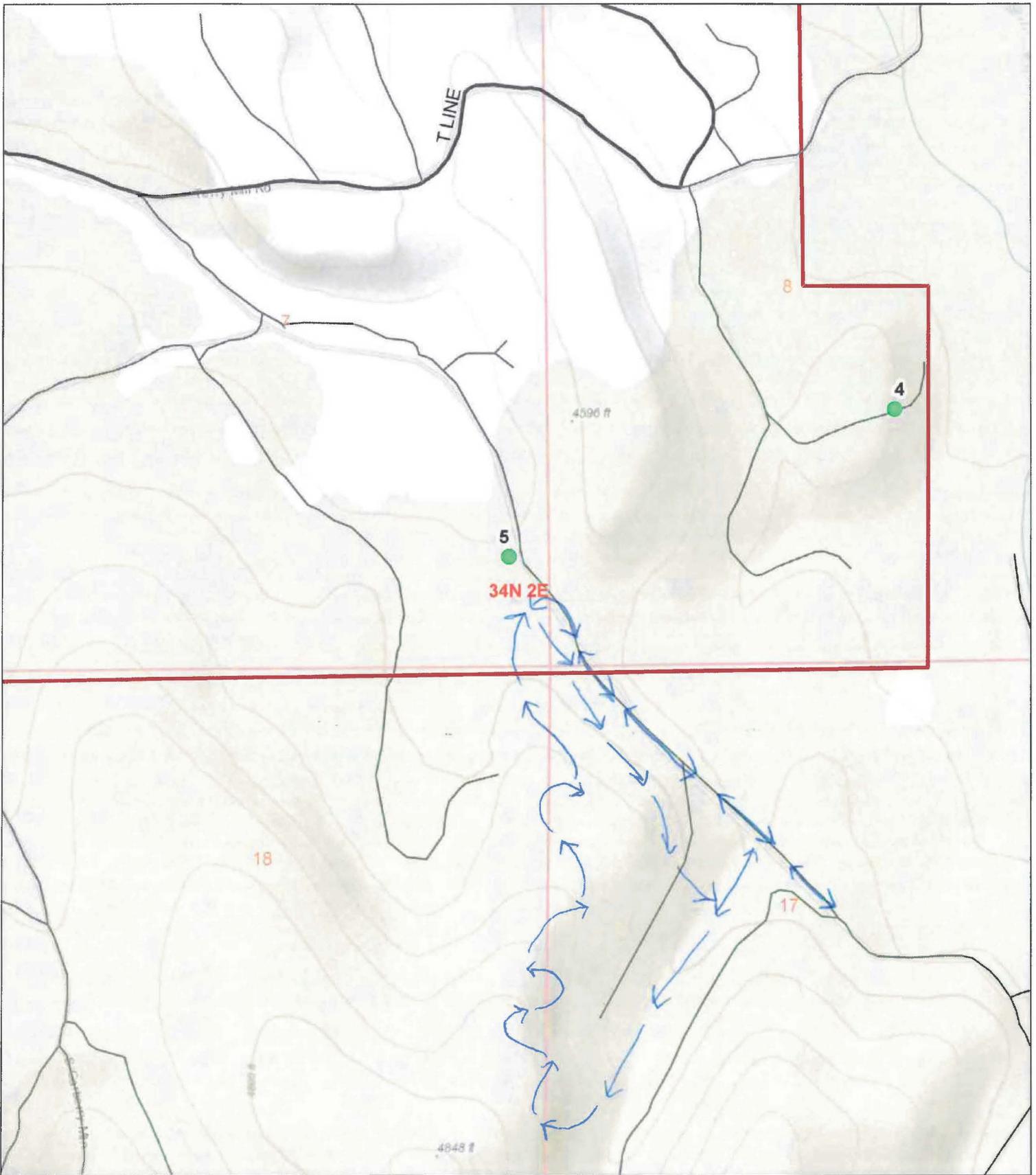
7/19/23

0 0.4 mi  
0 1,000 2,000 Feet

Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson

5 ds





Fountain Wind Project  
Shasta County, California

Project Boundary  
 Mainlines  
 Other Roads  
● CSO Survey Station

→ Survey Route  
No Response

7/20/23

Data Source: World Topo  
 Coordinate System: NAD 1983 UTM Zone 10N  
 Date: 9/20/2023      Author: S. Hanson

# Fountain NSO Form

Page 1 of 2

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Visit # 4

Contractor: West, Inc

Crew: R. Naetsch

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

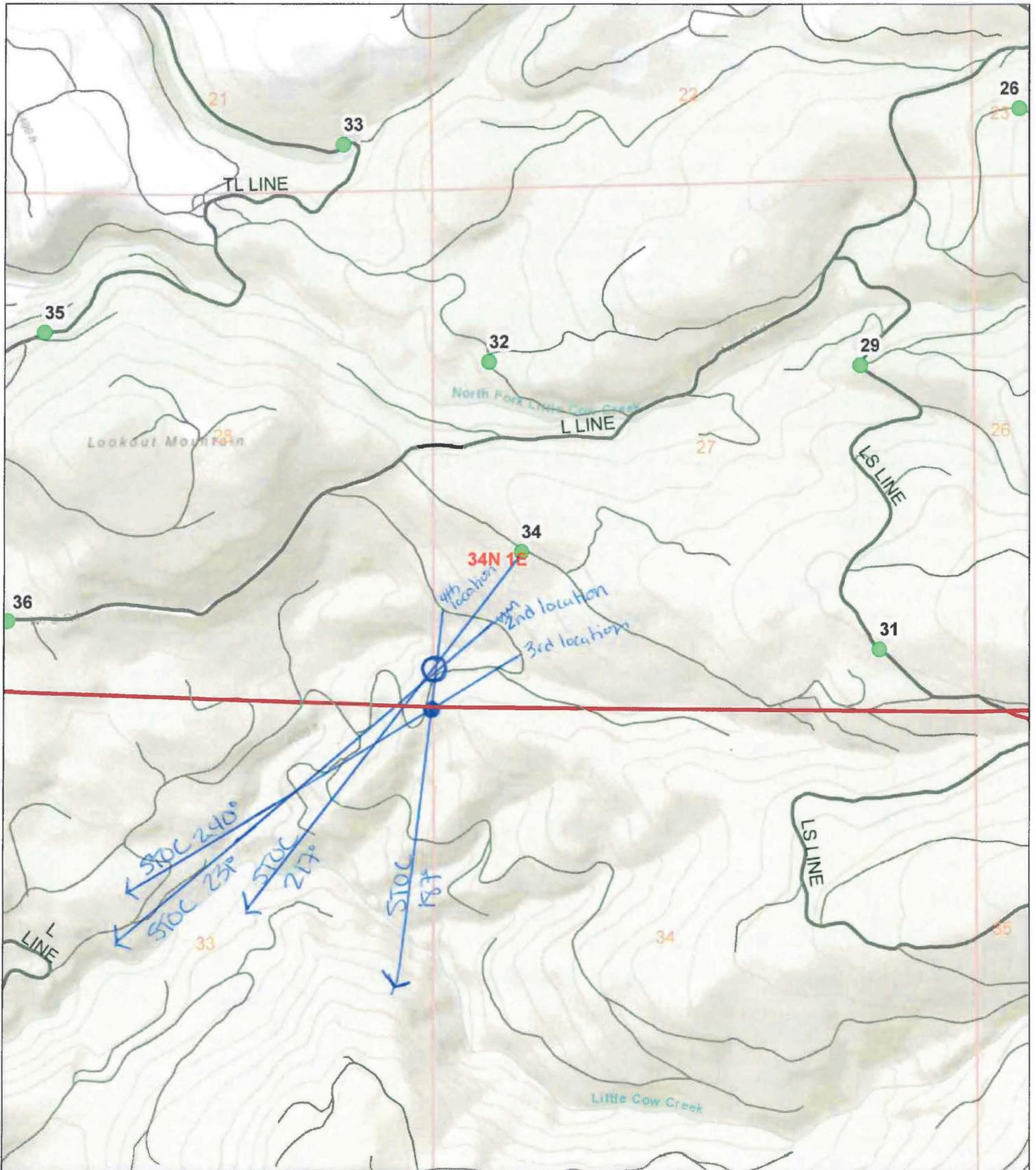
Month: 7 Day: 20, 2023

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
9	N	20:39	20:49	N										
6	N	21:03	21:13	N										
15	N	21:28	21:38	N										
16	N	21:49	21:59	A	U	A	MEKE	STAN	21:50	21:59	154°	200ft	40.817414	-121.848741
17	N	22:07	22:17	N										
19	N	22:26	22:36	N										
18	N	22:43	22:53	N										
24	N	23:05	23:15	N										
33	N	23:23	23:33	N										
35	N	23:38	23:48	N										
36	N	23:55	00:05	N										
34	N	00:13	00:36	A	F	A	STOC	A	00:23	00:36	217°	800ft	40.767221	-121.857458
									4 note calls sounded further away than initial A calls (Approx. 1500ft in same direction) Left at 00:36 while bird was still calling at a distance to attempt closer detection.					
		00:48	00:51	A	F	A	STOC	4	00:48	00:51	231°	400ft	40.767221	-121.857458
									↑ Second detection of F STOC, from (596607/4513661)					
		01:05	01:26	A	F	A	STOC	4	01:05	01:26	240°	700ft	40.766035	-121.857610
									↑ Third detection of F STOC, from (596685/4513572)					
		01:38	01:58	A	F	A	STOC	4	01:40	01:48	187°	1000ft	40.767221	-121.857458
									↑ Fourth detection of F STOC, from (596453/4513718)					

Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response  
 Sex: M = male, F = female, U = unknown  
 Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls



Project Boundary	$0:STOC(F,A)@217^{\circ},800ft@0023$
Mainlines	$@231^{\circ},400ft@0049$
Other Roads	$\bullet:STOC(F,A)@240^{\circ},700ft@0105$
CSO Survey Station	$@187^{\circ},1000ft@0140$

7/20/23

Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023 Author: S. Hanson

Fountain ACS

Spotted Owl Day-Visit Form

Visit # 4 Start Time 18:29 End Time 20:31 Total Time 122 (minutes)

Survey Area: Fountain Location: \_\_\_\_\_ Month: 7 Day: 21, 2023

Contractor: WEST, Inc Crew: R. Voetsch

Weather (code): Clear

Wind (code): Calm

Survey Method: Electronic

	Spotted owls				Other (specify):
	Male	Female	Juvi #1	Juvi #2	
Initial Audio					
Audio Type					
Initial Visual					
Final Contact					

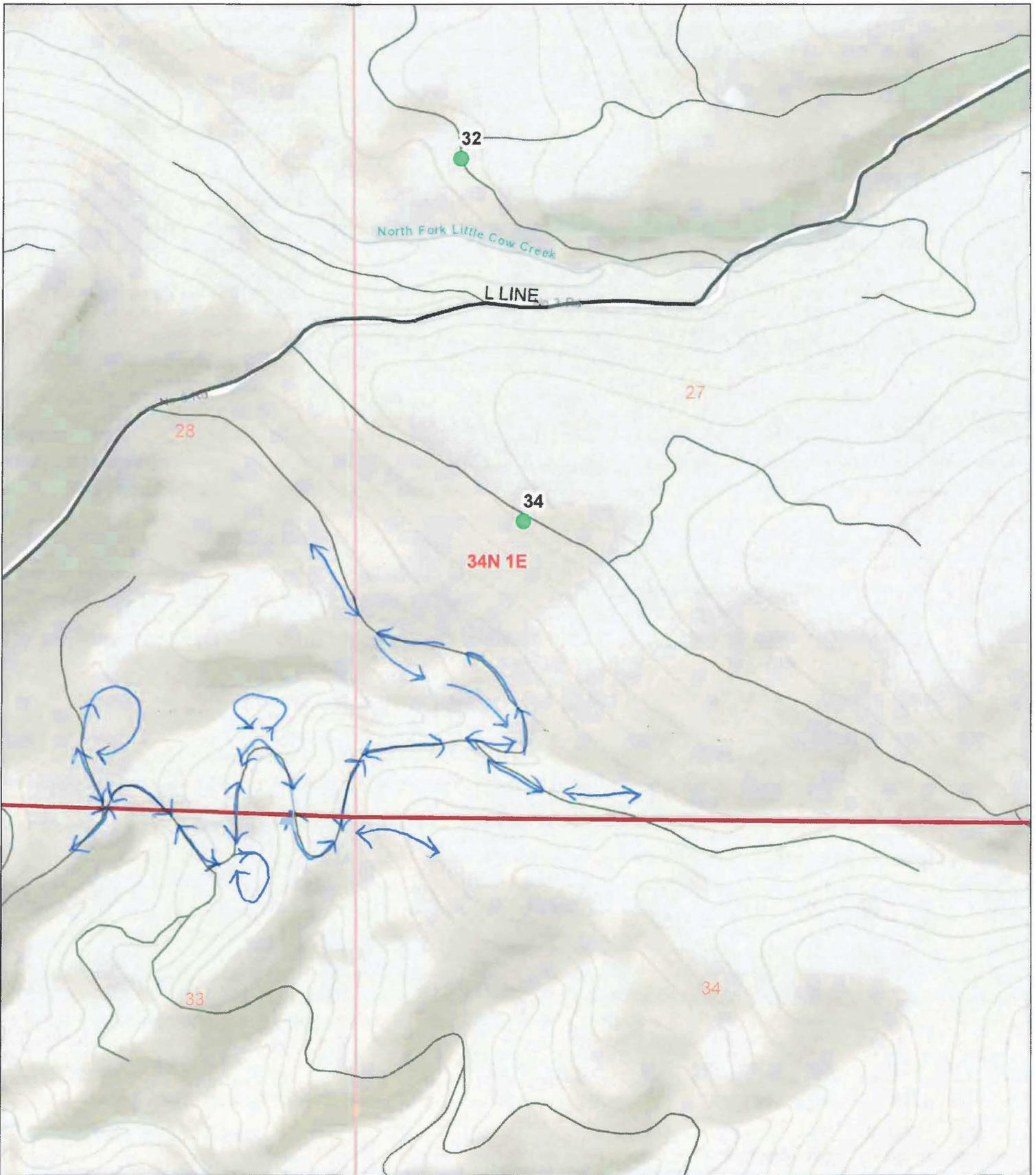
Mouse #	TIME			OWL		Behavior Code	Notes
	Out	Taken	Fate	Sex	Age		

**Behavior Codes:** E = eats C = caches I = ignores D = drops then ignores H = holds until observer leaves N = takes mouse to nest  
L = leaves with mouse & relocated w/o mouse X = leaves with mouse & not relocated T = takes mouse to another owl O = explain in notes  
**Sex Codes:** M = male F = female U = unknown **Age Codes:** A = adult S = subadult J = juvenile or fledgling U = unknown

OWL AND NEST LOCATIONS							
Species	Sex/Age	Town	Range	Sect	1/4	1/16	1/64
Nest							
BANDING STATUS							
Sex/Age	Observation Type	Left Leg			Right Leg		

**Type Codes:** VN=visual, no bands read UB=visual, unbanded VB=color bands read, bird free CB=bands read, bird in hand  
BB=first banding BR=band replaced VI=banded, incomplete read

NOTES: Follow-up for F STOC detection from 7/20/23 night survey at pt 34.  
No Response



- Project Boundary
- Mainlines
- Other Roads
- CSO Survey Station

→ Survey Route  
No Response

N

W — E

S

0

0

0.2 mi

1,000 Feet

7/21/23

Data Source: World Topo  
Coordinate System: NAD 1983 UTM Zone 10N  
Date: 9/20/2023      Author: S. Hanson

**WEST**

Pg 2 of 2



# Fountain NSO Form

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Visit # 5

Contractor: West, Inc

Crew: C. Henry

Weather (circle): Clear Fog Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 8 Day: 2, 2023

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Time Begin End	Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
							Initial	Final			WGS84-GPS data only	
1	2132 2142	N										
2	2147 2157											
3	2202 2212											
4	2334 2344											
6	2351 0001											
7	0008 0018											
8	0022 0032											
15	0040 0050											
16	0102 0112											
17	0119 0129											
10	0136 0146											

**Time:** All times are in military format (midnight is 2400).  
**Resp. Codes:** N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response      **Sex:** M = male, F = female, U = unknown      **Age:** A = adult, S = subadult, J = juvenile  
**Species Codes:** STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = *Strix*-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
**Call Type(s):** 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-*Strix* owls

# Fountain NSO Form

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Visit # 5

Contractor: West, Inc

Crew: C. Henry

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 8 Day: 3, 2022

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Time Begin End	Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat Long	
							Initial	Final			WGS84-GPS data only	
5	2024 2034	N										
9	2045 2055											
11	2112 2122											
12	2129 2139											
14	2146 2156											
13	2211 2221											
20	2236 2246											
22	2255 2305											
25	2312 2322											
23	2329 2339											
18	0057 0017											
19	0020 0030											
24	0057 0107											
33	0117 0127											
35	0132 0142											
36	0148 0158											
34	0204 0214											
31	0230 0240											
21	0318 0328											

**Time:** All times are in military format (midnight is 2400).

**Resp. Codes:** N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response

**Sex:** M = male, F = female, U = unknown

**Age:** A = adult, S = subadult, J = juvenile

**Species Codes:** STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = *Strix*-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl

**Call Type(s):** 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-*Strix* owls

# Fountain NSO Form

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Contractor: West, Inc

Crew: C. Henry

Visit # 5

Weather (circle): Clear, Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

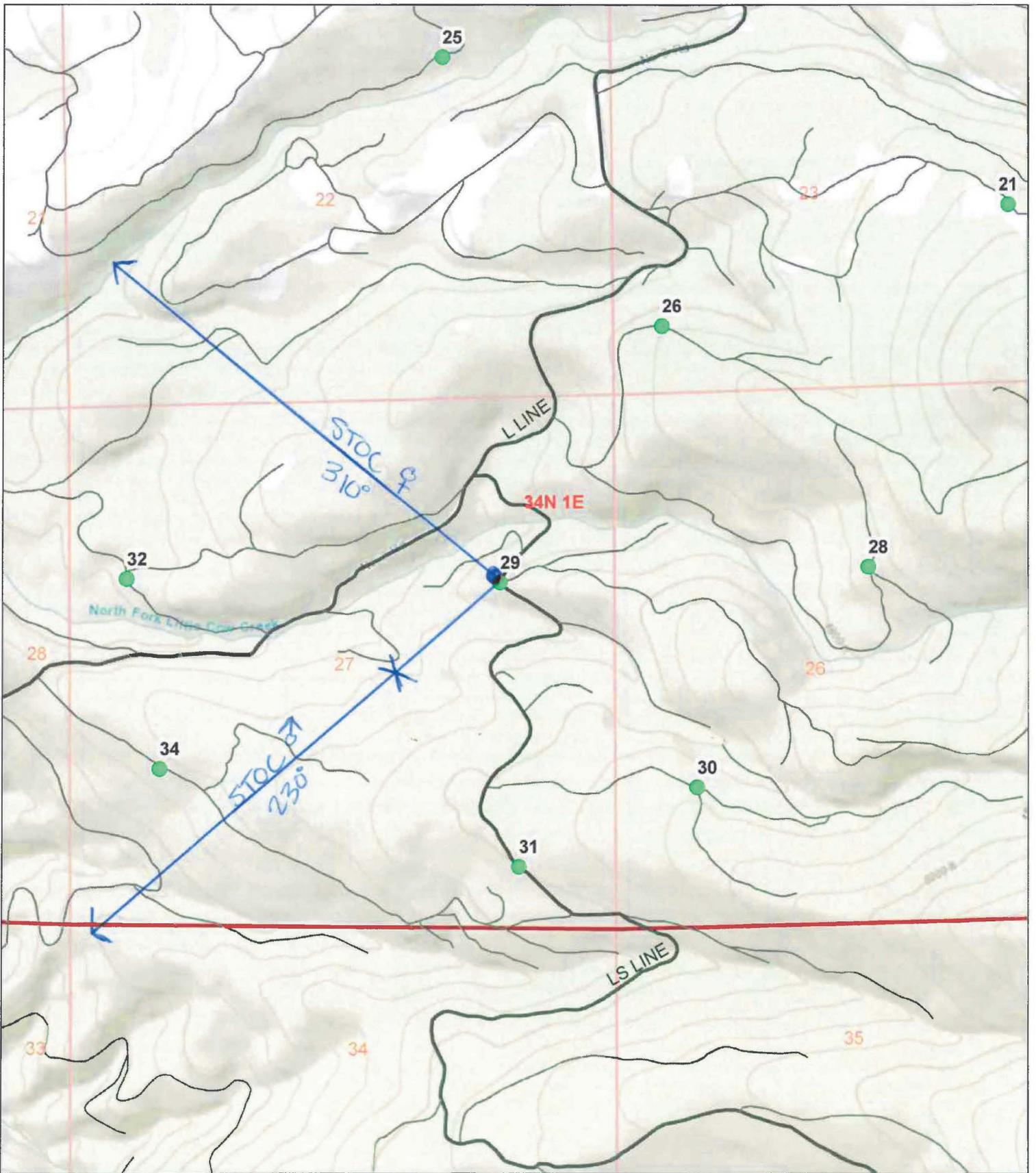
Month: 8 Day: 4, 2022

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Time Begin	Time End	Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat Long	
								Initial	Final			WGS84-GPS data only	
32	2020	2030	N										
30	2041	2051	N										
29	2056	2118	A	F	A	STOC	4,A	2058	2112	310	40	40.775085	-121.842485
			A	M	A	STOC	4,A	2104	2108	230	1200	40.772361	-121.844882
27	2131	2141	N										
28	2157	2207	↓										
26	2212	2222	↓										

**Time:** All times are in military format (midnight is 2400).  
**Resp. Codes:** N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response      **Sex:** M = male, F = female, U = unknown      **Age:** A = adult, S = subadult, J = juvenile  
**Species Codes:** STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
**Call Type(s):** 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls



Project Boundary
 ●: STOC (F,A) @ 310°, 40ft @ 2058  
 Mainlines
 X: STOC (M,A) @ 230°, 1200ft @ 2104  
 Other Roads  
● CSO Survey Station

8/4/23

Data Source: World Topo  
 Coordinate System: NAD 1983 UTM Zone 10N  
 Date: 9/20/2023 Author: S. Hanson

# Fountain ACS

## Spotted Owl Day-Visit Form

Visit # 5 Start Time 1146 End Time 1348 Total Time 122 (minutes)

Survey Area: Fountain Location: #29 Month: 8 Day: 5, 2023

Contractor: WEST, Inc Crew: C. Henry

Weather (code): clear

Wind (code): Calm

Survey Method: Electronic

	Spotted owls				Other (specify):
	Male	Female	Juvi #1	Juvi #2	
Initial Audio	/				
Audio Type					
Initial Visual					
Final Contact					

Mouse #	Out	TIME Taken	Fate	OWL Sex	Age	Behavior Code	Notes

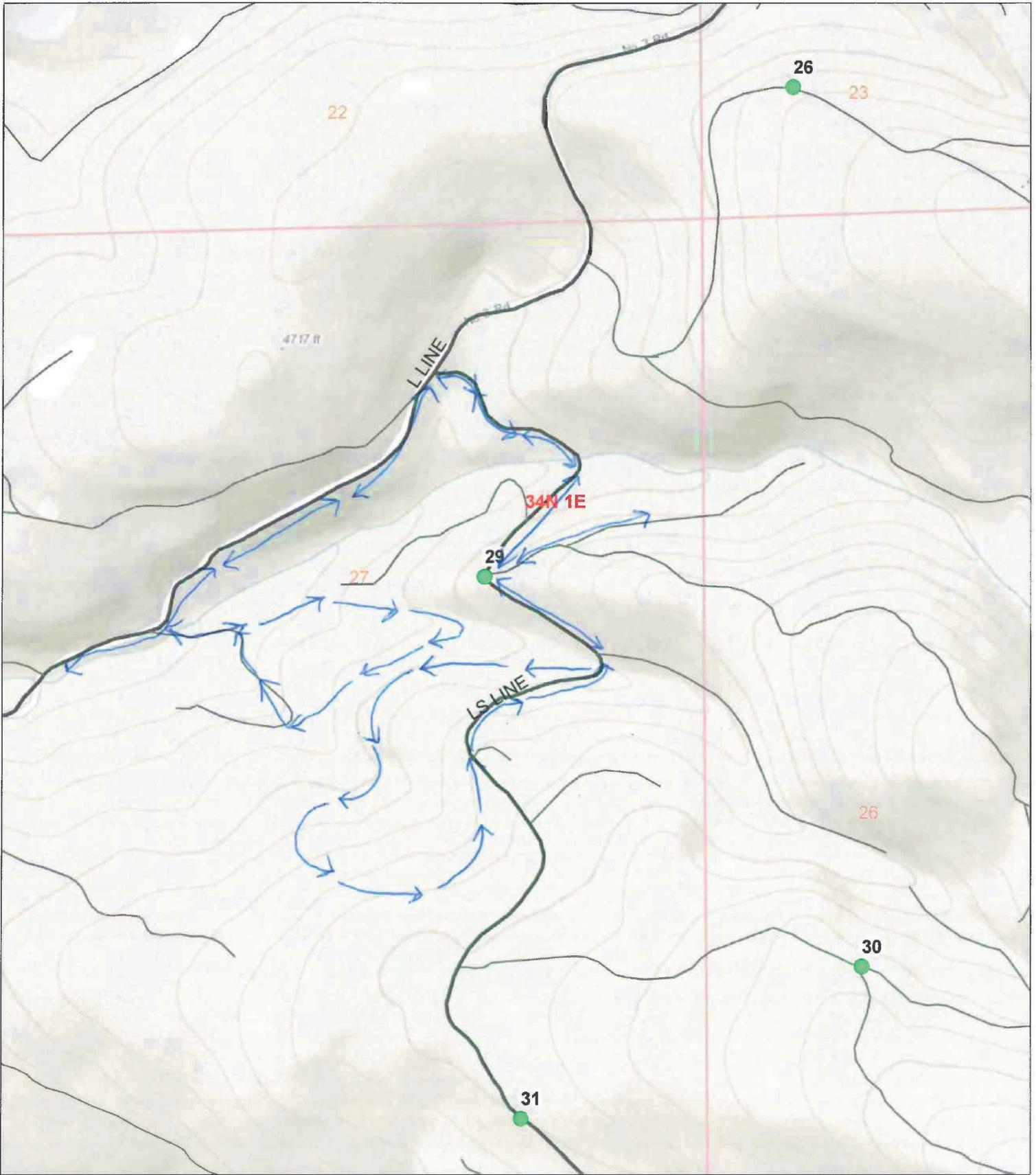
**Behavior Codes:** E = eats C = caches I = ignores D = drops then ignores H = holds until observer leaves N = takes mouse to nest  
L = leaves with mouse & relocated w/o mouse X = leaves with mouse & not relocated T = takes mouse to another owl O = explain in notes  
**Sex Codes:** M = male F = female U = unknown **Age Codes:** A = adult S = subadult J = juvenile or fledgling U = unknown

OWL AND NEST LOCATIONS							
Species	Sex/Age	Town	Range	Sect	1/4	1/16	1/64

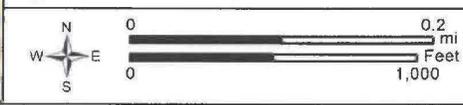
BANDING STATUS			
Sex/Age	Observation Type	Left Leg	Right Leg

**Type Codes:** VN=visual, no bands read UB=visual, unbanded VB=visual, banded, bird free CB=bands read, bird in hand  
BB=first banding BR=band replaced VI=banded, incomplete read

NOTES: Follow up for STOC ♀ detected on 8/4/23  
 From st. # 29  
 No Response



- Project Boundary
  - ➔ Survey Route
  - Mainlines
  - Other Roads
  - CSO Survey Station
- No Response



Data Source: World Topo  
 Coordinate System: NAD 1983 UTM Zone 10N  
 Date: 9/20/2023 Author: S. Hanson



8/5/23  
Pg 2 of 2

# Fountain NSO Form

Page 1 of 1

Survey Area: Fountain  
 Contractor: West, Inc

Owl Site(s): \_\_\_\_\_  
 Crew: R. Voetsch

Visit # 6

Weather (circle): Clean Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 8 Day: 28, 2023

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long
		Begin	End						Initial	Final				
1	N	19:45	19:55	N										
3	N	20:12	20:22	N										
2	N	20:30	20:40	N										
4	N	20:57	21:07	N										
5	N	21:19	21:29	N										
6	N	21:36	21:46	N										
7	N	21:57	22:07	N										
8	N	22:15	22:25	N										
10	N	22:31	22:41	N										
17	N	22:55	23:05	N										
15	N	23:12	23:22	N										
16	N	23:34	23:44	N										
18	N	23:57	00:07	N										
19	N	00:18	00:28	N										
24	N	00:50	01:00	N										
33	N	01:08	01:18	N										
35	N	01:24	01:34	N										
36	N	01:43	01:53	N										
34	N	02:00	02:10	N										

Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response  
 Sex: M = male, F = female, U = unknown  
 Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls

# Fountain NSO Form

Page 1 of 1

Survey Area: Fountain

Owl Site(s): \_\_\_\_\_

Visit # 6

Contractor: West, Inc

Crew: R. Voetsch

Weather (circle): Clear Fog, Partly Cloudy, Overcast, Drizzle, Rain, Snow

Month: 8 Day: 29, 2022

Wind (circle): Calm (<1 mph), Light air (1-3 mph), Light breeze (4-7 mph), Gentle breeze (8-12 mph), Unsuitable (13+ mph)

Method: Electronic

ST#	Hike	Time		Resp. code	Sex	Age	Species	Call Type(s)	Contact Time		Bearing (Azimuth)	Dist (feet)	Lat	Long	
		Begin	End						Initial	Final					
30	N	19:58	20:08	N											
31	N	20:18	20:28	N											
29	N	20:34	20:44	N											
32	N	20:52	21:02	N											
27	N	21:18	21:28	N											
28	N	21:38	21:48	N											
26	N	21:54	22:04	N											
21	N	22:21	22:31	N											
23	N	23:16	23:26	N											
25	N	23:35	23:45	N											
22	N	00:43	00:53	N											
20	N	01:00	01:10	N											
14	N	01:18	01:28	N											
13	N	01:46	01:56	N											
							13 is a hike (11m, 24min RT)								
12	N	02:18	02:28	N											
11	N	02:41	02:51	N											
9	N	03:13	03:23	N											

Time: All times are in military format (midnight is 2400).  
 Resp. Codes: N = no owl response, A = audio response only, V = visual response only, B (or A, V) = both audio and visual response  
 Sex: M = male, F = female, U = unknown  
 Age: A = adult, S = subadult, J = juvenile  
 Species Codes: STOC = Northern Spotted Owl, STVA = Barred Owl, STRIX = Strix-species unknown, BUVI = Great Horned Owl, AEAC = Northern Saw-whet Owl, MEKE = Western Screech Owl, GLCA = Northern Pygmy Owl  
 Call Type(s): 4 = 4 Note Call (STOC Only), A = Agitated, B = Bark, beg = begging, C = Continuous, W = Whistle, 8 = 8 Note call (STVA only), Stan = other non-Strix owls

