MISC. ADDENDUMS

SECTION V

ESTIMATED SURFACE SOIL EROSION HAZARD

SOIL FACTORS soil names — FACTOR RATING BY AREA

A- 120W Dehaven Hotel- Non flood prone areas

B- 220W Big River Loamy Sand -Flood prone areas

C- 120W Cotteneva

A. SOIL	Fine	Medium	Coarse	A	B	C
1. DETACHABILITY	Low	Moderate	High			
Rating	1-9	10-18	19-30	17	25	18
2. PERMEABILITY	Slow	Moderate	Rapid			
Rating	5-4	3-2	1	3	1	2

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	Deep			
	1"- 19"	20"-39"	40"-60"(+)			
Rating	15-9	8-4	3-1	3	1	1

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES

	Low	Moderate	High			
	(-) 10-39%	40-70%	71-100%			
Rating	10-6	5-3	2-1	7	10	10

Factor Rating

A	B	C
30	37	31

II. SLOPE FACTOR

Slope	5-15%	16-30%	31-40%	41-50%	51-70%	71-80% (+)			
Rating	1-3	4-6	7-10	11-15	16-25	26-35	15	1	1

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

	Low	Moderate	High			
	0-40%	41-80%	81-100%			
Rating	15-8	7-4	3-1	2	2	2

IV. TWO-YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme			
	(-) 30-39	40-59	60-69	70-80 (+)			
Rating	1-3	4-7	8-11	12-15	12	12	12
EROSION HAZARD RATING					59	52	46

	<50	50-65	66-75	>75			
	LOW	MODERATE	HIGH	EXTREME			
	(L)	(M)	(H)	(E)			
THE DETERMINATION IS-					M	M	L

ESTIMATED SURFACE SOIL EROSION HAZARD

SOIL FACTORS soil names

A- 341W Irmulco Tramway- Non flood prone areas

B- 831W Casper Quiliven Ferncreek- Non-flood prone unit 1

FACTOR RATING BY AREA

A. SOIL	Fine	Medium	Coarse	A	B	C
1. DETACHABILITY	Low	Moderate	High			
Rating	1-9	10-18	19-30	17	23	
2. PERMEABILITY	Slow	Moderate	Rapid			
Rating	5-4	3-2	1	3	4	
B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK						
	Shallow	Moderate	Deep			
	1″- 19″	20″-39″	40″-60″(+)			
Rating	15-9	8-4	3-1	2	1	
C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES						
	Low	Moderate	High			
	(-) 10-39%	40-70%	71-100%			
Rating	10-6	5-3	2-1	10	10	

Factor Rating A	B	C
32	38	

II. SLOPE FACTOR

Slope	5-15%	16-30%	31-40%	41-50%	51-70%	71-80% (+)	A	B
Rating	1-3	4-6	7-10	11-15	16-25	26-35	15	20

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

	Low	Moderate	High	A	B
	0-40%	41-80%	81-100%		
Rating	15-8	7-4	3-1	2	2

IV. TWO-YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme	A	B	C
	(-) 30-39	40-59	60-69	70-80 (+)			
Rating	1-3	4-7	8-11	12-15	12	12	12
EROSION HAZARD RATING					61	72	

<50	50-65	66-75	>75
LOW	MODERATE	HIGH	EXTREME
(L)	(M)	(H)	(E)

THE DETERMINATION IS- M H

Erosion Control Plan (ECP) Dogwood THP

This document addresses the requirements of California Water Quality Control Board Order R1-2009-0038 for Erosion Control Plans related to timber harvest activities on Non-Federal lands in the North Coast Region. This ECP is submitted for Gualala Redwoods Inc. Dogwood THP.

The RPF has conducted an inventory of controllable sediment discharge sources within the Project area concentrating especially on the areas that have the potential to affect the Gualala River. Controllable sediment discharge source (CSDS) means sites or locations, both existing and those created by proposed timber harvest activities, within the Project area that meet all the following conditions:
1. is discharging or has the potential to discharge sediment to waters of the state in violation of applicable water quality requirements or other provisions of these General WDRs,
2. was caused or affected by human activity, and
3. may feasibly and reasonably respond to prevention and minimization management measures.

Method Used to Inventory Sediment Sites- The inventory method consisted of an appurtenant road inventory and ground assessment of the harvest units, and a complete ground assessment of all watercourses, and associated stream protection zones. During the road assessment the following items were looked for 1- Road fill with the potential to fail and deliver, 2- Landing fill with the potential to fail and deliver, 3- Watercourse crossings with the potential to fail and deliver, 4- Wet areas that could saturate the road prism and cause it to fail and deliver, 5- Places where the road is dumping water onto unstable areas, 6- Places where unstable banks are diverting inside ditches, 7- Places where inadequate waterbars or rolling dips are causing surface erosion of the road, 8- Places where insloped roads can be converted to outsloped roads, 9- Instream landings, 10- WLPZ landings, roads or skid trails.

The assessment of the watercourses was done by walking the centerline and /or the WLPZ lines on both sides of the watercourses. The following items were looked for 1- watercourse diversions 2- skid trail crossings that were not adequately pulled or are likely to divert water out of the natural channel or into unstable banks 3- Perched fill on skid trails that are likely to deliver 4- Mounds at the end of skid trails that could collect water and then breach thereby delivering sediment. 5- Skid trails that are inadequately waterbarred and are having surface erosion. 6- Skid trails that are directing water onto unstable slopes 7- WLPZ skid trails that are causing problems.

Hillslopes were also assessed during the course of plan layout (although not as completely as roads and watercourses) and skid trails or other man-caused potential sediment sources were noted and beneficial actions developed if feasible.

The schedule for implementing the prevention and minimization management measures for the controllable sediment sources will be consistent with the life of the Timber Harvest Plan. The plan will be to implement these measures in accordance with the priority level assigned to the site (lower priority sites may be repaired while repairing the high priority sites if the sites are in the same area and if this will result in the most efficient use of the equipment but generally high priority sites will be repaired first). Work at all sites will be accomplished prior to plan expiration (assuming other agency permits are approved, i.e. 1600, NSO no-take etc.). The general prevention and minimization measures will be implemented concurrent with operations.

Section I.

Inventory and Treatment of Controllable Sediment Sources

See attached abbreviated road work order for erosion control points that were found.

The following is the methodologies that are used for this erosion control plan when new CSDS points are discovered.

1-The method used to estimate the potential sediment volume.

The methods used to estimate potential sediment volume were developed by Jack Monschke and are quick to use and provide answers that are accurate to within 10% of more intense methods developed by Pacific Watershed Associates (PWA). Some estimators (e.g. McCanless) working for the landowner may use PWA methodology.

2-The method used to estimate the relative potential for sediment delivery. Relative potential for sediment delivery is a percentage of the sediment volume estimated at the site that has the potential to enter a watercourse. This estimation is affected by the following factors. #1- The distance to the watercourse #2- The steepness of the intervening slopes #3- Other factors such as a bench between the sediment and the watercourse, thick vegetation versus no vegetation or highly erodible soil also may affect this number.

3-The method used to determine the priority of a site.

The priority is shown under Priority/Schedule in the attached Erosion Control Plan Road Work Order database. High priority items are scheduled to be repaired prior to the first winter period after start of operations while medium and low priority items are scheduled to be repaired prior to completion of the plan. Priority is determined by the following method. Highest priority is given to sites that are likely to deliver sediment during the next five year storm event. These are normally sites that appear to be close to failure and are proximate to a class I or class II watercourse. Medium sites may be close to watercourses but do not appear to be in danger of failing soon or are farther from watercourses but appear less stable. Low priority sites are not close to watercourses and do not appear to be in danger of failing but could deliver sediment to a watercourse if they do eventually fail. The proximity of the erosion site, size of the potential delivery, type of watercourse (Class I, Class II, and Class III), distance to a class I if the watercourse is a class II or III, and whether the Class I watercourse is listed as impaired are all also considered in evaluating priority.

Section II.

General Prevention and Minimization Measures for Controllable Sediment Discharge

In addition to the site specific measures (when CSDS points are discovered), the general measures proposed in this project, either as required by CDF under the Forest Practice Rules, by another State or Federal regulating agency, or as a matter of landowner policy, will prevent or minimize future sediment delivery. These measures are included in Section II of the THP under items 18, 23, 26, 27 and 38 and are not repeated here.

- Roads

Practices related to the construction, reconstruction, and maintenance of truck roads are key factors in the control of sediment that could be produced from timber harvesting operations. To address this concern, landowner has focused considerable effort on the proper construction of forest roads. Landowner has directed its road construction program towards developing roads that avoid steep slopes and unstable areas. In circumstances where it has been necessary to construct roads on steep slopes, full bench and minimum width roads have been built using end-haul equipment and appropriate construction techniques.

Landowner's road construction, re-construction, and maintenance standards and techniques have been developed in conjunction with the Handbook For Forest And Ranch Roads (Weaver and Hagans), and Designing Watercourse Crossings for Passage of 100-year Flood Flows, Wood and Sediment (Cafferata, Spittler, Wopat, Bundros, and Flanagan).

- New construction/re-construction
    - Emphasize erosion control by outsloping, utilizing critical dips over crossings, and rolling dips and/or water bars to avoid concentrating

water on the road surface. Emphasize proper placement and sizing of culverts. When water is present during culvert/bridge installations use pump around techniques to minimize sedimentation. Utilize riprap, seed and mulch, and energy dissipaters on culvert installations.

- Emphasize disconnecting road systems from watershed hydrology through outsloping and rolling dips.

- Minimize number of roads.

- Minimize road widths.

- Use temporary roads where appropriate.

- Abandon all temporary roads proposed for construction after use. Abandonment includes crossing removal and road surface treatment, including large dips spaced at intervals not less than those required for the assigned erosion hazard rating, and/or obliterating the road by pulling fill materials and incorporating the fill into the road for outsloping. All entrances will be blocked to standard four-wheel drive vehicles. At crossing sites where abandonment is prescribed, fills will be pulled back to a 2:1 ratio (two feet horizontal and 1 foot vertical).

- Limit construction/re-construction activities to times of the year when soils are not saturated.

-Treatment of sidecast or fill material extending more than 20 feet in slope distance from the outside edge of the roadbed that has access to a watercourse or lake which is protected by a WLPZ may include, but need not be limited to, mulching, rip-rapping, or grass seeding. Where straw, mulch, or slash is used, the minimum coverage will be 90%, and any treated area that has been subject to reuse or has less than 90% surface cover will be treated again prior to the end of timber operations. The RPF may implement alternative treatments that will achieve the same level of erosion control and sediment discharge prevention.

- Road related operations focus on maintenance during the winter period.

- Maintenance

Landowner compliments proper road design and construction with a strong program to ensure that roads are adequately maintained, particularly in regard to drainage structures and erosion control. Landowner implements the following road maintenance program in its operating areas to ensure that potentially significant impacts from erosion processes related to road maintenance are avoided:

-Access on these roads during the winter period will be limited. Incidental use may include timber falling, hazard abatement burning, road maintenance inspections, reforestation, wildlife surveys, botanical surveys, and/or timber harvest plan layout. Where appropriate, such access will be restricted to the use of low ground pressure all-terrain vehicles.

- Periodically, and prior to the onset of the winter period, landowner's forestry staff will inspect all roads appurtenant to timber harvest plans operated that year. The inspection will assess the effectiveness and quality of all newly installed and existing erosion control structures, and will identify areas needing additional maintenance prior to the winter period. A list will be prepared of those areas identified as needing additional work or repair. Items to be assessed as part of the road inspection program include the following:

  - Waterbars will be inspected to insure proper spacing, depth and complete diversion of water flow from the road surface.

  - Ditches will be inspected to insure that they are properly functioning and free of debris that could plug the ditch or a culvert and cause diversion of water onto the road surface.

  - Culverts will be inspected to insure that they are properly placed and functioning, and that downspouts are correctly installed.

  - The road prism will be inspected to identify areas exhibiting ponding, inadequately breached outside berms, unprotected fresh fill slopes, or other sites that exhibit a potential for cut bank or fill failure.

  - All newly constructed and reconstructed roads will be inspected prior to the winter period to insure that they were properly constructed, that they are in compliance with the Forest Practice Rules, and that mitigation measures included in THPs were properly applied.

- After the pre-winter inspection is completed all observed problems will be corrected prior to the winter period.

- Newly constructed or reconstructed roads will be inspected during the winter period. Special attention will be given to road conditions during and after significant storm events so that problems can be promptly identified and corrected. Repairs will be made at the time of inspection if possible. If a larger crew or heavy equipment is necessary to repair a problem, the location will be noted and the repair will be carried out as soon as conditions allow.

- Yarding

Landowner emphasizes the use of low impact yarding systems and that yarding systems are in conformance with the Forest Practice Rules.

Cable yarding, which achieves less ground disturbance than tractor yarding, is used when feasible.

To minimize sediment discharges during the wetter times of year the Forest Practice Rules apply seasonal restrictions on yarding operations.

Erosion control structures shall be installed on all constructed skid trails and tractor roads prior to the end of the day if the U.S. Weather Service forecast is a "chance" (30% or more) of rain before the next day, and prior to any shutdown periods. Loading, hauling, and maintenance activities will be restricted to "dry, rainless periods but shall not be conducted on saturated soil conditions that may produce sediment in quantities sufficient to cause a visible increase in turbidity of downstream waters in receiving Class I, II, III or IV waters or that violate Water Quality Requirements", and shall further be guided by diligence and prudence in achieving the goals of 14CCR 914.

Tractor operations are excluded from unstable areas. If an unstable area is found during operations an Equipment Exclusion Zone will be implemented around the unstable area, or if operations within the unstable area are necessary, an amendment to the THP will be sent to CDF.

- Log Hauling

Log hauling will only occur on haul roads that have a stable operating surface.

Log hauling will be suspended if a significant storm event occurs that would cause saturated soil conditions on haul roads regardless of time of year.

Hauling will not be resumed until it is determined that the road surface can withstand truck traffic without causing significant rutting of the road surface, loss of surface material, or generate waterborne sediment in amounts sufficient to cause a visible turbidity increase in downstream Class I, II, III, or IV waters.

- Burning

Broadcast burning is not proposed for this THP.

- Winter Operations

"Winter period" means the period between November 15 and April 1.

Winter operations are not proposed for this harvest plan.

Fuel Management Plan:

If applicable, a fuel management plan will be prepared to protect water quality from the use and storage of petroleum products and to assure that all State and Federal regulations pertaining to the handling and storage of fuel are adhered to during logging operations. This project does not meet the minimum requirements as stated in Order # R1-2004-0030 for a fuel management plan to be prepared.

Inspection Plan:

The intent will be to inspect all those points identified in the inventory included in the Erosion Control Plan. Any new sites found during these inspections will be noted and addressed in accordance with the provisions of section III.B.3.

Section III-
Site Inspections

Qualified professionals shall conduct all specified inspections of the Project site to identify areas causing or contributing to a violation of applicable water quality requirements or other provisions of these General WDRs.

Site inspections shall be conducted by the forestry staff of Delta Pacific, Inc. as managers of landowner. Contact at 707-884-3521.

The following inspection requirements shall begin once the startup of timber harvest activities begin within Project areas.

a. Project Areas where Timber Harvest Activities have not yet Commenced;

No inspections are required.

b. Project Areas where Timber Harvest Activities have Commenced and No Winter Period Timber Harvest Activities have Occurred;

At a minimum, conduct inspections each year and throughout the duration of the Project while Timber Harvest Activities occur and the Project is covered under General WDRs as follows:

1. By November 15 to assure Project areas are secure for the winter; and

2. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and

3. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

c. Project Areas With Winter Period Timber Harvest Activities;

Project areas with timber harvest activities during the winter period shall, at a minimum, conduct inspections of such Project areas while Timber Harvest Activities occur and the Project is covered under General WDRs as follows:

1. Immediately following the cessation of winter period timber harvest activities to assure areas with winter timber harvest activities are secure for the winter;

2. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and

3. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

d. Inspection reports prepared shall identify where management measures have been ineffective and when landowner will implement repairs or design changes to correct management measure failures.

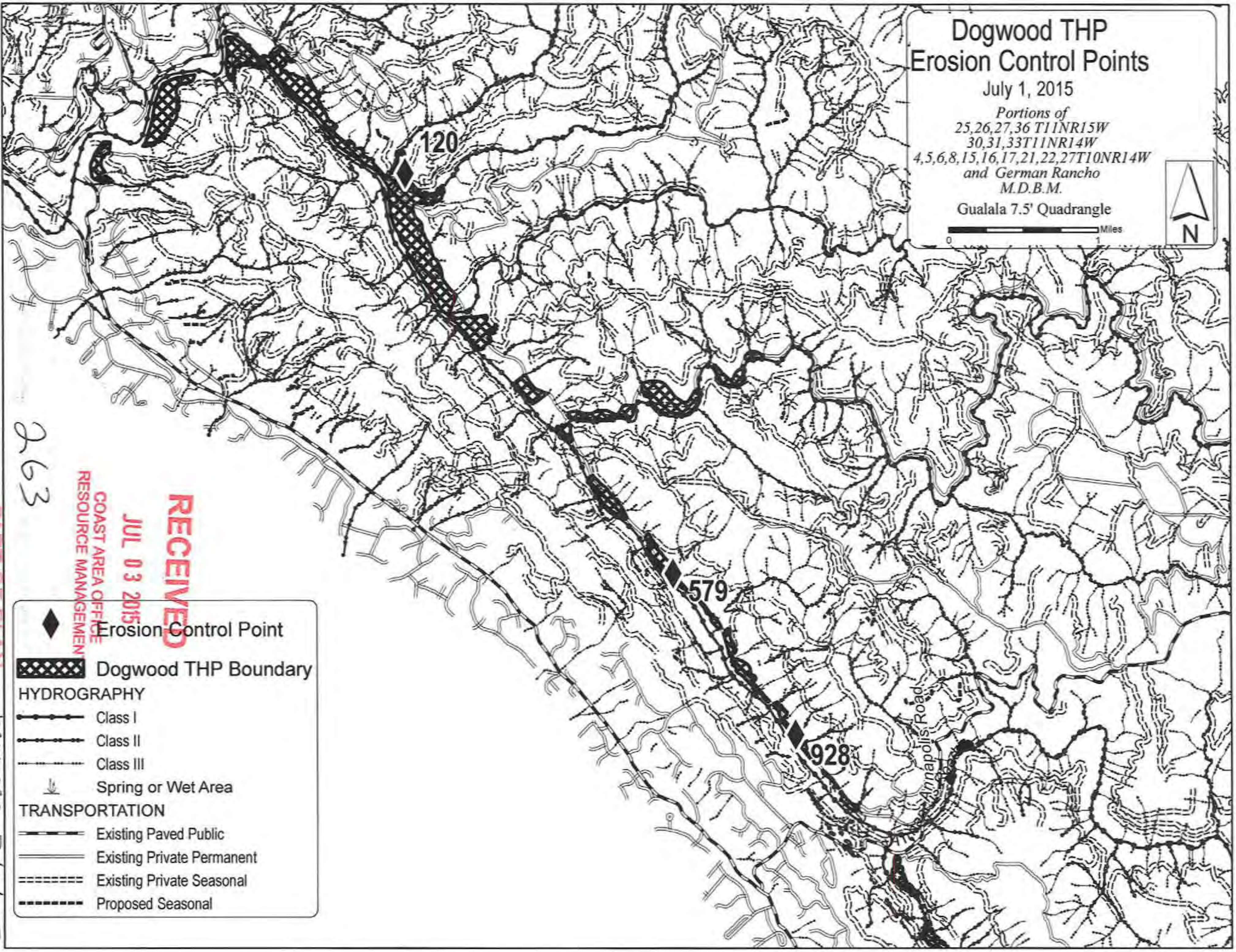
e. If any new controllable sediment discharge sources are identified, such sites shall be addressed in accordance with the provisions of section III.B.3.

f. Equipment, materials, and workers shall be available for rapid response to failures and emergencies, and implement, as feasible, emergency management measures depending upon field conditions and worker safety for access.

Reporting Requirements:

If during any inspection or during the course of conducting timber harvest activities, a violation of an applicable water quality requirement or conditions of these General WDRs is discovered, the provisions of section III.B.3. shall be followed.

For all other inspections where violations are not discovered, landowner shall submit a summary report to the Executive Officer by June 30th for each year of coverage under these General WDRs or upon termination of coverage. The summary report shall at a minimum include the date of each inspection, the inspector's name, the location of each inspection, and the title and name of the person submitting the summary report.



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DOGWOOD THP ECP REPORT

Hydrologic Unit All			**Repair type** All
Planning Watershed All			**Priority** All
Road # All	**From Mi** All	**To Mi** All	**Road Clas** All
THP All	**From Date** 1/1/1980		**To Date** 7/17/2015

Road # Road Class	GIS# ID#	Mile End	Plan Crew	Final Done	THP# Rd Pt	THP Name ECP Number	Problem Solution	Repair Type Priority/Shedule	Cr. Class Old Dia	New Dia	DRCs Ln	Left D Right D	Exca. Cat	Truck Labor	Gra. Com.	Rock Yds	Cost $/FSD	Total Yds FSD Yds
26	6052	0.000	Hascha		15-042	Dogwood	Surface Drainage	THP Non-Road	III		0	0	0	0	0	0	$0	10
Existing Skid	6052	0.000	Unk		120	Dogwood	Waterbar	THP Med	-	-	0	0	0	0	0	0	$0	0
	An existing skid trail has channeled surface flow down it. At 120, 121 and 122 extra large waterbars will be placed across the skid trail draining toward the class III watercourse that is approximately 50 feet to the north. A backhoe may be required																	
40.19	6057	1.100	Hascha		15-042	Dogwood	Temp. Crossing	THP App. Rd.	II		0	0	0	0	0	0	$0	10
Private Perm.	6057	0.000	Unk		928	Dogwood	Armored Ford	THP Low	-	-	0	0	0	0	0	0	$0	10
	Rock outside edge at this location. The armoring placed at the outfall shall be sized with a range of 6- to 18-inches in diameter. The armoring should consist of a mix of sizes in this range, with a minimum of 50 percent of the volume meeting the median size of 12 inches. See diagrams on page 61.1 (dogwood THP).																	
40.19	6058	2.500	Hascha		15-042	Dogwood	Other	THP App. Rd.	II		0	0	0	0	0	0	$0	10
Private Perm.	6262	0.000	Unk		579	Dogwood	Armored Ford	THP Med	-	-	0	0	0	0	0	0	$0	10
	Existing rocked rolling ford. The armoring placed at the outfall shall be sized with a range of 6- to 18-inches in diameter. The armoring should consist of a mix of sizes in this range, with a minimum of 50 percent of the volume meeting the median size of 12 inches. See diagrams on page 61.1 (dogwood THP).																	
						Grand Total All Sites	3	**Culvert Costs**	$0			0	0	0	0	0	$0	30
												0	0	0	0	0	$0	20

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Road #	GIS#	Mile	Plan	Final	THP#	THP Name	Problem	Repair Type	Cr. Class	DRCs	Left D	Exca.	Truck	Gra.	Rock	Cost	Total Yds
Road Class	ID#	End	Crew	Done	Rd Pt	ECP Number	Solution	Priority/Shedule	Old Dia	New Dia Ln	Right D	Cat	Labor	Com.	Yds	$/FSD	FSD Yds

Road Work

- Road # – This is unique road ID number for each road segment on the property.
- Road Class – This is the type of road.
  - Upgraded – Outsloped and dipped
  - Storm proofed – Outsloped, dipped and culverts repaired.
  - Deactivation – Outsloped, dipped, culverts pulled, and the road will be reused.
  - Abandoned Fixed – Outsloped, dipped, culverts removed and the road will not be reused.
  - Abandoned Legacy – It will do more damage than good to work on the road. The road will not be reused.
- GIS# - Each existing site in the field (like a culvert) has a unique GIS number, usually the first visit ID#. It appears on the road maps. A new visit to an existing site will reference the GIS#. You can look up the history of visits to a particular site by calling up all the records with the same GIS#.
- ID# - Each "new" road site visit has a unique ID number. It is generated when the record is entered into the database.
- Mile – Each numbered road has mileage ticks from 0 to the end of the road. "Mile" is the distance out the road to the site.
- End – If the site is along a length of road, like tipping and dipping, there is a start point (Mile) and "end" mileage.
- Insp. – The name of the inspector that identified the site and made the prescription is listed here. The inspectors are trained to identify potential sediment sources and make prescriptions in accordance with the Handbook for Forest and Ranch Roads, Weaver and Hagans, 1992. Estimates of sediment production and delivery are made by the inspector.
- Crew – These are the initials of contractor that did the work.
- Planned – Date of site identification.
- Done – Date site work was completed.
- THP# - THP Number
- Rd Pt - This is the working number (THP road point) created by the inspector in the field. It is often found on field flagging.
- THP Name – The THP or program the work is associated with.
- ECP Name – The Erosion Control Plan the site is associated with.
- Problem – The type of problem.
- Solution – The type of solution.
- Repair type – Why was the work done.
- Priority – This reflects the urgency of the problem. A high priority site is one that is likely to deliver a significant amount of sediment during the next 5 year storm event. Medium and low priority sites need upgrading, but are unlikely to deliver significant amounts of sediment in the next several years. High priority sites will be scheduled for completion prior to a low or medium priority site. In a THP, the implementation priorities below apply.
  - THP Low – Mitigation applied prior to THP completion.
  - THP Med – Mitigation applied concurrent with operations affecting site.
  - THP High – Mitigations applied in the first year after THP approval or as described in the plan.
- Stream Class – As per the Forest Practice Rules
- Old Dia – The diameter of the old culvert.
- New Dia Ln – The diameter and length of the new culvert if any.
- DRCs – Number of ditch relief culverts needed for the site.
- Rock – Yards of rock needed at the site – rip rap, rock surface, etc.
- Right and Left Ditch – Feet of road to the right and left of the site that is connected and needs treatment.
- Equipment Hours
  - Exca. – Excavator
  - Cat – Caterpillar tractor
  - Labor – Hand labor
  - Truck – Dump truck or water truck
  - Gra. – Grader
  - Com. - Compactor and pilot car if needed.
- Yds - This is the total yardage of soil that must be moved at the site.
- Cost – All the equipment costs plus the culvert costs. This does not include administration or logistic costs.
- $/FSD – This is the total cost divided by the yards of soil prevented form delivery (FSD) to the watercourses.
- Total Yds – This is the estimate of yardage that will be mobilized in a failure if the work is not done.
- FSD (Future Sediment Delivery) PSD (Potential sediment delivery) – This is the amount of soil that will be prevented from being delivered into the watercourses if the project is completed. It is the relative potential for sediment delivery (RPSD). This yardage only appears if the inspector has been trained to estimate this. This also includes road surface erosion that disconnecting the roads from the watercourses will prevent from being delivered. On upgraded roads it is typically 0.2 cubic feet per square foot of road per decade for the portion (typically 50%) that has been disconnected. The road and cut bank width is assumed to be 25 feet.

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Gualala River Watershed - Road Upgrading

Owner	Acres	Abandoned Fixed	Abandoned Left	Deacti-vated	Not Connected	Storm Proofed	Upgraded	Improved Total	Miles Total	Percent Disconnected	Road Miles/Square Mile Total*	Road Miles/Square Mile Connected*
WAA Name	***NF Gualala***											
Planning Watershed ***Doty Creek***												
Gualala Redwoods, Inc.	3,568			2.0	0.6	33.2	0.5	36.3	44.4	81.6%	8.0	1.5
Doty Creek	3,568			2.0	0.6	33.2	0.5	36.3	44.4	81.6%	8.0	1.5
Planning Watershed ***Robinson Creek***												
Gualala Redwoods, Inc.	5,898	0.2	1.9	5.7	5.5	23.4	13.7	50.4	61.0	82.6%	6.6	1.2
Robinson Creek	5,898	0.2	1.9	5.7	5.5	23.4	13.7	50.4	61.0	82.6%	6.6	1.2
Planning Watershed ***Stewart Creek***												
Gualala Redwoods, Inc.	1,944			1.3	0.1	0.8	1.9	4.1	22.8	17.9%	7.5	6.2
Stewart Creek	1,944			1.3	0.1	0.8	1.9	4.1	22.8	17.9%	7.5	6.2
NF Gualala	11,411	0.2	1.9	9.0	6.2	57.3	16.1	90.7	128.2	70.7%	7.2	2.1
WAA Name	***Rockpile***											
Planning Watershed ***Lower Rockpile Creek***												
Gualala Redwoods, Inc.	2,371		0.5	1.3	2.3	2.9	1.7	8.7	22.8	38.2%	6.1	3.8
Lower Rockpile Creek	2,371		0.5	1.3	2.3	2.9	1.7	8.7	22.8	38.2%	6.1	3.8
Planning Watershed ***Red Rock***												
Gualala Redwoods, Inc.	9				0.0	0.1		0.1	0.2	48.1%	17.4	9.1
Red Rock	9				0.0	0.1		0.1	0.2	48.1%	17.4	9.1
Rockpile	2,381		0.5	1.3	2.4	3.0	1.7	8.8	23.0	38.3%	6.2	3.8
WAA Name	***Buckeye***											
Planning Watershed ***Little Creek***												
Gualala Redwoods, Inc.	2,410	0.2		0.6	1.2	4.5	7.4	13.9	33.4	41.6%	8.9	5.2
Little Creek	2,410	0.2		0.6	1.2	4.5	7.4	13.9	33.4	41.6%	8.9	5.2
Buckeye	2,410	0.2		0.6	1.2	4.5	7.4	13.9	33.4	41.6%	8.9	5.2
WAA Name	***Wheatfield***											
Planning Watershed ***Annapolis***												
Gualala Redwoods, Inc.	2,179	0.7	0.5	5.5		1.8	0.1	8.7	27.5	31.6%	8.1	5.5
Annapolis	2,179	0.7	0.5	5.5		1.8	0.1	8.7	27.5	31.6%	8.1	5.5
Wheatfield	2,179	0.7	0.5	5.5		1.8	0.1	8.7	27.5	31.6%	8.1	5.5
WAA Name	***SF Gualala***											
Planning Watershed ***Big Pepperwood Creek***												
Gualala Redwoods, Inc.	5,853	1.5	1.2	3.9	2.5	24.4	12.7	46.2	74.1	62.4%	8.1	3.0
Big Pepperwood Cree	5,853	1.5	1.2	3.9	2.5	24.4	12.7	46.2	74.1	62.4%	8.1	3.0

**** Occasional very high road miles per square mile are the result of a very small acreage owned in a watershed with a road across it.***

Owner	Acres	Abandoned		Deacti-vated	Not Connected	Storm Proofed	Upgraded	Improved Total	Miles Total	Percent Disconnected	Road Miles/Square Mile	
		Fixed	Left								Total*	Connected*
Planning Watershed *Mouth of the Gualala River*												
Gualala Redwoods, Inc.	3,516			0.0	0.3	6.1	12.7	19.2	45.5	42.1%	8.3	4.8
Mouth of the Gualala	3,516			0.0	0.3	6.1	12.7	19.2	45.5	42.1%	8.3	4.8
SF Gualala	9,369	1.5	1.2	4.0	2.7	30.5	25.5	65.4	119.6	54.7%	8.2	3.7
WAA Name	*Coastal Gualala*											
Planning Watershed *Black Point*												
Gualala Redwoods, Inc.	1,128					3.5	0.4	3.9	14.0	28.1%	7.9	5.7
Black Point	1,128					3.5	0.4	3.9	14.0	28.1%	7.9	5.7
Coastal Gualala	1,128					3.5	0.4	3.9	14.0	28.1%	7.9	5.7
Grand Total	28,877	2.6	4.1	20.4	12.5	100.6	51.2	191.4	345.7	55.4%	7.7	3.4

** Occasional very high road miles per square mile are the result of a very small acreage owned in a watershed with a road across it.*

Downstream Landowners List

Sea Ranch Association
P.O. Box 16
The Sea Ranch, CA 95497-0016

Sea Ranch Water Co.
P.O. Box 16
The Sea Ranch, CA 95497-0016

County of Sonoma Public Works
2300 County Center Drive B-100
Santa Rosa, CA 95403

Patricia A Cameron
625 Galland St
Petaluma, CA 94952

Art Gualala
P.O. Box 244
Gualala, CA 95445

Richard Leslie and Julie
Darlene Brown
2291 Monticello Rd
Napa, CA 94558

Daniel and Donna Brown
2866 Redwood Rd
Napa, CA 94558

County of Sonoma
2555 Mendocino Ave.
Santa Rosa, CA 95403-2803.

Sonoma County Regional Parks
2300 County Center Drive, Suite 120A
Santa Rosa, CA 95403.

Gualala Redwoods Inc.
1325 Calhoun Street
New Orleans, LA 70118

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COAST AREA OFFICE
RESOURCE MANAGEMENT

revised 9/1/15

Independent Coast Observer

P.O. Box 1200
Gualala, CA 95445

(707) 884-3501
(707) 884-1710 fax
www.mendonoma.com

Proof of Publication of NOTICE

Public Notice

NOTICE

A timber harvest plan is proposed in the following watersheds; Mouth of the Gualala, Big Pepperwood Creek, Robinson Creek, Little Creek and Annapolis. The legal description is Sec 25,26,27,36 T11NR15W, Sec 30,31,33 T11NR14W Sec 4,5,6,8,15,16,17,21,22,27 T10NR14W and in portions of the German Rancho T11N R15W M.D.B.M. Sonoma County. The northernmost part of the plan area starts approximately 1/2 mile east of the town of Gualala. This plan is located on the U.S.G.S. 7.5 min maps Gualala, McGuire Ridge and Stewarts Point. The following watercourses receive drainage from the proposed timber operation: The South Fork, Main Stem, and Wheatfield Fork of the Gualala River, Groshong Gulch, Buckeye Creek, Big and Little Pepperwood creeks and several unnamed class II watercourses. If you have knowledge of any domestic water supply whose source is in the above watercourses or that may be affected by the operations please contact me at the following address in writing within ten (10) days of the date of this notice.

Art Haschak 387 Pacific Blvd. Arcata, CA 95521.

I, the undersigned say:
That I am over the age of eighteen and am not a party to or interested in the above entitled matter of proceeding; and am, and at all times embraced in the publication herein mentioned, was the principal clerk of the editor and publisher of the INDEPENDENT COAST OBSERVER, a weekly newspaper printed, published and circulated in the County of Mendocino, and adjudged a newspaper of general circulation by the Superior Court of California, Proceeding #15294, that the above NOTICE of which is annexed a true printed copy, was printed in type not smaller than nonpareil and published in said newspaper on the following date(s), to wit: May 30, 2014.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.
Executed and dated at Gualala, California, this May 27, 2014

Signature____________________

(ICO Ad number 6863)

5/22/14

Dear Sirs,

The Forest Practice Regulations require that I provide notice by letter, of proposed timber operations, to all landowners within 1,000 feet downstream of a proposed THP boundary, whose ownership adjoins or includes a class I, II, or IV watercourse that receives drainage from the proposed timber operations.

A timber harvest plan is proposed in the following watersheds; Mouth of the Gualala, Big Pepperwood Creek, Robinson Creek, Little Creek and Annapolis. The legal description is Sec 25,26,27,36 T11NR15W, Sec 30,31,33 T11NR14W Sec 4,5,6,8,15,16,17,21,22,27 T10NR14W and in portions of the German Rancho T11N R15W M.D.B.M. Sonoma County. The northernmost part of the plan area starts approximately 1/2 mile east of the town of Gualala. This plan is located on the U.S.G.S. 7.5 min maps Gualala, McGuire Ridge and Stewarts Point. The following watercourses receive drainage from the proposed timber operation: The South Fork, Main Stem, and Wheatfield Fork of the Gualala River, Groshong Gulch, Buckeye Creek, Big and Little Pepperwood creeks and several unnamed class II watercourses. If you have knowledge of any domestic water supply whose source is in the above watercourses or that may be affected by the operations please contact me at the following address in writing within ten (10) days of the date of this notice.
Art Haschak 387 Pacific Blvd. Arcata, CA 95521.

If domestic water supplies are noted, the THP will contain mitigations necessary to protect those water supplies.

Thank you for your assistance.

Sincerely,

Art Haschak RPF #2423

8/13/15

Dear Sirs,

The Forest Practice Regulations require that I provide notice by letter, of proposed timber operations, to all landowners within 1,000 feet downstream of a proposed THP boundary, whose ownership adjoins or includes a class I, II, or IV watercourse that receives drainage from the proposed timber operations.

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Thank you for your assistance.

Sincerely,

Art Haschak RPF #2423

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COAST AREA OFFICE
RESOURCE MANAGEMENT

8/31/15

Dear Sirs,

The Forest Practice Regulations require that I provide notice by letter, of proposed timber operations, to all landowners within 1,000 feet downstream of a proposed THP boundary, whose ownership adjoins or includes a class I, II, or IV watercourse that receives drainage from the proposed timber operations.

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Sincerely,

Art Haschak RPF #2423

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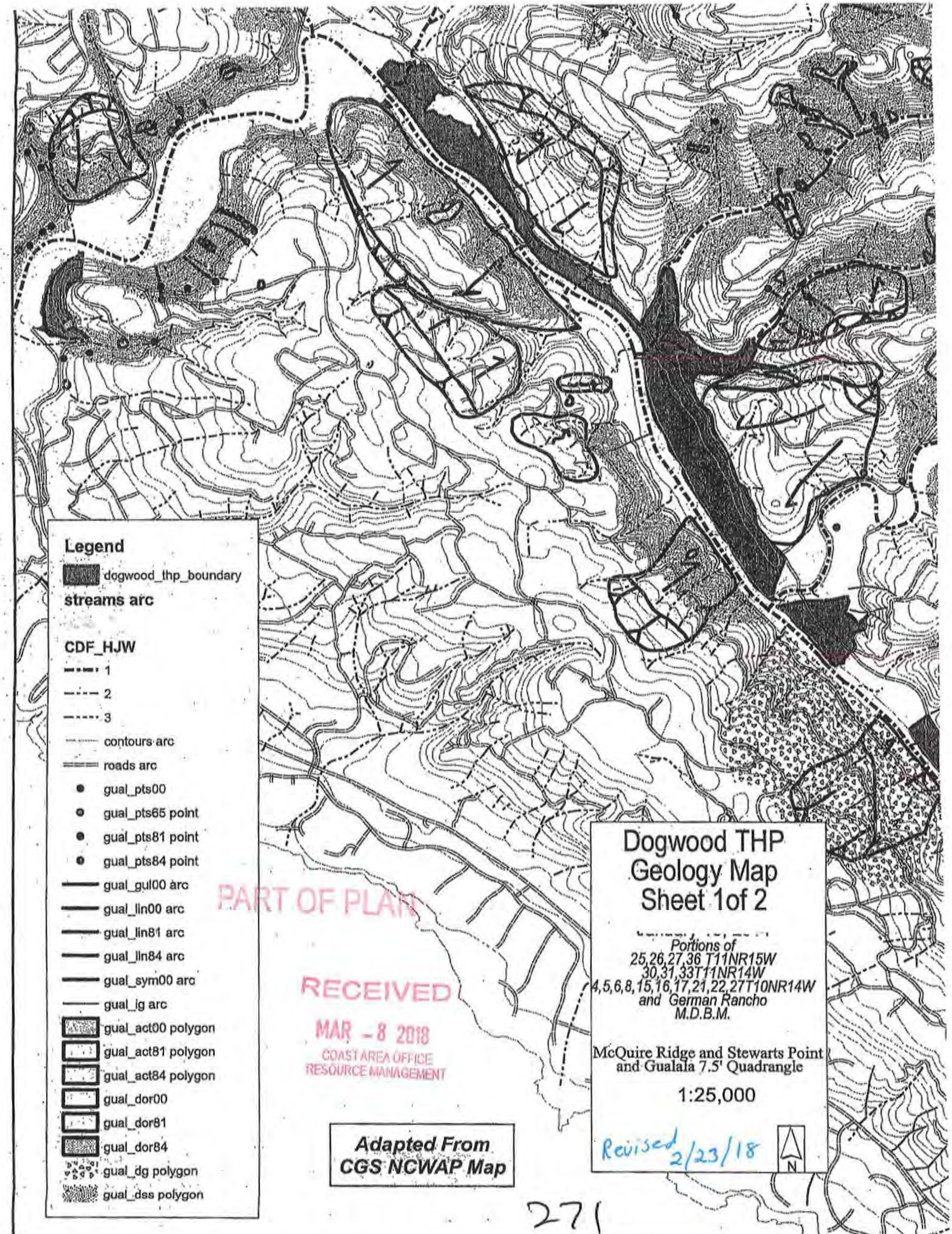
COAST AREA OFFICE
RESOURCE MANAGEMENT

ADDED 11/11/15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dogwood_thp_boundary
streams arc
CDF_HJW
1
2
3
contours arc
roads arc
gual_pts00
gual_pts65 point
gual_pts81 point
gual_pts84 point
gual_gul00 arc
gual_lin00 arc
gual_lin81 arc
gual_lin84 arc
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gual_lg arc
gual_act00 polygon
gual_act81 polygon
gual_act84 polygon
gual_dor00
gual_dor81
gual_dor84
gual_dg polygon
gual_dss polygon
PART OF PLAN
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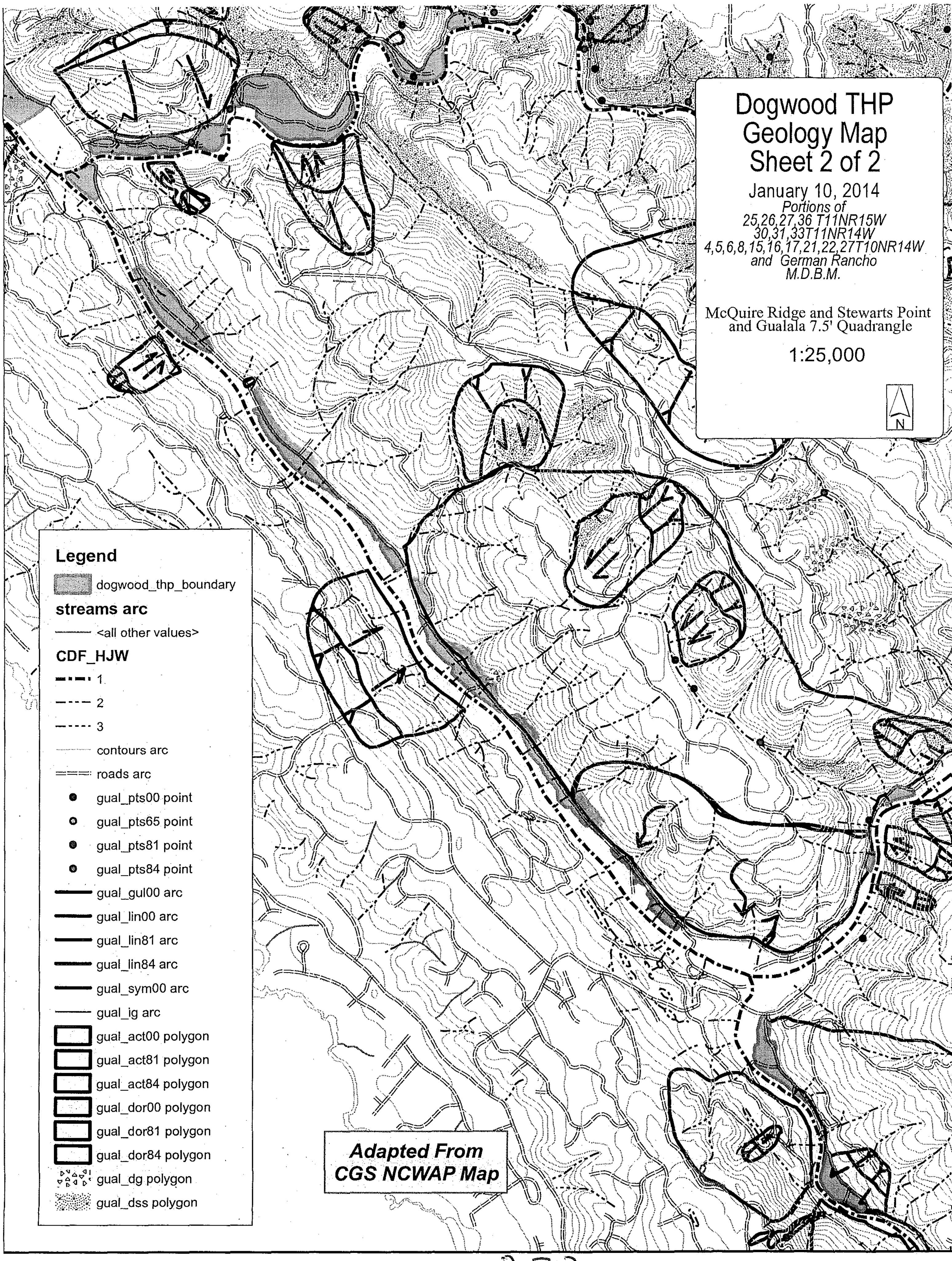
RESOURCE MANAGEMENT
Adapted From
CGS NCWAP Map
Dogwood THP
Geology Map
Sheet 1of 2
Portions of
25,26,27,36 T11NR15W
30,31,33T11NR14W
4,5,6,8,15,16,17,21,22,27T10NR14W
and German Rancho
M.D.B.M.
McQuire Ridge and Stewarts Point
and Gualala 7.5' Quadrangle
1:25,000
Revised 2/23/18
N
271



Dogwood THP
Geology Map
Sheet 2 of 2
January 10, 2014
Portions of
25,26,27,36 T11NR15W
30,31,33T11NR14W
4,5,6,8,15,16,17,21,22,27T10NR14W
and German Rancho
M.D.B.M.
McQuire Ridge and Stewarts Point
and Gualala 7.5' Quadrangle
1:25,000
N
Legend
dogwood_thp_boundary
streams arc
<all other values>
CDF_HJW
1
2
3
contours arc
roads arc
gual_pts00 point
gual_pts65 point
gual_pts81 point
gual_pts84 point
gual_gul00 arc
gual_lin00 arc
gual_lin81 arc
gual_lin84 arc
gual_sym00 arc
gual_ig arc
gual_act00 polygon
gual_act81 polygon
gual_act84 polygon
gual_dor00 polygon
gual_dor81 polygon
gual_dor84 polygon
gual_dg polygon
gual_dss polygon
Adapted From
CGS NCWAP Map

Unstable Areas in the Big Pepperwood Creek PWS

Map Sheet 1 of 3

January 27, 2014

N

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

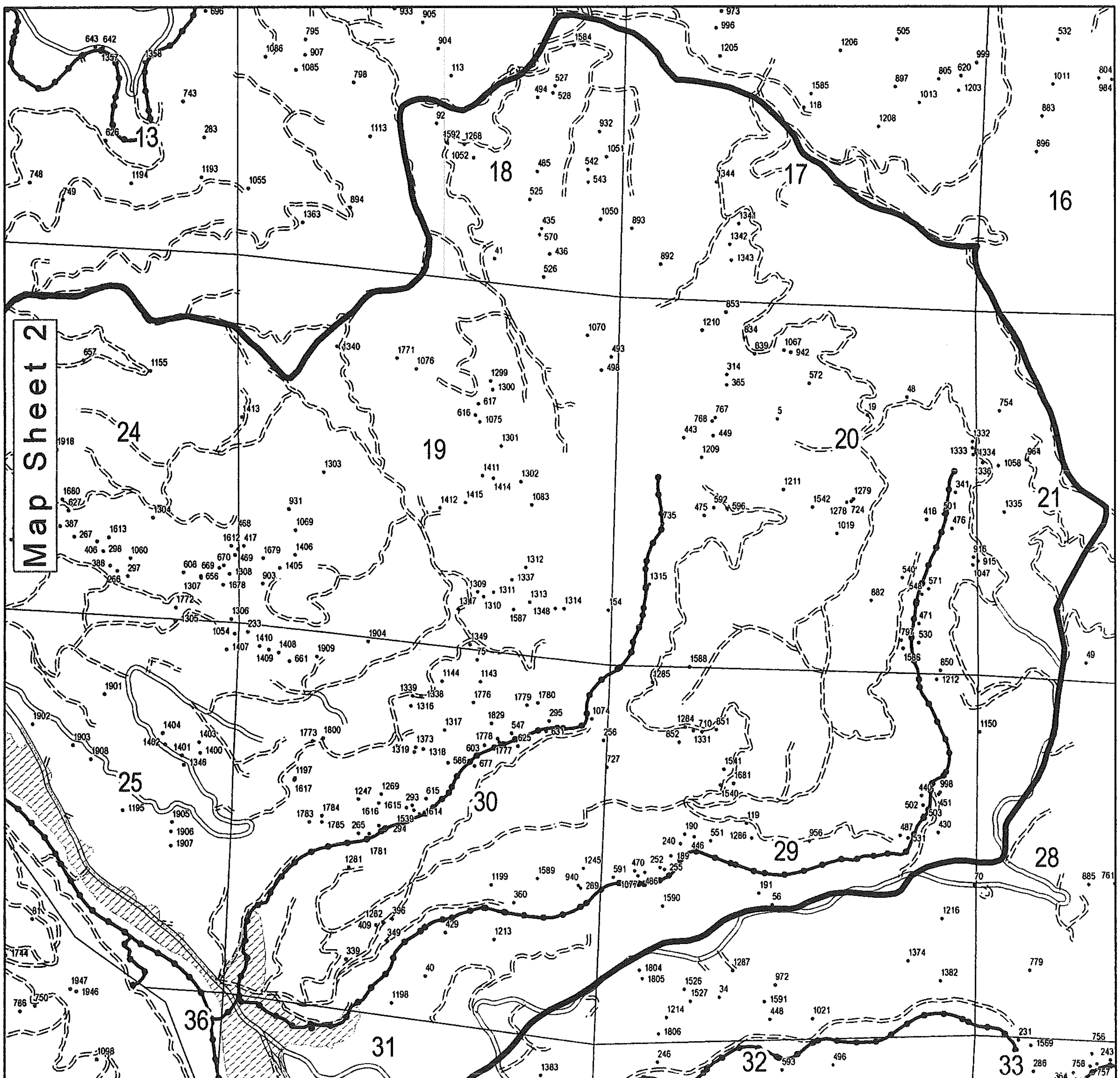
Big Pepperwood Creek PWS

THP Area

INSTABILITY

0 500 1,000 1,500 2,000 Feet

SCALE 1:24000



Unstable Areas in the Big Pepperwood Creek PWS
Map Sheet 2 of 3

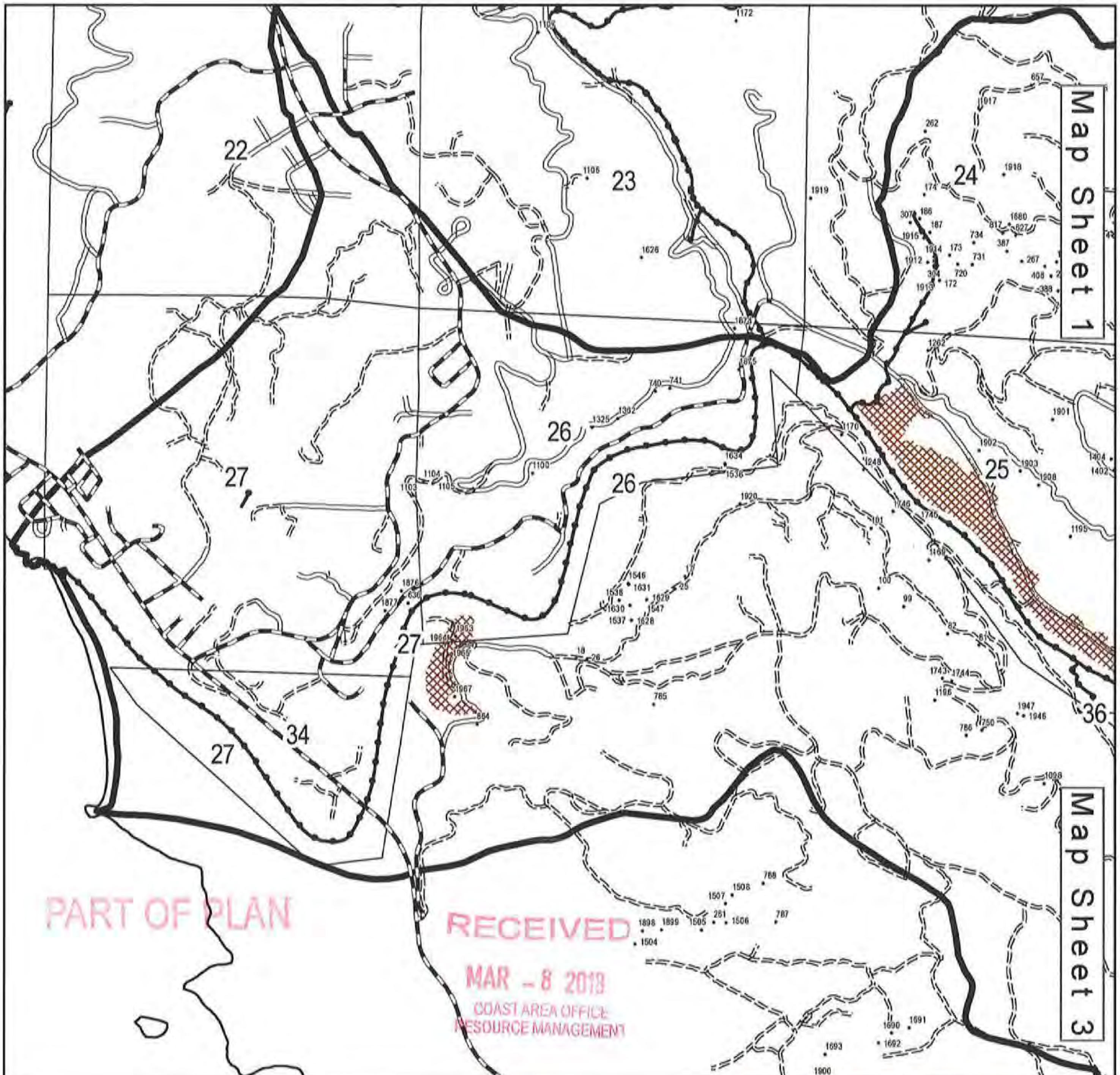
February 23,2018

N

0 500 1,000 1,500 2,000 Feet

SCALE 1:24000

Dogwood THP Boundary
INSTABILITY
HYDROGRAPHY
Class I
TRANSPORTATION
EXISTING PAVED PUBLIC
EXISTING PRIVATE PERMENANT
EXISTING PRIVATE SEASONAL
Big Pepperwood Creek PWS



PART OF PLAN

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RESOURCE MANAGEMENT

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Revised 2/23/18

Unstable Areas in the Big Pepperwood Creek PWS
Map Sheet 3 of 3

February 23, 2018

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RESOURCE MANAGEMENT

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0 500 1,000 1,500 2,000 Feet

SCALE 1:24000

Dogwood THP Boundary

INSTABILITY

TRANSPORTATION

EXISTING PAVED PUBLIC

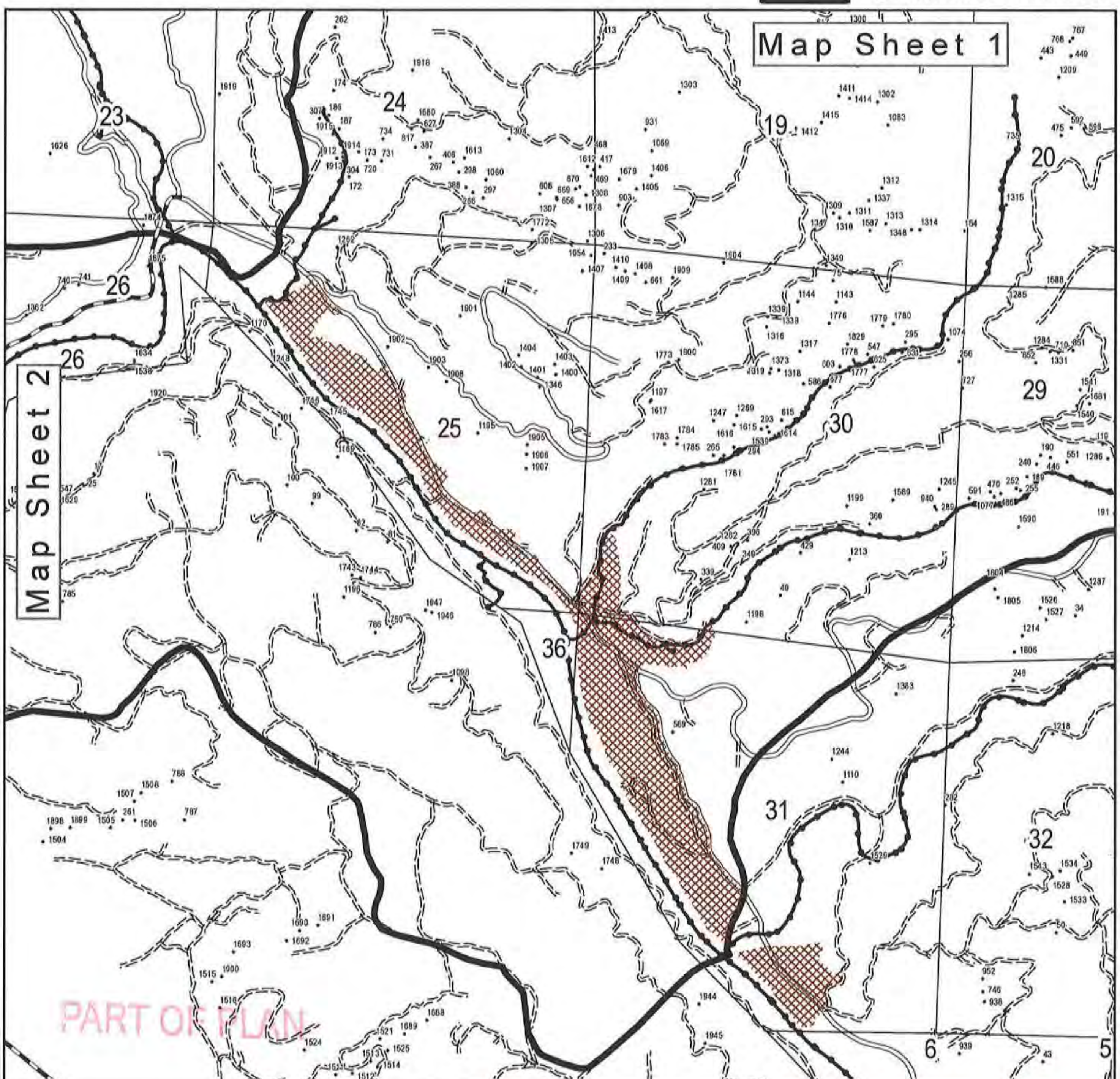
EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

Big Pepperwood Creek PWS



275

Revised 2/23/18

Unstable Areas in the Mouth of the Gualala PWS

Map Sheet 1 of 4

January 27, 2014

N

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

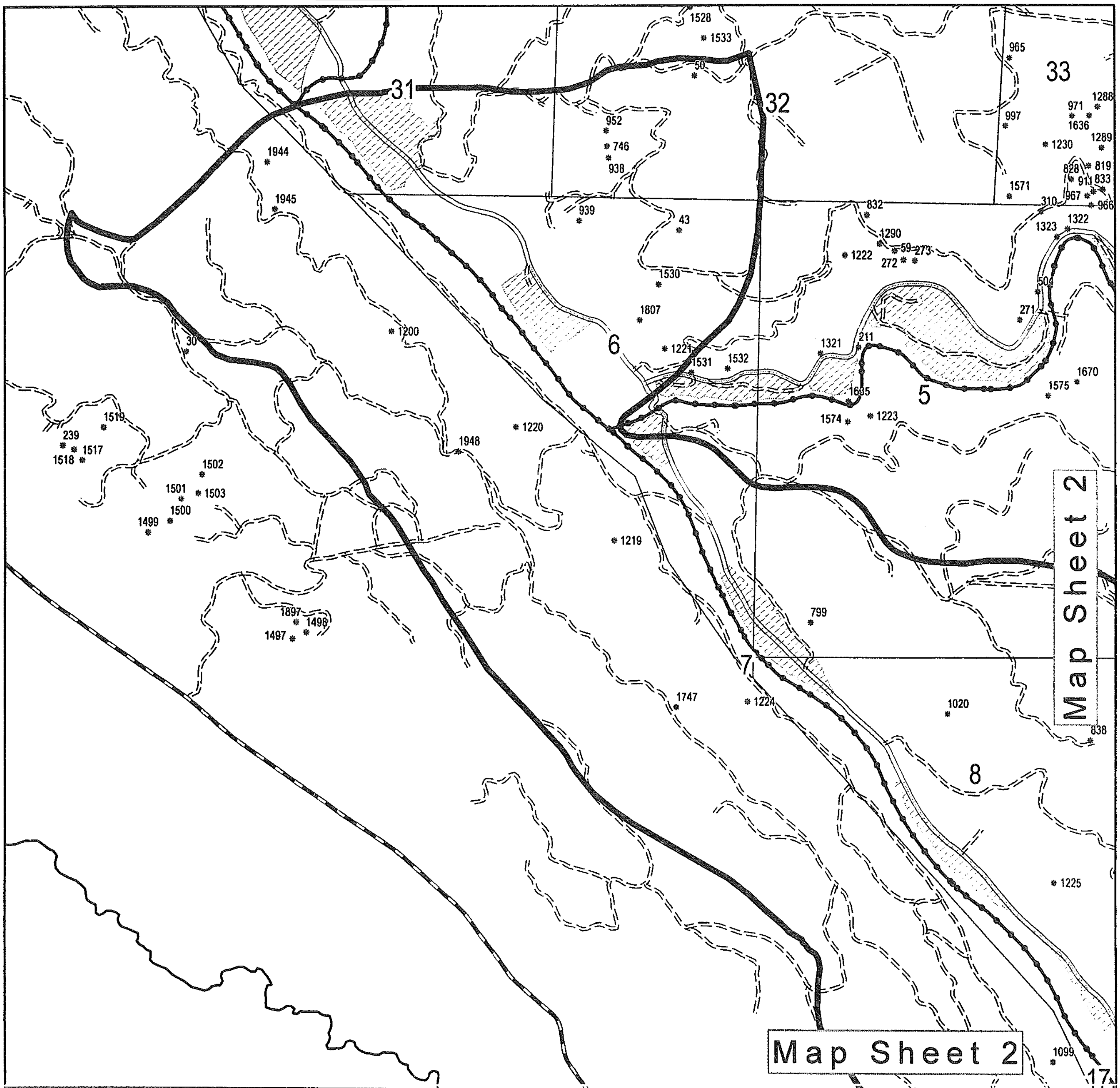
Mouth of the Gualala PWS

THP Area

Instability

0 500 1,000 1,500 2,000 Feet

SCALE 1:20000



Unstable Areas in the Mouth of the Gualala PWS

Map Sheet 2 of 4

January 27, 2014

HYDROGRAPHY

Class I

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

Mouth of the Gualala PWS

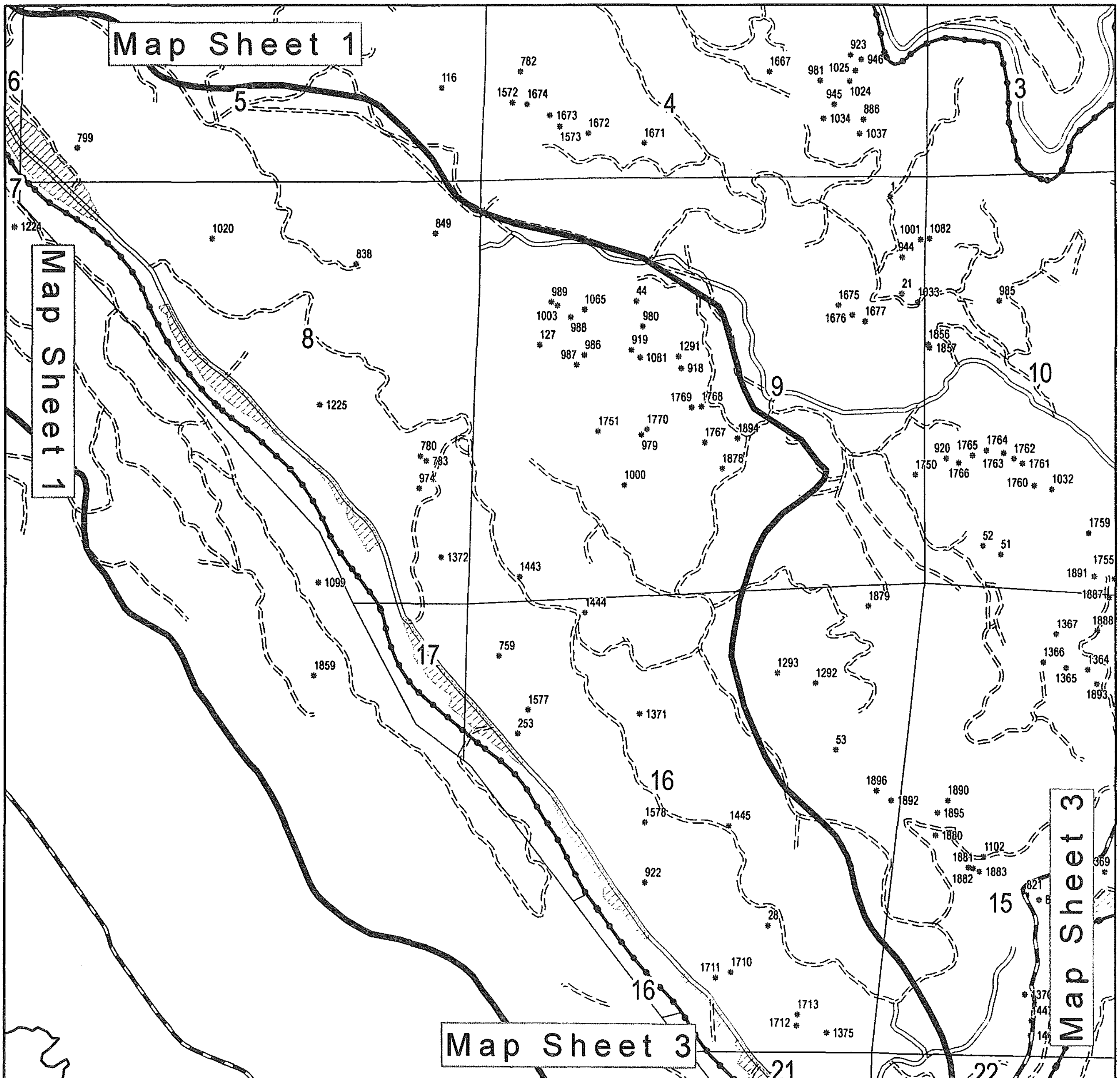
THP Area

Instability

N

0 500 1,000 1,500 2,000 Feet

SCALE 1:20000

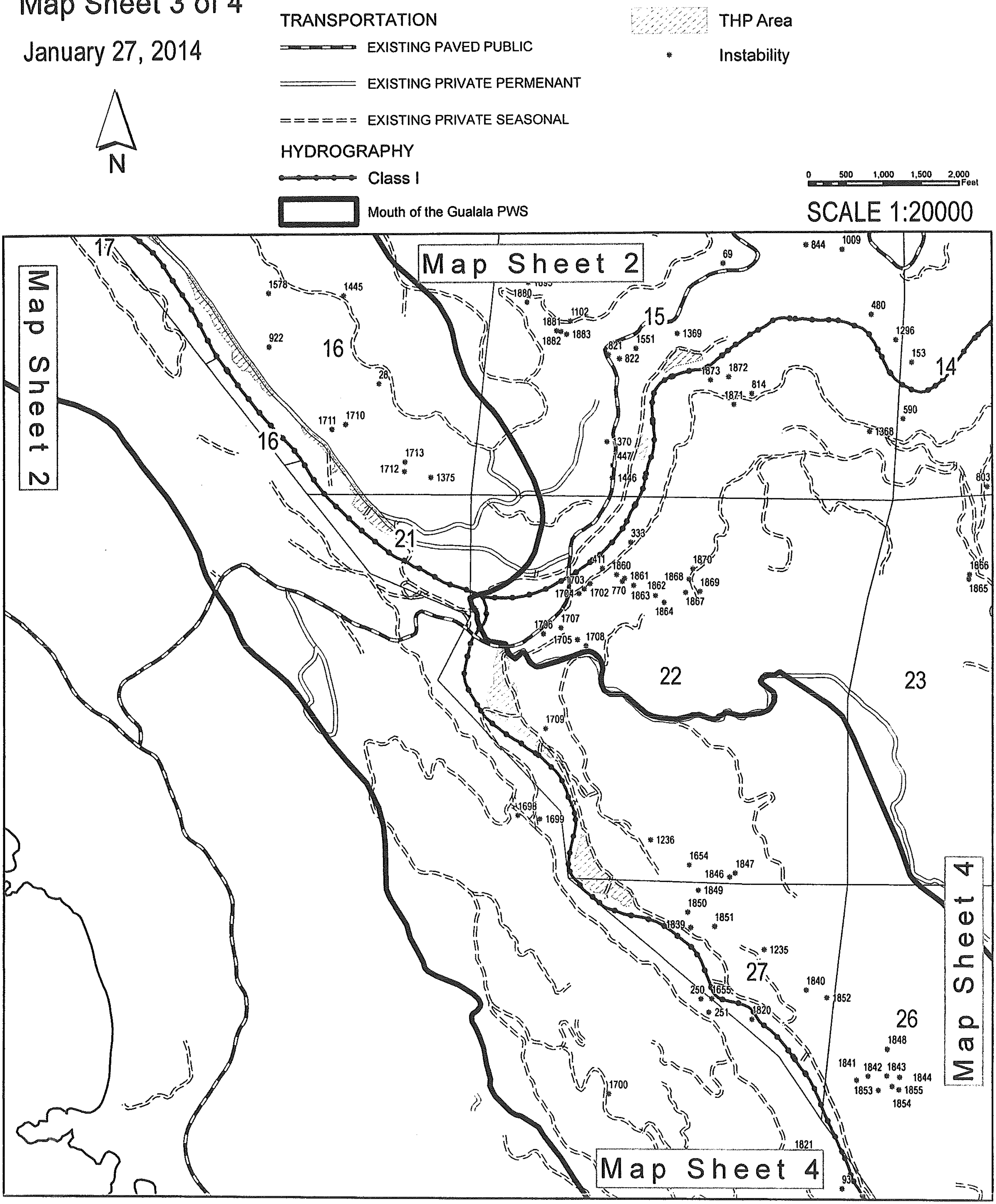


277

Unstable Areas in the Mouth of the Gualala PWS

Map Sheet 3 of 4

January 27, 2014



Unstable Areas in the Mouth of the Gualala PWS

Map Sheet 4 of 4

January 27, 2014

N

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

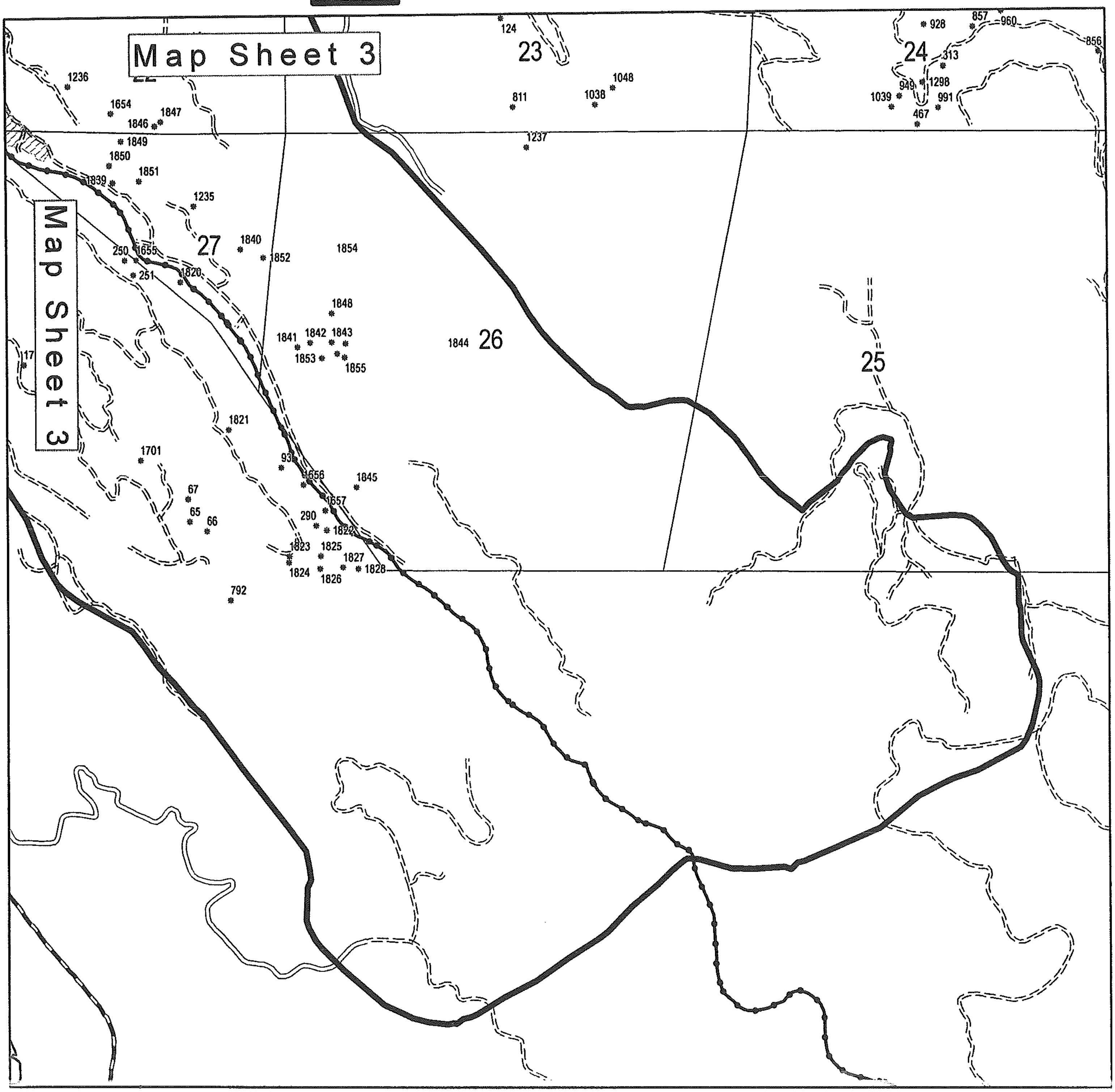
Mouth of the Gualala PWS

THP Area

Instability

0 500 1,000 1,500 2,000 Feet

SCALE 1:20000



Unstable Areas in the Little Creek PWS
Map Sheet 1 of 4

January 27, 2014

N

TRANSPORTATION

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

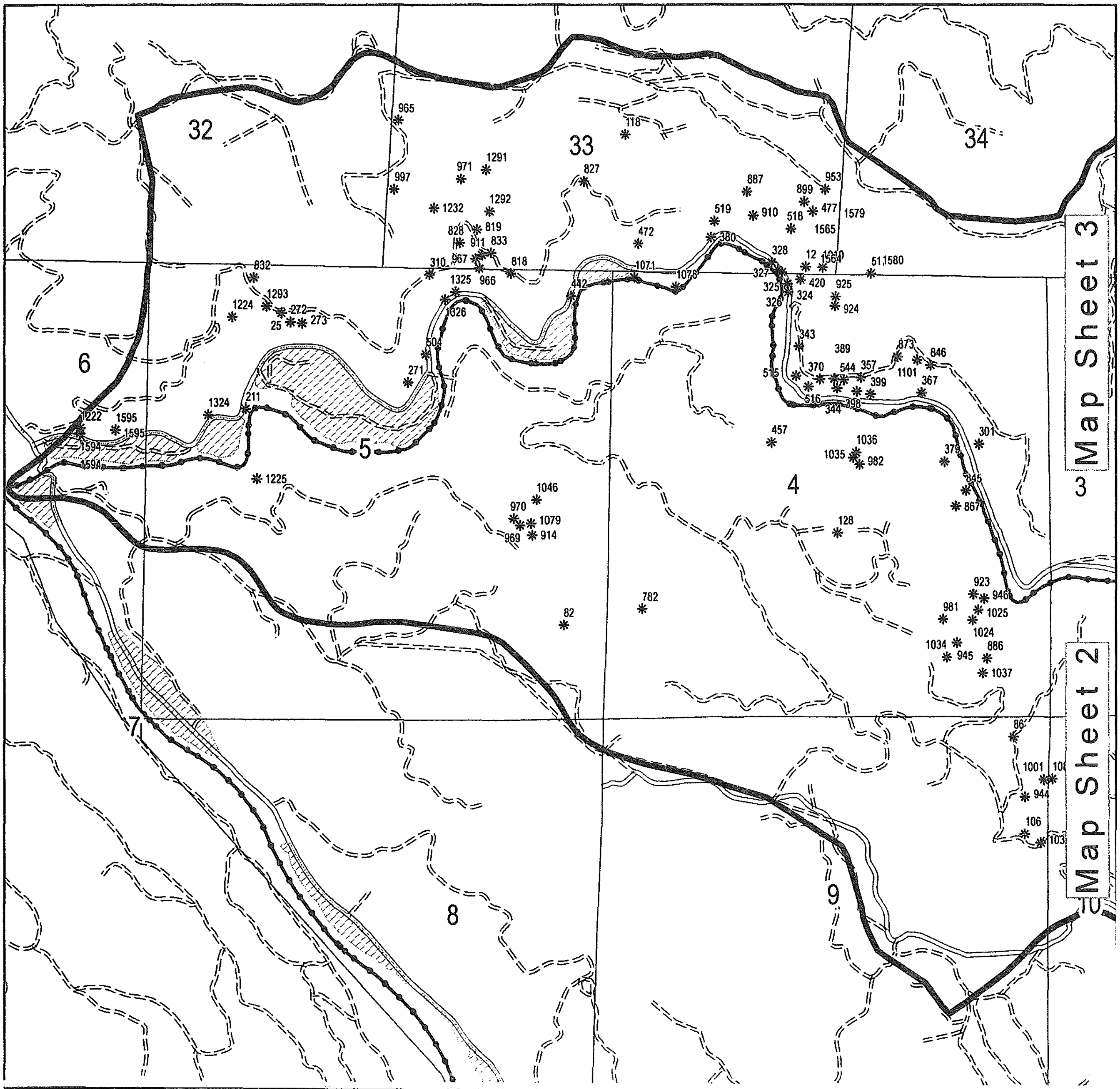
Little Creek PWS

THP Area

Instability

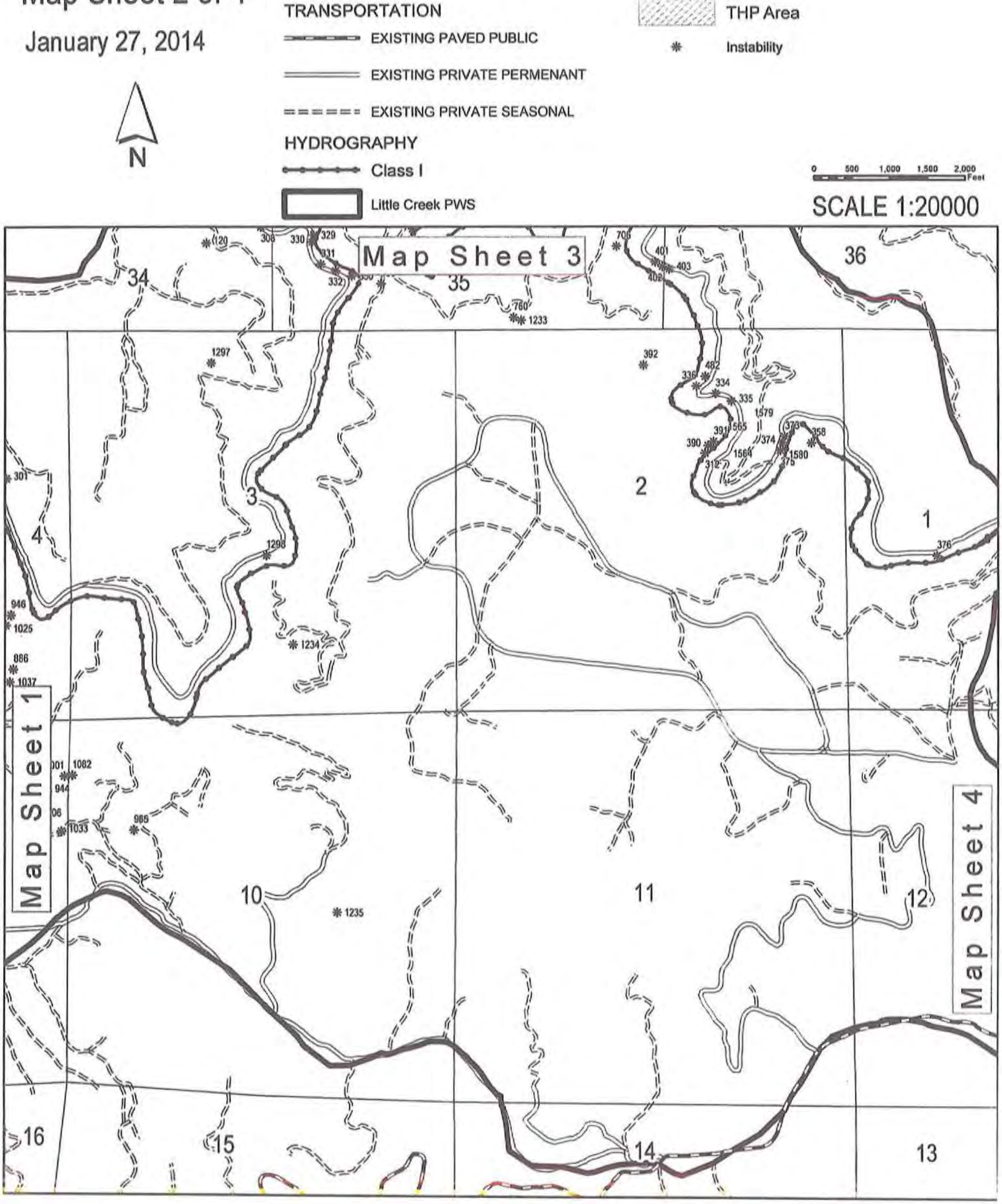
0 500 1,000 1,500 2,000 Feet

SCALE 1:20000



Unstable Areas in the Little Creek PWS
Map Sheet 2 of 4

January 27, 2014



Unstable Areas in the Little Creek PWS
Map Sheet 3 of 4

January 27, 2014

TRANSPORTATION
EXISTING PRIVATE PERMENANT
EXISTING PRIVATE SEASONAL

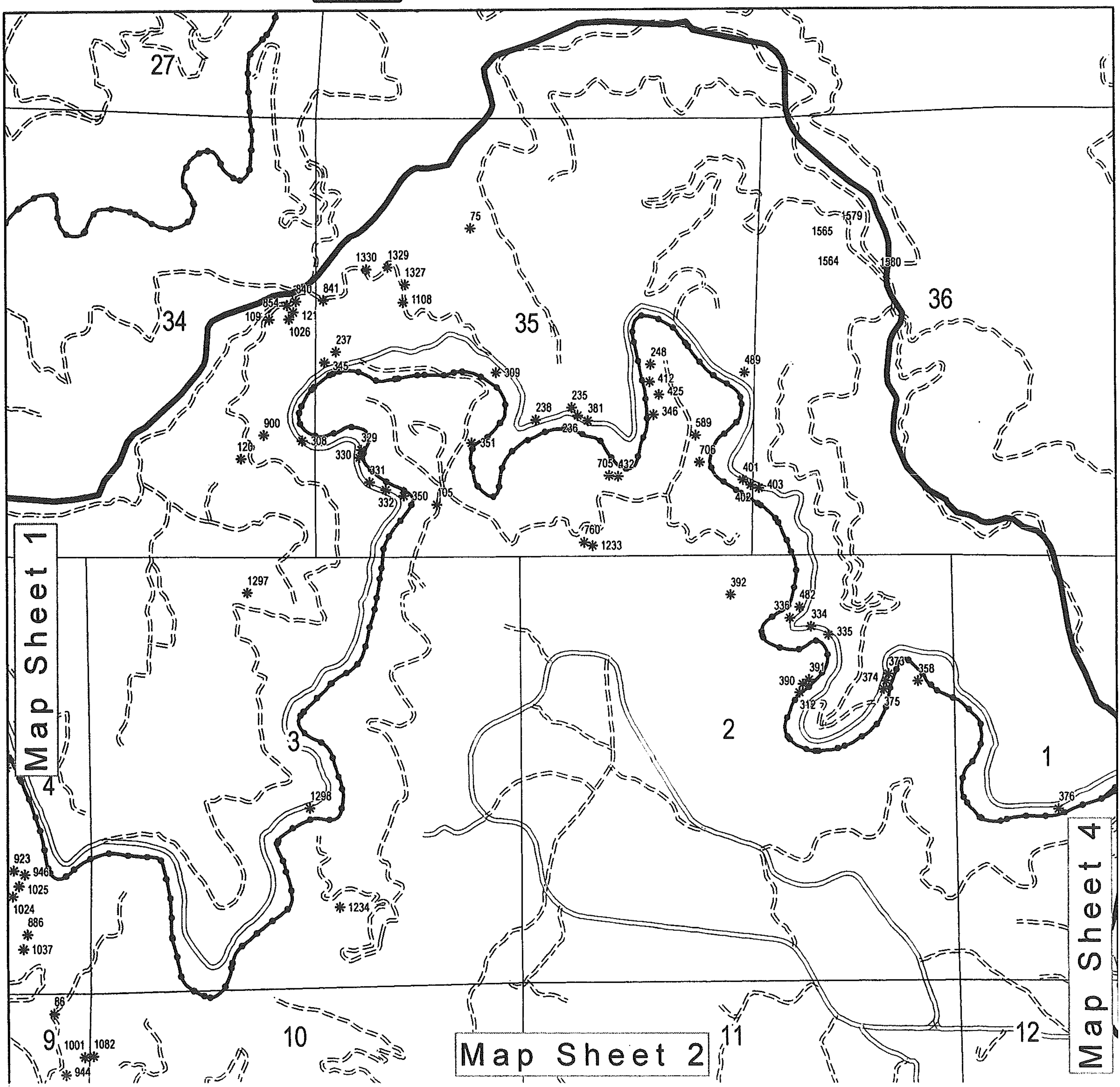
HYDROGRAPHY
Class I
Little Creek PWS

THP Area
Instability

N

0 500 1,000 1,500 2,000 Feet

SCALE 1:20000



282

Unstable Areas in the Little Creek PWS

Map Sheet 4 of 4

January 27, 2014

N

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

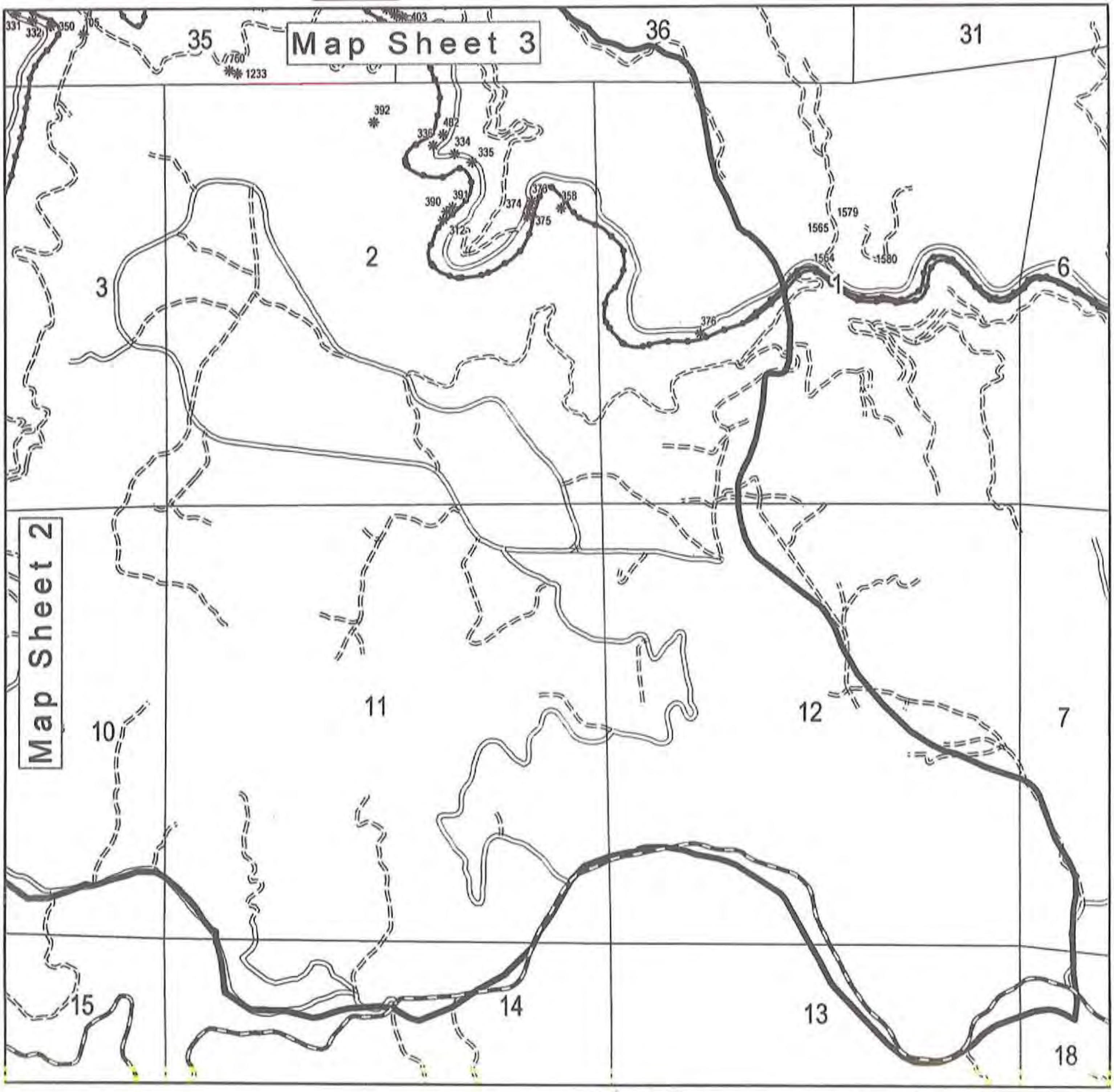
Little Creek PWS

THP Area

Instability

0 500 1,000 1,500 2,000 Feet

SCALE 1:20000



Unstable Areas in the Annapolis PWS
Map Sheet 1 of 4

January 27, 2014

N

TRANSPORTATION
- EXISTING PAVED PUBLIC
- EXISTING PRIVATE PERMENANT
- EXISTING PRIVATE SEASONAL

HYDROGRAPHY
- Class I

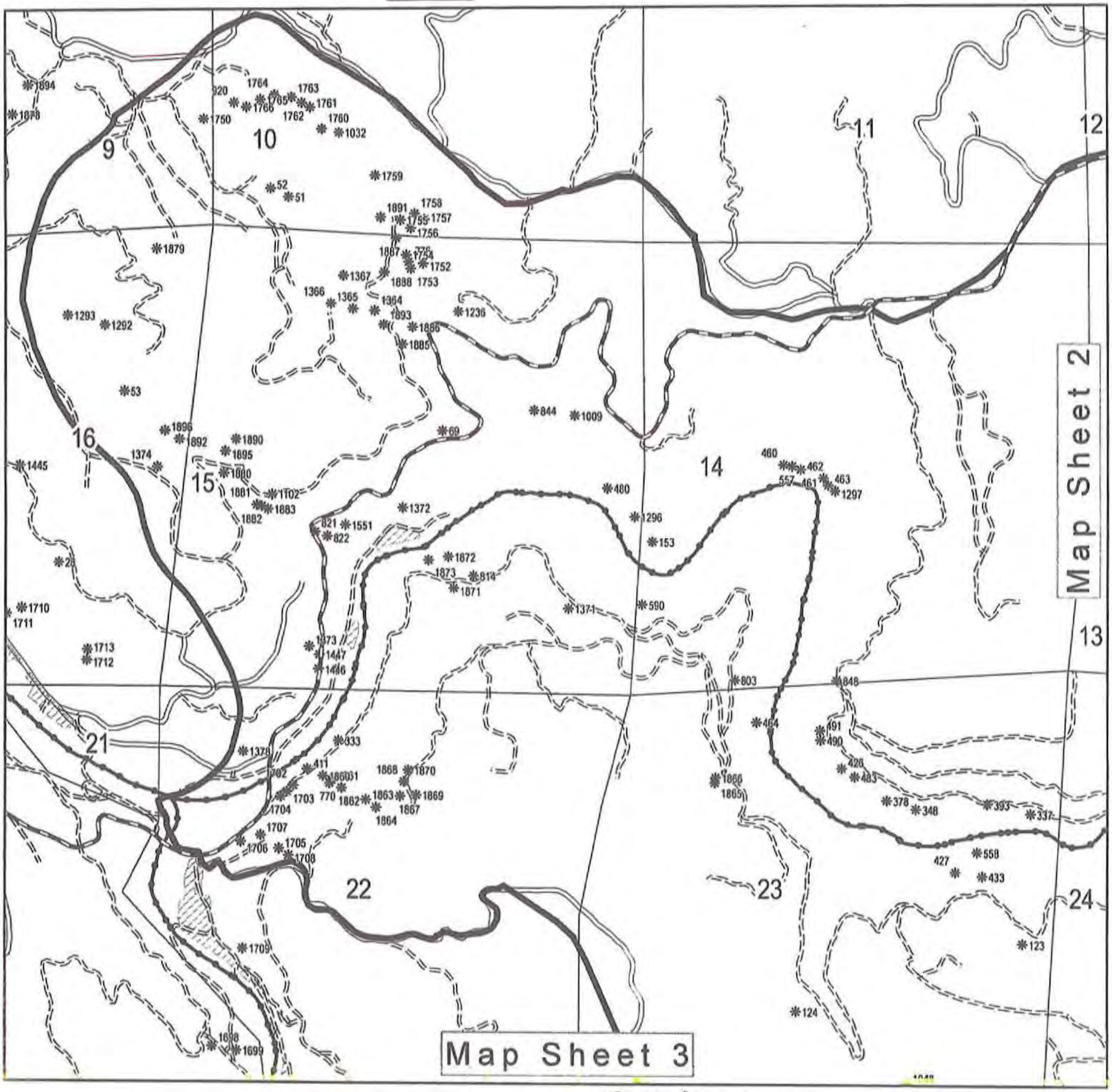
Annapolis Planning Watershed

THP Area

Instability

0 525 1,050 1,575 2,100 Feet

SCALE 1:20000



Unstable Areas in the Annapolis PWS
Map Sheet 2 of 4

January 27, 2014

N

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

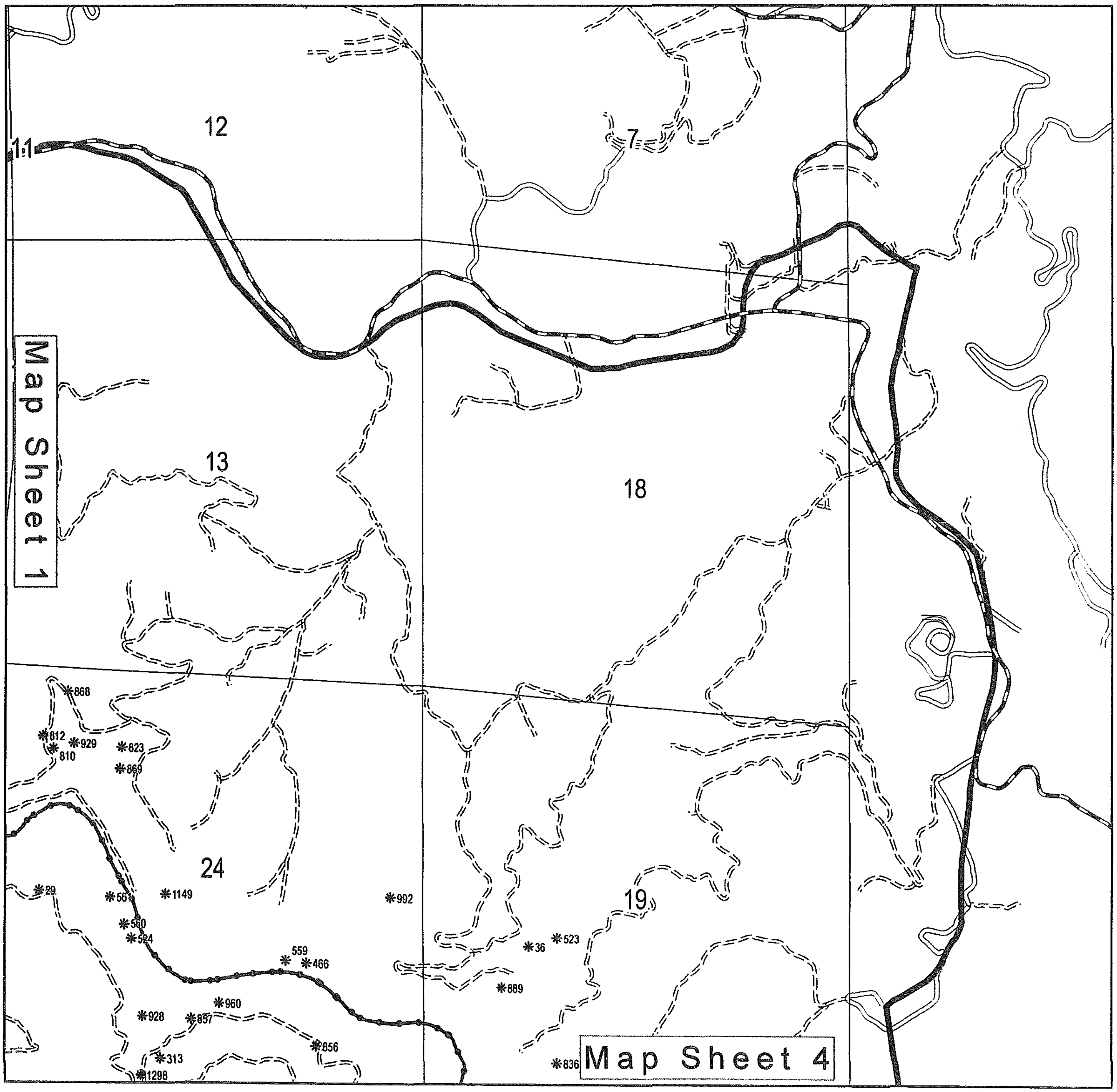
Annapolis Planning Watershed

THP Area

Instability

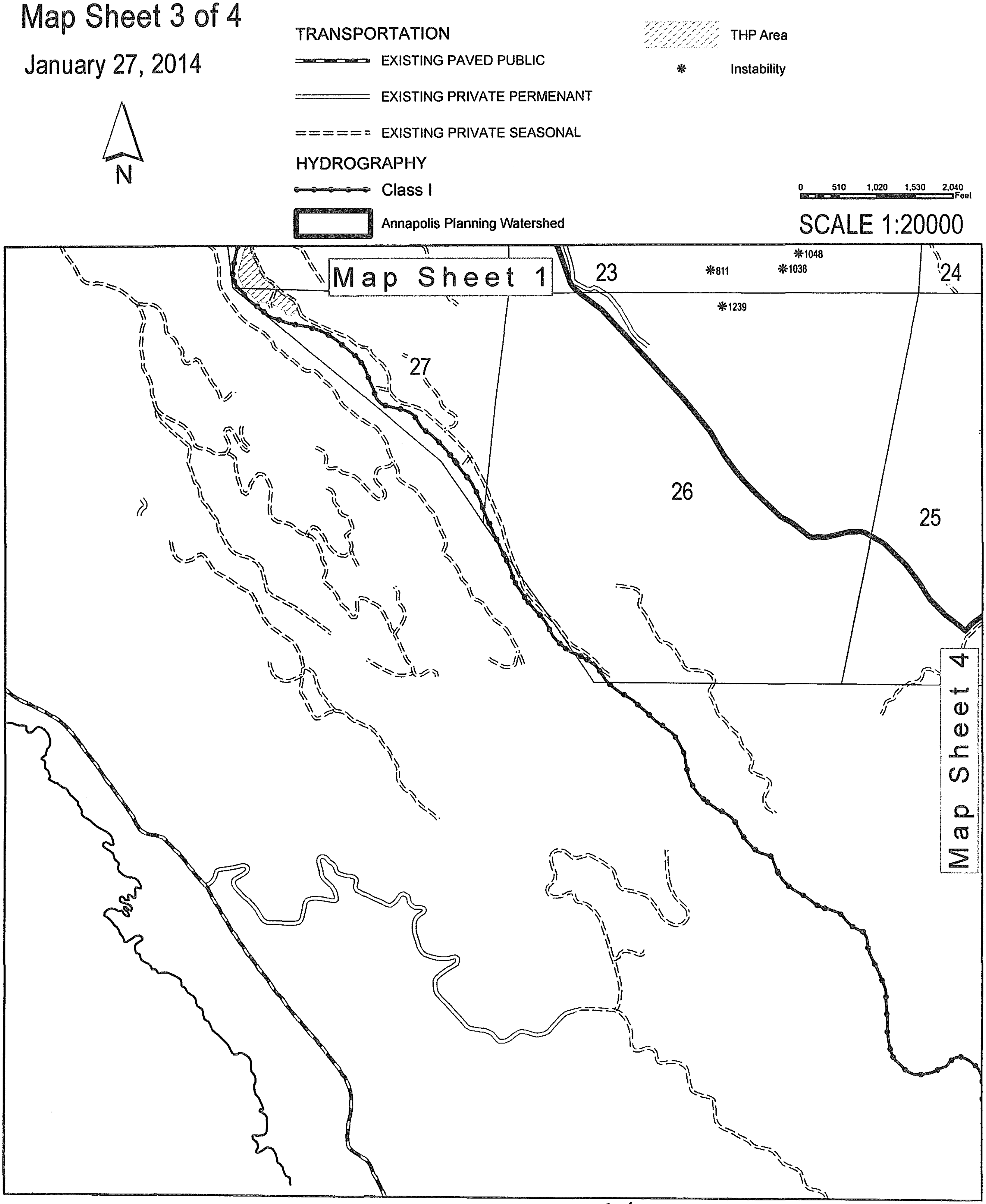
0 520 1,040 1,560 2,080 Feet

SCALE 1:20000



Unstable Areas in the Annapolis PWS
Map Sheet 3 of 4

January 27, 2014



286

Unstable Areas in the Annapolis PWS
Map Sheet 4 of 4

January 27, 2014

N

TRANSPORTATION

EXISTING PAVED PUBLIC

EXISTING PRIVATE PERMENANT

EXISTING PRIVATE SEASONAL

HYDROGRAPHY

Class I

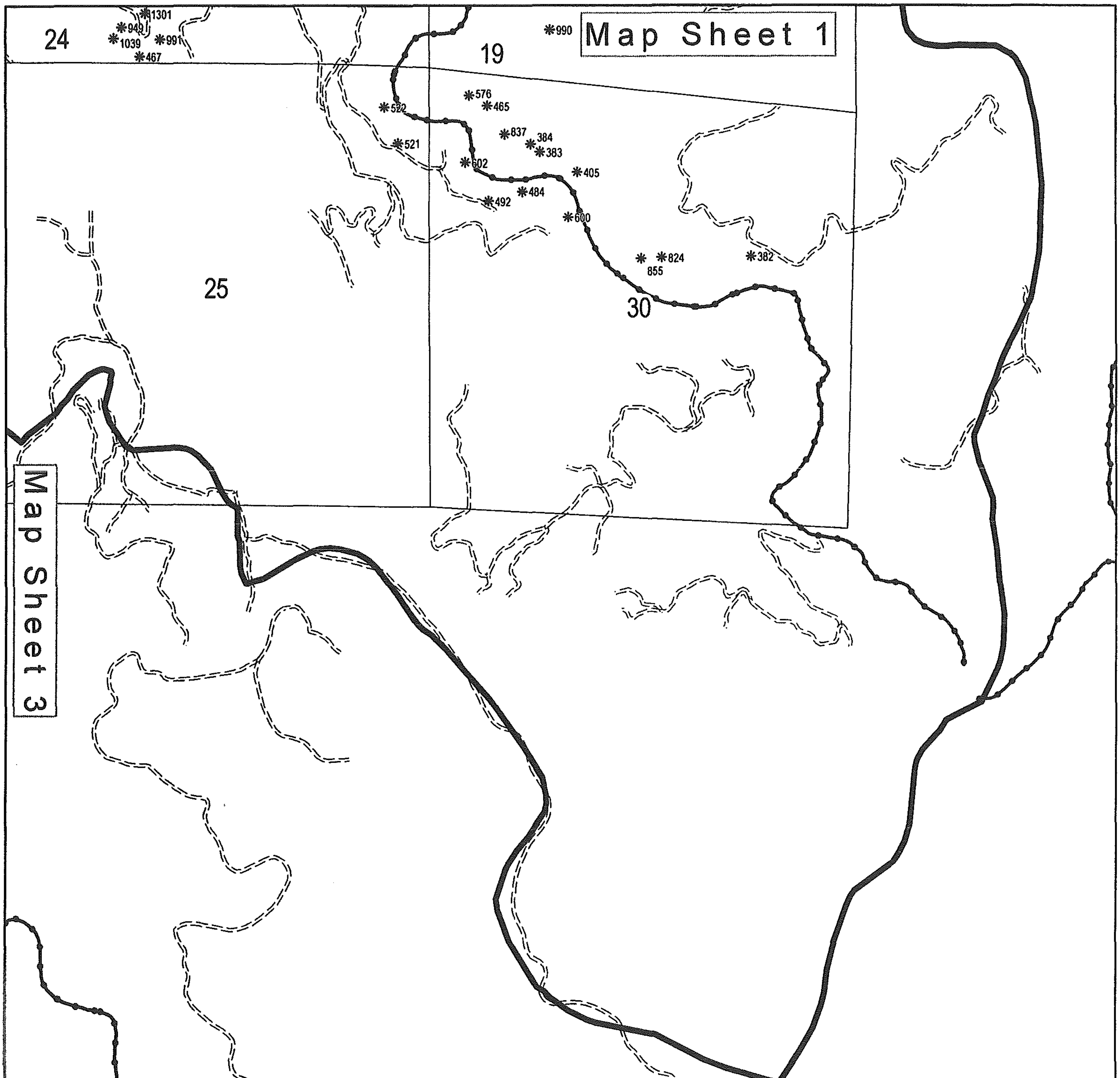
Annapolis Planning Watershed

THP Area

Instability

0 510 1,020 1,530 2,040 Feet

SCALE 1:20000



Landslides - Delivery to Watercourses (Yards)

Planning Watershed *Big Pepperwood Creek*

		Photo year observed	*1900**	*1930***	*1947*	*1959*	*1970*	*1984*	*1998*	*2004*	*Total*
	Natural		0	24,886	1,041	20,425	23,145	4,763	36,818	942	112,021
	Mgt. Related					32,662	41,655	35,100	27,501	63	136,981
Big Pepperwood Creek		**Sum**	*0*	*24,886*	*1,041*	*53,087*	*64,800*	*39,863*	*64,319*	*1,005*	*249,002*
		Per Year				*4,424*	*5,891*	*2,847*	*4,594*	*168*	
		Percent	*0.0%*	*10.0%*	*0.4%*	*21.3%*	*26.0%*	*16.0%*	*25.8%*	*0.4%*	*100.0%*

** Historic Translational Slides ** Slides that were old on the 1947 photos*

Landslides - Total Yards

Planning Watershed *Big Pepperwood Creek*

	Source	ancient	1930**	1947	1959	1970	1984	1998	2004
	Natural	20,013,544	33,185	1,648	31,019	48,350	6,703	64,837	2,235
	Mgt. Related				45,148	67,944	55,967	41,852	256
Sum	**Big Pepperwood Creek**	*20,013,544*	*33,185*	*1,648*	*76,167*	*116,295*	*62,670*	*106,689*	*2,491*
				Per Year	*6,347*	*10,572*	*4,476*	*7,621*	*415*

** Translational Slides* *** Slides that were old on the 1947 photos*

Landslides*

Planning Watershed *Big Pepperwood Creek*

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
5	5	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Divergent	Mgt. Relate	85+	NA	389	97
17	17	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	75-84	NA	889	222
18	18	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	889	222
19	19	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	389	194
25	25	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	889	222
26	26	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	889	222
40	40	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	389	97
41	41	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	889	222
48	48	Best CEG	1959	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	4,074	3,055
56	56	Best CEG	1998	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	0-29	NA	7,778	5,833
75	75	Best CEG	1984	Photos	Hill Slope	Headwall Swale	Convergent	Natural	50-64	NA	222	55
81	81	Best CEG	1930	Photos	Hill Slope	Headwall Swale	Convergent	Natural	0-29	NA	1,481	1,110
82	82	Best CEG	1930	Photos	Hill Slope	Headwall Swale	Convergent	Natural	0-29	NA	1,481	1,110
92	92	Best CEG	1947	Photos	Hill Slope	Headwall Swale	Convergent	Natural	0-29	NA	648	486
99	99	Best CEG	1930	Photos	Hill Slope	Headwall Swale	Convergent	Natural	0-29	NA	6,519	4,888
100	100	Best CEG	1930	Photos	Hill Slope	Headwall Swale	Convergent	Natural	0-29	NA	11,852	8,889
101	101	Best CEG	1930	Photos	Hill Slope	Headwall Swale	Convergent	Natural	0-29	NA	11,852	8,889
119	119	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	6,519	1,629
154	154	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	0-29	Ukn	1,481	1,110
172	172	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	30-49	NA	1,481	740
173	173	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	648	324
174	174	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	1,481	1,110
186	186	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	75-84	NA	11,852	8,889
187	187	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	NA	18,519	13,888
189	189	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Convergent	Natural	65-74	NA	222	166
190	190	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Convergent	Natural	85+	NA	389	292
191	191	Best CEG	1998	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	1,778	1,333
233	233	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Convergent	Natural	85+	NA	67	49
240	240	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	65-74	NA	222	111
252	252	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Divergent	Natural	85+	Ukn	4,074	3,055
255	255	Best CEG	1984	Photos	Hill Slope	Inner Gorge	Divergent	Natural	75-84	Ukn	222	166
256	256	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Divergent	Natural	65-74	NA	67	16
262	262	Best CEG	1970	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	Ukn	648	486
265	265	Best CEG	1970	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	Ukn	1,481	1,110
266	266	Best CEG	1959	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural	0-29	Ukn	2,370	1,777
267	267	Best CEG	1959	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	Ukn	6,519	4,888
289	289	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Plannar	Natural	30-49	NA	1,481	1,110
293	293	Best CEG	1970	Photos	Stream Bank Failure	Inner Gorge		Natural	65-74	Ukn	648	486
294	294	Best CEG	1970	Photos	Stream Bank Failure	Inner Gorge		Natural	50-64	Ukn	648	486
295	295	Best CEG	1959	Photos	Stream Bank Failure	Inner Gorge		Natural	85+	Ukn	648	486
297	297	Best CEG	1947	Photos	Hill Slope	Inner Gorge		Natural	0-29	Ukn	389	292
298	298	Best CEG	1947	Photos	Hill Slope	Inner Gorge		Natural	30-49	NA	389	97
304	304	Best CEG	1970	Photos	Landing	Inner Gorge	Plannar	Mgt. Relate	0-29	Ukn	4,074	3,055
307	307	Best CEG	1970	Photos	Hill Slope	Inner Gorge	Plannar	Natural	30-49	Ukn	1,481	1,110
314	314	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	370	277
339	339	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	0-29	NA	1,481	370
341	341	Best CEG	1959	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	648	486
349	349	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	NA	1,037	777
360	360	Best CEG	1959	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	389	292

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
365	365	Best CEG	1998	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	389	194
387	387	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	Ukn	14,444	10,833
388	388	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	0-29	Ukn	12,963	9,722
396	396	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	NA	389	97
406	406	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	Ukn	1,481	1,110
409	409	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	4,074	2,037
417	417	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	389	292
418	418	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	NA	67	49
429	429	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	370	277
430	430	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	NA	370	92
435	435	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	1,037	777
436	436	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	2,370	1,777
440	440	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	222	166
443	443	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	222	166
446	446	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	389	292
449	449	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	NA	389	292
451	451	Best CEG	1998	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	NA	389	97
468	468	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	1,481	1,110
469	469	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	1,481	1,110
470	470	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	370	185
471	471	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	370	277
475	475	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	648	324
476	476	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	4,074	3,055
485	485	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	2,370	1,185
486	486	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	67	49
487	487	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	222	111
493	493	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	1,481	1,110
494	494	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	648	486
498	498	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	389	292
501	501	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	0-29	Ukn	222	166
502	502	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	222	166
503	503	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	0-29	Ukn	222	166
525	525	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	648	486
526	526	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	648	486
527	527	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	75-84	Ukn	1,481	1,110
528	528	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	1,481	1,110
530	530	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	370	277
531	531	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	648	486
540	540	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	NA	222	166
542	542	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	Ukn	648	486
543	543	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	Ukn	648	324
547	547	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	889	444
548	548	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	30-49	Ukn	222	166
551	551	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	75-84	Ukn	389	292
569	569	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	0-29	NA	1,481	370
570	570	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	30-49	Ukn	648	486
571	571	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	Ukn	648	486
572	572	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	Ukn	1,481	1,110
586	586	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	50-64	Ukn	4,074	3,055
591	591	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	50-64	Ukn	889	444
592	592	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	75-84	NA	2,444	611
596	596	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	50-64	NA	1,481	740
603	603	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Divergent	Natural	50-64	Ukn	1,481	1,110
608	608	Best CEG	1970	Photos	Hill Slope	Inner Gorge	Plannar	Natural		Ukn	16,898	8,448

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
615	615	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Plannar	Natural	50-64	Ukn	1,481	1,110
616	616	Best CEG	1970	Photos	Hill Slope	Inner Gorge		Natural	0-29	Ukn	222	166
617	617	Best CEG	1970	Photos	Hill Slope	Inner Gorge		Natural	50-64	Ukn	222	166
625	625	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	389	292
627	627	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	50-64	NA	648	486
631	631	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	0-29	Ukn	370	277
636	636	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	0-29	Ukn	389	292
645	645	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate		Ukn	1,527	763
656	656	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	1,481	1,110
657	657	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	NA	648	486
661	661	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	2,370	1,185
669	669	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	648	486
670	670	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	648	486
677	677	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	85+	Ukn	222	166
710	710	Best CEG	1998	Photos	Road		Divergent	Mgt. Relate	65-74	NA	67	16
720	720	Best CEG	1959	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	648	486
724	724	Best CEG	1998	Photos	Stream Bank Failure		Convergent	Natural	50-64	NA	67	16
727	727	Best CEG	1998	Photos	Stream Bank Failure		Divergent	Natural	85+	NA	67	16
731	731	Best CEG	1959	Photos	Stream Bank Failure		Plannar	Natural	65-74	NA	1,481	740
734	734	Best CEG	1959	Photos	Stream Bank Failure		Plannar	Natural	0-29	NA	2,370	1,185
735	735	Best CEG	1970	Photos	Stream Bank Failure			Natural	0-29	Ukn	6,519	4,888
740	740	Best CEG	1970	Photos	Road		Convergent	Mgt. Relate	50-64	NA	389	97
741	741	Best CEG	1970	Photos	Road		Convergent	Mgt. Relate	50-64	NA	222	55
750	750	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	222	55
754	754	Best CEG	1947	Photos	Hill Slope		Convergent	Natural	50-64	Ukn	222	166
767	767	Best CEG	1998	Photos	Hill Slope		Convergent	Natural	50-64	NA	67	33
768	768	Best CEG	1998	Photos	Hill Slope		Convergent	Natural	30-49	NA	67	33
785	785	Best CEG	1984	Photos	Stream Bank Failure		Plannar	Natural	0-29	Ukn	648	486
786	786	Best CEG	1984	Photos	Stream Bank Failure		Plannar	Natural	30-49	Ukn	648	486
797	797	Best CEG	1998	Photos	Hill Slope		Plannar	Natural	85+	NA	67	16
817	817	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	85+	NA	389	97
834	834	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	389	194
839	839	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	889	222
850	850	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	1,481	740
851	851	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	1,481	370
852	852	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	648	162
853	853	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	75-84	Ukn	648	324
864	864	Best CEG	1984	Photos	Road		Plannar	Mgt. Relate	30-49	NA	2,444	611
882	882	Best CEG	1959	Photos	Skid Trail		Convergent	Mgt. Relate	30-49	NA	67	49
892	892	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	30-49	NA	648	486
893	893	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	Ukn	648	486
903	903	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	50-64	Ukn	6,519	4,888
915	915	Best CEG	1998	Photos	Skid Trail		Convergent	Mgt. Relate	85+	NA	67	33
916	916	Best CEG	1998	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	67	49
931	931	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	1,481	740
932	932	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	Ukn	648	486
940	940	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	30-49	NA	648	324
942	942	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	85+	NA	648	486
956	956	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	NA	389	97
964	964	Best CEG	1959	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	222	55
998	998	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	648	324
1019	1019	Best CEG	1970	Photos	Skid Trail		Plannar	Mgt. Relate	65-74	NA	389	194
1047	1047	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	30-49	NA	648	324
1050	1050	Best CEG	1970	Photos	Skid Trail			Mgt. Relate	30-49	Ukn	2,444	1,833

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1051	1051	Best CEG	1970	Photos	Skid Trail			Mgt. Relate	30-49	Ukn	2,444	1,833
1052	1052	Best CEG	1970	Photos	Skid Trail			Mgt. Relate	50-64	Ukn	2,444	1,833
1054	1054	Best CEG	1970	Photos	Skid Trail			Mgt. Relate	0-29	Ukn	1,481	1,110
1058	1058	Best CEG	1998	Photos	Hill Slope		Convergent	Natural	85+	NA	67	33
1060	1060	Best CEG	1970	Photos	Hill Slope		Convergent	Natural	30-49	Ukn	648	486
1067	1067	Best CEG	1970	Photos	Hill Slope		Plannar	Natural	65-74	NA	389	292
1088	1088	Best CEG	1970	Photos	Stream Bank Failure		N/A	Natural		Ukn	6,471	4,853
1098	1098	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	9,010,298	0
1100	1100	Best CEG	1959	Photos	Road		Convergent	Mgt. Relate	30-49	Ukn	67	33
1103	1103	Best CEG	1959	Photos	Road		Plannar	Mgt. Relate	50-64	Ukn	889	444
1104	1104	Best CEG	1959	Photos	Road		Plannar	Mgt. Relate	65-74	Ukn	67	16
1105	1105	Best CEG	1959	Photos	Road		Plannar	Mgt. Relate	50-64	Ukn	67	16
1143	1143	Best CEG	1970	Photos	Hill Slope		Convergent	Natural	50-64	NA	5,926	0
1144	1144	Best CEG	1970	Photos	Hill Slope		Convergent	Natural	30-49	NA	5,926	0
1150	1150	Best CEG	1970	Photos	Hill Slope		Plannar	Natural	65-74	NA	222	166
1169	1169	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	119,194	0
1170	1170	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	169,366	0
1195	1195	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	2,125,677	0
1196	1196	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	590,261	0
1197	1197	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	224,662	0
1198	1198	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	184,370	0
1199	1199	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	339,888	0
1209	1209	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	208,882	0
1210	1210	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	75,912	0
1211	1211	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	181,924	0
1212	1212	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	200,166	0
1213	1213	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	1,092,839	0
1245	1245	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	215,941	0
1247	1247	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	387,987	0
1248	1248	Best CEG	1900	Photos	Translational Slide		N/A	Natural	30-49	NA	29,630	0
1249	1249	Best CEG	1984	Photos	Stream Bank Failure		N/A	Natural		NA	4,399	3,299
1262	1262	Best CEG	1998	Photos	Road	Headwall Swale	Plannar	Mgt. Relate		NA	648	324
1268	1268	Best CEG	1998	Photos	Road	Inner Gorge	Plannar	Mgt. Relate		NA	389	97
1269	1269	Best CEG	1998	Photos	Hill Slope		Convergent	Natural		NA	2,370	1,777
1277	1277	Best CEG	1998	Photos	Stream Bank Failure		Convergent	Natural		NA	14,052	10,538
1278	1278	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	222	111
1279	1279	Best CEG	1998	Photos	Road	Inner Gorge	Plannar	Mgt. Relate		NA	222	111
1280	1280	Best CEG	1998	Photos	Road	Headwall Swale	Convergent	Mgt. Relate		NA	19,641	14,731
1281	1281	Best CEG	1998	Photos	Landing		Convergent	Mgt. Relate		NA	867	433
1282	1282	Best CEG	1998	Photos	Landing		Convergent	Mgt. Relate		NA	119	0
1283	1283	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	3,804	1,902
1284	1284	Best CEG	1998	Photos	Road	Headwall Swale	Convergent	Mgt. Relate		NA	648	324
1285	1285	Best CEG	1998	Photos	Road		Plannar	Mgt. Relate		NA	222	111
1286	1286	Best CEG	1998	Photos	Stream Bank Failure		Divergent	Natural		NA	33	8
1299	1299	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	222	111
1300	1300	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	222	111
1301	1301	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	648	324
1302	1302	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	648	324
1303	1303	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	1,481	740
1304	1304	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Plannar	Natural		NA	33	0
1305	1305	Best CEG	1998	Photos	Road	Headwall Swale	Convergent	Mgt. Relate		NA	648	324
1306	1306	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	370	185
1307	1307	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	3,223	1,611
1308	1308	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	7,152	3,575

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1309	1309	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	222	66
1310	1310	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	222	66
1311	1311	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Convergent	Natural		NA	389	292
1312	1312	Best CEG	1998	Photos	Stream Bank Failure		Plannar	Natural		NA	33	0
1313	1313	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	370	185
1314	1314	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	67	33
1315	1315	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	370	185
1316	1316	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	222	55
1317	1317	Best CEG	1998	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate		NA	370	185
1318	1318	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	648	162
1319	1319	Best CEG	1998	Photos	Stream Bank Failure		Plannar	Natural		NA	222	55
1320	1320	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	11,740	2,935
1325	1325	Best CEG	1998	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		NA	2,370	1,777
1331	1331	Best CEG	1998	Photos	Road			Mgt. Relate		NA	111	0
1332	1332	Best CEG	1984	Photos	Hill Slope			Natural		NA	22	11
1333	1333	Best CEG	1998	Photos	Hill Slope			Natural		NA	15	7
1334	1334	Best CEG	1998	Photos	Hill Slope			Natural		NA	15	7
1335	1335	Best CEG	1984	Photos	Hill Slope			Natural		NA	222	199
1336	1336	Best CEG	1984	Photos	Hill Slope			Natural		NA	44	0
1337	1337	Best CEG	1900	Photos	Translational Slide			Natural		NA	336,633	0
1338	1338	Best CEG	1998	Photos	Road		Convergent	Mgt. Relate		NA	104	0
1339	1339	Best CEG	1998	Photos	Road		Convergent	Mgt. Relate		NA	89	0
1340	1340	Best CEG	1998	Photos	Road		Convergent	Mgt. Relate		NA	370	296
1341	1341	Best CEG	1984	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	4	4
1342	1342	Best CEG	1984	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	4	4
1343	1343	Best CEG	1984	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	267	53
1344	1344	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate		NA	556	277
1346	1346	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate		NA	67	33
1347	1347	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate		NA	67	33
1348	1348	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	44	22
1349	1349	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	0	0
1362	1362	Best CEG	1998	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		NA	4,074	1,018
1373	1373	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	4,519,913	0
1377	1377	Haschak	1984	Field	Road	Headwall Swale	Convergent	Mgt. Relate	75-84	NA	556	0
1378	1378	Haschak	1900	Field	Hill Slope	Headwall Swale	Convergent	Natural	65-74	III	2,222	555
1379	1379	Haschak	1984	Field	Hill Slope	Headwall Swale	Plannar	Natural	65-74	NA	417	0
1380	1380	Haschak	1984	Field	Hill Slope	Headwall Swale	Plannar	Natural	65-74	NA	417	0
1381	1381	Haschak	1984	Field	Road	Inner Gorge	Convergent	Mgt. Relate	75-84	I	778	0
1400	1400	Haschak	1970	Field	Hill Slope	Inner Gorge	Plannar	Natural	50-64	III	46	41
1401	1401	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64	NA	1,736	173
1402	1402	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64	NA	23	0
1403	1403	Haschak	1970	Field	Hill Slope		Plannar	Natural	30-49	NA	23	0
1404	1404	Haschak	1947	Field	Hill Slope		Plannar	Natural	30-49	NA	30	0
1405	1405	Haschak	1984	Field	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	III	625	437
1406	1406	Haschak	1984	Field	Hill Slope		Convergent	Natural	50-64	III	417	291
1407	1407	Haschak	1900	Field	Hill Slope		Plannar	Natural	50-64	II	417	208
1408	1408	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	II	119	119
1409	1409	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	II	93	93
1410	1410	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	II	119	119
1411	1411	Haschak	1998	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	1,333	1,199
1412	1412	Haschak	1900	Field	Hill Slope		Divergent	Natural	50-64	III	1,481	296
1413	1413	Haschak	1998	Field	Road		Plannar	Mgt. Relate	50-64	III	278	278
1414	1414	Haschak	1970	Field	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	II	111	55
1415	1415	Haschak	1947	Field	Hill Slope		Plannar	Natural	50-64	NA	400	0

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1441	1441	Fisher	1998	Field	Road	Inner Gorge		Mgt. Relate	30-49	II	200	200
1442	1442	Fisher	1998	Field	Road	Inner Gorge		Mgt. Relate	30-49	II	200	200
1496	1496	Best CEG	1998	Photos	Stream Bank Failure		Plannar	Natural			434	216
1538	1538		0		Unknown			Natural			0	0
1539	1539		0		Unknown			Natural			0	0
1540	1540		0		Unknown			Natural			0	0
1541	1541		0		Unknown			Natural			0	0
1542	1542	Best CEG	1998	Photos	Hill Slope		Convergent	Natural			14,052	10,538
1546	1546		0		Unknown			Natural			0	0
1547	1547		0		Unknown			Natural			0	0
1584	1584	Best CEG	1998	Photos	Road		Plannar	Mgt. Relate			426	212
1586	1586	Best CEG	2004	Photos	Road		Plannar	Mgt. Relate			256	63
1587	1587	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			50	0
1588	1588	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			50	0
1589	1589	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			1,185	592
1590	1590	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			144	0
1592	1592	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			50	0
1612	1612	Best CEG	1998	Photos	Hill Slope		Plannar	Natural			144	0
1613	1613	Best CEG	2004	Photos	Stream Bank Failure		Plannar	Natural			144	108
1614	1614	Best CEG	2004	Photos	Stream Bank Failure		Plannar	Natural			256	102
1615	1615	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			50	0
1616	1616	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			50	12
1617	1617	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			256	127
26	1627		0		THP Site, no data			No Info.			0	0
1628	1628		0		THP Site, no data			No Info.			0	0
1629	1629		0		THP Site, no data			No Info.			0	0
1630	1630		0		THP Site, no data			No Info.			0	0
1631	1631		0		THP Site, no data			No Info.			0	0
25	1632		0		THP Site, no data			No Info.			0	0
17	1633		0		THP Site, no data			No Info.			0	0
1634	1634		0		THP Site, no data			No Info.			0	0
1678	1678		0		THP Site, no data			No Info.			0	0
1679	1679		0		THP Site, no data			No Info.			0	0
1680	1680		0		THP Site, no data			No Info.			0	0
1681	1681		0		THP Site, no data			No Info.			0	0
1743	1743		0		THP Site, no data			No Info.			0	0
1744	1744		0		THP Site, no data			No Info.			0	0
1745	1745		0		THP Site, no data			No Info.			0	0
1746	1746		0		THP Site, no data			No Info.			0	0
1748	1748		0		THP Site, no data			No Info.			0	0
1749	1749		0		THP Site, no data			No Info.			0	0
1771	1771		0		THP Site, no data			No Info.			0	0
1772	1772		0		THP Site, no data			No Info.			0	0
1773	1773	Haschak	2010	Field	Road		Convergent	Mgt. Relate	50-64	III	444	444
75	1774	Haschak	1984	Field	Translational Slide		Convergent	Natural	50-64	III	5,556	4,444
1143	1775	Haschak	1901	Field	Hill Slope		Plannar	Natural	65-74	II	333	267
1776	1776	Haschak	1998	Field	Stream Bank Failure		Convergent	Natural	50-64	II	556	556
1777	1777	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	67	67
1778	1778	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	222	222
1779	1779	Haschak	1959	Field	Hill Slope		Plannar	Natural	75-84	NA	2,222	1,111
1780	1780	Haschak	1959	Field	Translational Slide		Plannar	Natural	75-84	NA	8,889	4,444
1781	1781	Haschak	1959	Field	Translational Slide	Inner Gorge	Plannar	Natural	65-74	I	2,500	2,500
1783	1783	Haschak	1984	Field	Translational Slide		Plannar	Natural	50-64	II	1,111	1,111
1784	1784	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	II	0	0

Map#	*ID #*	*Inspector*	*Year***	*Source*	*Slide Type*	*Slope Type*	*Slope Form*	*Association*	*Slope*	*Stream*	*Total Yds*	*Delivered*
1785	1785	Haschak	1984	Field	Stream Bank Failure	Inner Gorge		Natural	50-64		0	0
1800	1800	Haschak	2010	Field	Road		Convergent	Mgt. Relate	50-64	III	625	0
1829	1829	Haschak	2010	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	556	556
1875	1875	Pehl	1901	Field	THP Site, no data			No Info.			0	
1901	1901	Haschak	1984	Field	Unknown		Plannar	Natural	65-74	NA	333	0
1902	1902	Haschak	1984	Field	Skid Trail		Plannar	Mgt. Relate	50-64	NA	278	83
1903	1903	Haschak	1900	Field	Translational Slide		Plannar	Natural	75-84	III	1,111	0
1904	1904	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	II	333	167
1905	1905	Haschak	1984	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	185	185
1906	1906	Haschak	1959	Field	Hill Slope	Inner Gorge		Natural	65-74		625	438
1907	1907	Haschak	1930	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	1,250	1,125
1908	1908	Haschak	1998	Field	Hill Slope		Plannar	Natural	50-64	NA	296	0
1909	1909	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	85+	II	556	556
1910	1910	Haschak	1970	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	I	417	417
1911	1911	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	I	278	278
1912	1912	Haschak	1984	Field	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	I	556	444
1913	1913	Haschak	1984	Field	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	I	556	444
1914	1914	Haschak	1959	Field	Unknown	Inner Gorge	Convergent	Natural	75-84	I	556	556
1915	1915	Haschak	1998	Field	Unknown	Inner Gorge		Natural	65-74		222	222
1917	1917	Haschak	1984	Field	Unknown	Inner Gorge	Plannar	Natural	75-84	II	1,875	1,500
1918	1918	Haschak	1998	Field	Unknown	Inner Gorge	Convergent	Natural	65-74	III	185	185
1920	1920	Haschak	2010	Field	Road	Headwall Swale	Convergent	Mgt. Relate	50-64	III	400	360
1946	1946	Haschak	1959	Field	Unknown	Inner Gorge	Plannar	Natural	65-74	II	347	243
1947	1947	Haschak	2004	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	278	278
1959	1959	Haschak	1900	Field	Translational Slide		Convergent	Natural	65-74	III	463	231
1960	1960	Haschak	1900	Field	Translational Slide		Convergent	Natural	65-74	III	463	231
1961	1961	Haschak	1984	Field	Hill Slope		Plannar	Natural	50-64	II	44	11
1962	1962	Haschak	1984	Field	Hill Slope	Inner Gorge	Plannar	Natural	50-64	II	556	278
1963	1963	Haschak	1984	Field	Hill Slope		Convergent	Natural	50-64	NA	278	0
1964	1964	Haschak	1984	Field	Hill Slope		Convergent	Natural	65-74	NA	417	
1965	1965	Haschak	1984	Field	Hill Slope		Convergent	Natural	50-64	NA	185	0
1967	1967	Haschak	2010	Field	Translational Slide		Convergent	Natural	50-64	III	6,250	3,125

Summary for 'PW Name' = Big Pepperwood Creek (351 detail records)

Delivery **Avg** *803* **Min** *0* **Max** *14,731* **Sum** *280,346*

*Landslide information for this report comes from two main sources, aerial photo analysis or field observations. Information about a landslide is entered into a database and the Slide ID number is entered into GIS and appears on the maps. Information about landslides entered by professionals other than a licensed geologist should be considered as informational until reviewed by a licensed geologist.

**Tim Best, CEG analyzed six sets of aerial photos to identify landslides (1947, 1959, 1970, 1984, 1998 and 2004). The year in this report is usually the year of the photos on which the slide was first observed. If the year is 1900 it means the slide is ancient. If the year is 1930 means the slide was old in the 1947 photos. If the year is 2010 it means the slide occurred after the most recent photos in 2004.

Landslides - Total Yards

Planning Watershed *Mouth of the Gualala River*

	Source	ancient	1930**	1947	1959	1970	1984	1998	2004
	Natural	127,060,820			1,685	4,722	2,944	1,004	1,441
	Mgt. Related				222	3,963	8,659	222	
Sum	**Mouth of the Gualala River**	*127,060,820*			*1,907*	*8,685*	*11,604*	*1,226*	*1,441*
			Per Year		*159*	*790*	*829*	*88*	*240*

**** Translational Slides*** ***** Slides that were old on the 1947 photos***

Landslides - Delivery to Watercourses (Yards)

Planning Watershed *Mouth of the Gualala River*

	Photo year observed	*1900**	*1930***	*1947*	*1959*	*1970*	*1984*	*1998*	*2004*	*Total*
	Natural	0			1,167	1,504	1,799	411	359	5,240
	Mgt. Related				55	1,620	3,044	166		4,885
Mouth of the Gualala River	**Sum**	*0*			*1,222*	*3,124*	*4,843*	*578*	*359*	*10,126*
	Per Year				*102*	*284*	*346*	*41*	*60*	
	Percent	*0.0%*			*12.1%*	*30.8%*	*47.8%*	*5.7%*	*3.5%*	*100.0%*

** Historic Translational Slides ** Slides that were old on the 1947 photos*

Landslides*

Planning Watershed *Mouth of the Gualala River*

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
28	28	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	648	162
43	43	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	0-29	NA	222	55
44	44	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	389	97
50	50	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	1,481	370
65	65	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural	75-84	NA	67	16
66	66	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Divergent	Natural	50-64	NA	67	16
67	67	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Divergent	Natural	85+	NA	222	55
93	93	Best CEG	1984	Photos	Hill Slope	Headwall Swale	Convergent	Natural	30-49	NA	648	324
127	127	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	648	324
250	250	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	30-49	Ukn	648	486
251	251	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	65-74	Ukn	648	486
253	253	Best CEG	1984	Photos	Hill Slope	Inner Gorge	Divergent	Natural	50-64	NA	67	16
290	290	Best CEG	1984	Photos	Hill Slope	Inner Gorge	Plannar	Natural	30-49	Ukn	1,481	1,110
746	746	Best CEG	1959	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	222	55
759	759	Best CEG	1984	Photos	Hill Slope		Convergent	Natural	50-64	NA	67	16
780	780	Best CEG	1959	Photos	Hill Slope		Divergent	Natural	50-64	NA	389	194
783	783	Best CEG	1970	Photos	Hill Slope		Divergent	Natural	85+	NA	648	486
792	792	Best CEG	1998	Photos	Hill Slope		Plannar	Natural	50-64	NA	648	324
799	799	Best CEG	1970	Photos	Hill Slope		Plannar	Natural	30-49	NA	4,074	1,018
838	838	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	0-29	NA	2,370	592
849	849	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	648	324
918	918	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	30-49	NA	222	111
919	919	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	50-64	Ukn	389	292
922	922	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	0-29	NA	222	55
938	938	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	648	486
939	939	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	85+	NA	648	324
952	952	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	67	33
974	974	Best CEG	1998	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	NA	222	166
979	979	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	NA	389	97
980	980	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	75-84	NA	222	111
986	986	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	0-29	NA	222	55
987	987	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	75-84	NA	222	55
988	988	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	65-74	NA	222	111
989	989	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	NA	389	97
1000	1000	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	Ukn	648	486
1003	1003	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	65-74	NA	1,481	370
1020	1020	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	30-49	NA	222	55
1065	1065	Best CEG	1984	Photos	Hill Slope		Divergent	Natural	30-49	NA	648	324
1099	1099	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	28,885,683	0
1200	1200	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	3,999,571	0
1219	1219	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	2,625,584	0
1220	1220	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	1,240,194	0
1221	1221	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	271,840	0
1224	1224	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	643,376	0
1225	1225	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	1,432,993	0
1235	1235	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	1,795,857	0
1236	1236	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	2,428,156	0
1291	1291	Best CEG	1984	Photos	Stream Bank Failure		Plannar	Natural		NA	33	8
1371	1371	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	41,994,496	0

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1372	1372	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	3,339,083	0
1375	1375	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	5,709,893	0
1376	1376	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	32,694,094	0
1384	1384	Haschak	1984	Field	Hill Slope		Plannar	Natural	50-64	NA	139	0
1392	1392	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Convergent	Natural	65-74	III	833	749
1393	1393	Haschak	1984	Field	Landing		Convergent	Mgt. Relate	50-64	II	556	416
1394	1394	Haschak	1984	Field	Road		Plannar	Mgt. Relate	65-74	II	1,111	555
1395	1395	Haschak	1984	Field	Road	Inner Gorge	Convergent	Mgt. Relate	50-64	III	278	0
1443	1443	Haschak	1970	Field	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	III	1,111	277
1444	1444	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	II	667	667
1445	1445	Haschak	1900	Field	Hill Slope		Convergent	Natural	50-64	NA	741	74
1530	1530	Haschak	1998	Field	Hill Slope	Inner Gorge	Convergent	Natural	75-84	III	694	347
1577	1577	Best CEG	2004	Photos	Hill Slope		Convergent	Natural			256	63
1578	1578	Best CEG	2004	Photos	Hill Slope		Convergent	Natural			1,185	296
1654	1654		0		THP Site, no data			No Info.			0	0
1655	1655		0		THP Site, no data			No Info.			0	0
1656	1656		0		THP Site, no data			No Info.			0	0
1657	1657		0		THP Site, no data			No Info.			0	0
1698	1698		0		THP Site, no data			No Info.			0	0
1699	1699		0		THP Site, no data			No Info.			0	0
1700	1700		0		THP Site, no data			No Info.			0	0
1701	1701		0		THP Site, no data			No Info.			0	0
1709	1709		0		THP Site, no data			No Info.			0	0
1710	1710		0		THP Site, no data			No Info.			0	0
1711	1711		0		THP Site, no data			No Info.			0	0
1712	1712		0		THP Site, no data			No Info.			0	0
1713	1713		0		THP Site, no data			No Info.			0	0
1747	1747		0		THP Site, no data			No Info.			0	0
1751	1751		0		THP Site, no data			No Info.			0	0
1767	1767		0		THP Site, no data			No Info.			0	0
1768	1768		1998	Field	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	III	667	333
1769	1769		0		THP Site, no data			No Info.			0	0
1770	1770		0		THP Site, no data			No Info.			0	0
1807	1807	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	III	15	15
1820	1820	Haschak		Field	THP Site, no data			No Info.		I	0	
1821	1821	Haschak		Field	THP Site, no data			No Info.			0	
1822	1822	Haschak		Field	THP Site, no data			No Info.			0	
1823	1823	Haschak		Field	THP Site, no data			No Info.			0	
1824	1824	Haschak		Field	THP Site, no data			No Info.			0	
1825	1825	Haschak		Field	THP Site, no data			No Info.			0	
1826	1826	Haschak		Field	THP Site, no data			No Info.			0	
1827	1827	Haschak		Field	THP Site, no data			No Info.			0	
1828	1828	Haschak		Field	THP Site, no data			No Info.			0	
1839	1839	Haschak	1959	Field	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	I	333	100
1840	1840	Haschak	1959	Field	Hill Slope		Convergent	Natural	65-74	III	333	267
1841	1841	Haschak	1930	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	167	150
1843	1843	Haschak	1959	Field	Hill Slope	Inner Gorge	Convergent	Natural	75-84	II	125	125
1844	1844	Haschak	1930	Field	Hill Slope	Inner Gorge	Convergent	Natural	65-74	II	2,222	2,222
1845	1845	Haschak	1970	Field	Hill Slope		Convergent	Natural	65-74	I	74	0
1846	1846	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	II	556	389
1847	1847	Haschak	1901	Field	Stream Bank Failure		Plannar	Natural	30-49	II	278	250
1848	1848	Haschak	1901	Field	Hill Slope		Plannar	Natural	75-84	NA	1,111	0
1849	1849	Haschak	1930	Field	Hill Slope	Inner Gorge	Plannar	Natural	75-84	II	56	56
1850	1850	Haschak	1930	Field	Hill Slope	Inner Gorge	Plannar	Natural	75-84	II	111	111

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1851	1851	Haschak	1930	Field	Hill Slope	Inner Gorge	Plannar	Natural	75-84	II	116	116
1852	1852	Haschak	1930	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	222	222
1853	1853	Haschak	1959	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	33	30
1854	1854	Haschak	1900	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	583	583
1855	1855	Haschak	1901	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	389	389
1859	1859	Haschak	1900	Field	Unknown	Inner Gorge	Convergent	Natural	65-74	II	778	622
1878	1878	Haschak	1970	Field	Road	Headwall Swale	Convergent	Mgt. Relate	50-64	III	1,111	556
1894	1894	Haschak	1998	Field	Skid Trail		Convergent	Mgt. Relate	65-74	III	67	50
1944	1944	Haschak	1998	Field	Hill Slope		Plannar	Natural	50-64	II	133	0
1945	1945	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Convergent	Natural	75-84	II	167	83
1948	1948	Haschak	1930	Field	Stream Bank Failure	Inner Gorge	Convergent	Natural	65-74	II	1,250	1,125

Summary for 'PW Name' = Mouth of the Gualala River (114 detail records)

Delivery **Avg** *200* **Min** *0* **Max** *2,222* **Sum** *21,005*

*Landslide information for this report comes from two main sources, aerial photo analysis or field observations. Information about a landslide is entered into a database and the Slide ID number is entered into GIS and appears on the maps. Information about landslides entered by professionals other than a licensed geologist should be considered as informational until reviewed by a licensed geologist.

**Tim Best, CEG analyzed six sets of aerial photos to identify landslides (1947, 1959, 1970, 1984, 1998 and 2004). The year in this report is usually the year of the photos on which the slide was first observed. If the year is 1900 it means the slide is ancient. If the year is 1930 means the slide was old in the 1947 photos. If the year is 2010 it means the slide occurred after the most recent photos in 2004.

Landslides - Total Yards

Planning Watershed *Little Creek*

	Source	ancient	1930**	1947	1959	1970	1984	1998	2004
	Natural	1,875,774	1,741	389	2,344		759	13,307	620
	Mgt. Related				10,356	76,730	28,467	5,993	
Sum	**Little Creek**	*1,875,774*	*1,741*	*389*	*12,700*	*76,730*	*29,226*	*19,300*	*620*
			Per Year		*1,058*	*6,975*	*2,088*	*1,379*	*103*

**** Translational Slides*** ***** Slides that were old on the 1947 photos***

Landslides - Delivery to Watercourses (Yards)

Planning Watershed *Little Creek*

	Photo year observed	1900*	1930**	1947	1959	1970	1984	1998	2004	Total
	Natural	0	1,194	97	886		463	5,757	106	8,504
	Mgt. Related				5,163	40,578	12,101	3,402		61,245
Little Creek	**Sum**	*0*	*1,194*	*97*	*6,049*	*40,578*	*12,564*	*9,160*	*106*	*69,749*
	Per Year				*504*	*3,689*	*897*	*654*	*18*	
	Percent	*0.0%*	*1.7%*	*0.1%*	*8.7%*	*58.2%*	*18.0%*	*13.1%*	*0.2%*	*100.0%*

** Historic Translational Slides ** Slides that were old on the 1947 photos*

Landslides*

Planning Watershed *Little Creek*

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1	1	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	6,519	3,259
20	20	Best CEG	1970	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	222	55
21	21	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	389	194
24	24	Best CEG	1970	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	1,481	740
33	33	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	67	49
46	46	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	85+	NA	2,444	611
59	59	Best CEG	1959	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	648	486
109	109	Best CEG	1947	Photos	Hill Slope	Headwall Swale	Convergent	Natural	50-64	NA	389	97
116	116	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	648	162
120	120	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	222	55
121	121	Best CEG	1970	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	67	16
128	128	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	648	486
211	211	Best CEG	1959	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	0-29	Ukn	389	292
235	235	Best CEG	1930	Photos	Hill Slope	Inner Gorge	Convergent	Natural	85+	Ukn	222	111
236	236	Best CEG	1930	Photos	Hill Slope	Inner Gorge	Convergent	Natural	85+	Ukn	222	111
237	237	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	30-49	Ukn	222	166
238	238	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Convergent	Natural	85+	Ukn	389	194
248	248	Best CEG	1930	Photos	Hill Slope	Inner Gorge	Convergent	Natural	85+	Ukn	648	486
271	271	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Plannar	Natural	75-84	NA	67	16
272	272	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Plannar	Natural	75-84	NA	648	162
273	273	Best CEG	1959	Photos	Hill Slope	Inner Gorge	Plannar	Natural	65-74	NA	648	162
301	301	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	889	444
308	308	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		Ukn	16,719	8,359
309	309	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		Ukn	13,536	6,768
310	310	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	NA	222	166
312	312	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	0-29	Ukn	222	166
324	324	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	222	166
325	325	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	389	292
326	326	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	889	4
327	327	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	389	292
328	328	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	889	667
329	329	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	222	166
330	330	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	222	166
331	331	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	222	166
332	332	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	30-49	Ukn	389	292
334	334	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	389	194
335	335	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	889	667
336	336	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	222	166
343	343	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	648	486
344	344	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	648	324
345	345	Best CEG	1959	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	4,074	2,037
346	346	Best CEG	1970	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	648	486
350	350	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate		Ukn	3,229	2,421
351	351	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate		Ukn	2,977	1,488
357	357	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	75-84	NA	222	55
358	358	Best CEG	1998	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	85+	Ukn	222	111
359	359	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate		Ukn	686	343
367	367	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	389	97
370	370	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	222	55

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
373	373	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	222	111
374	374	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	222	166
375	375	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	222	111
376	376	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	85+	Ukn	389	194
379	379	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	1,481	1,110
380	380	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	85+	Ukn	648	486
381	381	Best CEG	1970	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	7,407	3,703
389	389	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	389	97
390	390	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	Ukn	389	292
391	391	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	Ukn	67	49
392	392	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	389	97
398	398	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	85+	Ukn	222	111
399	399	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	85+	Ukn	389	97
401	401	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	50-64	Ukn	389	292
402	402	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	75-84	Ukn	389	194
403	403	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	85+	Ukn	389	194
412	412	Best CEG	1970	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	85+	Ukn	648	486
420	420	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	NA	222	1
425	425	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	67	16
432	432	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	648	324
442	442	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	NA	389	292
457	457	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	30-49	NA	222	166
472	472	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	NA	648	486
477	477	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	NA	1,481	740
482	482	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	648	324
489	489	Best CEG	1970	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	67	16
504	504	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	222	55
515	515	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	222	55
516	516	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	389	97
517	517	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	85+	NA	889	444
518	518	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	75-84	NA	389	97
519	519	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	222	55
544	544	Best CEG	1959	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	Ukn	648	486
589	589	Best CEG	1984	Photos	Hill Slope	Inner Gorge	Convergent	Natural	85+	Ukn	370	185
705	705	Best CEG	1930	Photos	Hill Slope	Headwall Swale	Convergent	Natural	85+	Ukn	648	486
706	706	Best CEG	1984	Photos	Hill Slope	Headwall Swale	Convergent	Natural	75-84	Ukn	222	111
760	760	Best CEG	1998	Photos	Hill Slope		Convergent	Natural	50-64	NA	67	16
782	782	Best CEG	1959	Photos	Hill Slope		Divergent	Natural	65-74	NA	370	185
818	818	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	65-74	NA	889	222
819	819	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	50-64	NA	889	444
827	827	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	30-49	NA	1,481	740
828	828	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	50-64	NA	648	324
832	832	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	50-64	NA	2,370	592
833	833	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	65-74	NA	6,519	3,259
840	840	Best CEG	1970	Photos	Road		Divergent	Mgt. Relate	30-49	NA	222	111
841	841	Best CEG	1970	Photos	Road		Divergent	Mgt. Relate	50-64	NA	222	55
845	845	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	65-74	NA	222	55
846	846	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	30-49	NA	389	97
854	854	Best CEG	1970	Photos	Road		Divergent	Mgt. Relate	30-49	NA	648	162
867	867	Best CEG	1984	Photos	Road		Plannar	Mgt. Relate	50-64	NA	389	97
873	873	Best CEG	1970	Photos	Road		Plannar	Mgt. Relate	50-64	NA	648	486
886	886	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	50-64	NA	222	166
887	887	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	222	55
899	899	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	648	324

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
900	900	Best CEG	1998	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	648	162
910	910	Best CEG	1959	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	389	97
911	911	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	85+	NA	222	166
914	914	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	30-49	Ukn	222	55
923	923	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	50-64	NA	222	55
924	924	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	389	194
925	925	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	85+	NA	389	194
944	944	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	648	324
945	945	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	0-29	NA	1,481	740
946	946	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	50-64	NA	648	324
953	953	Best CEG	1959	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	389	97
965	965	Best CEG	1959	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	222	166
966	966	Best CEG	1959	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	NA	67	49
967	967	Best CEG	1959	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	NA	67	49
969	969	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	30-49	Ukn	889	667
970	970	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	Ukn	222	166
971	971	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	50-64	NA	222	111
981	981	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	85+	NA	222	55
982	982	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	65-74	NA	222	55
985	985	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	0-29	NA	222	55
997	997	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	65-74	NA	370	92
1001	1001	Best CEG	1970	Photos	Skid Trail		Divergent	Mgt. Relate	85+	NA	370	277
1010	1010	Best CEG	1959	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	648	162
1024	1024	Best CEG	1970	Photos	Skid Trail		Plannar	Mgt. Relate	65-74	NA	889	444
1025	1025	Best CEG	1970	Photos	Skid Trail		Plannar	Mgt. Relate	85+	NA	389	97
1026	1026	Best CEG	1970	Photos	Skid Trail		Plannar	Mgt. Relate	75-84	NA	222	111
1033	1033	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	389	97
1034	1034	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	222	55
1035	1035	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	75-84	NA	222	55
1036	1036	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	222	55
1037	1037	Best CEG	1998	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	67	33
1046	1046	Best CEG	1959	Photos	Skid Trail		Plannar	Mgt. Relate	75-84	NA	1,481	740
1101	1101	Best CEG	1998	Photos	Road		Divergent	Mgt. Relate	85+	NA	389	97
1108	1108	Best CEG	1998	Photos	Road		Plannar	Mgt. Relate	65-74	NA	222	111
1222	1222	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	131,641	0
1223	1223	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	93,120	0
1230	1230	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	217,939	0
1231	1231	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	277,023	0
1232	1232	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	637,096	0
1233	1233	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	518,956	0
1288	1288	Best CEG	1998	Photos	Hill Slope	Headwall Swale	Convergent	Natural		NA	9,778	4,888
1289	1289	Best CEG	1998	Photos	Hill Slope	Headwall Swale	Convergent	Natural		NA	2,370	592
1290	1290	Best CEG	1998	Photos	Road		Convergent	Mgt. Relate		NA	2,370	1,777
1294	1294	Best CEG	1998	Photos	Hill Slope		Convergent	Natural		NA	370	92
1295	1295	Best CEG	1998	Photos	Road	Inner Gorge	Plannar	Mgt. Relate		NA	889	222
1321	1321	Best CEG	1998	Photos	Hill Slope		Convergent	Natural		NA	67	6
1322	1322	Best CEG	1984	Photos	Stream Bank Failure		Plannar	Natural		NA	100	100
1323	1323	Best CEG	1984	Photos	Stream Bank Failure		Plannar	Natural		NA	67	67
1324	1324	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		NA	59	29
1326	1326	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		NA	22	11
1327	1327	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		NA	22	11
1531	1531	Haschak	1970	Field	Road		Plannar	Mgt. Relate	75-84	I	625	0
1532	1532	Haschak	1930	Field	Skid Trail		Plannar	Mgt. Relate	75-84	I	1,111	0
1570	1570	Best CEG	1998	Photos	Hill Slope		Plannar	Natural			144	36

Map#	*ID #*	*Inspector*	*Year***	*Source*	*Slide Type*	*Slope Type*	*Slope Form*	*Association*	*Slope*	*Stream*	*Total Yds*	*Delivered*
1571	1571	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			50	0
1572	1572	Best CEG	1998	Photos	Hill Slope		Plannar	Natural			256	63
1573	1573	Best CEG	1998	Photos	Hill Slope		Plannar	Natural			256	63
1574	1574	Best CEG	1998	Photos	Road	Inner Gorge	Plannar	Mgt. Relate			1,185	888
1575	1575	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			426	106
1576	1576	Best CEG	2004	Photos	Hill Slope		Plannar	Natural			144	0
1635	1635		0		THP Site, no data			No Info.			0	0
1636	1636		0		THP Site, no data			No Info.			0	0
1667	1667		0		THP Site, no data			No Info.			0	0
1668	1668		0		THP Site, no data			No Info.			0	0
1669	1669		0		THP Site, no data			No Info.			0	0
1670	1670		0		THP Site, no data			No Info.			0	0
1671	1671		0		THP Site, no data			No Info.			0	0
1672	1672		0		THP Site, no data			No Info.			0	0
1673	1673		0		THP Site, no data			No Info.			0	0
1674	1674		0		THP Site, no data			No Info.			0	0
1675	1675		0		THP Site, no data			No Info.			0	0
1676	1676		0		THP Site, no data			No Info.			0	0
1677	1677		0		THP Site, no data			No Info.			0	0
1732	1732		0		THP Site, no data			No Info.			0	0
1733	1733		0		THP Site, no data			No Info.			0	0
1734	1734		0		THP Site, no data			No Info.			0	0
1735	1735		0		THP Site, no data			No Info.			0	0
1736	1736		0		THP Site, no data			No Info.			0	0
1737	1737		0		THP Site, no data			No Info.			0	0
1738	1738		0		THP Site, no data			No Info.			0	0
1739	1739		0		THP Site, no data			No Info.			0	0
1740	1740		0		THP Site, no data			No Info.			0	0
1856	1856	Haschak	1959	Field	Skid Trail		Plannar	Mgt. Relate	50-64	II	889	622
1857	1857	Haschak	1959	Field	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	II	58	58

Summary for 'PW Name' = Little Creek (187 detail records)

Delivery **Avg** *377* **Min** *0* **Max** *8,359* **Sum** *70,429*

*Landslide information for this report comes from two main sources, aerial photo analysis or field observations. Information about a landslide is entered into a database and the Slide ID number is entered into GIS and appears on the maps. Information about landslides entered by professionals other than a licensed geologist should be considered as informational until reviewed by a licensed geologist.

**Tim Best, CEG analyzed six sets of aerial photos to identify landslides (1947, 1959, 1970, 1984, 1998 and 2004). The year in this report is usually the year of the photos on which the slide was first observed. If the year is 1900 it means the slide is ancient. If the year is 1930 means the slide was old in the 1947 photos. If the year is 2010 it means the slide occurred after the most recent photos in 2004.

Landslides - Total Yards

Planning Watershed *Annapolis*

Source	ancient	1930**	1947	1959	1970	1984	1998	2004
Natural	20,506,134			870			17,744	
Mgt. Related				648	389	38,900	6,574	
Sum Annapolis	*20,506,134*			*1,519*	*389*	*38,900*	*24,319*	
			Per Year	*127*	*35*	*2,779*	*1,737*	

**** Translational Slides*** ***** Slides that were old on the 1947 photos***

Landslides - Delivery to Watercourses (Yards)

Planning Watershed *Annapolis*

	Photo year observed	*1900**	*1930***	*1947*	*1959*	*1970*	*1984*	*1998*	*2004*	*Total*
	Natural	0			379			9,779		10,158
	Mgt. Related				162	194	16,689	2,927		19,973
Annapolis	**Sum**	*0*			*541*	*194*	*16,689*	*12,706*		*30,130*
	Per Year				*45*	*18*	*1,192*	*908*		
	Percent	*0.0%*			*1.8%*	*0.6%*	*55.4%*	*42.2%*		*100.0%*

** Historic Translational Slides ** Slides that were old on the 1947 photos*

Landslides*

Planning Watershed *Annapolis*

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
29	29	Best CEG	1984	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	65-74	NA	1,481	370
36	36	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate		NA	648	324
51	51	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Convergent	Natural		NA	222	166
52	52	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Convergent	Natural		NA	370	277
53	53	Best CEG	1998	Photos	Stream Bank Failure		Convergent	Natural		NA	6,519	3,259
69	69	Best CEG	1959	Photos	Road	Headwall Swale	Convergent	Mgt. Relate	50-64	NA	648	162
123	123	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	85+	NA	389	97
124	124	Best CEG	1984	Photos	Skid Trail	Headwall Swale	Convergent	Mgt. Relate	30-49	NA	67	33
153	153	Best CEG	1998	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	NA	389	97
313	313	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	85+	NA	222	166
333	333	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	222	166
337	337	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	389	292
348	348	Best CEG	1984	Photos	Road	Inner Gorge	Convergent	Mgt. Relate	65-74	NA	1,481	370
378	378	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	389	194
382	382	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate		NA	648	162
383	383	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	30-49	Ukn	1,481	740
384	384	Best CEG	1984	Photos	Road	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	2,370	1,185
393	393	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	889	444
405	405	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	50-64	NA	222	111
411	411	Best CEG	1984	Photos	Road	Inner Gorge	Plannar	Mgt. Relate	0-29	Ukn	648	324
426	426	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	NA	389	194
427	427	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	NA	222	166
433	433	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	NA	648	162
460	460	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	222	166
461	461	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	Ukn	222	166
462	462	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	389	292
463	463	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	Ukn	389	292
464	464	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	65-74	NA	389	194
465	465	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	NA	389	97
466	466	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	Ukn	889	667
467	467	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	85+	NA	222	55
480	480	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	75-84	NA	1,481	740
483	483	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	NA	1,481	740
484	484	Best CEG	1998	Photos	Skid Trail	Inner Gorge	Convergent	Mgt. Relate	50-64	Ukn	370	277
490	490	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	389	97
491	491	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	NA	389	97
492	492	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	75-84	Ukn	389	292
521	521	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	65-74	Ukn	389	97
522	522	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	389	194
523	523	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate		Ukn	389	292
524	524	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Divergent	Mgt. Relate	50-64	Ukn	222	111
557	557	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	Ukn	222	166
558	558	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	30-49	NA	389	97
559	559	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	85+	Ukn	389	292
560	560	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	Ukn	222	111
561	561	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	Ukn	389	194
576	576	Best CEG	1984	Photos	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	75-84	NA	1,481	370
590	590	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Convergent	Natural	30-49	NA	648	162
600	600	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Divergent	Natural	75-84	Ukn	67	33

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
602	602	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Divergent	Natural	50-64	Ukn	222	166
770	770	Best CEG	1959	Photos	Hill Slope		Convergent	Natural	0-29	NA	222	55
776	776	Best CEG	1959	Photos	Hill Slope		Convergent	Natural	30-49	NA	648	324
803	803	Best CEG	1998	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	222	55
810	810	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	75-84	NA	222	111
811	811	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	30-49	NA	222	111
812	812	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	85+	NA	222	111
814	814	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	50-64	NA	648	162
821	821	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	30-49	NA	222	55
822	822	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	0-29	NA	222	55
823	823	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	0-29	NA	889	222
824	824	Best CEG	1984	Photos	Road		Convergent	Mgt. Relate	50-64	NA	389	97
836	836	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	222	55
837	837	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	370	92
844	844	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	222	55
848	848	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	85+	NA	889	222
855	855	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	50-64	NA	1,481	740
856	856	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	30-49	NA	1,481	370
857	857	Best CEG	1984	Photos	Road		Divergent	Mgt. Relate	65-74	NA	1,481	370
868	868	Best CEG	1984	Photos	Road		Plannar	Mgt. Relate	50-64	NA	389	292
869	869	Best CEG	1998	Photos	Road		Plannar	Mgt. Relate	75-84	NA	389	97
889	889	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	222	111
920	920	Best CEG	1970	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	389	194
928	928	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	65-74	NA	389	292
929	929	Best CEG	1998	Photos	Skid Trail		Convergent	Mgt. Relate	85+	NA	222	55
949	949	Best CEG	1984	Photos	Skid Trail		Convergent	Mgt. Relate	75-84	NA	1,481	740
960	960	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	85+	NA	222	55
990	990	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	75-84	NA	389	97
991	991	Best CEG	1984	Photos	Skid Trail		Divergent	Mgt. Relate	85+	NA	222	111
992	992	Best CEG	1998	Photos	Skid Trail		Divergent	Mgt. Relate	75-84	NA	222	55
1009	1009	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	85+	NA	222	55
1032	1032	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	222	166
1038	1038	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	65-74	NA	389	194
1039	1039	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	65-74	NA	389	97
1048	1048	Best CEG	1984	Photos	Skid Trail		Plannar	Mgt. Relate	50-64	NA	648	324
1102	1102	Best CEG	1998	Photos	Road		Divergent	Mgt. Relate	65-74	II	4,167	2,083
1149	1149	Best CEG	1998	Photos	Hill Slope		Divergent	Natural	85+	NA	222	111
1163	1163	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	178,137	0
1234	1234	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	326,384	0
1237	1237	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	254,742	0
1292	1292	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	1,037	259
1293	1293	Best CEG	1998	Photos	Stream Bank Failure	Inner Gorge	Plannar	Natural		NA	1,037	518
1296	1296	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	33	8
1297	1297	Best CEG	1998	Photos	Road	Inner Gorge	Convergent	Mgt. Relate		NA	370	185
1298	1298	Best CEG	1998	Photos	Hill Slope	Inner Gorge	Plannar	Natural		NA	370	277
1364	1364	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	648	162
1365	1365	Best CEG	1998	Photos	Stream Bank Failure	Headwall Swale	Convergent	Natural		NA	5,704	4,278
1366	1366	Best CEG	1998	Photos	Stream Bank Failure		Convergent	Natural		NA	389	38
1367	1367	Best CEG	1998	Photos	Skid Trail		Plannar	Mgt. Relate		NA	222	22
1368	1368	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	12,456,431	0
1369	1369	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	3,911,515	0
1370	1370	Best CEG	1900	Photos	Translational Slide		N/A	Natural		NA	3,378,924	0
1385	1385	Haschak	1984	Field	Hill Slope	Inner Gorge	Plannar	Natural	50-64	II	69	69
1386	1386	Haschak	1984	Field	Hill Slope	Inner Gorge	Plannar	Natural	50-64	II	69	69

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1387	1387	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64	NA	100	10
1388	1388	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64	NA	100	10
1389	1389	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64	NA	100	10
1390	1390	Haschak	1984	Field	Road	Inner Gorge	Plannar	Mgt. Relate	30-49	II	100	75
1391	1391	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64		1,250	125
1446	1446	Haschak	1984	Field	Road		Plannar	Mgt. Relate	50-64	NA	139	0
1447	1447	Haschak	1900	Field	Road		Plannar	Mgt. Relate	50-64	NA	333	166
1551	1551	Best CEG	1998	Photos	Hill Slope		Convergent	Natural			256	63
1702	1702		0		THP Site, no data			No Info.			0	0
1703	1703		0		THP Site, no data			No Info.			0	0
1704	1704		0		THP Site, no data			No Info.			0	0
1705	1705		0		THP Site, no data			No Info.			0	0
1706	1706		0		THP Site, no data			No Info.			0	0
1707	1707		0		THP Site, no data			No Info.			0	0
1708	1708		0		THP Site, no data			No Info.			0	0
1750	1750		0		THP Site, no data			No Info.			0	0
1752	1752		0		THP Site, no data			No Info.			0	0
1753	1753		0		THP Site, no data			No Info.			0	0
1754	1754		0		THP Site, no data			No Info.			0	0
1755	1755		0		THP Site, no data			No Info.			0	0
1756	1756		0		THP Site, no data			No Info.			0	0
1757	1757		0		THP Site, no data			No Info.			0	0
1758	1758		0		THP Site, no data			No Info.			0	0
1759	1759		0		THP Site, no data			No Info.			0	0
1760	1760		0		THP Site, no data			No Info.			0	0
1761	1761		0		THP Site, no data			No Info.			0	0
1762	1762		0		THP Site, no data			No Info.			0	0
1763	1763		0		THP Site, no data			No Info.			0	0
1764	1764		0		THP Site, no data			No Info.			0	0
1765	1765		0		THP Site, no data			No Info.			0	0
1766	1766		0		THP Site, no data			No Info.			0	0
1860	1860	Haschak	1901	Field	Hill Slope		Plannar	Natural	50-64	II	250	250
1861	1861	Haschak	1901	Field	Hill Slope	Inner Gorge	Plannar	Natural	65-74	II	1,852	1,389
1862	1862	Haschak	1984	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	II	178	160
1863	1863	Haschak	1998	Field	Hill Slope		Plannar	Natural	50-64	II	222	178
1864	1864	Haschak	1959	Field	Road	Inner Gorge	Plannar	Mgt. Relate	65-74	II	2,778	2,778
1865	1865	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	II	56	56
1866	1866	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	50-64	II	278	278
1867	1867	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	II	78	78
1869	1869	Haschak	1984	Field	Road		Convergent	Mgt. Relate	30-49	II	833	583
1871	1871	Haschak	1901	Field	Hill Slope		Plannar	Natural	50-64	NA	1,111	0
1872	1872	Haschak	1901	Field	Hill Slope		Plannar	Natural	65-74	I	833	0
1873	1873	Haschak	1984	Field	Hill Slope		Plannar	Natural	50-64	II	89	0
1879	1879	Haschak	1984	Field	Hill Slope		Convergent	Natural	30-49	NA	222	0
1880	1880	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	556	556
1881	1881	Haschak	1970	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	278	278
1882	1882	Haschak	1970	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	444	444
1883	1883	Haschak	1970	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	75-84	II	89	89
1885	1885	Haschak	1998	Field	Road		Plannar	Mgt. Relate	50-64	II	1,852	0
1886	1886	Haschak	1984	Field	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	65-74	II	222	222
1887	1887	Haschak	1998	Field	Stream Bank Failure	Inner Gorge	Plannar	Natural	65-74	II	278	83
1888	1888	Haschak	1998	Field	Road		Plannar	Mgt. Relate	75-84	II	1,111	0
1889	1889	Haschak	1901	Field	Hill Slope			Natural	65-74	III	292	0
1890	1890	Haschak	1930	Field	Hill Slope		Plannar	Natural	50-64	NA	333	0

Map#	ID #	Inspector	Year**	Source	Slide Type	Slope Type	Slope Form	Association	Slope	Stream	Total Yds	Delivered
1891	1891	Haschak	1970	Field	Translational Slide	Headwall Swale	Convergent	Natural	65-74	II	4,167	2,083
1892	1892	Haschak	1970	Field	Skid Trail	Inner Gorge	Plannar	Mgt. Relate	50-64	II	1,481	1,333
1893	1893	Haschak	1930	Field	Translational Slide	Headwall Swale	Convergent	Natural	30-49	III	1,389	694
1895	1895	Haschak	1959	Field	Skid Trail		Plannar	Mgt. Relate	50-64	NA	167	0
1896	1896	Haschak	1947	Field	Unknown	Inner Gorge	Plannar	Natural	50-64	II	625	500

Summary for 'PW Name' = Annapolis (162 detail records)

Delivery **Avg** *264* **Min** *0* **Max** *4,278* **Sum** *42,698*

*Landslide information for this report comes from two main sources, aerial photo analysis or field observations. Information about a landslide is entered into a database and the Slide ID number is entered into GIS and appears on the maps. Information about landslides entered by professionals other than a licensed geologist should be considered as informational until reviewed by a licensed geologist.

**Tim Best, CEG analyzed six sets of aerial photos to identify landslides (1947, 1959, 1970, 1984, 1998 and 2004). The year in this report is usually the year of the photos on which the slide was first observed. If the year is 1900 it means the slide is ancient. If the year is 1930 means the slide was old in the 1947 photos. If the year is 2010 it means the slide occurred after the most recent photos in 2004.

Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Abronia umbellata var. breviflora pink sand-verbena	G4G5T2 S1	CNPS: 1B.1	Fed: None Cal: None	54 S:1	0	0	0	0	0	1	1	0	1	0	0
Accipiter gentilis northern goshawk	G5 S3	CDFG: SC	Fed: None Cal: None	427 S:1	0	1	0	0	0	0	1	0	1	0	0
Agrostis blasdalei Blasdale's bent grass	G2 S2	CNPS: 1B.2	Fed: None Cal: None	45 S:8	0	0	1	0	0	7	5	3	8	0	0
Aplodontia rufa nigra Point Arena mountain beaver	G5T1 S1	CDFG: SC	Fed: Endangered Cal: None	38 S:33	1	16	2	0	0	14	10	23	33	0	0
Arborimus pomo Sonoma tree vole	G3 S3	CDFG: SC	Fed: None Cal: None	214 S:35	0	2	0	0	0	33	18	17	35	0	0
Astragalus agnicidus Humboldt milk-vetch	G3 S3	CNPS: 1B.1	Fed: None Cal: Endangered	46 S:2	0	1	0	1	0	0	0	2	2	0	0
Calystegia purpurata ssp. saxicola coastal bluff morning-glory	G4T2T3 S2S3	CNPS: 1B.2	Fed: None Cal: None	30 S:10	1	1	4	1	0	3	2	8	10	0	0
Campanula californica swamp harebell	G3 S3	CNPS: 1B.2	Fed: None Cal: None	119 S:54	1	27	13	4	1	8	11	43	53	0	1
Carex californica California sedge	G5 S2?	CNPS: 2B.3	Fed: None Cal: None	28 S:2	0	2	0	0	0	0	0	2	2	0	0
Carex lyngbyei Lyngbye's sedge	G5 S2	CNPS: 2B.2	Fed: None Cal: None	26 S:1	0	0	0	0	0	1	1	0	1	0	0
Carex saliniformis deceiving sedge	G2 S2	CNPS: 1B.2	Fed: None Cal: None	15 S:6	1	0	0	0	0	5	5	1	6	0	0
Carterocephalus palaemon magnus Sonoma arctic skipper	G5T5 S1	CDFG:	Fed: None Cal: None	1	0	0	0	0	0	1	1	0	1	0	0
Castilleja ambigua var. humboldtiensis Humboldt Bay owl's-clover	G4T2 S2	CNPS: 1B.2	Fed: None Cal: None	27 S:1	1	0	0	0	0	0	1	0	1	0	0
Castilleja mendocinensis Mendocino Coast paintbrush	G2 S2	CNPS: 1B.2	Fed: None Cal: None	45 S:3	0	0	0	1	0	2	2	1	3	0	0
Cerorhinca monocerata rhinoceros auklet	G5 S3	CDFG:	Fed: None Cal: None	10 S:2	0	0	0	0	0	2	2	0	2	0	0
Chorizanthe valida Sonoma spineflower	G1 S1	CNPS: 1B.1	Fed: Endangered Cal: Endangered	6 S:1	0	0	0	0	1	0	1	0	0	1	0

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Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Coastal Brackish Marsh	G2 S2.1		Fed: None Cal: None	30 S:2	0	0	0	0	0	2	2	0	2	0	0
Coastal Terrace Prairie	G2 S2.1		Fed: None Cal: None	8 S:3	0	2	1	0	0	0	3	0	3	0	0
Coastal and Valley Freshwater Marsh	G3 S2.1		Fed: None Cal: None	60 S:3	0	0	0	0	0	3	3	0	3	0	0
Coptis laciniata Oregon goldthread	G4G5 S3	CNPS: 2B.2	Fed: None Cal: None	104 S:2	0	1	0	0	0	1	0	2	2	0	0
Corynorhinus townsendii Townsend's big-eared bat	G3G4 S2S3	CDFG: SC	Fed: None Cal: Candidate Threatened	237 S:1	0	0	0	0	0	1	1	0	1	0	0
Cuscuta pacifica var. papillata Mendocino dodder	G5T1 S1	CNPS: 1B.2	Fed: None Cal: None	5 S:2	0	0	0	0	0	2	1	1	2	0	0
Danaus plexippus monarch butterfly	G5 S3	CDFG:	Fed: None Cal: None	334 S:14	1	0	3	0	0	10	14	0	14	0	0
Emys marmorata western pond turtle	G3G4 S3	CDFG: SC	Fed: None Cal: None	1137 S:1	0	0	0	0	0	1	1	0	1	0	0
Erigeron supplex supple daisy	G2 S2	CNPS: 1B.2	Fed: None Cal: None	21 S:16	1	4	4	1	0	6	4	12	16	0	0
Erysimum concinnum bluff wallflower	G3 S3	CNPS: 1B.2	Fed: None Cal: None	30 S:2	0	0	0	0	0	2	2	0	2	0	0
Eucyclogobius newberryi tidewater goby	G3 S2S3	CDFG: SC	Fed: Endangered Cal: None	117 S:1	0	0	0	0	0	1	1	0	1	0	0
Fratercula cirrhata tufted puffin	G5 S2	CDFG: SC	Fed: None Cal: None	17 S:1	0	0	0	0	0	1	1	0	1	0	0
Fritillaria roderickii Roderick's fritillary	G1Q S1	CNPS: 1B.1	Fed: None Cal: Endangered	8 S:5	0	0	0	1	1	3	4	1	4	1	0
Gilia capitata ssp. pacifica Pacific gilia	G5T3T4 S2.2?	CNPS: 1B.2	Fed: None Cal: None	67 S:4	0	1	0	0	0	3	2	2	4	0	0
Gilia capitata ssp. tomentosa woolly-headed gilia	G5T2 S2	CNPS: 1B.1	Fed: None Cal: None	11 S:2	0	0	0	0	1	1	2	0	1	1	0
Gilia millefoliata dark-eyed gilia	G2 S2.2	CNPS: 1B.2	Fed: None Cal: None	41 S:1	0	0	0	0	0	1	1	0	1	0	0

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Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Glyceria grandis American manna grass	G5 S2	CNPS: 2B.3	Fed: None Cal: None	11 S:1	0	0	0	0	0	1	1	0	1	0	0
Haliaeetus leucocephalus bald eagle	G5 S2	CDFG:	Fed: Delisted Cal: Endangered	316 S:1	0	0	1	0	0	0	0	1	1	0	0
Hesperevax sparsiflora var. brevifolia short-leaved evax	G4T2T3 S2S3	CNPS: 1B.2	Fed: None Cal: None	36 S:6	0	2	1	0	0	3	2	4	6	0	0
Hesperocyparis pygmaea pygmy cypress	G2 S2	CNPS: 1B.2	Fed: None Cal: None	36 S:8	1	2	0	0	0	5	6	2	8	0	0
Horkelia marinensis Point Reyes horkelia	G2 S2.2	CNPS: 1B.2	Fed: None Cal: None	26 S:1	0	0	0	0	0	1	1	0	1	0	0
Horkelia tenuiloba thin-lobed horkelia	G2 S2.2	CNPS: 1B.2	Fed: None Cal: None	27 S:13	0	2	5	0	0	6	3	10	13	0	0
Lasthenia californica ssp. bakeri Baker's goldfields	G3TH SH	CNPS: 1B.2	Fed: None Cal: None	14 S:4	0	0	0	0	1	3	4	0	3	1	0
Lasthenia californica ssp. macrantha perennial goldfields	G3T2 S2.2	CNPS: 1B.2	Fed: None Cal: None	38 S:7	0	1	0	0	0	6	6	1	7	0	0
Lasthenia conjugens Contra Costa goldfields	G1 S1	CNPS: 1B.1	Fed: Endangered Cal: None	33 S:1	0	0	0	0	0	1	1	0	1	0	0
Lathyrus palustris marsh pea	G5 S2S3	CNPS: 2B.2	Fed: None Cal: None	8 S:1	0	1	0	0	0	0	0	1	1	0	0
Lavinia symmetricus parvipinnis Gualala roach	G4T1T2 S1S2	CDFG: SC	Fed: None Cal: None	4 S:3	2	1	0	0	0	0	0	3	3	0	0
Leptosiphon rosaceus rose leptosiphon	G1 S1	CNPS: 1B.1	Fed: None Cal: None	25 S:1	0	0	0	0	1	0	1	0	0	1	0
Lilium maritimum coast lily	G2 S2	CNPS: 1B.1	Fed: None Cal: None	69 S:37	1	12	15	2	0	7	18	19	37	0	0
Lycopodium clavatum running-pine	G5 S4.1	CNPS: 4.1	Fed: None Cal: None	120 S:1	0	0	0	1	0	0	0	1	1	0	0
Mendocino Pygmy Cypress Forest	G2 S2.1		Fed: None Cal: None	25 S:1	0	0	0	0	0	1	1	0	1	0	0
Microseris paludosa marsh microseris	G2 S2.2	CNPS: 1B.2	Fed: None Cal: None	31 S:1	0	0	0	0	0	1	1	0	1	0	0

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Name (Scientific/Common)	CNDDB Ranks	Other Lists	Listing Status	Total EO's	Element Occ Ranks A	B	C	D	X	U	Population Status Historic >20 yr	Recent <=20 yr	Presence Pres. Extant	Poss. Extirp.	Extirp.
Northern Coastal Bluff Scrub	G2 S2.2		Fed: None Cal: None	1	1	0	0	0	0	0	1	0	1	0	0
Northern Coastal Salt Marsh	G3 S3.2		Fed: None Cal: None	53 S:1	0	0	0	0	0	1	1	0	1	0	0
Oncorhynchus gorbuscha pink salmon	G5 S1	CDFG: SC	Fed: None Cal: None	1	0	0	1	0	0	0	0	1	1	0	0
Pandion haliaetus osprey	G5 S3	CDFG:	Fed: None Cal: None	482 S:1	0	0	0	0	0	1	1	0	1	0	0
Piperia candida white-flowered rein orchid	G3? S2	CNPS: 1B.2	Fed: None Cal: None	87 S:1	0	0	0	0	0	1	1	0	1	0	0
Potamogeton epihydrus Nuttall's ribbon-leaved pondweed	G5 S2S3	CNPS: 2B.2	Fed: None Cal: None	25 S:1	0	0	0	0	0	1	1	0	1	0	0
Rana boylii foothill yellow-legged frog	G3 S2S3	CDFG: SC	Fed: None Cal: None	805 S:14	2	5	0	0	0	7	4	10	14	0	0
Rana draytonii California red-legged frog	G2G3 S2S3	CDFG: SC	Fed: Threatened Cal: None	1335 S:6	0	1	0	0	0	5	0	6	6	0	0
Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	G5T2 S2.2	CNPS: 1B.2	Fed: None Cal: None	31 S:5	1	0	0	1	0	3	3	2	5	0	0
Sidalcea malachroides maple-leaved checkerbloom	G3G4 S3S4.2	CNPS: 4.2	Fed: None Cal: None	136 S:12	0	1	6	1	1	3	4	8	11	1	0
Sidalcea malviflora ssp. purpurea purple-stemmed checkerbloom	G5T2 S2.2	CNPS: 1B.2	Fed: None Cal: None	19 S:10	1	1	1	0	0	7	7	3	10	0	0
Speyeria zerene behrensii Behren's silverspot butterfly	G5T1 S1	CDFG:	Fed: Endangered Cal: None	9 S:7	1	0	0	0	0	6	7	0	2	0	5
Trifolium buckwestiorum Santa Cruz clover	G2 S2	CNPS: 1B.1	Fed: None Cal: None	23 S:9	0	3	0	0	0	6	6	3	9	0	0
Usnea longissima long-beard lichen	G4 S4.2	CNPS:	Fed: None Cal: None	206 S:8	0	1	1	1	0	5	5	3	8	0	0

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Stream Monitoring Report

Ownerships: All
Visit Purpose: Snorkel survey - pools only
Planning Watersheds: All

Station Number	Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full (>6 In & >4 Ft or >10 CuFt): CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy %	Riparian Zone: WLPZ Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
Hydrologic Unit	NF Gualala																							
Stream	Doty Creek																							
813	013	0.00	2013														0	122						
813	013	0.00	2014														0	154						
Doty Creek				Avg													**0**	**138**						
Stream	Dry Creek																							
816	016	0.00	2013														0	249						
816	016	0.00	2014														0	200						
Dry Creek				Avg													**0**	**224**						
Stream	Little North Fork Gualala																							
811	011	0.00	2013														0	167						
811	011	0.00	2014														0	127						
812	012	1.29	2013															297						
812	012	1.29	2014														0	297						
Little North Fork Gualala				Avg													**0**	**222**						
Stream	McGann Gulch																							
815	015	0.00	2013														0	0						
815	015	0.00	2014														0	0						
McGann Gulch				Avg													**0**	**0**						
Stream	North Fork Gualala																							
801	001	0.00	2013															141						
801	001	0.00	2014														0	712						
802	002	1.19	2013															268						
802	002	1.19	2014														0	644						
803	003	2.71	2013															503						
803	003	2.71	2014														0	328						
804	004	3.83	2013															202						
804	004	3.83	2014														0	324						
805	005	5.25	2013															494						
805	005	5.25	2014														0	566						
806	006	6.21	2013															65						

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revised 9/10/15

PART OF PLAN
RECEIVED
NOV -3 2015
COAST AREA OFFICE
RESOURCE MANAGEMENT

Station Number	Name	Miles Up Stream	Year	Temperature Seasonal Maximum	Temperature MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt CuFt/ 1000'	LWD Pieces/ 1000'	Substrate >0.85 mm	Substrate D50	Streambed (Thalweg) Slope	VI	A/D	Riparian Zone Canopy % WLPZ	Cr.	Basal Area	Tree Ht.	Fish or Redds per Mile Coho	SH (1+)	Redds	Aquatic Macroinvertebrates Richness	Simpson	Hilsenhoff	Russian R Index	% Dominant
806	006	6.21	2014														0	388						
807	007	7.71	2013															171						
807	007	7.71	2014														0	616						
808	008	9.13	2013														0	714						
808	008	9.13	2014														0	796						
809	009	11.02	2013														0	2,098						
809	009	11.02	2014														0	329						
810	010	12.16	2013															175						
810	010	12.16	2014														0	838						
North Fork Gualala				**Avg**													**0**	**519**						
Stream				Robinson Cr West																				
814	014	0.00	2013														0	185						
814	014	0.00	2014														0	394						
Robinson Cr West				**Avg**													**0**	**290**						
Hydrologic Uni NF Gualala				**Avg**													**0**	**393**						
Hydrologic Unit						**Buckeye**																		
Stream				Buckeye Creek																				
871	071	0.00	2014														0	233						
877	077	9.36	2014														0	153						
878	078	10.30	2014														0	136						
Buckeye Creek				**Avg**													**0**	**174**						
Hydrologic Uni Buckeye				**Avg**													**0**	**174**						

317.1

A0DEO 9/10/15

Station Number Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
		Avg														0	374						
		Min														0	0						
		Max														0	2,098						
Old Growth Watersheds (HRSP)			18.5	16.6			21.6%	62											26.2	0.89			
Poor-Normal-Good										>20									26-35	.8-.89	4.6-3.1	12-17	39-15
NCWQCB Target			18.3	16.8			<14%																

Temperature

- Seasonal Maximum – The highest water temperature recorded during the summer.
- Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average

Large Woody Debris (LWD)

- LWD must be at least 6 inches on the small end and longer than 4 feet.
- Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines.
- Pieces per 1,000' – The number of LWD pieces per 1000'

Stream Substrate

- <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample.
- D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged.

Fish Surveys

- Presence/absence snorkel surveys also estimate fish numbers per mile.
    - Coho – Coho salmon any age.
    - SH (1+) – Steelhead one year old or older.
- Redds - Number of salmon spawning nests found per mile during the season.

Streambed (Thalweg) Survey

- Slope – the slope of the channel
- VI – The variation index is the [(SD of residual depth/bank full depth) *100]. This is a way of quantifying roughness and hence suitability for fish. Greater than 20 is a good indication of recovery.
- A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement.

Riparian Condition

- Canopy Cover percent as measured with a spherical densiometer. Every 200', canopy percent is measured in the center of the channel. And at bank full and 50' into the riparian zone from bankfull on both sides of the channel. Four measurements are averaged at each point.
- WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparial zone.
- Cr. – The average of all the measurements taken in the center of the channel.
- Riparian inventory plots were locate both sides of the channel every 200'
- Basal Area – Is the average basal area in square feet of all the riparian plots
- Tree Ht. – Is the average height of the 100 tallest trees per acre.

Macroinvertebrates

- Richness – Total number of Genuses represented.
- Simpson Diversity Index – Measures the evenness of species diversity
- Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution
- Russian River Index – A localized index that combines several standard metrics
- Percent Dominant Taxon – this is a species distribution index

317.2

Added 9/10/15

Biological Report

Ownerships: ***All***
Visit Purpose: ***All***
Planning Watersheds: ***Big Pepperwood Creek***

Watershed: SF Gualala

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Fish or Redds per Mile: Adult Fish SH	Redds	Coho Fry	Steelhead Parr 1+	Benthic Macroinvertebrates (BMI): Richness	Simpson	ETP Taxa	% Dominant	Russian River Index	North Coast IBI
Big Pepperwood	Ppw3	218	1998	800	1,000	Fish Reach Dive			0.0	153						
Big Pepperwood	Ppw3	218	1999	800	1,000	Fish Reach Dive			0.0	132						
Big Pepperwood	Ppw3	218	2000	800	1,000	Fish Reach Dive			0.0	21						
Big Pepperwood	Ppw3	218	2000	800	1,000	Riffle BMI					32	0.79	15	39%	15	
Big Pepperwood	Ppw3	218	2001	800	1,000	Fish Reach Dive			0.0	48						
Big Pepperwood	Ppw3	218	2002	800	1,000	Fish Reach Dive			0.0	37						
Big Pepperwood	Ppw3	218	2004	800	562	Fish Reach Dive			0.0	28						
Big Pepperwood	Ppw3	218	2008	800	1,000	Fish Reach Dive			0.0	5						
Big Pepperwood	Ppw3	218	2009	800	1,000	Fish Reach Dive			0.0	84						
Big Pepperwood	Ppw3	218	2011	800	1,000	Fish Reach Dive			0.0	153						
Big Pepperwood	Ppw3	218	2012	800	1,000	Fish Reach Dive			0.0	201						
Big Pepperwood	Ppw3	218	2013	800	1,000	Fish Reach Dive			0.0	58						
Big Pepperwood	Ppw3	218	2014	800	1,000	Fish Reach Dive			0.0	32						
Little Pepperwoo	Lpw	220	2003	600	656	Fish Reach Dive			0.0	121						
Little Pepperwoo	Lpw	220	2004	600	627	Fish Reach Dive			0.0	8						
SF Gualala	Gua1	217	1999	5,200	1,500	Fish Reach Dive			0.0	32						
SF Gualala	Gua1	217	2000	5,200	1,000	Riffle BMI					28	0.87	11	28%	16	
SF Gualala	Gua1	217	2000	5,200	1,000	Fish Reach Dive			0.0	21						
SF Gualala	Gua1	217	2001	5,200	1,000	Fish Reach Dive			0.0	11						
SF Gualala	Gua1	217	2002	5,200	1,200	Fish Reach Dive			0.0	0						
SF Gualala	Gua1	217	2003	5,200	3,991	Fish Reach Dive			0.0	149						
SF Gualala	Gua1	217	2004	5,200	3,389	Fish Reach Dive			0.0	97						
SF Gualala	Gua1	217	2008	5,200	1,000	Fish Reach Dive			0.0	26						
SF Gualala	Gua1	217	2009	5,200	2,000	Fish Reach Dive			0.0	166						
SF Gualala	Gua1	217	2011	5,200	1,000	Fish Reach Dive			0.0	465						
SF Gualala	Gua1	217	2012	5,200	1,000	Fish Reach Dive			0.0	1,067						
SF Gualala	Gua1	217	2013	5,200	1,000	Fish Reach Dive			0.0	127						
SF Gualala	Gua1	217	2014	5,200	2,000	Fish Reach Dive			0.0	346						

Total Station Visits: 28

Reach length for "fish pool dives" is only the length of the pools actually snorkel surveyed.
Reach length for "spawner surveys" is the longest survey in that reach during that season.

revised 9/10/15

Biological Report

Ownerships: *All*
Visit Purpose: *All*
Planning Watersheds: *Mouth of the Gualala River*

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Fish or Redds per Mile: Adult Fish SH	Redds	Coho Fry	Steelhead Parr 1+	Benthic Macroinvertebrates (BMI): Richness	Simpson	ETP Taxa	% Dominant	Russian River Index	North Coast IBI

Watershed: SF Gualala

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Adult Fish SH	Redds	Coho Fry	Steelhead Parr 1+	Richness	Simpson	ETP Taxa	% Dominant	Russian River Index	North Coast IBI
SF Gualala	SFG	402	1998	41,000	1,000	Fish Reach Dive			0.0	961						
SF Gualala	SFG	402	1999	41,000	1,200	Fish Reach Dive			0.0	400						
SF Gualala	SFG	402	2000	41,000	1,200	Fish Reach Dive			0.0	268						
SF Gualala	SFG	402	2001	41,000	1,000	Fish Reach Dive			0.0	153						
SF Gualala	SFG	402	2002	41,000	1,000	Fish Reach Dive			0.0	121						
SF Gualala	SFG	402	2008	41,000	1,500	Fish Reach Dive			0.0	1,327						

Total Station Visits: 6

** Reach length for "fish pool dives" is only the length of the pools actually snorkel surveyed.*

Stream Monitoring Report

Ownerships: All
Visit Purpose: All
Planning Watersheds: Big Pepperwood Creek

Station Number	Name	Miles Up Stream	Year	Temperature Seasonal Maximum	Temperature MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt CuFt/1000'	LWD Pieces/1000'	Substrate >0.85 mm	Substrate D50	Streambed (Thalweg) Slope	Streambed VI	Streambed A/D	Riparian Zone Canopy % WLPZ	Riparian Canopy % Cr.	Riparian Basal Area	Riparian Tree Ht.	Fish or Redds per Mile Coho	SH (1+)	Redds	Aquatic Macroinvertebrates Richness	Simpson	Hilsenhoff	% Dominant	Russian R Index
Hydrologic Unit			**SF Gualala**																					
Stream			**Big Pepperwood**																					
218	Ppw3	0.15	1994	15.9	14.4																			
218	Ppw3	0.15	1995	16.5	15.0																			
218	Ppw3	0.15	1996	16.2	14.3																			
218	Ppw3	0.15	1997	17.3	15.6																			
218	Ppw3	0.15	1998	17.2	15.2	2,490	88		41	1.4%	14						0	153						
218	Ppw3	0.15	1999	15.9	14.4	2,324	84		30	1.5%	13	-0.31	90%	88%	372	91	0	132						
218	Ppw3	0.15	2000	16.2	14.5												0	21		32	0.79	4.7	15	39
218	Ppw3	0.15	2001														0	48						
218	Ppw3	0.15	2002	15.6	14.1	6,539	150		45	1.4%	13	-0.68	96%	87%	595	65	0	37						
218	Ppw3	0.15	2003	15.5	14.1	7,308	152		35	1.4%	16	-1.16												
218	Ppw3	0.15	2004	16.0	14.7	8,159	152		28	1.4%	15	-1.02					0	28						
218	Ppw3	0.15	2005	15.6	14.2	8,117	150		37	1.4%	17	-1.11												
218	Ppw3	0.15	2006			10,325	179		22	1.6%	16	-1.20												
218	Ppw3	0.15	2007			10,373	184		35	1.5%	15	-1.13												
218	Ppw3	0.15	2008	15.9	14.8	10,350	198		31	1.5%	17	-1.27	90%	87%			0	5						
218	Ppw3	0.15	2009	15.4	14.3	10,729	204		38	1.5%	16	-1.12					0	84						
218	Ppw3	0.15	2010	14.6	13.2	10,887	209		33	1.5%	15	-1.13												
218	Ppw3	0.15	2011	14.8	13.5	11,210	217		38	1.5%	16	-1.39	88%	87%			0	153						
218	Ppw3	0.15	2012	14.7	13.5	11,183	203		21	1.5%	17	-1.42					0	201						
218	Ppw3	0.15	2013	16.1	14.9	11,036	204		25	1.5%	15	-1.58					0	58						
218	Ppw3	0.15	2014	15.7	14.8	11,109	212		24	1.3%	15	-1.54					0	32						
218	Ppw3	0.15	2015																					
219	Ppw2	1.29	1995	17.0	14.9																			
219	Ppw2	1.29	1996	16.7	14.7																			
219	Ppw2	1.29	1997	17.8	15.0																			
219	Ppw2	1.29	1998	17.3	14.9																			
219	Ppw2	1.29	2009	14.3	13.5																			
219	Ppw2	1.29	2011	14.1	13.1																			

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Station Number	Name	Miles Up Stream	Year	Temperature			LWD Bank Full >6 In & >4 Ft or >10 CuFt		Substrate		Streambed (Thalweg)			Riparian Zone				Fish or Redds per Mile			Aquatic Macroinvertebrates				
					Seasonal Maximum	MWAT	CuFt/ 1000'	Pieces/ 1000'	>0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Cr.	Basal Area	Tree Ht.	Coho	SH (1+)	Redds	Richness	Simpson	Hilsenhoff	Russian R Index	% Dominant
219	Ppw2	1.29	2012		13.9	12.9																			
248	PPW	1.33	1994		17.2	14.6																			
Big Pepperwood				Avg	15.9	14.4	8,294	166		33	1.5%	15	-1.1	92%	87%	483	78	0	79		32	0.79	4.7	15	39
Stream		Groshong Gulch																							
250	Gros	0.05	1996		14.1	13.1																			
250	Gros	0.05	2002		16.2	13.3																			
250	Gros	0.05	2012		13.3	12.3																			
277	GrG	0.27	1998		13.9	13.4																			
277	GrG	0.27	2000		17.8	14.5																			
277	GrG	0.27	2011		13.4	12.9																			
Groshong Gulch				Avg	14.8	13.3																			
Stream		Gualala River																							
614	Gua8	0.00	2000		22.9	18.4																			
614	Gua8	0.00	2009		21.7	18.1																			
750	Gul	1.19	2009		22.5	19.2																			
750	Gul	1.19	2011		23.2	19.7																			
Gualala River				Avg	22.6	18.8																			
Stream		Little Pepperwood																							
220	Lpw	0.11	1994		15.8	14.3																			
220	Lpw	0.11	1995		19.4	16.0																			
220	Lpw	0.11	1996		17.8	15.0																			
220	Lpw	0.11	1997		16.7	16.0																			
220	Lpw	0.11	1998		17.8	15.6																			
220	Lpw	0.11	2002		15.1	13.8																			
220	Lpw	0.11	2003		15.9	14.8												0	121						
220	Lpw	0.11	2004		14.8	14.3												0	8						
220	Lpw	0.11	2005		16.0	14.6																			
220	Lpw	0.11	2008		14.7	14.3																			
220	Lpw	0.11	2009		14.4	13.7																			
220	Lpw	0.11	2012		14.2	13.1																			
Little Pepperwood				Avg	16.0	14.6												0	65						
Stream		South Fork Gualala River																							
217	Gua1	0.98	1994		22.7	19.2																			
217	Gua1	0.98	1995		25.3	20.6																			
217	Gua1	0.98	1996		24.4	20.1																			

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Station Number	Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
217	Gua1	0.98	1997	24.6	22.4																			
217	Gua1	0.98	1998			934	17		24	0.1%	23		93%	16%										
217	Gua1	0.98	1999														0	32						
217	Gua1	0.98	2000	23.2	19.2	804	15		25	0.0%	22	-0.10	96%	17%	254	94	0	21		28	0.87	4.4	16	28
217	Gua1	0.98	2001	23.3	19.1	1,639	34		20	0.1%	20	0.19					0	11						
217	Gua1	0.98	2002			1,479	28		22	0.1%	27	0.01					0	0						
217	Gua1	0.98	2003			1,084	24		12	0.1%	22	0.10					0	149						
217	Gua1	0.98	2004	23.2	20.0	1,254	27		19	0.1%	26	0.18					0	97						
217	Gua1	0.98	2006			1,016	20		20															
217	Gua1	0.98	2007			1,087	22		15	0.1%	21	-0.23												
217	Gua1	0.98	2008	24.5	19.8	1,110	29		19	0.1%	23	-0.24					0	26						
217	Gua1	0.98	2009	23.2	18.9	1,109	30		16	0.1%	22	-0.14					0	166						
217	Gua1	0.98	2010	22.4	18.3																			
217	Gua1	0.98	2011	22.5	18.8												0	465						
217	Gua1	0.98	2012	22.1	18.5												0	1,067						
217	Gua1	0.98	2013	23.2	19.8	1,062	27		18		34	-0.70					0	127						
217	Gua1	0.98	2014	22.9	19.4												0	346						
217	Gua1	0.98	2015																					
South Fork Gualala River			Avg	23.4	19.6	1,115	24		20	0.1%	24	-0.1	95%	17%	254	94	0	209		28	0.87	4.4	16	28
Hydrologic Uni SF Gualala			Avg	17.9	15.8	5,324	107		27	0.9%	19	-0.7	93%	64%	407	83	0	138		30	0.83	4.6	16	33

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Station Number Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
		Avg	17.9	15.8	5,324	107		27	0.9%	19	-0.7	93%	64%	407	83	0	138		30	0.83	4.6	16	33
		Min	13.3	12.3	804	15		12	0.0%	13	-1.6	88%	16%	239	58	0	0		28	0.79	4.4	15	28
		Max	25.3	22.4	11,210	217		45	1.6%	34	0.19	96%	88%	627	98	0	1,067		32	0.87	4.7	16	39
Old Growth Watersheds (HRSP)			18.5	16.6			21.6%	62											26.2	0.89			
Poor-Normal-Good										>20									26-35	.8-.89	4.6-3.1	12-17	39-15
NCWQCB Target			18.3	16.8			<14%																

Temperature

- Seasonal Maximum – The highest water temperature recorded during the summer.
- Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average

Large Woody Debris (LWD)

- LWD must be at least 6 inches on the small end and longer than 4 feet.
- Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines.
- Pieces per 1,000' – The number of LWD pieces per 1000'

Stream Substrate

- <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample.
- D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged.

Fish Surveys

- Presence/absence snorkel surveys also estimate fish numbers per mile.
  - Coho – Coho salmon any age.
  - SH (1+) – Steelhead one year old or older.
- Redds - Number of salmon spawning nests found per mile during the season.

Streambed (Thalweg) Survey

- Slope – the slope of the channel
- VI – The variation index is the [(SD of residual depth/bank full depth) *100]. This is a way of quantifying roughness and hence suitability for fish. Greater than 20 is a good indication of recovery.
- A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement.

Riparian Condition

- Canopy Cover percent as measured with a spherical densiometer. Every 200', canopy percent is measured in the center of the channel. And at bank full and 50' into the riparian zone from bankfull on both sides of the channel. Four measurements are averaged at each point.
- WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparial zone.
- Cr. – The average of all the measurements taken in the center of the channel.
- Riparian inventory plots were locate both sides of the channel every 200'
- Basal Area – Is the average basal area in square feet of all the riparian plots
- Tree Ht. – Is the average height of the 100 tallest trees per acre.

Macroinvertebrates

- Richness – Total number of Genuses represented.
- Simpson Diversity Index – Measures the evenness of species diversity
- Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution
- Russian River Index – A localized index that combines several standard metrics
- Percent Dominant Taxon – this is a species distribution index

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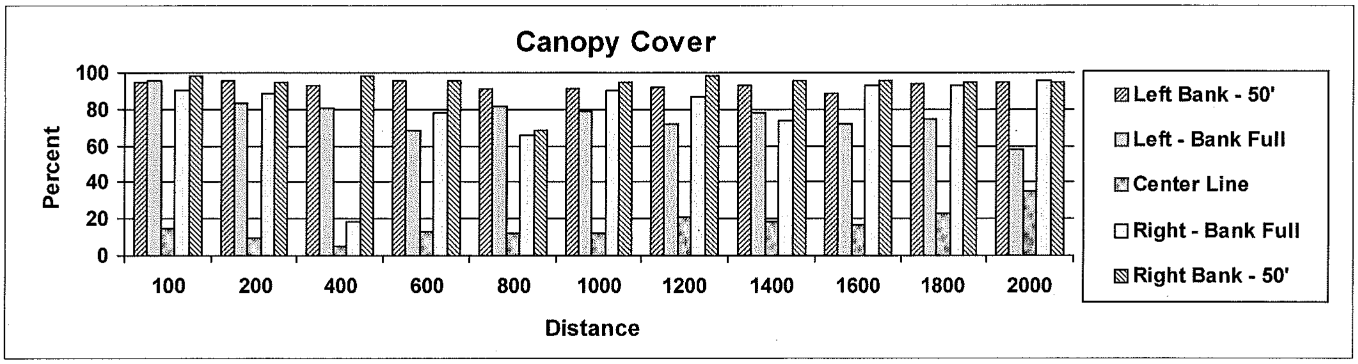
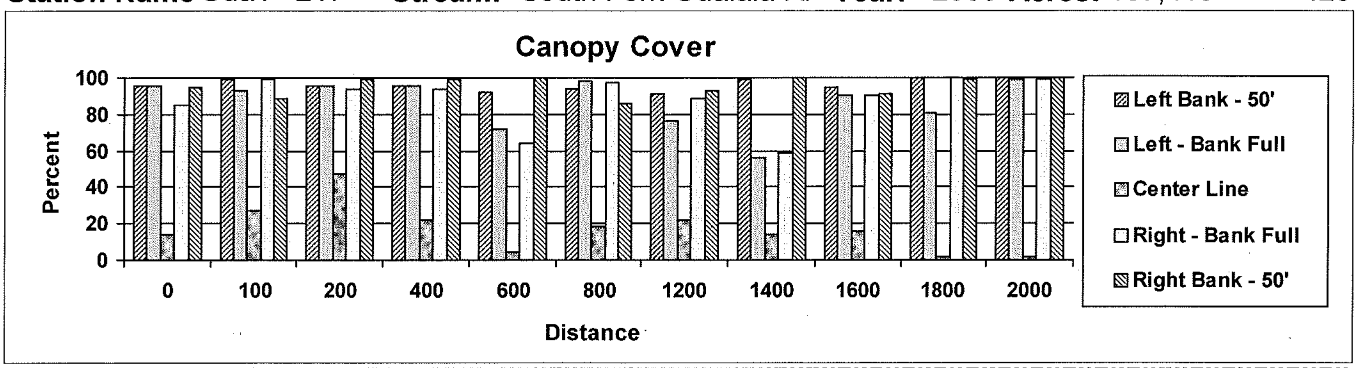
Canopy Cover

Planning Watershed: Big Pepperwood Creek

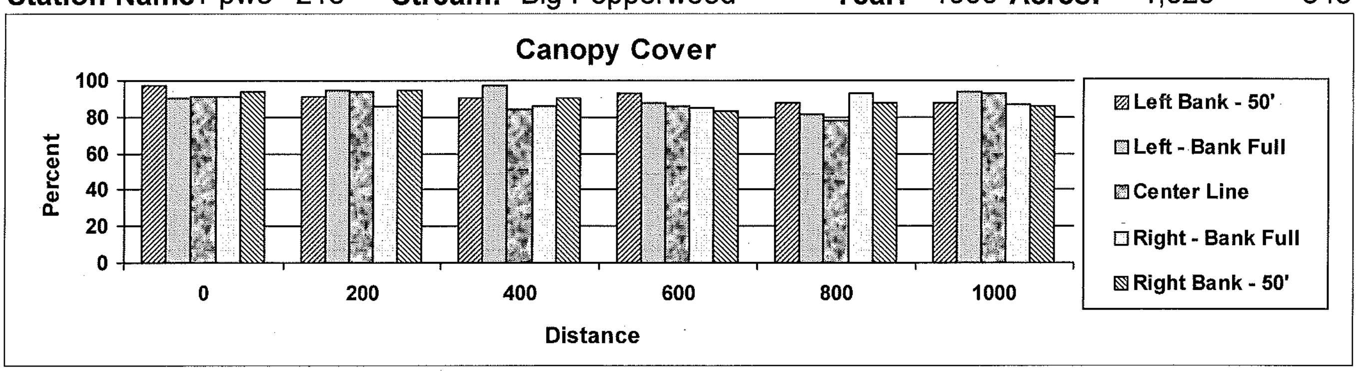
Station Name Gua1 217 **Stream:** South Fork Gualala Ri **Year:** 1998 **Acres:** 157,415 306



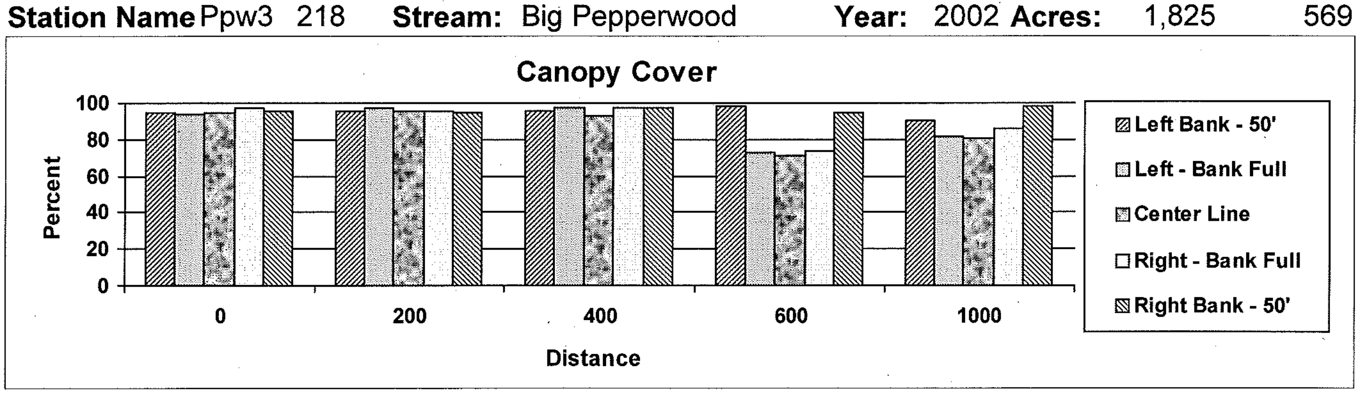
Station Name Gua1 217 **Stream:** South Fork Gualala Ri **Year:** 2000 **Acres:** 157,415 420



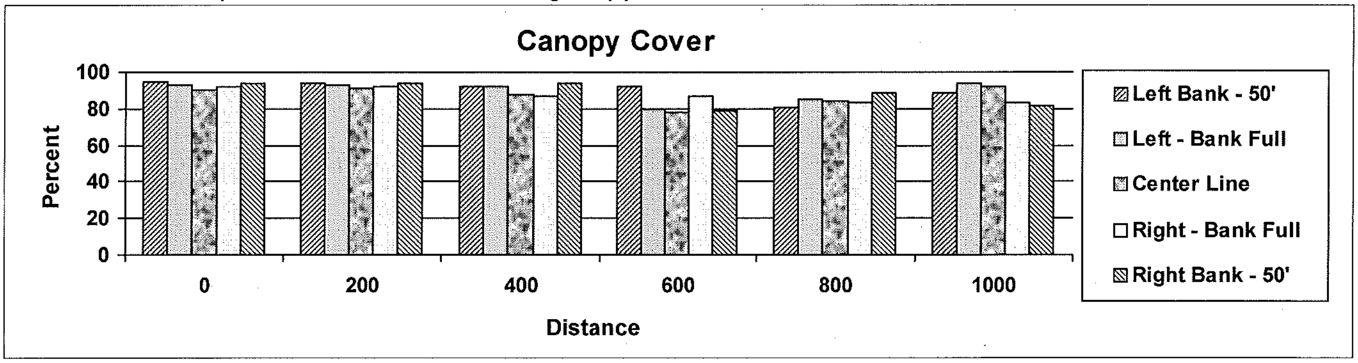
Station Name Ppw3 218 **Stream:** Big Pepperwood **Year:** 1999 **Acres:** 1,825 343



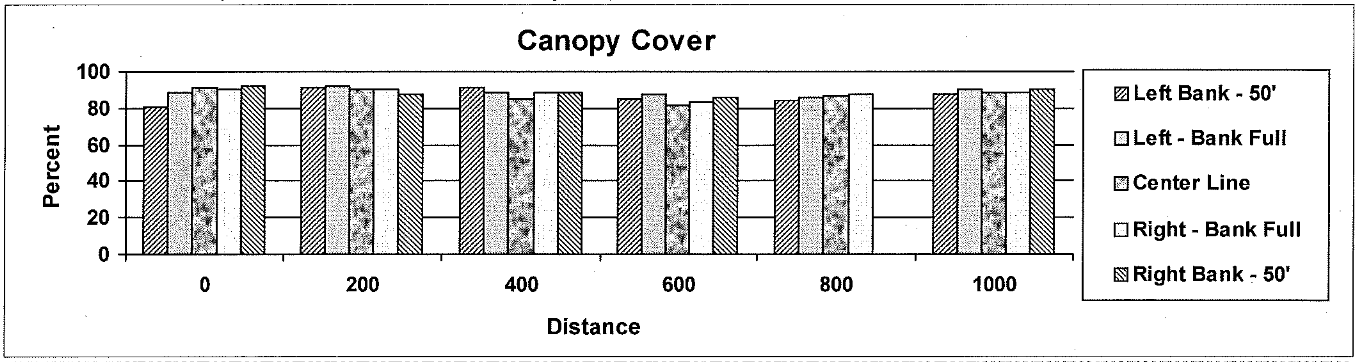
Station Name Ppw3 218 **Stream:** Big Pepperwood **Year:** 2002 **Acres:** 1,825 569



Station Name Ppw3 218 **Stream:** Big Pepperwood **Year:** 2008 **Acres:** 1,825 904



Station Name Ppw3 218 **Stream:** Big Pepperwood **Year:** 2011 **Acres:** 1,825 1291



Biological Report

Ownerships: All
Visit Purpose: All
Planning Watersheds: Little Creek

Watershed: Buckeye

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Fish or Redds per Mile: Adult Fish SH	Redds	Coho Fry	Steelhead Parr 1+	Benthic Macroinvertebrates (BMI): Richness	Simpson	ETP Taxa	% Dominant	Russian River Index	North Coast IBI
Buckeye Cr	071	871	2014	0	635	Fish Pool Dive			0.0	233						
Buckeye Cr	Buc3	223	1998	1,800	1,300	Fish Reach Dive			0.0	459						
Buckeye Cr	Buc3	223	1999	1,800	1,000	Fish Reach Dive			0.0	0						
Buckeye Cr	Buc3	223	2000	1,800	1,000	Riffle BMI					32	0.88	15	26%	19	
Buckeye Cr	Buc3	223	2000	1,800	900	Fish Reach Dive			0.0	194						
Buckeye Cr	Buc3	223	2001	1,800	1,100	Fish Reach Dive			0.0	67						
Buckeye Cr	Buc3	223	2002	1,800	1,000	Fish Reach Dive			0.0	137						
Buckeye Cr	Buc3	223	2003	1,800	2,511	Fish Reach Dive			0.0	315						
Buckeye Cr	Buc3	223	2004	1,800	2,430	Fish Reach Dive			0.0	46						
Buckeye Cr	Buc3	223	2008	1,800	1,800	Fish Reach Dive			0.0	258						
Buckeye Cr	Buc3	223	2014	1,800	1,500	Fish Reach Dive			0.0	250						
Buckeye Cr	Buc2	224	2003	15,900	975	Fish Reach Dive			0.0	287						
Buckeye Cr	Buc1	231	2011	33,000	0	Reach BMI					59	0.14	22	31%	0	66
Buckeye Cr	077	877	2014	49,400	657	Fish Pool Dive			0.0	153						

Total Station Visits: 14

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Reach length for "fish pool dives" is only the length of the pools actually snorkel surveyed.
Reach length for "spawner surveys" is the longest survey in that reach during that season.

ADDED 9/10/15

Stream Monitoring Report

Ownerships: All
Visit Purpose: All
Planning Watersheds: Little Creek

Station Number	Name	Miles Up Stream	Year	Temperature		LWD Bank Full >6 In & >4 Ft or >10 CuFt		Substrate		Streambed (Thalweg)			Riparian Zone				Fish or Redds per Mile			Aquatic Macroinvertebrates				
				Seasonal Maximum	MWAT	CuFt/ 1000'	Pieces/ 1000'	>0.85 mm	D50	Slope	VI	A/D	Canopy % WLPZ	Cr.	Basal Area	Tree Ht.	Coho	SH (1+)	Redds	Richness	Simpson	Hilsenhoff	Russian R Index	% Dominant
Hydrologic Unit			**Buckeye**																					
Stream			Buckeye Creek																					
871	071	0.00	2014														0	233						
235	Buc	0.23	1994	21.1	18.3																			
223	Buc3	0.34	1996	21.4	18.8																			
223	Buc3	0.34	1997	22.4	19.5																			
223	Buc3	0.34	1998	22.7	19.7												0	459						
223	Buc3	0.34	1999	21.1	18.0												0	0						
223	Buc3	0.34	2000			2,996	55		33	0.3%	46		81%	56%	154	104	0	194		32	0.88	4.0	19	26
223	Buc3	0.34	2001	21.1	18.0												0	67						
223	Buc3	0.34	2002														0	137						
223	Buc3	0.34	2003														0	315						
223	Buc3	0.34	2004	21.3	17.9												0	46						
223	Buc3	0.34	2008	20.6	17.0	2,270	69		22	0.2%	58	-0.73	80%	54%			0	258						
223	Buc3	0.34	2009	19.4	16.5																			
223	Buc3	0.34	2010	18.0	16.2																			
223	Buc3	0.34	2011	18.8	16.6																			
223	Buc3	0.34	2012	18.4	16.0																			
223	Buc3	0.34	2013	19.4	17.1																			
223	Buc3	0.34	2014	18.1	16.4	2,808	84		22	0.2%	41	-0.86	86%	59%			0	250						
223	Buc3	0.34	2015																					
224	Buc2	3.01	1995	23.9	19.9																			
224	Buc2	3.01	1996	22.1	19.3																			
224	Buc2	3.01	1997	22.7	19.8																			
224	Buc2	3.01	2000	20.9	18.1																			
224	Buc2	3.01	2003														0	287						
224	Buc2	3.01	2012	18.3	16.4																			
224	Buc2	3.01	2013	19.0	17.7																			
224	Buc2	3.01	2014	17.1	15.5																			
231	Buc1	6.25	1994	21.7	19.7																			

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revised 9/10/15

Station Number	Name	Miles Up Stream	Year		Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
231	Buc1	6.25	1995		24.4	20.9																			
231	Buc1	6.25	1996		23.7	20.8																			
231	Buc1	6.25	1997		23.7	21.1																			
231	Buc1	6.25	1998		24.0	21.0	273	11		25	0.4%	27													
231	Buc1	6.25	2001		24.3	20.5																			
231	Buc1	6.25	2002		21.2	17.8																			
231	Buc1	6.25	2011		20.6	18.8															59	0.14		0	31
231	Buc1	6.25	2012		20.6	18.5																			
877	077	9.36	2014															0	153						
Buckeye Creek				Avg	21.1	18.4	2,269	55		27	0.3%	44	-0.8	82%	56%	154	104	0	200		46	0.51	4.0	10	28
Stream			Little Creek																						
666	LiCr	0.09	2012		14.3	13.9																			
754	LitUp	2.27	2009		13.7	12.9																			
754	LitUp	2.27	2010		13.7	13.0																			
754	LitUp	2.27	2011		14.2	13.4																			
754	LitUp	2.27	2012		14.5	13.2																			
754	LitUp	2.27	2015																						
Little Creek				Avg	14.1	13.3																			
Stream			Meg Creek																						
286	Meg	0.01	1998		15.1	14.3																			
286	Meg	0.01	2002		15.0	13.3																			
Meg Creek				Avg	15.0	13.8																			
Hydrologic Uni Buckeye				Avg	19.8	17.5	2,269	55		27	0.3%	44	-0.8	82%	56%	154	104	0	200		46	0.51	4.0	10	28

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PART OF PLAN
RECEIVED
NOV -3 2015
COAST AREA OFFICE
RESOURCE MANAGEMENT

revised 9/10/15

Station Number Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full (>6 In & >4 Ft or >10 CuFt): CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
		Avg	19.8	17.5	2,269	55		27	0.3%	44	-0.8	82%	56%	154	104	0	200		46	0.51	4.0	10	28
		Min	13.7	12.9	273	11		22	0.2%	27	-0.9	80%	54%	143	99	0	0		32	0.14	4.0	0	26
		Max	24.4	21.1	2,996	84		33	0.4%	58	-0.7	86%	59%	164	108	0	459		59	0.88	4.0	19	31
Old Growth Watersheds (HRSP)			18.5	16.6			21.6%	62											26.2	0.89			
Poor-Normal-Good										>20									26-35	.8-.89	4.6-3.1	12-17	39-15
NCWQCB Target			18.3	16.8			<14%																

Temperature

- Seasonal Maximum – The highest water temperature recorded during the summer.
- Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average

Large Woody Debris (LWD)

- LWD must be at least 6 inches on the small end and longer than 4 feet.
- Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines.
- Pieces per 1,000' – The number of LWD pieces per 1000'

Stream Substrate

- <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample.
- D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged.

Fish Surveys

- Presence/absence snorkel surveys also estimate fish numbers per mile.
  - Coho – Coho salmon any age.
  - SH (1+) – Steelhead one year old or older.
- Redds - Number of salmon spawning nests found per mile during the season.

Streambed (Thalweg) Survey

- Slope – the slope of the channel
- VI – The variation index is the [(SD of residual depth/bank full depth) *100]. This is a way of quantifying roughness and hence suitability for fish. Greater than 20 is a good indication of recovery.
- A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement.

Riparian Condition

- Canopy Cover percent as measured with a spherical densiometer. Every 200', canopy percent is measured in the center of the channel. And at bank full and 50' into the riparian zone from bankfull on both sides of the channel. Four measurements are averaged at each point.
- WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparial zone.
- Cr. – The average of all the measurements taken in the center of the channel.
- Riparian inventory plots were locate both sides of the channel every 200'
- Basal Area – Is the average basal area in square feet of all the riparian plots
- Tree Ht. – Is the average height of the 100 tallest trees per acre.

Macroinvertebrates

- Richness – Total number of Genuses represented.
- Simpson Diversity Index – Measures the evenness of species diversity
- Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution
- Russian River Index – A localized index that combines several standard metrics
- Percent Dominant Taxon – this is a species distribution index

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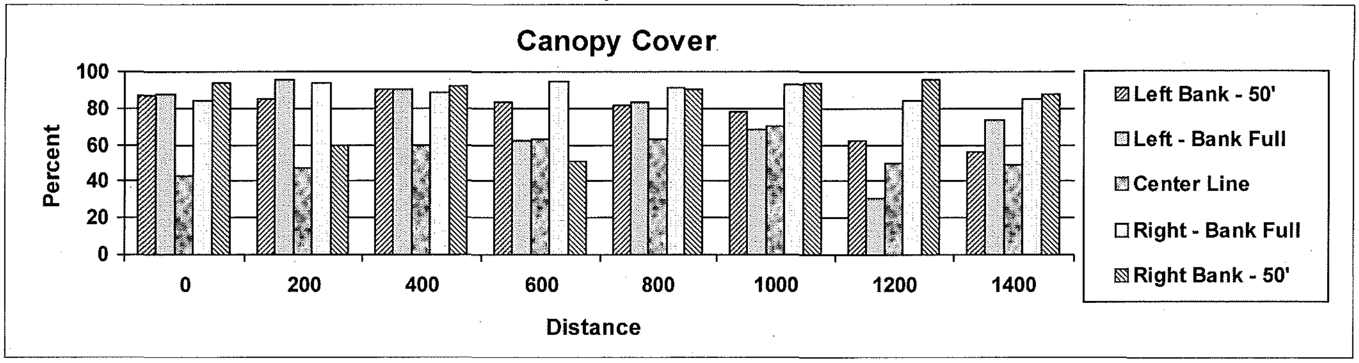
revised 9/10/15

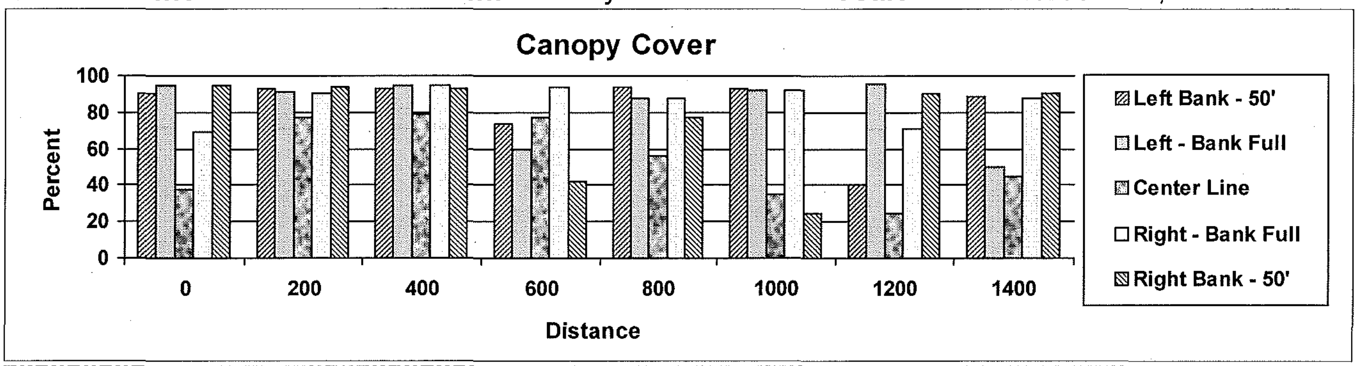
Canopy Cover

Planning Watershed: Little Creek

Station Name Buc3 223 **Stream:** Buckeye Creek **Year:** 2000 **Acres:** 25,588 423



Station Name Buc3 223 **Stream:** Buckeye Creek **Year:** 2008 **Acres:** 25,588 897



Biological Report

Ownerships: ***All***
Visit Purpose: ***All***
Planning Watersheds: ***Mouth of the Gualala River***

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Fish or Redds per Mile: Adult Fish SH	Redds	Coho Fry	Steelhead Parr 1+	Benthic Macroinvertebrates (BMI): Richness	Simpson	ETP Taxa	% Dominant	Russian River Index	North Coast IBI

Watershed: SF Gualala

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Adult Fish SH	Redds	Coho Fry	Steelhead Parr 1+	Richness	Simpson	ETP Taxa	% Dominant	Russian River Index	North Coast IBI
SF Gualala	SFG	402	1998	41,000	1,000	Fish Reach Dive			0.0	961						
SF Gualala	SFG	402	1999	41,000	1,200	Fish Reach Dive			0.0	400						
SF Gualala	SFG	402	2000	41,000	1,200	Fish Reach Dive			0.0	268						
SF Gualala	SFG	402	2001	41,000	1,000	Fish Reach Dive			0.0	153						
SF Gualala	SFG	402	2002	41,000	1,000	Fish Reach Dive			0.0	121						
SF Gualala	SFG	402	2008	41,000	1,500	Fish Reach Dive			0.0	1,327						

Total Station Visits: 6

Reach length for "fish pool dives" is only the length of the pools actually snorkel surveyed.
Reach length for "spawner surveys" is the longest survey in that reach during that season.

Stream Monitoring Report

Ownerships: All
Visit Purpose: All
Planning Watersheds: Mouth of the Gualala River

Station Number	Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Hilsenhoff Simpson	Aquatic Macroinvertebrates: % Dominant Russian R Index
Hydrologic Unit				**SF Gualala**																		
Stream				South Fork Gualala River																		
225	SFG	4.36	1995	24.8	20.8																	
225	SFG	4.36	1997	22.1	20.6																	
225	SFG	4.36	2013	22.9	20.1																	
16	280	5.13	2009							0.1%	22											
16	280	5.13	2012								27	0.02										
19	SFGr	5.13	2009							0.1%	28											
19	SFGr	5.13	2012							0.2%	28	0.06										
17	295	5.25	2009							0.2%	25											
17	295	5.25	2012								23	0.05										
18	310	5.67	2009							0.2%	32											
18	310	5.67	2012								29	0.09										
20	370	6.77	2009							0.3%	20											
20	370	6.77	2013								20	-0.27										
229	SFG	7.39	1995	23.4	19.9																	
229	SFG	7.39	1996	22.1	19.0																	
229	SFG	7.39	1997	25.6	20.5																	
402	SFG	7.77	1998	22.1	19.7												0	961				
402	SFG	7.77	1999			1,473	33		18	0.3%	29		76%	26%	206	115	0	400				
402	SFG	7.77	2000	22.4	18.9												0	268				
402	SFG	7.77	2001														0	153				
402	SFG	7.77	2002														0	121				
402	SFG	7.77	2008			1,391	31		19	0.4%	31	-0.11					0	1,327				
230	SFG	9.32	1995	22.9	18.9																	
230	SFG	9.32	1996	21.8	18.4																	
230	SFG	9.32	1997	24.4	22.3																	
230	SFG	9.32	1998	22.6	19.5																	
230	SFG	9.32	2009	20.6	17.6																	
230	SFG	9.32	2011	20.2	17.6																	

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Revised 9/10/15

Station Number	Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full (>6 In & >4 Ft or >10 CuFt): CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
230	SFG	9.32	2012	19.4	17.0																			
230	SFG	9.32	2014	18.7	17.2																			
South Fork Gualala River			Avg	22.2	19.3	1,445	33		18	0.2%	26	-0.03	76%	26%	206	115	0	539						
Hydrologic Uni SF Gualala			Avg	22.2	19.3	1,445	33		18	0.2%	26	-0.03	76%	26%	206	115	0	539						
			Avg	22.2	19.3	1,445	33		18	0.2%	26	-0.03	76%	26%	206	115	0	539						
			Min	18.7	17.0	1,391	31		18	0.1%	20	-0.3	76%	26%	197	111	0	121						
			Max	25.6	22.3	1,473	33		19	0.4%	32	0.09	76%	26%	216	120	0	1,327						
Old Growth Watersheds (HRSP)				18.5	16.6			21.6%	62											26.2	0.89			
Poor-Normal-Good											>20									26-35	.8-.89	4.6-3.1	12-17	39-15
NCWQCB Target				18.3	16.8			<14%																

Temperature

- Seasonal Maximum – The highest water temperature recorded during the summer.
- Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average

Large Woody Debris (LWD)

- LWD must be at least 6 inches on the small end and longer than 4 feet.
- Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines.
- Pieces per 1,000' – The number of LWD pieces per 1000'

Stream Substrate

- <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample.
- D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged.

Fish Surveys

- Presence/absence snorkel surveys also estimate fish numbers per mile.
    - Coho – Coho salmon any age.
    - SH (1+) – Steelhead one year old or older.
- Redds - Number of salmon spawning nests found per mile during the season.

Streambed (Thalweg) Survey

- Slope – the slope of the channel
- VI – The variation index is the [(SD of residual depth/bank full depth) *100]. This is a way of quantifying roughness and hence suitability for fish. Greater than 20 is a good indication of recovery.
- A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement.

Riparian Condition

- Canopy Cover percent as measured with a spherical densiometer. Every 200', canopy percent is measured in the center of the channel. And at bank full and 50' into the riparian zone from bankfull on both sides of the channel. Four measurements are averaged at each point.
- WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparial zone.
- Cr. – The average of all the measurements taken in the center of the channel.
- Riparian inventory plots were locate both sides of the channel every 200'
- Basal Area – Is the average basal area in square feet of all the riparian plots
- Tree Ht. – Is the average height of the 100 tallest trees per acre.

Macroinvertebrates

- Richness – Total number of Genuses represented.
- Simpson Diversity Index – Measures the evenness of species diversity
- Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution
- Russian River Index – A localized index that combines several standard metrics
- Percent Dominant Taxon – this is a species distribution index

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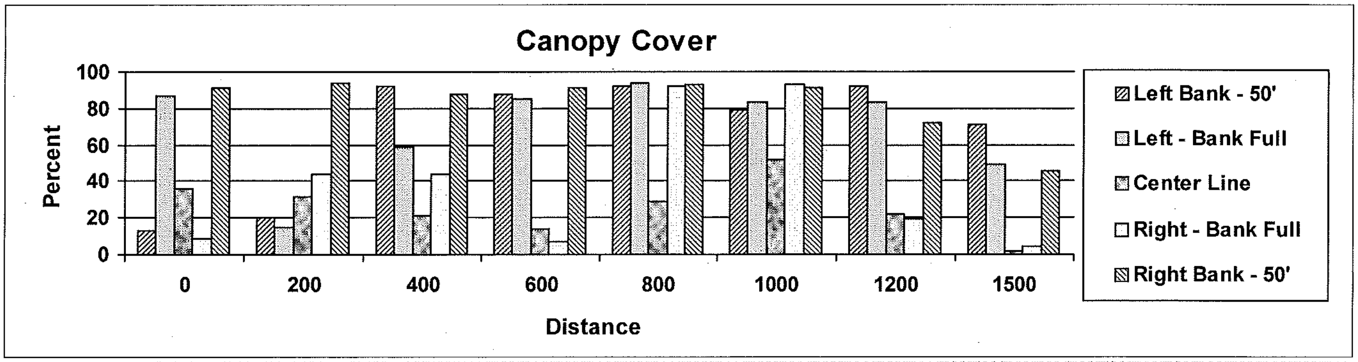
PART OF PLAN

revised 9/10/15

Canopy Cover

Planning Watershed: Mouth of the Gualala River

Station Name SFG 402 **Stream:** South Fork Gualala Ri **Year:** 1999 **Acres:** 31,081 346



Biological Report

Ownerships: ***All***
Visit Purpose: ***All***
Planning Watersheds: ***Annapolis***

Watershed: Wheatfield

Stream	Station Name	#	Year	Distance up Stream (Feet)	Reach Length (Feet)	Purpose	Fish or Redds per Mile: Adult Fish SH	Redds	Coho Fry	Steel-head Parr 1+	Benthic Macroinvertebrates (BMI): Rich-ness	Simp-son	ETP Taxa	% Dom-inant	Russian River Index	North Coast IBI
Wheatfield	Wfg3	226	1998	2,200	1,400	Fish Reach Dive			0.0	981						
Wheatfield	Wfg3	226	2000	2,200	1,000	Riffle BMI					32	0.85	16	32%	15	
Wheatfield	Wfg3	226	2002	2,200	1,400	Fish Reach Dive			0.0	60						
Wheatfield	Wfg3	226	2003	2,200	4,622	Fish Reach Dive			0.0	182						
Wheatfield	Wfg3	226	2008	2,200	2,000	Fish Reach Dive			0.0	137						
Wheatfield	Wfg2	227	2003	14,200	3,322	Fish Reach Dive			0.0	286						

Total Station Visits: 6

Reach length for "fish pool dives" is only the length of the pools actually snorkel surveyed.
Reach length for "spawner surveys" is the longest survey in that reach during that season.

ADDED 9/10/15

Stream Monitoring Report

Ownerships: All
Visit Purpose: All
Planning Watersheds: Annapolis

Station Number	Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: Russian R Index	Aquatic Macroinvertebrates: % Dominant
Hydrologic Unit					**Wheatfield**																			
Stream			**Jennifer Creek**																					
228	Jen	0.19	1995	14.5	13.9																			
228	Jen	0.19	1996	14.0	13.4																			
228	Jen	0.19	1997	14.8	14.2																			
228	Jen	0.19	1998	14.1	13.6																			
228	Jen	0.19	2002	16.3	13.1																			
Jennifer Creek			**Avg**	**14.7**	**13.6**																			
Stream			**Palchett Creek**																					
901	97-3	0.08	1999	15.7	14.5																			
Palchett Creek			**Avg**	**15.7**	**14.5**																			
Stream			**Wheatfield Fork Gualala River**																					
226	Wfg3	0.42	1995	25.5	20.9																			
226	Wfg3	0.42	1996	23.8	20.3																			
226	Wfg3	0.42	1997	23.1	21.9																			
226	Wfg3	0.42	1998	24.7	21.7													0	981						
226	Wfg3	0.42	2000			1,828	22		27				86%	40%	170	106				32	0.85	4.3	15	32
226	Wfg3	0.42	2001	23.2	20.0																			
226	Wfg3	0.42	2002														0	60						
226	Wfg3	0.42	2003			1,310	18		21	0.1%	21						0	182						
226	Wfg3	0.42	2008	21.0	18.9	1,637	29		16	0.1%	29	0.05	81%	15%			0	137						
226	Wfg3	0.42	2009	22.5	19.0																			
226	Wfg3	0.42	2010	20.8	19.1																			
226	Wfg3	0.42	2011	22.5	19.5																			
226	Wfg3	0.42	2012	21.0	18.6																			
226	Wfg3	0.42	2015																					
29	62	0.69	2009							0.2%	22													
29	62	0.69	2012								24	-0.25												
32	WFGr	0.69	2009							0.2%	21													
32	WFGr	0.69	2012							0.1%	25	-0.31												

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received 9/10/15

Station Number	Name	Miles Up Stream	Year	Temperature: Seasonal Maximum	Temperature: MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt: CuFt/ 1000'	LWD Bank Full: Pieces/ 1000'	Substrate: >0.85 mm	Substrate: D50	Streambed (Thalweg): Slope	Streambed (Thalweg): VI	Streambed (Thalweg): A/D	Riparian Zone: Canopy % WLPZ	Riparian Zone: Canopy % Cr.	Riparian Zone: Basal Area	Riparian Zone: Tree Ht.	Fish or Redds per Mile: Coho	Fish or Redds per Mile: SH (1+)	Fish or Redds per Mile: Redds	Aquatic Macroinvertebrates: Richness	Aquatic Macroinvertebrates: Simpson	Aquatic Macroinvertebrates: Hilsenhoff	Aquatic Macroinvertebrates: % Dominant	Aquatic Macroinvertebrates: Russian R Index
30	70	0.99	2009							0.1%	19													
30	70	0.99	2012								26	-0.48												
227	Wfg2	2.69	1996	24.0	21.2																			
227	Wfg2	2.69	1997	25.3	22.2																			
227	Wfg2	2.69	1998	24.3	21.5																			
227	Wfg2	2.69	2000	25.3	21.2																			
227	Wfg2	2.69	2003														0	286						
403	WFG1	5.28	1998	26.4	22.9																			
273	WFG	5.45	1995	26.4	22.0																			
603	WFG	7.29	2002	24.0	21.6																			
603	WFG	7.29	2013	24.8	22.4																			
Wheatfield Fork Gualala Riv			Avg	23.8	20.8	1,651	22		23	0.1%	23	-0.2	85%	31%	170	106	0	329		32	0.85	4.3	15	32
Hydrologic Uni Wheatfield			Avg	21.6	19.1	1,651	22		23	0.1%	23	-0.2	85%	31%	170	106	0	329		32	0.85	4.3	15	32

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revised 9/10/15

Station Number Name	Miles Up Stream	Year	Temperature Seasonal Maximum	Temperature MWAT	LWD Bank Full >6 In & >4 Ft or >10 CuFt CuFt/ 1000'	LWD Bank Full Pieces/ 1000'	Substrate >0.85 mm	Substrate D50	Streambed (Thalweg) Slope	Streambed (Thalweg) VI	Streambed (Thalweg) A/D	Riparian Zone Canopy % WLPZ	Riparian Zone Canopy % Cr.	Riparian Zone Basal Area	Riparian Zone Tree Ht.	Fish or Redds per Mile Coho	Fish or Redds per Mile SH (1+)	Fish or Redds per Mile Redds	Aquatic Macroinvertebrates Richness	Simpson	Hilsenhoff	Russian R Index	% Dominant
		Avg	21.6	19.1	1,651	22		23	0.1%	23	-0.2	85%	31%	170	106	0	329		32	0.85	4.3	15	32
		Min	14.0	13.1	1,310	18		16	0.1%	19	-0.5	81%	15%	158	101	0	60		32	0.85	4.3	15	32
		Max	26.4	22.9	1,828	29		27	0.2%	29	0.05	86%	40%	182	111	0	981		32	0.85	4.3	15	32
Old Growth Watersheds (HRSP)			18.5	16.6			21.6%	62											26.2	0.89			
Poor-Normal-Good										>20									26-35	.8-.89	4.6-3.1	12-17	39-15
NCWQCB Target			18.3	16.8			<14%																

Temperature
- Seasonal Maximum – The highest water temperature recorded during the summer.
- Maximum weekly average temperature (MWAT) - The highest average temperature for any seven day rolling average

Large Woody Debris (LWD)
- LWD must be at least 6 inches on the small end and longer than 4 feet.
- Cubic Feet per 1,000 feet – The cubic volume of LWD located between the bankfull lines.
- Pieces per 1,000' – The number of LWD pieces per 1000'

Stream Substrate
- <0.85mm – The percent fines less than 0.85 millimeters in a McNeal sample.
- D50- The pebble size of the median pebble of a 100 pebble sample. Three sample sites on each reach are averaged.

Fish Surveys
- Presence/absence snorkel surveys also estimate fish numbers per mile.
  - Coho – Coho salmon any age.
  - SH (1+) – Steelhead one year old or older.
- Redds - Number of salmon spawning nests found per mile during the season.

Streambed (Thalweg) Survey
- Slope – the slope of the channel
- VI – The variation index is the [(SD of residual depth/bank full depth) *100]. This is a way of quantifying roughness and hence suitability for fish. Greater than 20 is a good indication of recovery.
- A/D – The change in elevation of the channel (aggradation or degradation) relative to the first year of measurement.

Riparian Condition
- Canopy Cover percent as measured with a spherical densiometer. Every 200', canopy percent is measured in the center of the channel. And at bank full and 50' into the riparian zone from bankfull on both sides of the channel. Four measurements are averaged at each point.
- WLPZ (Watercourse and Lake Protection Zone) – The average of all the measurements taken on either side of the channel 50' into the riparial zone.
- Cr. – The average of all the measurements taken in the center of the channel.
- Riparian inventory plots were locate both sides of the channel every 200'
- Basal Area – Is the average basal area in square feet of all the riparian plots
- Tree Ht. – Is the average height of the 100 tallest trees per acre.

Macroinvertebrates
- Richness – Total number of Genuses represented.
- Simpson Diversity Index – Measures the evenness of species diversity
- Hilsenhoff – This is a locally modified Hilsenhoff index. It indicates levels of organic pollution
- Russian River Index – A localized index that combines several standard metrics
- Percent Dominant Taxon – this is a species distribution index

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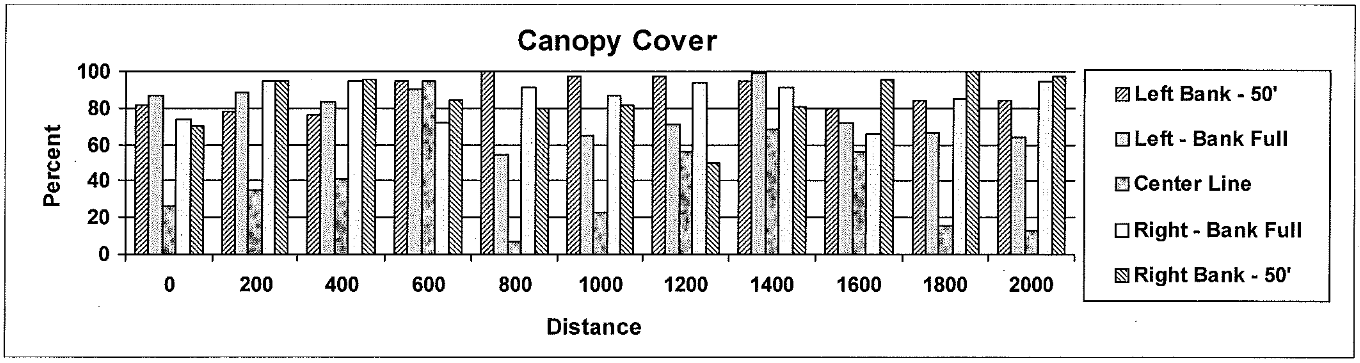
revised 9/10/15

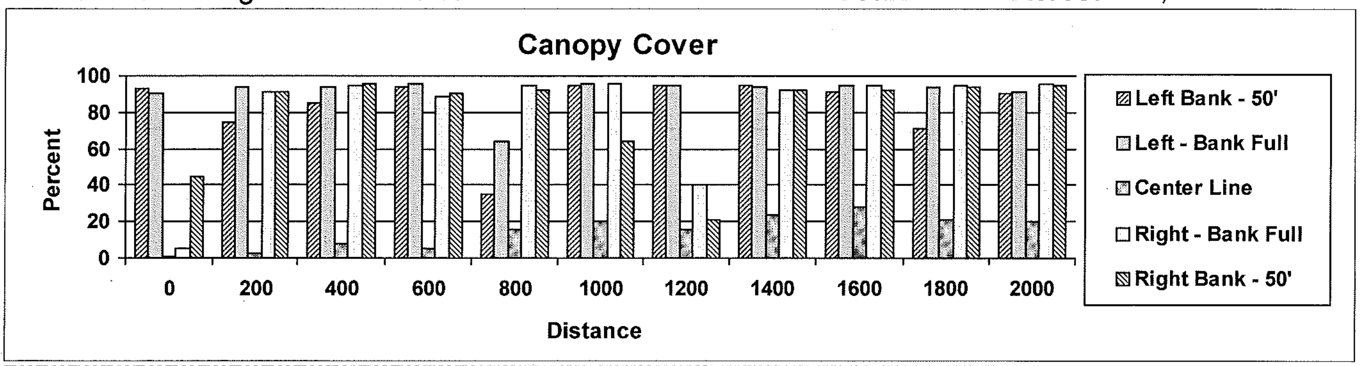
Canopy Cover

Planning Watershed: Annapolis

Station Name Wfg3 226 **Stream:** Wheatfield Fork Gualal **Year:** 2000 **Acres:** 71,409 426



Station Name Wfg3 226 **Stream:** Wheatfield Fork Gualal **Year:** 2008 **Acres:** 71,409 895



Logs placed in Creeks

Ownerships: All

Planning Watersheds: Big Pepperwood Creek

		Bank Full						Total					
	D1	D2	Length	Cu Ft	Cu M	Bd Ft	D1	D2	Length	Root Wad	CuFt	CuM	BdFt
Big Pepperwood													
Logs 50			Total	4,690	131	36,603				1,411	8,778	246	52,668
Groshong Gulch													
Logs 24			Total	447	13	13,153				1,746	2,616	73	15,698
Little Pepperwood													
Logs 22			Total	362	10	9,374				1,201	1,751	49	10,508
Grand Total													
Average	21	18	7	57	2	616	23	18	12	45	137	4	822
Logs 96			Total	5,498	154	59,130				4,357	13,146	368	78,875

Change in log water depth after LWD placement

	Distance Moved	2002	2004	2005	2006	2008	2012
		Change in the depth of the water under a log from first depth (Deeper is positive)					
Big Pepperwood (49 Logs)							
Avg	181	1.1	0.6	0.7	0.6	0.5	0.6
Min	0	0.0	-0.5	-0.7	-1.2	-1.3	-1.2
Max	976	3.4	2.0	2.9	2.7	3.7	3.5
Groshong Gulch (27 Logs)							
Avg	8				0.1	0.2	0.3
Min	0				-0.6	-0.6	-0.2
Max	86				0.9	0.8	1.0
Little Pepperwood (22 Logs)							
Avg	44		0.7		0.3	0.3	0.9
Min	0		0.0		-0.6	-0.8	-0.3
Max	422		1.3		1.0	1.5	2.4
Avg Grand Total	102	1.1	0.6	0.7	0.4	0.4	0.6
Min	0	0.0	-0.5	-0.7	-1.2	-1.3	-1.2
Max	976	3.4	2.0	2.9	2.7	3.7	3.5

Logs placed in Creeks

Ownerships: All

Planning Watersheds: Mouth of the Gualala River

		Bank Full						Total						
		D1	D2	Length	Cu Ft	Cu M	Bd Ft	D1	D2	Length	Root Wad	CuFt	CuM	BdFt
South Fork Gualala River														
Logs 1				Total	71	2	605				29	101	3	605
Grand Total														
	Average	20	6	60	71	2	605	20	6	60	29	101	3	605
Logs 1				Total	71	2	605				29	101	3	605

Logs placed in Creeks

Ownerships: All

Planning Watersheds: Annapolis

		Bank Full						Total					
	D1	D2	Length	Cu Ft	Cu M	Bd Ft	D1	D2	Length	Root Wad	CuFt	CuM	BdFt
Wheatfield Fork Gualala River													
Logs 2			*Total*	351	10	3,658				258	957	27	5,742
Grand Total													
Average	35	22	37	176	5	1,829	41	22	58	129	478	13	2,871
Logs 2			*Total*	351	10	3,658				258	957	27	5,742

NSO Information

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:
81420-2008-TA-0679-2

JUN 5 2008

Ms. Leslie Markham
Deputy Chief, Forest Practice
Department of Forestry and Fire Protection
135 Ridgeway Avenue
Santa Rosa, California 95402

Subject: Technical Assistance on the Threatened Northern Spotted Owl and the Willow Timber Harvest Plan 1-07-155 SON in Sonoma County, California

Dear Ms. Markham:

This responds to a request from the California Department of Forestry and Fire Protection for our technical assistance on the Willow Timber Harvest Plan (THP). The THP was received by the U.S. Fish and Wildlife Service (Service) on May 12, 2008. At issue is the potential for take of the threatened northern spotted owl (*Strix occidentalis caurina*)(owl) as a result of operations conducted on the above THP. Our comments are issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. §1531 *et. seq.*) (Act).

This is a 169-acre THP located in Sections 16, 21, 22, 26, and 27 Township 10 North, Range 14, M.D.B. & M. in Sonoma County. The area has been surveyed for owls to protocol since 1999. Although there are two owl activity centers (SON-058 and SON-094) within 1.3 miles of the plan. The Service concurred SON-094 could be considered abandoned (Service File # 81420-2008-TA-0679-1), but harvest activities were not begun prior to February 1, 2008. Survey data collected from the 2008 breeding season, demonstrates that SON-094 remains unoccupied. Thus, Service concurs that SON-094 meets standards for abandonment. Activity center SON-058 is more than 1 mile from the proposed THP. Therefore, the Service has determined that operations as proposed would not be likely to incidentally take northern spotted owls, provided that further technical assistance is sought from the Service if operations are not completed prior to February 1, 2009.

If you have questions regarding this response on the Willow Timber Harvest Plan, please contact Amy L. Fesnock, Forest and Foothill Branch Chief, of my staff at (916) 414-6600.

Sincerely,

Chris Nagano

Chris Nagano
Deputy Assistant Field Supervisor

cc:
Pamela Town, Forest Ecosystem Management, PLLC, Anaconda, Montana
Henry Alden, Gualala Redwoods, Inc., Gualala, California

Data Version Date:
05/27/2014

Report Generation Date:
6/30/2014

Report #1 - Spotted Owl Sites Found

Known Spotted Owl sites having observations within the search area.

Meridian, Township, Range, Section (MTRS) searched:

M_10N_14W Sections(04,05,06,07,08,09,15,16,17,20,21,22,26,27,28);
M_10N_15W Sections(01,02);
M_11N_14W Sections(29,30,31,32,33,34);
M_11N_15W Sections(23,24,25,26,27,34,35,36);

Masterowl	*Subspecies*	*LatDD NAD83*	*LonDD NAD83*	*MTRS*	*AC Coordinate Source*
MEN0179	NORTHERN	38.789047	-123.503752	M 11N 15W 23	Contributor
MEN0371	NORTHERN	38.809983	-123.518251	M 11N 15W 10	Contributor
MEN0412	NORTHERN	38.783113	-123.456980	M 11N 14W 20	Contributor
SON0009	NORTHERN	38.713479	-123.400581	M 10N 14W 15	Contributor
* SON0012	NORTHERN	38.747254	-123.431493	M 10N 14W 04	Contributor
*SON0017	NORTHERN	38.766541	-123.477305	M 11N 14W 30	Contributor
SON0034	NORTHERN	38.764380	-123.430330	M 11N 14W 28	Contributor
*SON0045	NORTHERN	38.761302	-123.457819	M 11N 14W 32	Contributor
*SON0082	NORTHERN	38.771471	-123.505195	M 11N 15W 26	Contributor
*SON0085	NORTHERN	38.725073	-123.434696	M 10N 14W 08	Contributor
SON0090	NORTHERN	38.760280	-123.417760	M 11N 14W 34	Contributor
* SON0094	NORTHERN	38.680074	-123.392003	M 10N 14W 26	Contributor

* NSO within 0.7 miles of the Plan area.

Data Version Date:
05/27/2014

Report Generation Date:
6/30/2014

Report #2 - Observations Reported
List of observations reported, by site.

Meridian, Township, Range, Section (MTRS) searched:

M_10N_14W Sections(04,05,06,07,08,09,15,16,17,20,21,22,26,27,28);
M_10N_15W Sections(01,02);
M_11N_14W Sections(29,30,31,32,33,34);
M_11N_15W Sections(23,24,25,26,27,34,35,36);

Masterowl: MEN0179 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2003-03-30	1505-1520	2	UMUF	Y			38.789047	-123.503752	M 11N 15W 23	Contributor
NEG	2007-03-29	2054-2104	0					38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1995-04-02		0					38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	2004-04-07	0015-0025	0					38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	1993-06-16		0					38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1990-07-07		0					38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2007-04-05	2338-2348	0					38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2008-05-17	2125	0					38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
NEG	2002-04-30	0133-0143	0					38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2001-03-12	1941	0					38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2000-04-19	2023	0					38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1999-05-13	2141-2151	0					38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1990-06-17		0					38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2005-07-26	2128-2148	0					38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	1998-06-10	1200	0					38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1999-04-23	0202-0212	0					38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1998-08-21		0					38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2002-03-04	2345-2355	0					38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1999-05-20	2321-2331	0					38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2005-06-23	2148-2158	0					38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1999-04-24	0014-0024	0					38.783380	-123.516870	M 11N 15W 22	Contributor

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NEG	2001-03-14	1955-2005	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1999-03-20	1719	0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2000-03-03	2117-2137	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1993-03-22	2000	0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1995-04-23		0	38.786443	-123.506607	M 11N 15W 23	Section centroid
NEG	1999-06-02	1730	0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2007-03-28	2022-2032	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2001-06-29	2331-2341	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2001-06-14	2103-2113	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2004-03-11	2343-2353	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2009-04-06	2038	0	38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
NEG	2006-06-02	2232-2242	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	1991-03-14	1830	0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2003-04-30	0118-0128	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2002-03-12	2326-2336	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2004-03-11	2302-2312	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2005-07-20	2107-2117	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1999-05-20	0050-0100	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1991-01-25	0630	0	38.790188	-123.511441	M 11N 15W 23	Quarter-section centroid
NEG	1999-06-01	0007-0017	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1993-05-10		0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	1991-05-15		0	38.784542	-123.504136	M 11N 15W 23	Activity center
NEG	2001-03-18	1940-1950	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1999-05-01	0025-0035	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1999-06-02	2216-2226	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2006-04-13	0259-0309	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2002-04-09	2325-2335	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2006-04-25	0301-0311	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2001-06-13	2121	0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	2005-06-25	2157-2207	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2006-05-25	2153-2203	0	38.783990	-123.509120	M 11N 15W 23	Contributor

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NEG	2005-05-10	2220-2230	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2007-04-25		0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2000-06-28	2138-2148	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1993-05-13		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2000-04-09	2105	0	38.790462	-123.520828	M 11N 15W 22	Quarter-section centroid
NEG	2004-06-14	0142-0152	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2003-04-30	0040-0050	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2006-04-25	0035-0045	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	1995-04-24		0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	1998-08-13		0	38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	2006-05-25	2350-0000	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2000-04-06	2352-0002	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2000-04-15	1050	0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1999-04-12	2318-2328	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2000-03-03	2000	0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2005-04-21	0121-0131	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2000-03-02	2303	0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1994-03-24		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2007-04-25	2146-2156	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1999-05-22	1715	0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2000-06-04	2347-2357	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1999-05-15	1400	0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1991-01-31		0	38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
NEG	2003-04-30	0159-0209	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1994-03-30		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1997-03-12		0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	1999-03-17	2028-2038	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1999-06-17	2327-2337	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2004-04-15	0119-0129	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2003-03-07	2021-2031	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2003-03-07	2156-2206	0	38.783380	-123.516870	M 11N 15W 22	Contributor

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NEG	2003-04-14	0003-0013	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1991-01-29	1800	0	38.790188	-123.511441	M 11N 15W 23	Quarter-section centroid
NEG	2005-07-27	2132-2142	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2007-04-07	0127-0137	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2007-03-28	1928-1938	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2004-06-15	0134-0144	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1991-02-22	0100	0	38.790188	-123.511441	M 11N 15W 23	Quarter-section centroid
NEG	1996-03-07	2100	0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2003-04-02	2033-2043	0	38.783990	-123.509120	M 11N 15W 23	Contributor
NEG	2001-06-14	2205-2215	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1994-03-22		0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	2000-05-09	2105-2115	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2003-04-02	1931-1941	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2005-04-21	2212-2222	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1993-05-18		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1997-03-22		0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	1993-05-04		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1991-04-10	1200	0	38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
NEG	2009-04-13	2015	0	38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
NEG	1990-07-19		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1993-04-28		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2002-04-21	0058-0108	0	38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	2001-05-24	2313-2323	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1998-08-27		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	2002-03-06	2115	0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	2002-04-20	0129-0139	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	1990-04-16		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1991-02-18	0800	0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2005-06-09	2242-2252	0	38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2006-06-02	2314-2324	0	38.791290	-123.517890	M 11N 15W 22	Contributor

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NEG	2006-06-03	2201-2211	0					38.783380	-123.516870	M 11N 15W 22	Contributor
NEG	2006-04-25	0118-0128	0					38.791290	-123.517890	M 11N 15W 22	Contributor
NEG	1996-04-07		0					38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1999-06-10	2240-2250	0					38.791290	-123.517890	M 11N 15W 22	Contributor
POS	1992-05-08		2	UMUF	Y	N		38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1992-03-13		1	UU				38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	1991-06-01		2	UMUF	Y		1	38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1997-07-15	1837	1	UF			1	38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1996-04-05		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1998-07-29		1	UM				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1998-03-03		1	UU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1990-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2001-03-10	2223	1	UF				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1998-08-20		1	UF				38.789435	-123.482869	M 11N 15W 24	Quarter-section centroid
POS	1998-10-21		1	UU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1993-11-13	1214	2	UMUF				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2001-05-05	1400	2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2001-05-25	0050	1	UM				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1994-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1991-05-29	1625	2	UMUF	Y	Y		38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1993-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1993-03-08	2115	1	UU				38.782393	-123.492389	M 11N 15W 24	Quarter-section centroid
POS	1999-05-22	0138	2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid

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POS	2000-04-28	2310	1	UM				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	2003-03-06	0044	1	UM				38.783990	-123.509120	M 11N 15W 23	Contributor
POS	1991-07-08	1722	1	UM	Y	Y	2	38.789187	-123.492654	M 11N 15W 24	Contributor
POS	2000-06-04	2236	1	UM				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1997-05-27		2	UMUF	Y	Y	1	38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1998-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1996-03-17		1	UU				38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
POS	1996-10-24		1	UU				38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1995-07-10		1	UU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2003		1	UU		Y		38.789859	-123.504173	M 11N 15W 23	Contributor
POS	1993-03-08		1	UU				38.782650	-123.501866	M 11N 15W 23	Quarter-section centroid
POS	1999-06-03	0739	1	UU				38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	2004-03-19	1729-1745	2	UMUF	Y			38.789673	-123.507622	M 11N 15W 23	Contributor
POS	1997-04-30	1325	2	UMUF	Y	Y		38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1993-06-03	1200	2	UMUF				38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
POS	1991-04-22	0630	2	UUUU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2002-04-10	2142	2	UMUF	Y			38.800499	-123.487642	M 11N 15W 13	Section centroid
POS	2007-03-28	1904	1	UU				38.782650	-123.501866	M 11N 15W 23	Quarter-section centroid
POS	1994-11-22	1911	1	UM				38.786442	-123.506602	M 11N 15W 23	Section centroid
POS	1992-06-04		2	UMUF	Y			38.790055	-123.506662	M 11N 15W 23	Half-section centroid
POS	1999-06-02	0128	1	UM				38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
POS	1994-06-01	1158	2	UMUF	Y			38.786442	-123.506602	M 11N 15W 23	Section centroid
POS	2007-04-06	1804	2	UMUF	Y			38.784542	-123.504136	M 11N 15W 23	Contributor
POS	2001-03-10	2240	1	UU				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid

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POS	2002-04-22	1620	2	UMUF	Y			38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1993-07-22	1310	1	UM				38.789187	-123.492654	M 11N 15W 24	Contributor
POS	2000-04-26	2144	1	UM				38.791290	-123.517890	M 11N 15W 22	Contributor
POS	1995-11-09	1849	2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1997-07-03		2	UMUF	Y		1	38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1991-05-23		2	UMUF	Y	Y		38.789187	-123.492654	M 11N 15W 24	Contributor
POS	1992-09-16		2	UMUF	Y	N		38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2001-03-10	2223	1	UF				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1993-06-02		2	UMUF	Y			38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
POS	1995-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1997-11-04	1904	1	UM				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1995-07-11		1	UU				38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1992-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1998-10-21	1148	1	UU				38.784542	-123.504136	M 11N 15W 23	Activity center
POS	1995-05-31	2142	1	UM				38.786442	-123.506602	M 11N 15W 23	Section centroid
POS	1996-06-01		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1991-02-15	0700	1	UU				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1998-04-24		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2002-05-02	1710	2	UMUF	Y			38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1997-04-15		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1993-04-08		1	UU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2002-05-02	1710	2	UMUF	Y	Y		38.789592	-123.503365	M 11N 15W 23	Contributor
POS	1997-02-24	0000	2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid

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POS	1996-10-24	1426	1	UU				38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1991-11-04	2044	1	UF				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2002-04-11	1430	2	UMUF	Y			38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
POS	1996-03-18		1	UU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	2000-06-06	0845	1	UM				38.789922	-123.501894	M 11N 15W 23	Quarter-section centroid
POS	1991-05-22		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1994-04-15		1	UU				38.796947	-123.492351	M 11N 15W 13	Quarter-section centroid
POS	1999-06-03	0642	1	UU				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1996-07-10		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1990-04-16		2	UMUF	Y			38.796858	-123.487652	M 11N 15W 13	Half-section centroid
POS	1996-05-25		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1991-11-10	1755	2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1993-04-28		1	UU				38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1996-06-30		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1998-10-12		2	UMUF	Y			38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1997-06-01		2	UMUF	Y		1	38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid
POS	1998-05-18		1	UU				38.789665	-123.492370	M 11N 15W 24	Quarter-section centroid

Masterowl: MEN0371 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2008-05-18	1930	2	AMAF	Y			38.809983	-123.518251	M 11N 15W 10	Contributor
NEG	1998-04-14		0					38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1997-07-29		0					38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1998-06-18		0					38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1996-08-23		0					38.800879	-123.506508	M 11N 15W 14	Section centroid

NEG	1991-05-23		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1997-03-31		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1998-05-17		0	38.801922	-123.525471	M 11N 15W 15	Section centroid
NEG	1994-03-22		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1995-05-09		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1991-07-09		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	2003-04-02	2014	0	38.802810	-123.544066	M 11N 15W 16	Section centroid
NEG	1998-06-05		0	38.816899	-123.525397	M 11N 15W 10	Section centroid
NEG	1991-06-18		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1995-04-11		0	38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1998-07-28		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1995-05-17		0	38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1995-04-02		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1991-07-12		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1998-04-07		0	38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1996-03-13	2205	0	38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1995-08-02		0	38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	2003-03-07	1924	0	38.802810	-123.544066	M 11N 15W 16	Section centroid
NEG	1998-05-05		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	2001-05-15	2234	0	38.816899	-123.525397	M 11N 15W 10	Section centroid
NEG	1996-05-25		0	38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1995-04-24		0	38.800499	-123.487642	M 11N 15W 13	Section centroid
NEG	2000-03-02	2219	0	38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
NEG	2000-06-07	0150	0	38.816899	-123.525397	M 11N 15W 10	Section centroid
NEG	2000-04-26	2114	0	38.802810	-123.544066	M 11N 15W 16	Section centroid
NEG	2000-04-26	2303	0	38.816899	-123.525397	M 11N 15W 10	Section centroid
NEG	1994-04-28		0	38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1996-08-07		0	38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	2009-04-12	1100	0	38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
NEG	1997-02-24		0	38.809983	-123.518251	M 11N 15W 10	Activity center
NEG	1998-06-02		0	38.786442	-123.506602	M 11N 15W 23	Section centroid

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NEG	1996-05-12		0			38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1991-06-11		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1996-07-06		0			38.812150	-123.511160	M 11N 15W 11	Quarter-section centroid
NEG	2000-06-28	2219	0			38.820896	-123.530391	M 11N 15W 10	Quarter-section centroid
NEG	1992-04-27		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1994-08-01		0			38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	1991-02-22		0			38.797442	-123.511389	M 11N 15W 14	Quarter-section centroid
NEG	1993-05-18		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1996-07-12		0			38.786442	-123.506602	M 11N 15W 23	Section centroid
NEG	1991-05-15		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1995-05-30		0			38.815693	-123.506613	M 11N 15W 11	Section centroid
NEG	2001-03-14	1907	0			38.802810	-123.544066	M 11N 15W 16	Section centroid
NEG	2001-03-10	2231	0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1991-06-13		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1998-03-03		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1997-04-30		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1995-04-11		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1998-04-20		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1991-07-01		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
NEG	1991-04-30		0			38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	1991-07-17		1	UU		38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	1996-07-05		1	UU		38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1996-03-19		2	UMUF	Y	38.812150	-123.511160	M 11N 15W 11	Quarter-section centroid
POS	2008-03-30	1825	2	AMAF	Y	38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	2007-04-05	1715	1	UM		38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1993-03-22	2120	1	UU		38.797442	-123.511389	M 11N 15W 14	Quarter-section centroid
POS	1998-04-20		2	UMUF	Y	38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid

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POS	1996-07-18		1	UU	Y		38.797442	-123.511389	M 11N 15W 14	Quarter-section centroid
POS	1992-06-04		1	UU			38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	1993-05-13	2228	1	UM			38.801074	-123.511231	M 11N 15W 14	Half-section centroid
POS	2004-04-29	1704	2	UMUF	Y		38.807014	-123.517078	M 11N 15W 15	Contributor
POS	1996-08-27	2025	2	UMUF	Y		38.797442	-123.511389	M 11N 15W 14	Quarter-section centroid
POS	1997-04-29		1	UU			38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1994-08-12		1	UU			38.819315	-123.506800	M 11N 15W 11	Contributor
POS	2001-05-25	0050	1	UM			38.797150	-123.501841	M 11N 15W 14	Quarter-section centroid
POS	1991-07-23		1	UU			38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	2002-04-21	1350	1	UM			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	2002-04-21	0029	1	UM			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1999-03-20	1609	2	UMUF	Y	Y	38.810610	-123.519062	M 11N 15W 10	Contributor
POS	2008-03-23	1926	1	AM			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	2003-04-13	1230	2	UMUF	Y	Y	38.807014	-123.517078	M 11N 15W 15	Contributor
POS	1993-06-09		2	UMUF	Y		38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	1993-06-02	1200	2	UMUF	Y		38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	1998-05-08		1	UU			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	2007-05-17	1930	2	UMUF	Y	N	38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	2003-03-09	1651	1	UF			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1992-03-26		1	UU			38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	2002-04-09	1755	2	UMUF	Y		38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1996-07-05		1	UU			38.797815	-123.520904	M 11N 15W 15	Quarter-section centroid
POS	2001-03-10	1645	1	UU			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1993-03-22		1	UU			38.797442	-123.511389	M 11N 15W 14	Quarter-section centroid

POS	2000-03-05	1038	2	UMUF	Y			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1996-08-27		2	UMUF	Y			38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1996-03-20		3	UMUF	Y			38.812150	-123.511160	M 11N 15W 11	Quarter-section centroid
POS	1993-05-13		1	UM				38.799460	-123.513569	M 11N 15W 14	Contributor
POS	1993-06-04	1719	2	UMUF				38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	2007-04-07	1539	2	UMUF	Y	N		38.807014	-123.517078	M 11N 15W 15	Contributor
POS	2002-03-06	1500	2	UMUF	Y			38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1998-04-07		1	UU				38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1993-06-03		2	UMUF	Y			38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	2001-05-08	1630	1	UU				38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1992-03-12		1	UU				38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	2002-05-02	1515	2	UMUF	Y			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	2001-05-03	0137	1	UM				38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	1996-07-06	1200	1	UU				38.805323	-123.520509	M 11N 15W 15	Quarter-section centroid
POS	1992-04-22		1	UU				38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	1996-07-18		1	UU	Y			38.804698	-123.511084	M 11N 15W 14	Quarter-section centroid
POS	1992-03-26		1	UU				38.810326	-123.501553	M 11N 15W 11	Contributor
POS	1996-03-19		1	UU				38.812150	-123.511160	M 11N 15W 11	Quarter-section centroid
POS	1990-08-07		2	UMUF	Y		1	38.792521	-123.513749	M 11N 15W 23	Contributor
POS	1991-11-10		2	UMUF				38.800879	-123.506508	M 11N 15W 14	Section centroid
POS	1998-04-14		2	UMUF	Y			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid
POS	2001-06-26	1830	2	UMUF	Y			38.812793	-123.520552	M 11N 15W 10	Quarter-section centroid

Masterowl: MEN0412 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*

AC	2009-05-19	2255	2	AMAF	Y	38.783113	-123.456980	M 11N 14W 20	Contributor
NEG	1998-07-20		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	1994-06-04		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	1995-03-31	1200	0			38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	1998-08-27		0			38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	1998-03-20		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	2003-06-25	1655	0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	1998-07-13		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	1998-05-15		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	2000-03-30	2021	0			38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	1996-04-05		0			38.798675	-123.450331	M 11N 14W 17	Section centroid
NEG	1996-03-07		0			38.798675	-123.450331	M 11N 14W 17	Section centroid
NEG	1998-08-20		0			38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	1995-03-30		0			38.798058	-123.432029	M 11N 14W 16	Section centroid
NEG	1996-04-25		0			38.787691	-123.454556	M 11N 14W 20	Quarter-section centroid
NEG	1996-04-04		0			38.798675	-123.450331	M 11N 14W 17	Section centroid
NEG	1999-03-15	2145	0			38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	1996-05-04		0			38.787691	-123.454556	M 11N 14W 20	Quarter-section centroid
NEG	2001-03-12	2225	0			38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	1998-06-10		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	2000-06-07	1300	0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	2003-05-13	1405	0			38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	2000-06-06	0959	0			38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	1998-04-15		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	2000-06-07	1300	0			38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	1998-03-14		0			38.784113	-123.450136	M 11N 14W 20	Section centroid
POS	2009-04-16	2147	2	AMAF	Y	38.780545	-123.454511	M 11N 14W 20	Quarter-section centroid
POS	2002-04-22	2255	1	UF		38.784113	-123.450136	M 11N 14W 20	Section centroid
POS	2003-07-21	2141	1	UU		38.784113	-123.450136	M 11N 14W 20	Section centroid

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POS	2009-04-11	2203	2	AMAF	Y			38.780545	-123.454511	M 11N 14W 20	Quarter-section centroid
POS	2003-06-30	2044	1	UF		N	1	38.784113	-123.450136	M 11N 14W 20	Section centroid
POS	2006		2	UMUF	Y			38.783202	-123.457268	M 11N 14W 20	Contributor
POS	2005		1	UU		Y		38.784706	-123.464416	M 11N 14W 19	Contributor
POS	2001-03-12	2058	1	UM				38.788133	-123.463770	M 11N 14W 19	Quarter-section centroid
POS	2001-05-29	2043	1	UM				38.780879	-123.463723	M 11N 14W 19	Quarter-section centroid
POS	2002-04-22	2255	1	UM				38.780545	-123.454511	M 11N 14W 20	Quarter-section centroid
POS	1995-03-30		1	UU				38.788133	-123.463770	M 11N 14W 19	Quarter-section centroid
POS	2002-05-01	1750	2	UMUF	Y	Y		38.780545	-123.454511	M 11N 14W 20	Quarter-section centroid
POS	1994-05-19		2	UMUF				38.789160	-123.454543	M 11N 14W 20	Contributor
POS	2003-07-01	1730	1	UF		N	1	38.780545	-123.454511	M 11N 14W 20	Quarter-section centroid
POS	2004-04-30	1525	2	UMUF	Y	Y		38.784706	-123.464416	M 11N 14W 19	Contributor
POS	2001-05-30	1000	2	AMAF	Y	Y	2	38.773088	-123.462614	M 11N 14W 30	Contributor
POS	2003-05-14	1828-1907	2	UMUF	Y			38.776696	-123.461019	M 11N 14W 30	Contributor
POS	2003-03-07	1445	2	UMUF	Y			38.783202	-123.457268	M 11N 14W 20	Contributor

Masterowl: SON0009 Subspecies: NORTHERN

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Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2008		2	UMUF	Y	Y		38.713479	-123.400581	M 10N 14W 15	Contributor
NEG	2007-05-15		0					38.698940	-123.412662	M 10N 14W 22	Contributor
NEG	2006-03-15	2239-2249	0					38.716549	-123.389340	M 10N 14W 14	Contributor
NEG	1996-03-12	1834	0					38.716623	-123.419036	M 10N 14W 16	Quarter-section centroid
NEG	2005-04-24	2359-0009	0					38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	1997-07-14	2245	0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1997-01-17	1815	0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1996-05-23		0					38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2002-05-02	0157	0					38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1990-05-08	2017	0					38.698301	-123.406488	M 10N 14W 22	Section centroid

NEG	1998-07-02		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1999-04-13	2157	0	38.712854	-123.441616	M 10N 14W 17	Section centroid
NEG	1997-03-10		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1997-04-24		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2001-08-08	2330	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	2001-05-28	2045	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1995-07-25	1200	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2001-05-19	2150	0	38.716425	-123.382044	M 10N 14W 14	Quarter-section centroid
NEG	2007-04-09		0	38.698940	-123.412662	M 10N 14W 22	Contributor
NEG	2001-08-02	1630	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1999-03-15	2211	0	38.712854	-123.441616	M 10N 14W 17	Section centroid
NEG	2006-05-12	2121-2131	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	1998-06-10		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2001-07-04	2045	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1998-03-04		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1999-03-16	0055	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1993-03-30		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2005-06-07	2329-2339	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	2003-03-22	2247	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1992-12-01	2320	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1997-06-24		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1997-07-23		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1999-03-20	1951	0	38.712854	-123.441616	M 10N 14W 17	Section centroid
NEG	2007-04-02		0	38.698940	-123.412662	M 10N 14W 22	Contributor
NEG	2005-05-03	2204-2214	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	2007-05-20	0154-0204	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	1995-07-31		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2006-04-30	2139-2149	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	1997-04-07		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2000-03-30	2000	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2005-05-12	2130-2140	0	38.722005	-123.398160	M 10N 14W 10	Contributor

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NEG	1998-07-08		0	38.698301	-123.406488	M 10N 14W 22	Section centroid
NEG	1998-03-06	1915	0	38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
NEG	1996-10-24	1845	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2003-04-13	1545	0	38.708896	-123.391412	M 10N 14W 14	Quarter-section centroid
NEG	2005-04-18	2305-2315	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	1991-02-06		0	38.701931	-123.419848	M 10N 14W 21	Quarter-section centroid
NEG	2005-06-01	0100-0110	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	2003-05-27	2234	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1996-04-04		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2001-04-07	2237	0	38.716425	-123.382044	M 10N 14W 14	Quarter-section centroid
NEG	1998-06-23		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2006-05-11	2334-2344	0	38.716549	-123.389340	M 10N 14W 14	Contributor
NEG	2009-04-10	2800	0	38.716345	-123.400493	M 10N 14W 15	Quarter-section centroid
NEG	1999-06-17	2146	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1996-08-27	2123	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1997-03-17		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2007-04-02	2116-2126	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	2006-03-15	2252-2302	0	38.713636	-123.395860	M 10N 14W 14	Contributor
NEG	2007-04-11	2220-2230	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	2006-03-14	1931-1941	0	38.722005	-123.398160	M 10N 14W 10	Contributor
NEG	1998-03-20		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1998-04-22		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1995-05-03		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1993-06-15		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1998-08-11		0	38.698292	-123.424208	M 10N 14W 21	Section centroid
NEG	2001-05-03	2330	0	38.716425	-123.382044	M 10N 14W 14	Quarter-section centroid
NEG	1996-02-20		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1998-08-31		0	38.698292	-123.424208	M 10N 14W 21	Section centroid
NEG	2002-03-15	0209	0	38.727036	-123.404763	M 10N 14W 10	Section centroid

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Pages deleted

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NEG	1998-06-03		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1993-06-22		0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1998-04-21		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2000-03-21	0200	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2005-04-09	1900	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1996-06-02		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2003-03-06	1410	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2002-04-10	0233	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1995-05-04		0	38.698301	-123.406488	M 10N 14W 22	Section centroid
NEG	1999-06-11	0139	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1998-08-02		0	38.712991	-123.424007	M 10N 14W 16	Section centroid
NEG	2001-06-11	2135	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	2006-04-30	2056-2106	0	38.716549	-123.389340	M 10N 14W 14	Contributor
NEG	1993-07-07	1959	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2001-08-29	2045	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	2009-05-19	1900	0	38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
NEG	1996-03-25		0	38.698301	-123.406488	M 10N 14W 22	Section centroid
NEG	1998-03-25		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1996-05-13		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1996-05-28		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2004-03-23	2256	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1999-04-05	2022	0	38.712854	-123.441616	M 10N 14W 17	Section centroid
NEG	2001-06-27	1330	0	38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2001-03-17	1940	0	38.716425	-123.382044	M 10N 14W 14	Quarter-section centroid
NEG	1993-06-09		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2005-04-20	1910	0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	2001-06-20	2050	0	38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1998-08-18		0	38.698292	-123.424208	M 10N 14W 21	Section centroid
NEG	1997-06-16		0	38.712991	-123.424007	M 10N 14W 16	Section centroid
NEG	1996-05-20		0	38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1996-03-15		0	38.698301	-123.406488	M 10N 14W 22	Section centroid

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NEG	1995-07-04		0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2003-05-19	2200	0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1993-03-09		0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1999-03-27	2227	0					38.712854	-123.441616	M 10N 14W 17	Section centroid
NEG	2001-06-28	2110	0					38.727036	-123.404763	M 10N 14W 10	Section centroid
NEG	1998-08-29		0					38.698292	-123.424208	M 10N 14W 21	Section centroid
NEG	1997-03-26		0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1996-06-05		0					38.698292	-123.424208	M 10N 14W 21	Section centroid
NEG	1995-04-03		0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1990-07-25	2100	0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2003-04-14	1515	0					38.712660	-123.386728	M 10N 14W 14	Section centroid
NEG	1998-06-17		0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	1997-07-24		0					38.712670	-123.405303	M 10N 14W 15	Section centroid
NEG	2000-03-15	2124	0					38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	1993		2	UMUF	Y		1	38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1995-07-24		1	UU				38.716623	-123.419036	M 10N 14W 16	Quarter-section centroid
POS	1993-11-05	1734	1	UM				38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	2008-05-19	2130	2	AMAF	Y			38.716345	-123.400493	M 10N 14W 15	Quarter-section centroid
POS	2004-05-17	0144	1	UU				38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	1995-07-18	2211	1	UM				38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1995-04-11	1501	2	UMUF	Y	Y		38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1996-02-25		1	UM				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1995-03-26		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1999-03-17	1634	2	UMUF	Y			38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1995-05-02		2	UMUF	Y	Y		38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1996-07-29		1	AF				38.709243	-123.428747	M 10N 14W 16	Quarter-section centroid
POS	1996-06-25	1931	2	UMUF		Y	2	38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid

POS	2012-03-05	2158	2	UMUF	Y			38.712717	-123.400472	M 10N 14W 15	Contributor
POS	1994-04-22		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1992-06-18	1633	1	UU	Y		1	38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1996-02-26		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1993-04-13		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1996-03-28		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1993-03-22	2207	1	UM				38.716345	-123.400493	M 10N 14W 15	Quarter-section centroid
POS	1991-04-02		1	UF				38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	1992-04-16	1950	2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	2006-04-30	2044	1	UM				38.713479	-123.400581	M 10N 14W 15	Contributor
POS	1999-03-16	2252	2	UMUF	Y			38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	2003-04-02	1735	2	UMUF	Y			38.708896	-123.391412	M 10N 14W 14	Quarter-section centroid
POS	2005-06-01	0401	2	UMUF	Y			38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	2003-04-30	1522	2	UMUF	Y	Y		38.711810	-123.387690	M 10N 14W 14	Contributor
POS	2006-05-27	1947	1	UM				38.713479	-123.400581	M 10N 14W 15	Contributor
POS	2000-03-04	1426	1	UM				38.716512	-123.409684	M 10N 14W 15	Quarter-section centroid
POS	1994-03-15	1543	2	UMUF	Y			38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1990-04-04	2210	1	UM				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	2008-03-26	2152	2	AMAF	Y			38.716345	-123.400493	M 10N 14W 15	Quarter-section centroid
POS	1992-04-03	1004	2	UMUF	Y	Y		38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	2009-05-18	2147	1	UU				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1999-03-15	2251	1	UU				38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	2009		2	UMUF	Y			38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	2009-04-08		2	AMAF	Y			38.716345	-123.400493	M 10N 14W 15	Quarter-section centroid

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POS	2003-03-11	2212	1	UM				38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	2006-05-11	2330	1	UM				38.713479	-123.400581	M 10N 14W 15	Contributor
POS	1989		2	UMUF	Y			38.716346	-123.400499	M 10N 14W 15	Quarter-section centroid
POS	1995-03-29		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1994-01-20	1805	1	UU				38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1992-04-03		1	UU				38.712464	-123.407591	M 10N 14W 15	Contributor
POS	2004-02-19	1951	1	UU				38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	2004-04-28	1855	2	UMUF	Y	Y		38.711531	-123.390333	M 10N 14W 14	Contributor
POS	2003-06-09	2321	1	UM				38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	1992-05-07	1743	2	UMUF	Y	Y		38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1992-09-04	1935					1	38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	2003-03-05	2302	1	UM				38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	2003-05-20	1831-1858	2	UMUF	Y			38.711484	-123.390868	M 10N 14W 14	Contributor
POS	1996-03-02		1	UF				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1989-08-02		1	UM				38.708896	-123.391412	M 10N 14W 14	Quarter-section centroid
POS	1992-04-02	0000	2	UMUF	Y			38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	2007		2	UMUF	Y	Y		38.713479	-123.400581	M 10N 14W 15	Contributor
POS	2011-03-07	2040	2	UMUF	Y			38.711354	-123.390591	M 10N 14W 14	Contributor
POS	2003-04-02	1735	2	UMUF	Y			38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	1999-03-28	1652	2	UMUF	Y			38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid
POS	2001-07-25	1817	1	UF				38.723573	-123.400326	M 10N 14W 10	Quarter-section centroid
POS	2011-05-15	0430	1	UMUF				38.711021	-123.407171	M 10N 14W 15	Contributor
POS	1994-06-03		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1989		1	UU				38.716427	-123.382045	M 10N 14W 14	Quarter-section centroid
POS	2010		2	UMUF	Y			38.713479	-123.400581	M 10N 14W 15	Activity center
POS	1998-03-19		1	UU				38.708896	-123.391412	M 10N 14W 14	Quarter-section centroid

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POS	1995-06-27		1	UU				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1991-07-08	2100	2	UMUF	Y			38.716345	-123.400493	M 10N 14W 15	Quarter-section centroid
POS	1994-02-15	2135	1	UM				38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1996-02-29	1824	2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1993-03-11		2	UMUF	Y			38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	1991-05-23	1745	2	UMUF	Y	Y		38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1996-05-12		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1995-11-10	1758	1	UU				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1995-03-27		2	UMUF	Y			38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1995-11-03		1	UF				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1990-01-05		1	UM				38.701931	-123.419848	M 10N 14W 21	Quarter-section centroid
POS	1999-03-27	2112	1	UM				38.712660	-123.386728	M 10N 14W 14	Section centroid
POS	1993-04-15	2214	1	UF				38.709147	-123.410298	M 10N 14W 15	Quarter-section centroid
POS	1993-03-15		2	UMUF	Y			38.712670	-123.405303	M 10N 14W 15	Section centroid
POS	2005-07-06	0707	2	UMUF	Y			38.708918	-123.400797	M 10N 14W 15	Quarter-section centroid

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Masterowl: SON0012 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2008-05-21	2123	2	AMAF	Y			38.747254	-123.431493	M 10N 14W 04	Contributor
NEG	1997-04-07		0					38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2001-05-08	2204	0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1996-03-06	1236	0					38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
NEG	1997-03-17		0					38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1999-04-29	2159	0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1995-04-03		0					38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1999-06-03	2015	0					38.740790	-123.441775	M 10N 14W 05	Section centroid

NEG	2001-06-23	2253	0	38.737024	-123.436793	M 10N 14W 05	Quarter-section centroid
NEG	2000-03-16	1100	0	38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1999-06-11	2238	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-04-08	0051	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1997-03-25		0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1997-03-19		0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2002-03-15	2135	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-03-16	2352	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1998-06-09		0	38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1997-03-21		0	38.755689	-123.450498	M 11N 14W 32	Section centroid
NEG	1999-04-21	2210	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1997-04-14	0000	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2001-03-15	2108	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-04-14	2348	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1991-04-17		0	38.744506	-123.418727	M 10N 14W 04	Quarter-section centroid
NEG	1992-05-31		0	38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
NEG	1999-04-22	1958	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2001-03-14	1930	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1996-03-12	2013	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1998-08-31		0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1996-03-15		0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2001-05-28	2159	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	2002-04-30	2216	0	38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1996-03-02		0	38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1997-03-11		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	2000-05-16	1535	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2003-03-04	2228	0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1996-04-11		0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1998-08-26		0	38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1998-04-29		0	38.740790	-123.441775	M 10N 14W 05	Section centroid

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NEG	1999-04-28	1936	0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1999-03-15	2348	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-06-17	0039	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	2000-03-22	1700	0			38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1997-06-08		0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1996-06-27		0			38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	2000-04-14	2001	0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1991-04-23		0			38.751755	-123.427688	M 11N 14W 33	Quarter-section centroid
NEG	1994-06-09		0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1997-04-20		0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	2002-04-11	0013	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1998-06-18		0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	2001-07-17	2147	0			38.737024	-123.436793	M 10N 14W 05	Quarter-section centroid
NEG	1999-04-05	1906	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-03-27	2137	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-05-23	2311	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1993-07-07		0			38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1996-03-03	2030	0			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
NEG	2001-06-26	2314	0			38.744970	-123.456334	M 10N 14W 06	Quarter-section centroid
NEG	1997-06-04		0			38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1992-07-09		0			38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1994-04-14		0			38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1997-03-24		0			38.740790	-123.441775	M 10N 14W 05	Section centroid
NEG	1996-05-12		0			38.740832	-123.423170	M 10N 14W 04	Section centroid
NEG	1999-03-20	2150	0			38.741327	-123.461604	M 10N 14W 06	Section centroid
POS	2000-03-31	0630	1	UM		38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1993-05-10		2	UMUF	Y	38.746088	-123.429875	M 10N 14W 04	Contributor
POS	2003-04-01	2006	1	UM		38.740790	-123.441775	M 10N 14W 05	Section centroid
POS	2003-04-02	1735	2	UMUF	Y	38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid

POS	1995-06-29		1	UU			38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	1996-03-25		1	UU			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1996-03-24		1	UU			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	2004-05-28	1741823	1	UU			38.745467	-123.433646	M 10N 14W 05	Contributor
POS	2001-05-04	1445	2	UMUF	Y	Y	38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	2003-05-21	2046	1	UM			38.740832	-123.423170	M 10N 14W 04	Section centroid
POS	2002-05-02	1900	2	UMUF	Y		38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	2000-03-29	2019	1	UM			38.737185	-123.446643	M 10N 14W 05	Quarter-section centroid
POS	2000-03-15	2230	1	UM			38.740790	-123.441775	M 10N 14W 05	Section centroid
POS	2002-04-02	1931	2	UMUF	Y		38.740790	-123.441775	M 10N 14W 05	Section centroid
POS	1996-03-17		1	UU			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1990-07-06	2245	1	UM			38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	1993-05-10		1	UM			38.744444	-123.435849	M 10N 14W 05	Contributor
POS	1994-05-03		2	UMUF	Y		38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	2002-05-14	1300	2	UMUF	Y		38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1993-06-03		1	UU			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	2001-05-27	2311	1	UM			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	2000-04-04	2005	1	UM			38.752156	-123.446069	M 11N 14W 32	Quarter-section centroid
POS	2000-03-30	2249	1	UM			38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	2000-04-05	1630	2	UMUF	Y		38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1995-07-20		2	UMUF	Y		38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	2000-05-09	1351	2	UMUF	Y		38.740790	-123.441775	M 10N 14W 05	Section centroid
POS	1995-07-04		1	UU			38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	2002-05-13	2130	2	UMUF	Y		38.740790	-123.441775	M 10N 14W 05	Section centroid

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POS	1993-07-28		1	UU				38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	2000-03-21	2145	1	UU				38.744719	-123.446506	M 10N 14W 05	Quarter-section centroid
POS	2000-05-23	1712	2	UMUF	Y			38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	1991-05-22	1827	2	UMUF	Y	Y		38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1991-05-10		2	UMUF	Y			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1999-04-15	1616	2	UMUF	Y			38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1993-06-23		2	UMUF	Y	Y	1	38.746256	-123.433328	M 10N 14W 05	Contributor
POS	2002-05-02	2251	2	UMUF	Y	N		38.740790	-123.441775	M 10N 14W 05	Section centroid
POS	2003-04-10	2148	1	UM				38.740790	-123.441775	M 10N 14W 05	Section centroid
POS	1993-06-03		1	UU				38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1996-04-14		2	UMUF	Y			38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	1990-01-05		2	UMUF				38.744970	-123.456334	M 10N 14W 06	Quarter-section centroid
POS	1998-08-25		1	UU				38.744719	-123.446506	M 10N 14W 05	Quarter-section centroid
POS	2003-05-21	1835	1	AF			1	38.746256	-123.433328	M 10N 14W 05	Contributor
POS	2001-03-15	1937	1	UM				38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid
POS	1993-06-09		1	UU				38.744500	-123.427863	M 10N 14W 04	Quarter-section centroid
POS	2008-03-27	2154	1	UM				38.744566	-123.437092	M 10N 14W 05	Quarter-section centroid

Masterowl: SON0017 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2008-04-01	2325	2	AMAF	Y			38.766541	-123.477305	M 11N 14W 30	Contributor
NEG	2001-04-18	1330	0					38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1997-06-17		0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2001-05-08	0126	0					38.756848	-123.487403	M 11N 15W 36	Section centroid
NEG	2005-07-27	1830	0					38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	2001-05-16	2240	0					38.770325	-123.468628	M 11N 14W 30	Section centroid

NEG	2000-04-28	1500	0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	2001-03-14	2150	0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	2002-03-15	2002	0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	2000-06-06	0959	0	38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	1999-06-02	2216	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-06-02	2015	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-04-08	2233	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-03-26	1815	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1997-04-29		0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1996-08-05		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1992-05-12		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	2005-07-26	1400	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	1999-04-07	2025	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-03-15	2145	0	38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	1996-02-26		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1996-06-30		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1996-06-30		0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1999-05-14	2212	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1992-05-15		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1998-08-25		0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1999-03-21	0042	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-07-13		0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1992-07-09		0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1994-03-24		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	2001-03-15	2258	0	38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
NEG	1999-06-03	2019	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2004-04-06	1530	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	1999-03-19	1910	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-17	1818	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2003-07-21	2238	0	38.770325	-123.468628	M 11N 14W 30	Section centroid

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NEG	2004-05-20	2010	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	1994-04-06		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1999-05-21	2327	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1998-07-20		0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1999-03-17	0015	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2000-03-04	1505	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	2000-06-07	1300	0	38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	2005-07-08	1840	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	1993-04-28		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1999-03-28	2250	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1992-03-10		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1999-04-21	2058	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1996-03-13	0937	0	38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
NEG	2005-03-13	1235	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	2006-03-30	1400	0	38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	1999-03-19	1926	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-03-29	2009	0	38.783784	-123.432093	M 11N 14W 21	Section centroid
NEG	1999-06-03	2304	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1995-05-18		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1993-06-16		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1993-06-23		0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1999-04-14	2255	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-04-09	1922	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2002-04-23	1530	0	38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	1998-08-13		0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2002-03-14	1325	0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1993-03-22		0	38.784897	-123.468539	M 11N 14W 19	Section centroid
NEG	1992-03-31		0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1995-05-04		0	38.784113	-123.450136	M 11N 14W 20	Section centroid
NEG	1995-04-10		0	38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1991-04-23		0	38.771320	-123.487547	M 11N 15W 25	Section centroid

NEG	1999-05-01	2334	0				38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2006-04-05	1300	0				38.766541	-123.477305	M 11N 14W 30	Activity center
NEG	1995-05-25		0				38.770325	-123.468628	M 11N 14W 30	Section centroid
NEG	2000-03-30	1943	0				38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1997-06-10		0				38.771320	-123.487547	M 11N 15W 25	Section centroid
POS	2006-06-03	1230	2	UMUF	Y		38.756266	-123.477812	M 11N 14W 31	Contributor
POS	2000-03-14	1101	2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2000-03-11	0920	1	UU			38.774344	-123.473236	M 11N 14W 30	Quarter-section centroid
POS	2000-03-31	1226	2	UMUF	Y		38.774344	-123.473236	M 11N 14W 30	Quarter-section centroid
POS	1991-05-21		1	UU			38.773390	-123.454662	M 11N 14W 29	Quarter-section centroid
POS	1998-03-03		2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1992-05-01	9999	2	UMUF			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	2001-05-05	1615	2	UMUF	Y	Y	38.768267	-123.473863	M 11N 14W 30	Contributor
POS	2004-04-13	1710-1730	1	UU			38.769832	-123.474835	M 11N 14W 30	Contributor
POS	2003-03-31	2150	1	UF			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	2002-04-11	2225	1	UM			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	1995-09-18		1	UU			38.773604	-123.445765	M 11N 14W 29	Quarter-section centroid
POS	1990-02-02		1	UU			38.773615	-123.463826	M 11N 14W 30	Quarter-section centroid
POS	1991-07-17	9999	1	UU			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	1999-04-21	1600	2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2008-05-20	1933	2	AMAF	Y	N	38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2000-04-18	1957	1	UF			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2000-03-13	2200	1	UM			38.773615	-123.463826	M 11N 14W 30	Quarter-section centroid
POS	2000-03-31	1045	2	UMUF	Y		38.773615	-123.463826	M 11N 14W 30	Quarter-section centroid
POS	1991-08-15	2040	1	UU			38.767528	-123.482860	M 11N 15W 25	Quarter-section centroid

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POS	1997-07-22		1	UU				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2003-05-14	1735	2	UMUF	Y			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	1999-03-15	1753	2	UMUF	Y			38.774344	-123.473236	M 11N 14W 30	Quarter-section centroid
POS	1993-05-05		1	UU				38.773615	-123.463826	M 11N 14W 30	Quarter-section centroid
POS	1992-05-01		2	UMUF				38.769964	-123.450450	M 11N 14W 29	Section centroid
POS	2005-07-25	2000	2	UMUF				38.766541	-123.477305	M 11N 14W 30	Activity center
POS	2000-04-03	2307	1	UU				38.767678	-123.492242	M 11N 15W 25	Quarter-section centroid
POS	1991-08-07		1	UU				38.767528	-123.482860	M 11N 15W 25	Quarter-section centroid
POS	1997-04-14		2	UMUF	Y	Y		38.768549	-123.470988	M 11N 14W 30	Contributor
POS	2001-05-08	2222	1	UM				38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	1996-05-09		1	UU				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1998-04-28		2	UMUF	Y			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2000-04-18	1928	1	UF				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1995-04-20		1	UU				38.768549	-123.470988	M 11N 14W 30	Contributor
POS	1995-07-06		2	UMUF	Y	Y	1	38.768981	-123.475595	M 11N 14W 30	Contributor
POS	1996-03-04		1	UU				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1997-07-01		1	UU				38.767528	-123.482860	M 11N 15W 25	Quarter-section centroid
POS	1991-07-17		1	UU				38.785883	-123.487589	M 11N 15W 24	Section centroid
POS	1995-05-10		1	UU				38.780545	-123.454511	M 11N 14W 20	Quarter-section centroid
POS	2008-03-27	0021	2	AMAF	Y			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2002-04-06	1211	2	UMUF	Y	N		38.774344	-123.473236	M 11N 14W 30	Quarter-section centroid
POS	2001-03-11	1216	2	UMUF	Y			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1995-05-29		2	UMUF	Y			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	1991-10-02		1	UU				38.767528	-123.482860	M 11N 15W 25	Quarter-section centroid

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POS	1991-04-24	2010	2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1995-06-01	0925	2	UMUF	Y	Y	38.768981	-123.475595	M 11N 14W 30	Contributor
POS	1993-01-02		1	UU			38.774809	-123.482748	M 11N 15W 25	Quarter-section centroid
POS	1998-07-29		2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1990-03-21		2	UMUF	Y	Y	38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1994-04-27		2	UMUF	Y		38.768981	-123.475595	M 11N 14W 30	Contributor
POS	1996-03-18		2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2006-06-02	1300	1	UF			38.766541	-123.477305	M 11N 14W 30	Activity center
POS	1994-04-01		1	UM			38.768981	-123.475595	M 11N 14W 30	Contributor
POS	1992-03-24		2	UUUU			38.773390	-123.454662	M 11N 14W 29	Quarter-section centroid
POS	1997-03-03		2	UMUF			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2002-03-13	2346	1	UM			38.773390	-123.454662	M 11N 14W 29	Quarter-section centroid
POS	1990-04-04	1700	1	UM			38.768549	-123.470988	M 11N 14W 30	Contributor
POS	1991-07-17	9999	1	UU			38.771320	-123.487547	M 11N 15W 25	Section centroid
POS	2003-03-09	1422	2	UMUF	Y		38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	1996-03-17		2	UMUF	Y		38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1997-07-01	9999	1	UU			38.759878	-123.473693	M 11N 14W 31	Quarter-section centroid
POS	2000-06-06	2406	1	UU			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1996-03-03		1	UU			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	2003-03-04	2024	1	UM			38.770325	-123.468628	M 11N 14W 30	Section centroid
POS	2000-04-18	1854	1	UM			38.759343	-123.474495	M 11N 14W 31	Contributor
POS	2003-05-13	1633	1	UU			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1995-05-11		2	UMUF	Y	Y	38.768981	-123.475595	M 11N 14W 30	Contributor
POS	2006		2	UMUF	Y		38.756266	-123.477812	M 11N 14W 31	Contributor
POS	1999-05-20	2356	2	UMUF	Y		38.767528	-123.482860	M 11N 15W 25	Quarter-section centroid

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POS	1995-03-30		2	UMUF	Y			38.768549	-123.470988	M 11N 14W 30	Contributor
POS	1998-06-09		1	UU				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1998-07-24		1	UM				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1990-06-17	2045					2	38.773390	-123.454662	M 11N 14W 29	Quarter-section centroid
POS	1994-03-03		1	UU				38.768981	-123.475595	M 11N 14W 30	Contributor
POS	1990-02-07		1	UM				38.766342	-123.464101	M 11N 14W 30	Quarter-section centroid
POS	1992-04-25		2	UMUF	Y			38.773390	-123.454662	M 11N 14W 29	Quarter-section centroid
POS	1995-05-10	9999	1	UU				38.773615	-123.463826	M 11N 14W 30	Quarter-section centroid
POS	2009-04-11	2257	1	AM				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1997-05-27		2	UMUF	Y			38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid
POS	1994-01-19	1723	2	UMUF	Y			38.768981	-123.475595	M 11N 14W 30	Contributor
POS	2002-03-05	1234	1	UU				38.774344	-123.473236	M 11N 14W 30	Quarter-section centroid
POS	1991-08-07		1	UU				38.767034	-123.473487	M 11N 14W 30	Quarter-section centroid

Masterowl: SON0034 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2009-05-19	2030	2	AMAF	Y			38.764380	-123.430330	M 11N 14W 28	Contributor
NEG	1994-04-06		0					38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	2001-07-19	1800	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-04-29		0					38.755689	-123.450498	M 11N 14W 32	Section centroid
NEG	2002-04-06	2135	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-04-09	1922	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2000-03-29	1926	0					38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	1998-05-15		0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-06-10		0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-19	1910	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-15	2145	0					38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid

NEG	1997-03-21		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1999-06-03	2019	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-03-25		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2000-03-10	0910	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1997-06-08		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1996-03-27		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1995-08-07		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1995-08-02		0	38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	2002-05-13	2036	0	38.766601	-123.446147	M 11N 14W 29	Quarter-section centroid
NEG	1998-04-06		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-08-25		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-29	2009	0	38.783784	-123.432093	M 11N 14W 21	Section centroid
NEG	1998-06-09		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1995-07-17		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1999-06-02	2015	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1996-06-30		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1994-05-03		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1996-03-19		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1998-03-14		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1995-04-10		0	38.755689	-123.450498	M 11N 14W 32	Section centroid
NEG	1997-07-24		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1993-08-24		0	38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1999-03-17	1818	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-04-15		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-20	1343	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1995-05-08		0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-26	1815	0	38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2000-06-07	1300	0	38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	1991-04-23		0	38.755805	-123.446137	M 11N 14W 32	Half-section centroid
NEG	1990-02-12		0	38.759127	-123.432577	M 11N 14W 33	Half-section centroid

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NEG	2000-06-06	0959	0			38.780616	-123.445601	M 11N 14W 20	Quarter-section centroid
NEG	2001-06-28	2239	0			38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1995-07-21		0			38.755504	-123.432555	M 11N 14W 33	Section centroid
NEG	1995-07-25		0			38.755504	-123.432555	M 11N 14W 33	Section centroid
POS	2003-04-14	2015	2	UMUF	Y	38.769690	-123.432180	M 11N 14W 28	Section centroid
POS	1998-04-16		1	UU		38.766536	-123.437065	M 11N 14W 28	Quarter-section centroid
POS	1995-08-01		1	UU		38.751734	-123.418539	M 11N 14W 34	Quarter-section centroid
POS	1991-05-14		1	UU		38.759371	-123.437194	M 11N 14W 33	Quarter-section centroid
POS	1991-04-22	2015	2	UMUF	Y	38.760283	-123.441584	M 11N 14W 33	Contributor
POS	2001-03-15	2001	1	UM		38.759454	-123.446206	M 11N 14W 32	Quarter-section centroid
POS	2003-03-07	1910	2	AMAF	Y	38.769690	-123.432180	M 11N 14W 28	Section centroid
POS	2001-07-18	2110	1	UU		38.769690	-123.432180	M 11N 14W 28	Section centroid
POS	1994-04-14		2	UMUF	Y	38.760193	-123.441584	M 11N 14W 33	Contributor
POS	1991-05-06	2001	2	UMUF		38.758874	-123.427960	M 11N 14W 33	Quarter-section centroid
POS	1993-03-10		1	UU		38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	2000-03-15	1719	1	UU		38.766601	-123.446147	M 11N 14W 29	Quarter-section centroid
POS	2003-03-03	2352	1	UU		38.769690	-123.432180	M 11N 14W 28	Section centroid
POS	2000-03-05	1719	1	UU		38.766601	-123.446147	M 11N 14W 29	Quarter-section centroid
POS	1993-11-04		1	UM		38.773006	-123.427319	M 11N 14W 28	Quarter-section centroid
POS	1994-03-14	1650	1	UM		38.759454	-123.446206	M 11N 14W 32	Quarter-section centroid
POS	2002-03-12	2106	1	UM		38.755689	-123.450498	M 11N 14W 32	Section centroid
POS	1994-03-07		1	UM		38.758874	-123.427960	M 11N 14W 33	Quarter-section centroid
POS	1993-08-18		1	UU		38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1998-04-05		1	UU		38.773413	-123.436669	M 11N 14W 28	Quarter-section centroid
POS	1998-05-15		1	UU		38.773604	-123.445765	M 11N 14W 29	Quarter-section centroid

POS	1996-04-01		2	UMUF	Y		38.766536	-123.437065	M 11N 14W 28	Quarter-section centroid
POS	1996-06-10		1	UU			38.760741	-123.439631	M 11N 14W 33	Contributor
POS	2009-04-11	2330	1	AM			38.765993	-123.427819	M 11N 14W 28	Quarter-section centroid
POS	2002-05-01	1445	1	UM			38.765993	-123.427819	M 11N 14W 28	Quarter-section centroid
POS	1998-04-28		1	UM			38.765993	-123.427819	M 11N 14W 28	Quarter-section centroid
POS	1999-04-14	1030	2	UMUF	Y	Y	38.763101	-123.435041	M 11N 14W 28	Contributor
POS	1998-04-16		1	UM			38.766536	-123.437065	M 11N 14W 28	Quarter-section centroid
POS	1999-03-21	0048	1	UU			38.773413	-123.436669	M 11N 14W 28	Quarter-section centroid
POS	2008-03-27	2253	1	AM			38.766536	-123.437065	M 11N 14W 28	Quarter-section centroid
POS	2007-04-01	0141	1	UU			38.766536	-123.437065	M 11N 14W 28	Quarter-section centroid
POS	1997-04-24		1	UU			38.759371	-123.437194	M 11N 14W 33	Quarter-section centroid
POS	2008-05-20	2318	2	AMAF	Y		38.766536	-123.437065	M 11N 14W 28	Quarter-section centroid
POS	1993-11-02		1	UM			38.758874	-123.427960	M 11N 14W 33	Quarter-section centroid
POS	2002-05-02	2102	1	UF			38.769690	-123.432180	M 11N 14W 28	Section centroid
POS	2004-04-13	1455-1543	1	UM			38.764435	-123.428162	M 11N 14W 28	Contributor
POS	2007-05-16	2134	2	UMUF	Y		38.764161	-123.440803	M 11N 14W 28	Contributor
POS	1993-05-11		1	UU			38.758874	-123.427960	M 11N 14W 33	Quarter-section centroid
POS	1998-03-20		1	UU			38.773413	-123.436669	M 11N 14W 28	Quarter-section centroid
POS	1998-03-19		1	UM			38.759371	-123.437194	M 11N 14W 33	Quarter-section centroid
POS	2003-07-01	2115	1	UM			38.769964	-123.450450	M 11N 14W 29	Section centroid
POS	1996-03-26		2	UMUF	Y		38.759454	-123.446206	M 11N 14W 32	Quarter-section centroid
POS	1996-04-25		2	UMUF	Y		38.760741	-123.439631	M 11N 14W 33	Contributor
POS	1990-08-21		1	UU			38.759127	-123.432577	M 11N 14W 33	Half-section centroid
POS	2003-06-11	2030	1	UM			38.769964	-123.450450	M 11N 14W 29	Section centroid
POS	2001-05-16	1810	1	UF			38.773214	-123.431994	M 11N 14W 28	Half-section centroid

POS	1997-03-11		2	UMUF	Y			38.766601	-123.446147	M 11N 14W 29	Quarter-section centroid
POS	2002-03-13	1400	1	UM				38.765993	-123.427819	M 11N 14W 28	Quarter-section centroid

Masterowl: SON0045 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2009-04-11	2314	2	AMAF	Y			38.761302	-123.457819	M 11N 14W 32	Contributor
NEG	1995-07-25		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1995-04-10		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-05-01	2121	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1996-05-12		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-06-02	2015	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1999-03-20	1304	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-06-12		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-03-19	1910	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1996-06-30		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-03-17		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-03-26	1815	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1997-04-08		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1998-05-31		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1997-04-20		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	2000-04-13	1058	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	2000-03-13	2112	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-04-07	2007	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1992-03-10		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1996-05-20		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-04-21	2027	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1995-05-03		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-03-21	0042	0					38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1997-06-17		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1992-06-09		0					38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid

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NEG	2000-05-01	0500	0		38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
NEG	1999-03-17	1818	0		38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1998-05-13		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1998-05-22		0		38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-04-09	1922	0		38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	1996-05-20		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	2000-03-15	2014	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-04-24		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1992-05-08	0955	0		38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
NEG	1999-04-14	2314	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1998-08-04		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1992-07-09		0		38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
NEG	1997-06-19		0		38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1998-08-25		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1998-06-05		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-06-03	2019	0		38.769690	-123.432180	M 11N 14W 28	Section centroid
NEG	2000-04-04	1150	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-04-09		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-03-29	2009	0		38.783784	-123.432093	M 11N 14W 21	Section centroid
NEG	2000-04-28	1500	0		38.769964	-123.450450	M 11N 14W 29	Section centroid
NEG	2000-03-29	1835	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-03-17	2205	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1998-05-21		0	0	38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-04-08	2317	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1994-04-19		0		38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
NEG	1994-04-06		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-06-04		0		38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1999-05-04	1900	0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-03-21		0		38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1991-04-17		0		38.752607	-123.469019	M 11N 14W 31	Half-section centroid

NEG	1997-07-24		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1997-03-13		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1996-03-24		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1997-07-01		0					38.741327	-123.461604	M 10N 14W 06	Section centroid
NEG	1996-04-25		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-06-03	0013	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-03-15	2117	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	2001-06-29	0031	0					38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
NEG	2000-04-20	1302	0					38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
NEG	1996-03-19		0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	2000-04-20	1302	0					38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
NEG	2000-05-15	1314	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
NEG	1999-04-16	2303	0					38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	1994-03-15	1628	2	UMUF	Y			38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	1992-05-30		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1990-08-21	2109	1	UM				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1993-05-05		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	2009-04-16	2239	1	AF				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	2003-06-12	1150	1	AF			1	38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1999-05-13	1031	1	UM				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1995-07-20		1	UU				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	2008-03-27	1922	1	AM				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	2002-05-13	1915	1	UU				38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	2001-03-15	1640	2	UMUF	Y	Y		38.762297	-123.456790	M 11N 14W 32	Contributor
POS	1994-04-21		1	UM				38.759878	-123.473693	M 11N 14W 31	Quarter-section centroid
POS	1999-05-21	0041	1	UM				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid

POS	1991-05-23	1655	2	UMUF	Y	Y		38.753313	-123.472614	M 11N 14W 31	Contributor
POS	2008-03-20	1220	1	AM				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1991-08-15	2013	1	UU				38.752400	-123.464345	M 11N 14W 31	Quarter-section centroid
POS	2002-03-13	1115	1	UM				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1998-06-10		2	UMUF	Y			38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1992-04-11		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	2009-04-08	2226	1	UM				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1991-08-07	2050	1	UU				38.752607	-123.469019	M 11N 14W 31	Half-section centroid
POS	1995-05-09		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1991-06-04	1930	1	UU	Y		1	38.753313	-123.472614	M 11N 14W 31	Contributor
POS	1997-06-17		1	UU				38.752400	-123.464345	M 11N 14W 31	Quarter-section centroid
POS	1996-03-14		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1995-05-08		1	UU				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1995-05-08	9999	1	UU				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1994-05-05	1030	2	UMUF	Y			38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	1994-04-13		1	UM				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1999-05-21	0041	1	UM				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1994-03-14		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	2003-03-31	1541	2	UMUF	Y	Y		38.760396	-123.459195	M 11N 14W 32	Contributor
POS	1999-04-23	2153	1	UM				38.759878	-123.473693	M 11N 14W 31	Quarter-section centroid
POS	1993-03-10		1	UU				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1994-06-10		1	UU				38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	2003-05-01	1538	2	UMUF	Y	Y		38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid

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POS	2009-05-19	1900	2	AMAF	Y	N		38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1995-04-04		1	UU				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	2008-05-20	2250	1	UU				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1991-04-23	1931	2	UMUF	Y	Y		38.753313	-123.472614	M 11N 14W 31	Contributor
POS	1991-05-26	1601	1	UM				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1992-08-07		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1990-01-05		1	UF				38.744970	-123.456334	M 10N 14W 06	Quarter-section centroid
POS	1999-05-12	2213	1	UM				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	2009-04-14	2216	1	AM				38.759878	-123.473693	M 11N 14W 31	Quarter-section centroid
POS	1993-02-06		1	UU				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1995-04-04		1	UU				38.766188	-123.454984	M 11N 14W 29	Quarter-section centroid
POS	2001-05-08	2222	1	UM				38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	1991-08-15		1	UU				38.745236	-123.466612	M 10N 14W 06	Quarter-section centroid
POS	1994-05-06		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1991-04-22	2127	2	UMUF				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1997-04-30		2	UMUF	Y			38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1994						2	38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1997-05-09		2	UMUF	Y			38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1998-03-19		2	UMUF	Y			38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1999-04-23	2228	2	UMUF	Y			38.766342	-123.464101	M 11N 14W 30	Quarter-section centroid
POS	2007-05-18	1834	1	UM				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	2000-06-28	2316	1	UM				38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid

POS	2002-05-03	1350	2	UMUF	Y	N		38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	2002-03-12	1956	2	UMUF	Y			38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1995-05-08	9999	1	UU				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1998-04-16		2	UMUF	Y			38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	1995-03-29		2	UMUF	Y			38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1993-02-06	1600	1	UU				38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	1993-05-07	1235	1	UM				38.756103	-123.469053	M 11N 14W 31	Section centroid
POS	2007-04-07	1714	1	UM				38.758221	-123.462288	M 11N 14W 31	Contributor
POS	1998-04-28		2	UMUF	Y			38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	2007-05-12	1830	1	UU				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	2000-06-29	1205	2	UMUF	Y			38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid
POS	1995-05-23		1	UU				38.752813	-123.473692	M 11N 14W 31	Quarter-section centroid
POS	1990-01-05		1	UM				38.745501	-123.476820	M 10N 15W 01	Quarter-section centroid
POS	1997-04-29		1	UU				38.759258	-123.464286	M 11N 14W 31	Quarter-section centroid
POS	2003-06-11	1740	1	UF		Y	0	38.759114	-123.455089	M 11N 14W 32	Quarter-section centroid

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Masterowl: SON0082 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2006		1	UU		Y		38.771471	-123.505195	M 11N 15W 26	Contributor
NEG	2002-05-01	1230	0					38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
NEG	1995-04-23		0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2002-04-22	0123	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2001-05-05	1145	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-05-21	2327	0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1997-03-10		0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-03-19	1926	0					38.771320	-123.487547	M 11N 15W 25	Section centroid

NEG	2000-04-06	2015	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2001-03-13	1933	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1995-05-10		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2001-03-15	1611	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1996-05-30		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2002-05-15	1312	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-04-15		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-03-03		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2000-03-03	2000	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1996-07-10		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-06-09	2055	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-05-02		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-06-17		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-04-24		0	38.757230	-123.505889	M 11N 15W 35	Section centroid
NEG	2002-03-06	2045	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2002-08-30	1111	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2002-03-15	2002	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1996-05-20		0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2000-04-07	1945	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-04-21	2058	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-03-15	0015	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2002-04-11	2101	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-07-28		0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1999-03-28	2250	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2002-04-30	2149	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-07-01		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1996-06-07	1200	0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1996-03-22		0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	2003-03-06	2023	0	38.785883	-123.487589	M 11N 15W 24	Section centroid
NEG	1995-05-02		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2000-04-18	2105	0	38.771628	-123.506267	M 11N 15W 26	Section centroid

NEG	1999-05-01	2334	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1995-07-11		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1995-11-10	1809	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2001-04-19	1630	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1995-05-29		0	38.775076	-123.492350	M 11N 15W 25	Quarter-section centroid
NEG	2001-04-04	1730	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1995-06-29		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2002-04-21	1050	0	38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
NEG	1996-06-17		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2002-05-14	1300	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2000-03-14	0026	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2000-04-15	1050	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-04-29		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-06-26		0	38.757230	-123.505889	M 11N 15W 35	Section centroid
NEG	1998-06-03		0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1999-03-17	0015	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2000-03-30	1943	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-06-02	2216	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2003-04-10	2330	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2000-04-05	2052	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-06-02		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-05-18		0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1999-04-28	1700	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1996-05-13		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1996-03-14	0515	0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1996-08-30		0	38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1999-05-13	2046	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-05-08		0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2001-05-16	0030	0	38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2000-03-14	1902	0	38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-06-01	2055	0	38.771628	-123.506267	M 11N 15W 26	Section centroid

NEG	1997-04-09		0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-04-08	2233	0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1995-07-19	1200	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-04-24	2028	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2001-05-08	0313	0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1999-06-03	2304	0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1996-05-02		0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1997-06-10		0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2002-05-13	2349	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-04-09		0					38.757230	-123.505889	M 11N 15W 35	Section centroid
NEG	1997-04-09		0					38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1997-04-08		0					38.757230	-123.505889	M 11N 15W 35	Section centroid
NEG	2000-03-12	0732	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-05-14	2212	0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	2002-04-22	0123	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2000-06-04	2122	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1998-04-16		0					38.757230	-123.505889	M 11N 15W 35	Section centroid
NEG	1999-08-29	2000	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	2000-04-24	0030	0					38.771628	-123.506267	M 11N 15W 26	Section centroid
NEG	1999-05-20	2343	0					38.771320	-123.487547	M 11N 15W 25	Section centroid
NEG	1996-03-06	2110	0					38.772158	-123.525161	M 11N 15W 27	Section centroid
NEG	1996-06-16		0					38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2002-04-12	0041	1	UF				38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2002-04-11	2113	1	UM				38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2005-06-09	1916	2	UMUF	Y	Y	2	38.771471	-123.505195	M 11N 15W 26	Contributor
POS	2004-03-10	1440-1535	2	UMUF	Y			38.772132	-123.502149	M 11N 15W 26	Contributor
POS	2000-06-29	1100	2	UMUF	Y			38.772547	-123.500126	M 11N 15W 26	Contributor
POS	2005		1	UU		Y		38.771471	-123.505195	M 11N 15W 26	Contributor
POS	1993-01-11		1	UU				38.775076	-123.492350	M 11N 15W 25	Quarter-section centroid
POS	2003-03-08	1913	1	UM				38.766296	-123.487434	M 11N 15W 25	Contributor
POS	1996-06-06		1	UF				38.775847	-123.520376	M 11N 15W 27	Quarter-section centroid

POS	2008-05-21	0056	1	UU		38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	1995-04-17		1	UU		38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
POS	2003-04-09	1640	1	UF		38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2003-04-07	2214	1	UM		38.771320	-123.487547	M 11N 15W 25	Section centroid
POS	2000-04-13	2100	1	UM		38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2000-04-04	1431	2	UMUF	Y	38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2003-04-08	1505	1	UU		38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2003-04-30	2350	1	UF		38.771320	-123.487547	M 11N 15W 25	Section centroid
POS	1990-02-12	2001	1	UM		38.768549	-123.470988	M 11N 14W 30	Contributor
POS	1995-07-18		1	UU		38.775270	-123.501745	M 11N 15W 26	Quarter-section centroid
POS	2003-04-29	1830	1	UU		38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	1995-04-02		1	UU		38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2007-04-10	2154	1	UM		38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	1996-04-29		1	UU		38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2000-06-06	2352	1	UM		38.767678	-123.492242	M 11N 15W 25	Quarter-section centroid
POS	1996-03-14	0616	2	UMUF	Y	38.765244	-123.507338	M 11N 15W 26	Contributor
POS	2000-04-14	2059	2	UMUF	Y	38.775270	-123.501745	M 11N 15W 26	Quarter-section centroid
POS	2000-04-03	2247	1	UU		38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	1995-05-26		1	UU		38.775076	-123.492350	M 11N 15W 25	Quarter-section centroid
POS	1995-05-26		2	UMUF	Y	38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2002-05-05	1230	1	UM		38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2002-04-12	0041	1	UF		38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
POS	1999-05-14	2052	1	UM		38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2002-05-01	0016	1	UU		38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2000-04-03	1947	1	UM		38.775270	-123.501745	M 11N 15W 26	Quarter-section centroid

POS	1995-05-04		2	UMUF	Y			38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2002-04-12	1125	1	UF				38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
POS	1998-05-13		1	UM				38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2002-03-15	2033	1	UM				38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	1996-05-09		1	UU				38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
POS	1996-03-03		1	UU				38.767968	-123.510776	M 11N 15W 26	Quarter-section centroid
POS	2000-04-03	2025	1	UM				38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2004-05-20	1840	2	AMAF	Y	Y	1	38.771471	-123.505195	M 11N 15W 26	Contributor
POS	2003-03-04	1325	1	UF				38.771628	-123.506267	M 11N 15W 26	Section centroid
POS	2000		2	UMUF	Y			38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid
POS	2006-04-07	1445-1454	2	UMUF	Y			38.771471	-123.505195	M 11N 15W 26	Contributor
POS	2007-05-15	0111	2	UMUF	Y			38.767819	-123.501532	M 11N 15W 26	Quarter-section centroid

Masterowl: SON0085 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2008-04-01	2250	2	AMAF	Y			38.725073	-123.434696	M 10N 14W 08	Contributor
NEG	1999-04-28	2139	0					38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1997-06-19		0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1997-07-23		0					38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	2003-04-02	1446	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2001-03-15	2032	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-04-05	2007	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1997-03-17		0					38.712991	-123.424007	M 10N 14W 16	Section centroid
NEG	2001-08-09	0024	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2001-05-28	2104	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2001-03-14	2351	0					38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1997-07-16		0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2003-04-09	1245	0					38.730012	-123.436923	M 10N 14W 08	Quarter-section centroid

NEG	1999-03-20	1930	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1998-03-04		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2001-04-02	0049	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-06-17	2219	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1998-06-08		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2000-03-21	2109	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2000-03-30	2034	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1997-06-12		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2002-04-11	2245	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1999-04-27	2158	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1997-06-04		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2002-03-16	1200	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1999-03-27	2321	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2002-04-02	2157	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-04-13	2157	0	38.712854	-123.441616	M 10N 14W 17	Section centroid
NEG	2002-04-30	2317	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1997-06-16		0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	1998-05-22		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-04-08	2012	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1998-03-11		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2003-04-08	1700	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1997-07-31		0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-03-16	2156	0	38.726710	-123.423168	M 10N 14W 09	Section centroid
NEG	2009-04-15	1930	0	38.723396	-123.437435	M 10N 14W 08	Quarter-section centroid
NEG	2003-03-08	1620	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2003-05-14	1740	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-06-03	2327	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	1999-03-15	2233	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2009-05-18	1800	0	38.726704	-123.437179	M 10N 14W 08	Half-section centroid
NEG	1999-04-15	2049	0	38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2003-05-15	1643	0	38.726710	-123.423168	M 10N 14W 09	Section centroid

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NEG	1999-04-21	2226	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2000-03-15	2226	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2001-07-19	0139	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
NEG	2003-03-05	1515	0					38.726812	-123.441885	M 10N 14W 08	Section centroid
POS	2002-03-15	2033	1	UM				38.726710	-123.423168	M 10N 14W 09	Section centroid
POS	2004-03-20	1205	2	UMUF	Y			38.726618	-123.431139	M 10N 14W 09	Contributor
POS	2008-05-19	2014	1	UU				38.730002	-123.427524	M 10N 14W 09	Quarter-section centroid
POS	2001-05-08	2020	1	UM				38.726710	-123.423168	M 10N 14W 09	Section centroid
POS	2009-04-14	2259	1	UU				38.723396	-123.437435	M 10N 14W 08	Quarter-section centroid
POS	2003-06-12	1820	2	UMUF	Y			38.730002	-123.427524	M 10N 14W 09	Quarter-section centroid
POS	2003-05-17	2030	1	UM				38.726812	-123.441885	M 10N 14W 08	Section centroid
POS	1995-06-26		1	UU				38.723439	-123.428175	M 10N 14W 09	Quarter-section centroid
POS	2003-03-11	2329	1	UF				38.726710	-123.423168	M 10N 14W 09	Section centroid
POS	2009-04-08	0009	1	UU				38.723396	-123.437435	M 10N 14W 08	Quarter-section centroid
POS	1997-06-10		1	UU				38.723254	-123.446361	M 10N 14W 08	Quarter-section centroid
POS	2003-04-08	2022	2	UMUF	Y			38.725196	-123.425724	M 10N 14W 09	Contributor
POS	2009-05-20	2157	1	UU				38.723396	-123.437435	M 10N 14W 08	Quarter-section centroid
POS	2003-06-09	1820	1	UM				38.726812	-123.441885	M 10N 14W 08	Section centroid
POS	2008-05-21	2311	1	UU				38.730002	-123.427524	M 10N 14W 09	Quarter-section centroid
POS	2002-08-30	0910	1	UU				38.726812	-123.441885	M 10N 14W 08	Section centroid
POS	2003-03-04	2104	1	UF				38.726710	-123.423168	M 10N 14W 09	Section centroid
POS	2003-06-08	2111	1	UU				38.726812	-123.441885	M 10N 14W 08	Section centroid
POS	2003-04-01	2107	1	UU				38.726710	-123.423168	M 10N 14W 09	Section centroid

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Masterowl: SON0090 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2008-05-22	2005	2	AMAF	Y	Y	2	38.760280	-123.417760	M 11N 14W 34	Contributor
NEG	2008-04-01	0005	0					38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid

NEG	1998-03-06		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1997-06-08		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1995-08-07		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1998-04-29		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1997-03-21		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1995-07-24		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1998-06-09		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	1996-05-12		0					38.755499	-123.414038	M 11N 14W 34	Section centroid
NEG	2008-05-20	1845	0					38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
NEG	2008-03-28	2044	0					38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1995-07-31		1	UU				38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	2007-04-01	1655	2	UMUF	Y			38.760824	-123.416842	M 11N 14W 34	Contributor
POS	1997-04-21		1	UU				38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	2006-07-05	0917	2	UMUF	Y	N	0	38.760824	-123.416842	M 11N 14W 34	Contributor
POS	1997-05-28	1201	2	UMUF	Y		2	38.757957	-123.411992	M 11N 14W 34	Contributor
POS	2001-07-12	1738	2	UMUF	Y			38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	2009-04-12	2024	1	AM				38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1997-05-21		2	UMUF	Y	Y	2	38.757957	-123.411992	M 11N 14W 34	Contributor
POS	2009-05-22	0246	2	AMAF	Y			38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	2009-06-16	2000	2	AMAF	Y	N		38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	2007-04-05	2309	2	UMUF				38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1997-02-20		1	UU				38.755499	-123.414038	M 11N 14W 34	Section centroid
POS	2007-05-13	1805	2	UMUF	Y	N		38.759830	-123.417642	M 11N 14W 34	Contributor
POS	2001-05-04	1600	2	UMUF	Y	Y	1	38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1995-05-08	2455	2	UMUF	Y			38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	1996-06-10		2	UMUF	Y			38.759094	-123.414151	M 11N 14W 34	Half-section centroid

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POS	2000-07-12	1738	2	UMUF	Y			38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	2006-05-09	1815	2	UMUF	Y			38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	2009-06-14	0210	1	AM				38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1995-07-31		2	UUUU				38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	1997-03-18		2	UMUF	Y			38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	2008-05-13	2143	1	AM				38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	2007-05-20	2337	2	UMUF				38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1997-05-21		2	UMUF	Y		2	38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	2001-05-04	1642	2	UMUF	Y	Y	1	38.757053	-123.412792	M 11N 14W 34	Contributor
POS	2006-05-19	2134	2	UMUF	Y			38.758862	-123.418719	M 11N 14W 34	Quarter-section centroid
POS	1996-06-10	1805	2	UMUF	Y	N		38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid
POS	2005-07-20		1	UU				38.759327	-123.409571	M 11N 14W 34	Quarter-section centroid

Masterowl: SON0094 Subspecies: NORTHERN

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
AC	2009-04-15	2348	1	UF				38.680074	-123.392003	M 10N 14W 26	Contributor
NEG	2007-05-15		0					38.690800	-123.408800	M 10N 14W 27	Contributor
NEG	2002-03-15	1505	0					38.698301	-123.406488	M 10N 14W 22	Section centroid
NEG	2009-05-18	2229	0					38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2011		0					38.680074	-123.392003	M 10N 14W 26	Activity center
NEG	2007-04-09		0					38.686915	-123.401719	M 10N 14W 27	Contributor
NEG	2000-03-31	1914	0					38.683145	-123.406011	M 10N 14W 27	Section centroid
NEG	2007-04-09		0					38.690800	-123.408800	M 10N 14W 27	Contributor
NEG	1998-08-11		0					38.683145	-123.406011	M 10N 14W 27	Section centroid
NEG	2007-05-15		0					38.686915	-123.401719	M 10N 14W 27	Contributor
NEG	2002-05-01	1540	0					38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-05-16	2110-2125	0					38.689913	-123.397406	M 10N 14W 26	Contributor

419

NEG	2007-05-15		0		38.676496	-123.392621	M 10N 14W 26	Contributor
NEG	2009-04-10	2025	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-04-24	1955-2010	0		38.689913	-123.397406	M 10N 14W 26	Contributor
NEG	2000-03-15	1615	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-03-18	1940-2000	0		38.689913	-123.397406	M 10N 14W 26	Contributor
NEG	1998-08-31		0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	1998-08-29		0		38.683145	-123.406011	M 10N 14W 27	Section centroid
NEG	1998-08-02		0		38.683145	-123.406011	M 10N 14W 27	Section centroid
NEG	2007-03-29	2040-2055	0		38.689913	-123.397406	M 10N 14W 26	Contributor
NEG	2008-04-01	2038	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2009-06-15	2000	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-04-02		0		38.686915	-123.401719	M 10N 14W 27	Contributor
NEG	2010		0		38.680074	-123.392003	M 10N 14W 26	Activity center
NEG	2007-03-12	1930-1945	0		38.689913	-123.397406	M 10N 14W 26	Contributor
NEG	2007-04-02		0		38.676496	-123.392621	M 10N 14W 26	Contributor
NEG	2007-04-02		0		38.690800	-123.408800	M 10N 14W 27	Contributor
NEG	2009-04-16	0800	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-05-15	0054	0		38.680349	-123.396612	M 10N 14W 26	Contributor
NEG	2008-03-26	2056	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-04-29	2055-2110	0		38.689913	-123.397406	M 10N 14W 26	Contributor
NEG	2009-06-15	2143	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2008-03-19	0007	0		38.683756	-123.387654	M 10N 14W 26	Section centroid
NEG	2007-04-09	2123	0		38.680349	-123.396612	M 10N 14W 26	Contributor
NEG	2007-04-02		0		38.680349	-123.396612	M 10N 14W 26	Contributor
NEG	2007-04-09		0		38.676496	-123.392621	M 10N 14W 26	Contributor
NEG	2007-03-23	2035-2050	0		38.689913	-123.397406	M 10N 14W 26	Contributor
NEG	1998-08-18		0		38.683145	-123.406011	M 10N 14W 27	Section centroid
POS	2002-03-13	2346	1	UF	38.683145	-123.406011	M 10N 14W 27	Section centroid
POS	1998-08-18		1	UU	38.679721	-123.392323	M 10N 14W 26	Quarter-section centroid
POS	1998-08-29		1	UU	38.679721	-123.392323	M 10N 14W 26	Quarter-section centroid
POS	1998-08-02		1	UU	38.685363	-123.400424	M 10N 14W 27	Contributor

POS	2002-04-30	0035	1	UF				38.683756	-123.387654	M 10N 14W 26	Section centroid
POS	2000-03-14	2036	1	UM				38.679721	-123.392323	M 10N 14W 26	Quarter-section centroid

Additional surveys within the search area with no Spotted Owls detected

Type	*Date*	*Time*	*#Adults*	*Age/Sex*	*Pair*	*Nest*	*#Young*	*Latitude DD NAD83*	*Longitude DD NAD83*	*MTRS*	*Coordinate Source*
NEG	2003-06-08	2154-2204	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2006-05-25	0026-0036	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2007-03-29	2039-2049	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	1999-07-21	0029-0039	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2004-07-01	2248-2258	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2001-03-31	2300-2310	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2000-07-13	2302-2312	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2002-04-10	0113-0123	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2006-06-03	2100-2110	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2001-03-31	2312-2322	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2007-04-25	0016-0026	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2000-07-21	2333-2343	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2003-05-14	2114-2124	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2004-07-01	2303-2313	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2000-05-23	0051-0101	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2005-08-27	0013-0023	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2001-05-24	0008-0018	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2006-04-26	0310-0320	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2007-03-29	2026-2036	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2007-04-05	2223-2233	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2002-04-10	0126-0136	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2005-06-25	2026-2036	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2003-03-07	2037-2047	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2003-03-07	2021-2031	0					38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2004-07-09	2114-2124	0					38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2002-05-14	0147-0157	0					38.773920	-123.526760	M 11N 15W 27	Contributor

420

421

NEG	2000-05-23	0039-0049	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2000-07-21	2345-2355	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2001-05-24	0021-0031	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2002-06-15	2152-2202	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2005-06-09	2129-2139	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2003-06-08	2207-2217	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2002-06-15	2134-2144	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	1999-07-21	0017-0027	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	1999-04-12	2333-2343	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2005-06-25	2039-2049	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	1999-04-12	2345-2355	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2004-04-13	0026-0036	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2006-05-25	0012-0022	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2005-06-09	2115-2125	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2004-07-09	2127-2137	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2000-07-13	2314-2324	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2001-06-23		0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2001-06-23	0011-0021	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2003-05-14	2159-2209	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2006-06-03	2043-2053	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2006-04-26	0331-0341	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2004-04-13	0012-0022	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2007-04-05	2235-2245	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2007-04-25	0003-0013	0	38.773920	-123.526760	M 11N 15W 27	Contributor
NEG	2005-08-27	0030-0040	0	38.779090	-123.525610	M 11N 15W 27	Contributor
NEG	2002-05-14	0130-0140	0	38.779090	-123.525610	M 11N 15W 27	Contributor

DOGWOOD THP
NSO WITHIN 0.7 MILES

MARCH 2, 2018

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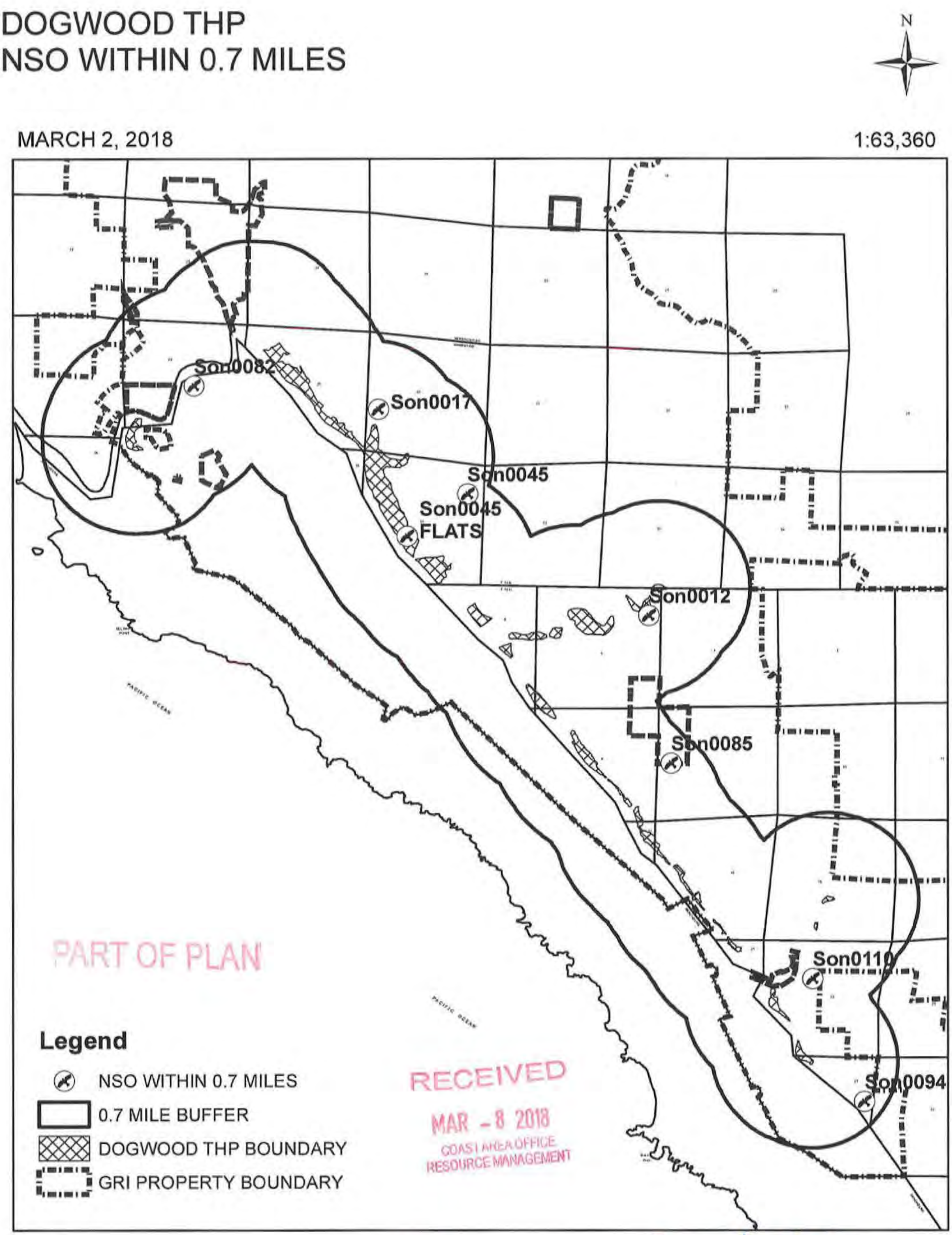

422

Revised 2/23/18

DOGWOOD THP
PRE AND POST HARVEST HABITAT WITHIN 0.7 MILES
(NO DOWNGRADE IN HABITAT AS A RESULT OF HARVEST)

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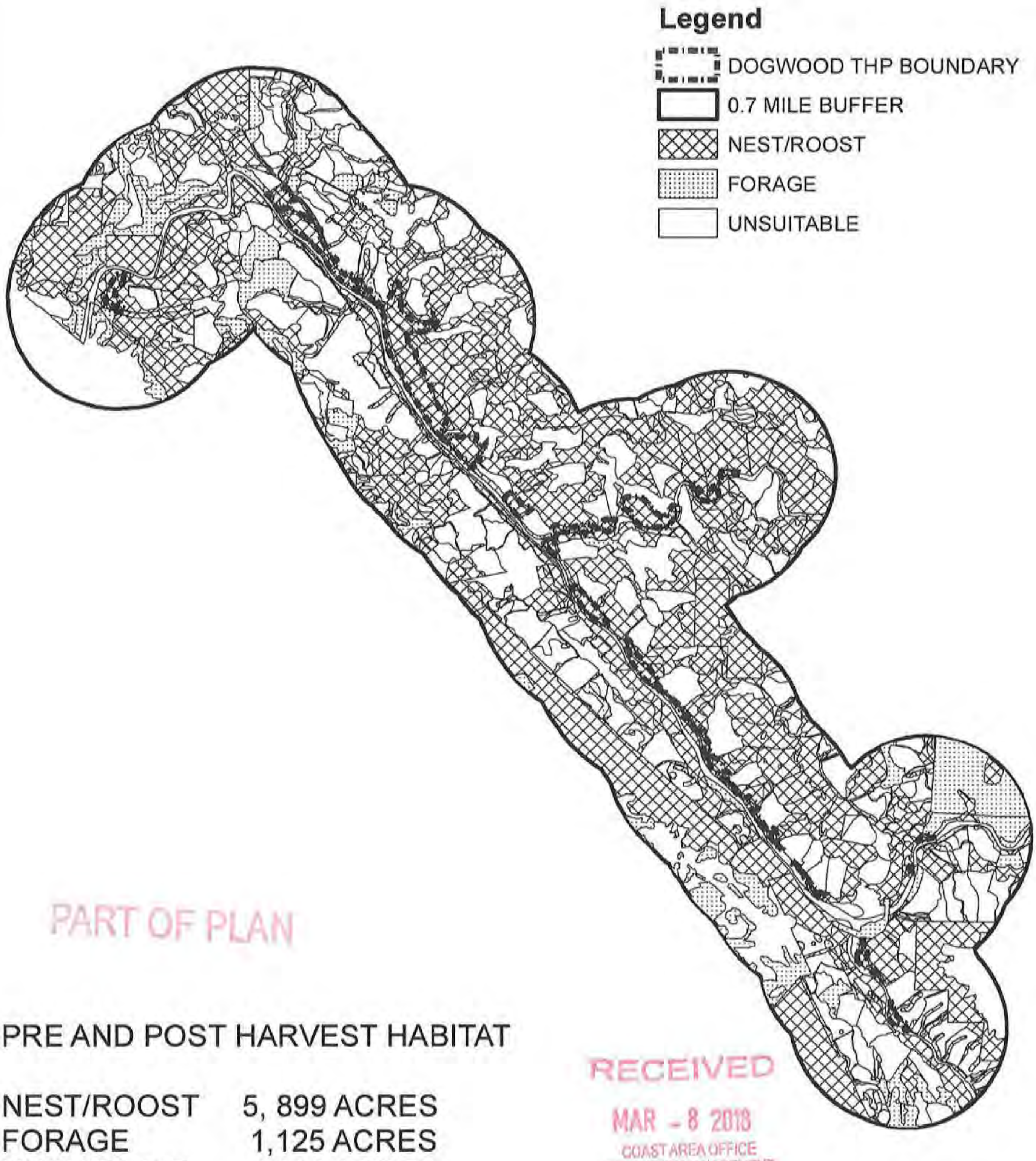

PART OF PLAN

PRE AND POST HARVEST HABITAT

NEST/ROOST	5, 899 ACRES
FORAGE	1,125 ACRES
UNSUITABLE	4,881 ACRES

RECEIVED
MAR - 8 2018
COAST AREA OFFICE
RESOURCE MANAGEMENT

Revised 2/23/18

DOGWOOD THP
PRE AND POST HARVEST HABITAT WITHIN 0.7 MILES
(NO DOWNGRADE IN HABITAT AS A RESULT OF HARVEST)

MARCH 2, 2018

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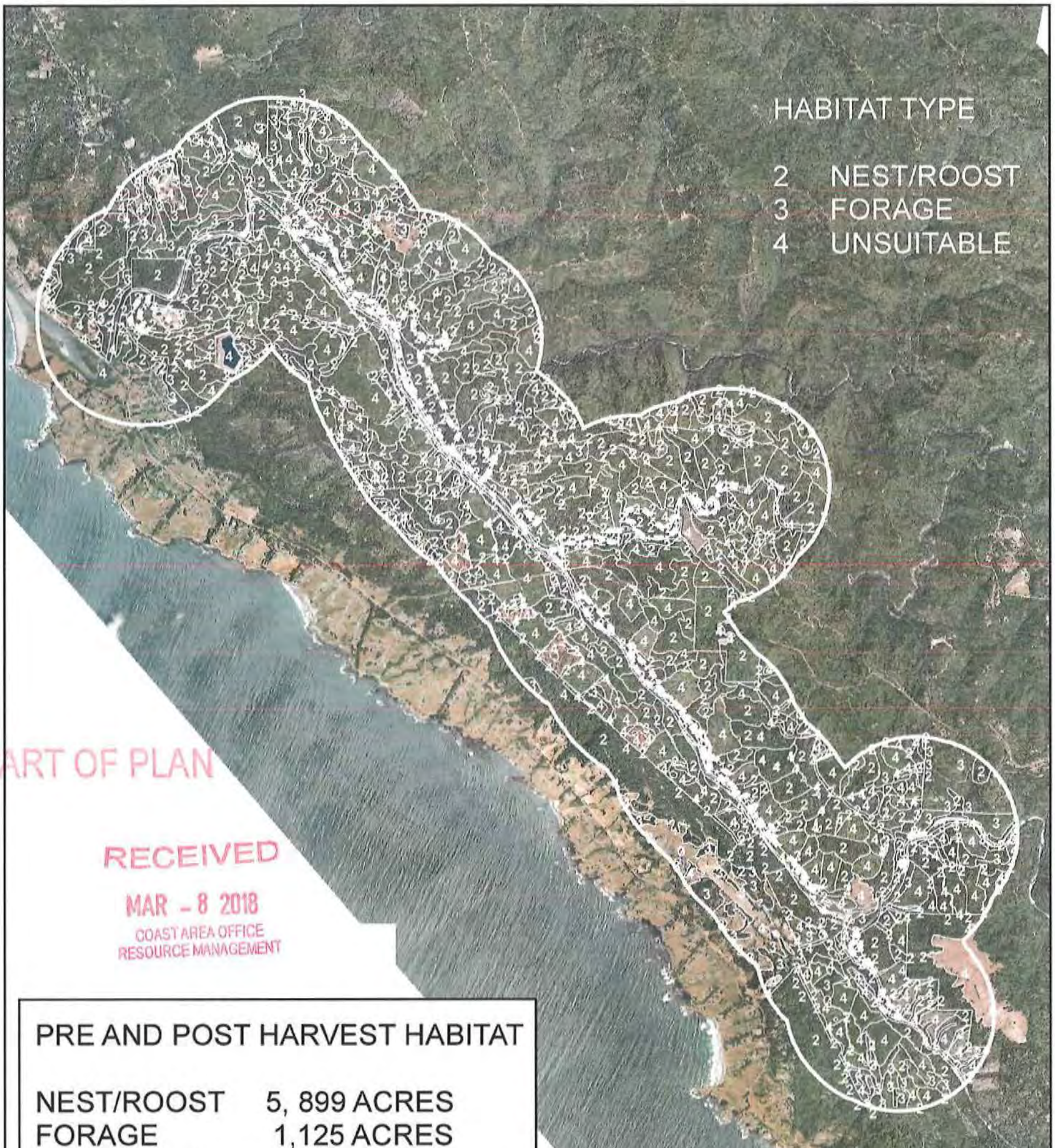


PRE AND POST HARVEST HABITAT

NEST/ROOST	5, 899 ACRES
FORAGE	1,125 ACRES
UNSUITABLE	4,881 ACRES

424

Revised 2/23/18

DOGWOOD THP
NSO SURVEY STATIONS
(SHEET 1 OF 4)

PART OF PLAN

RECEIVED

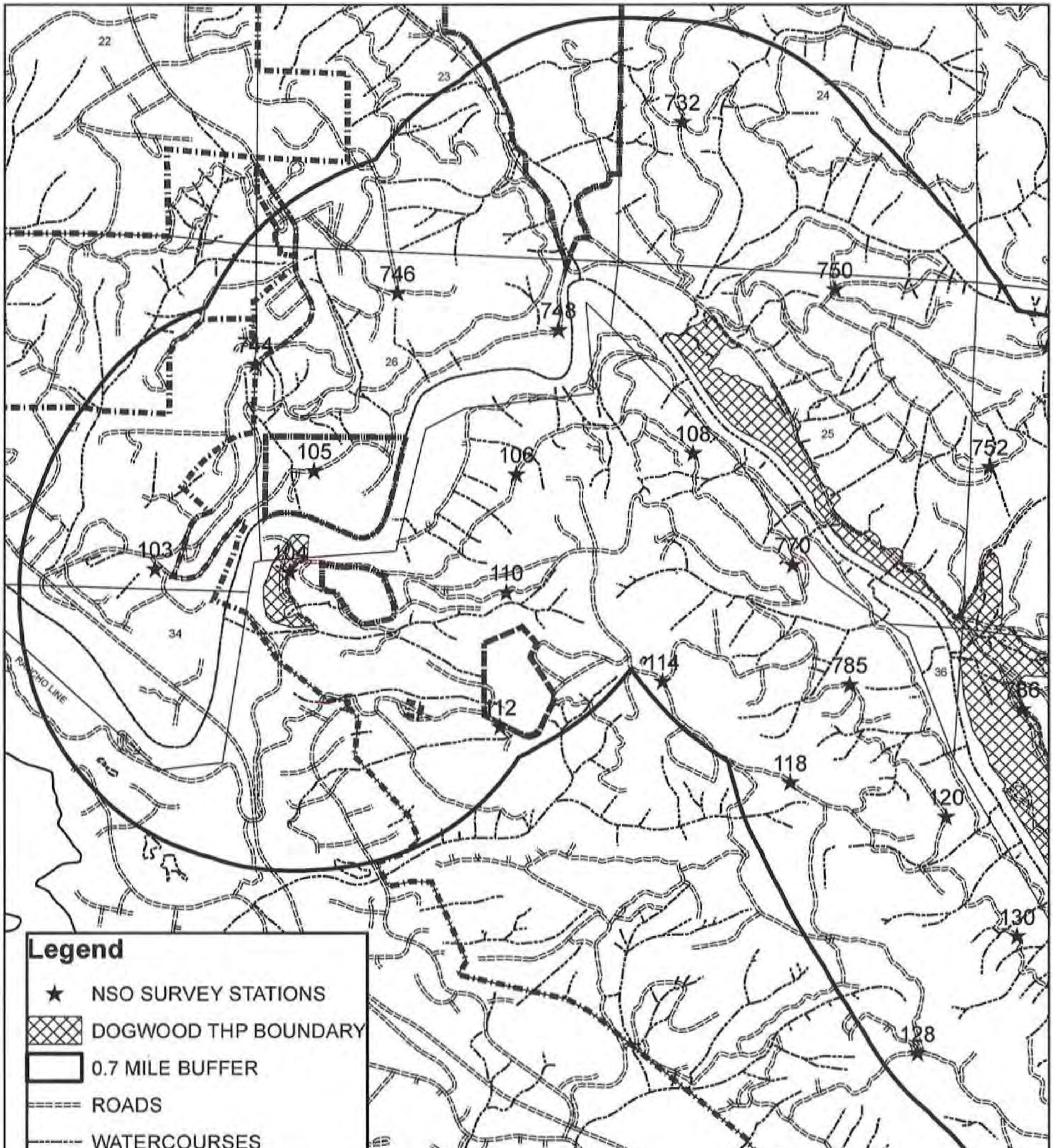
MAR - 8 2018

COAST AREA OFFICE
RESOURCE MANAGEMENT

N

MARCH 2, 2018

1:24,000



425

Revised 2/23/18

DOGWOOD THP
NSO SURVEY STATIONS
(SHEET 2 OF 4)

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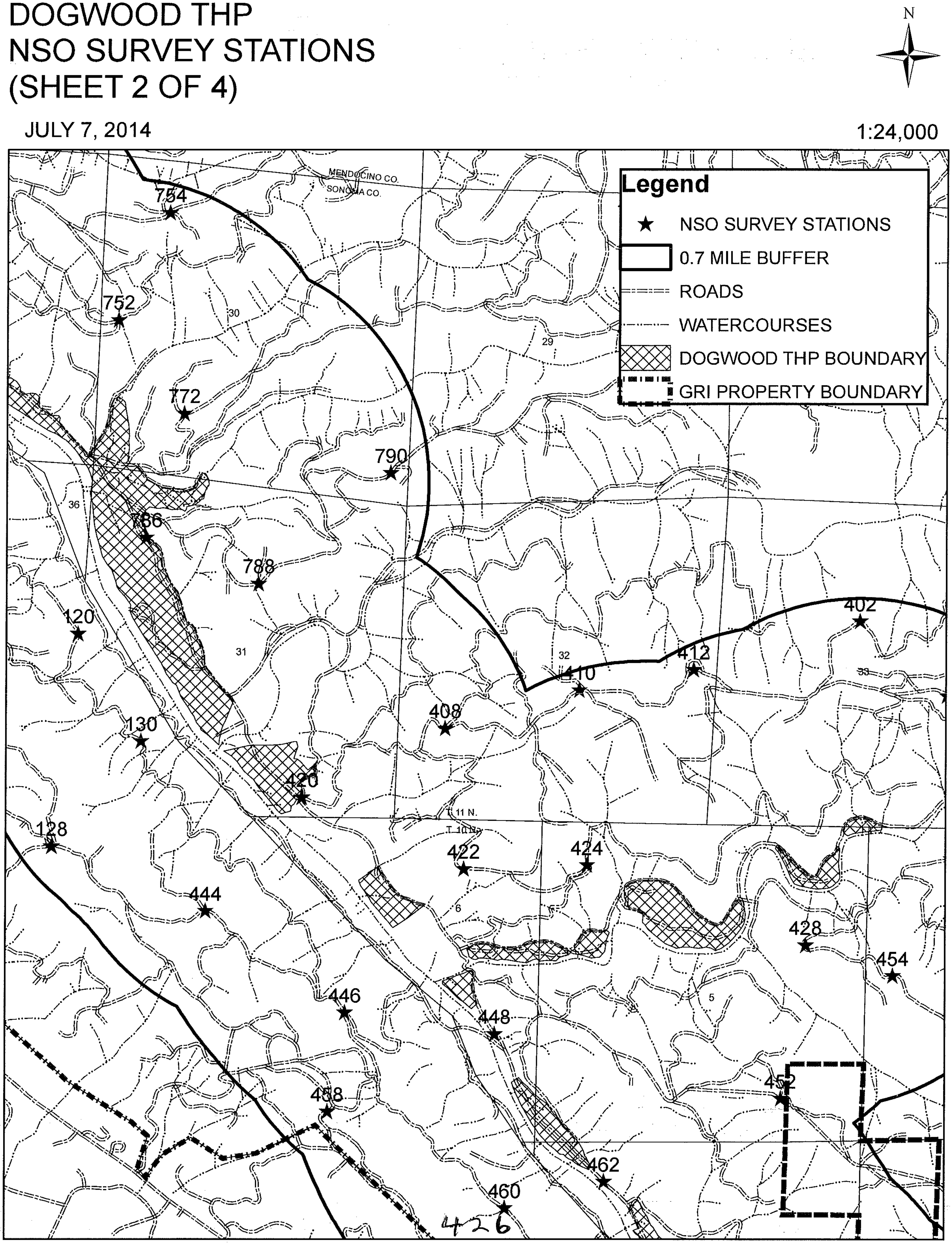

DOGWOOD THP
NSO SURVEY STATIONS
(SHEET 3 OF 4)

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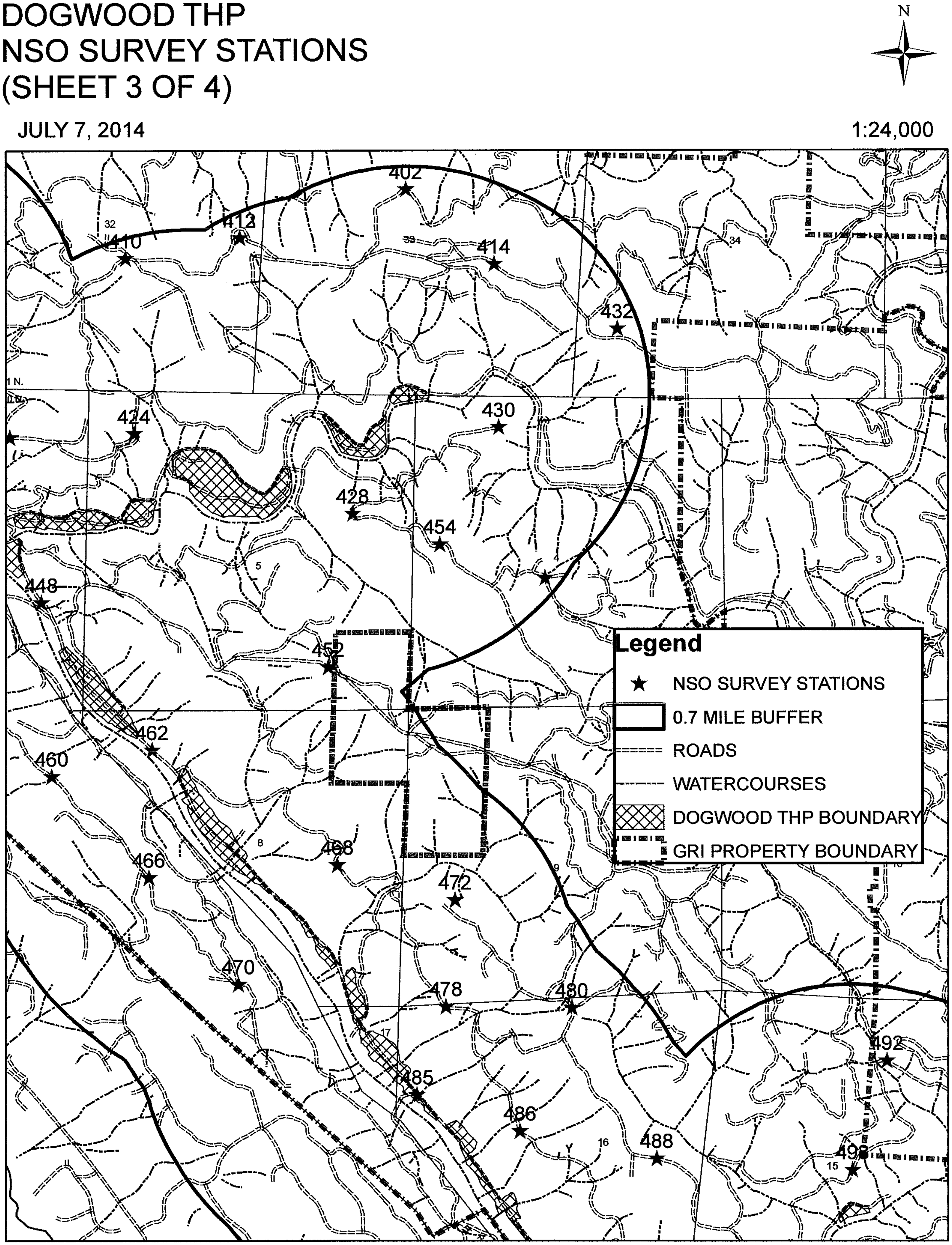

427

DOGWOOD THP
NSO SURVEY STATIONS
(SHEET 4 OF 4)

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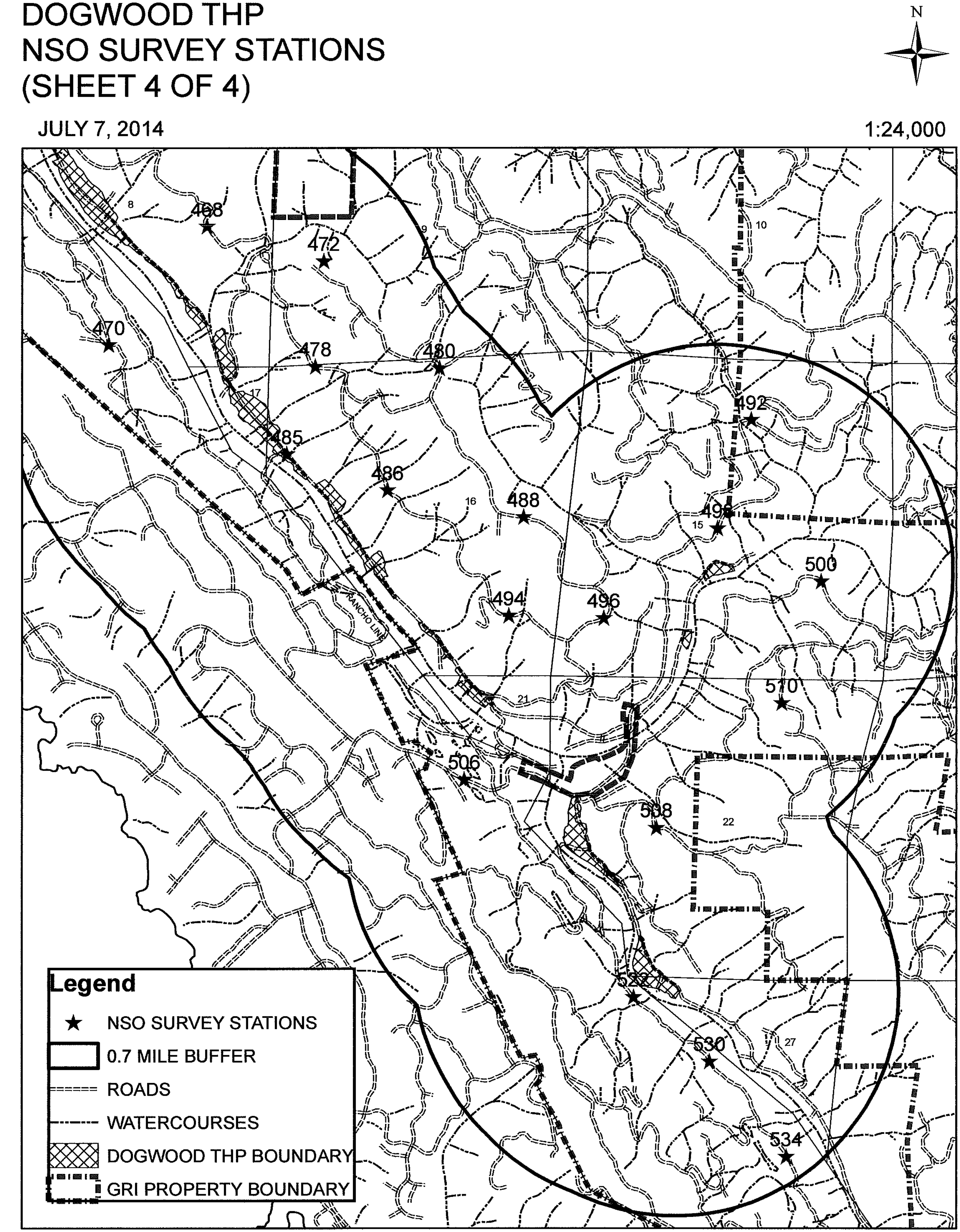
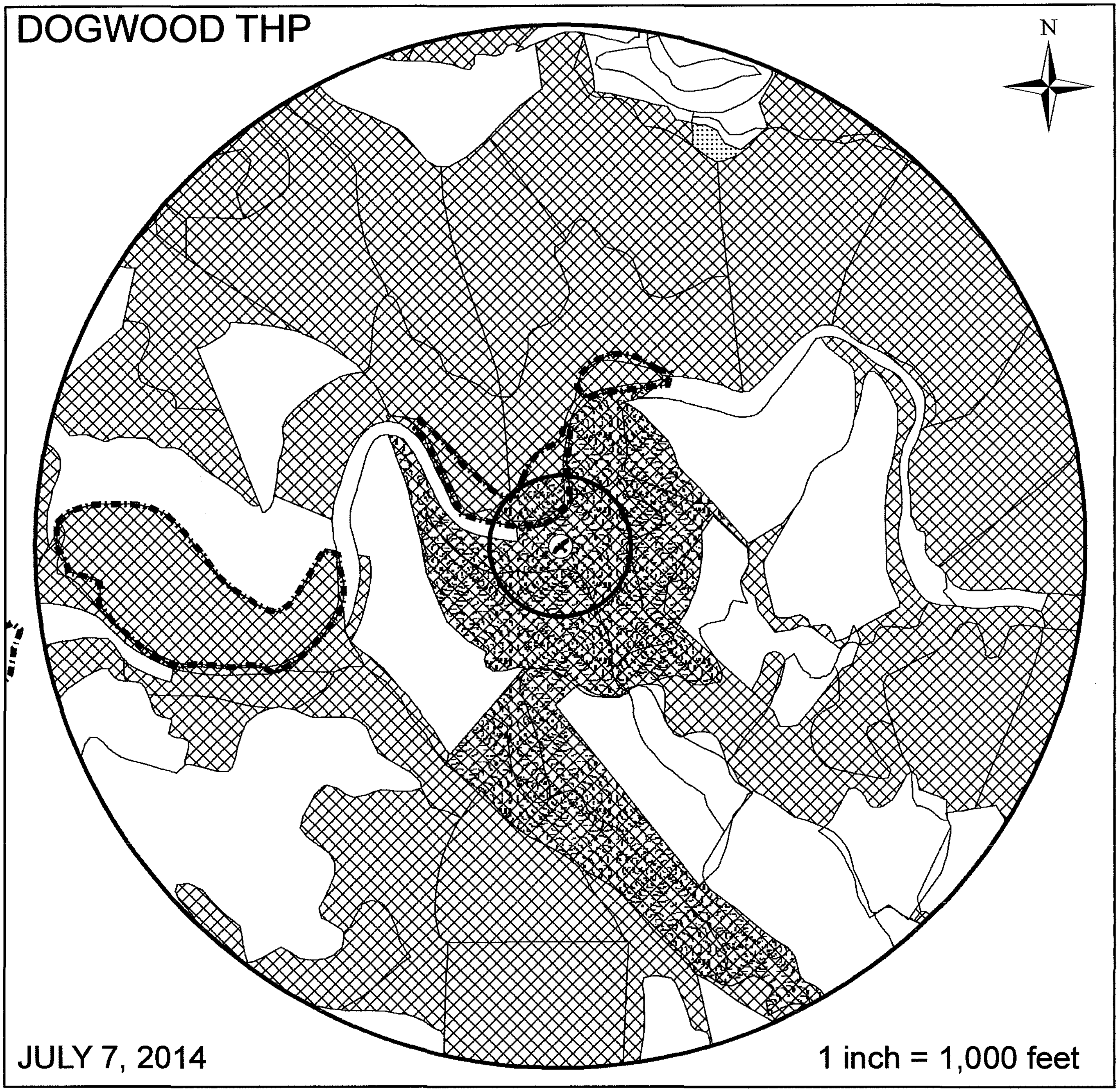




SON0 012 PRE AND POSTHARVEST HABITAT MAP (0.7 MILE)

0.7 MILE RADIUS HABITAT

NEST/ROOST 668 ac.
FORAGING 1 ac.
NON HABITAT 316 ac.

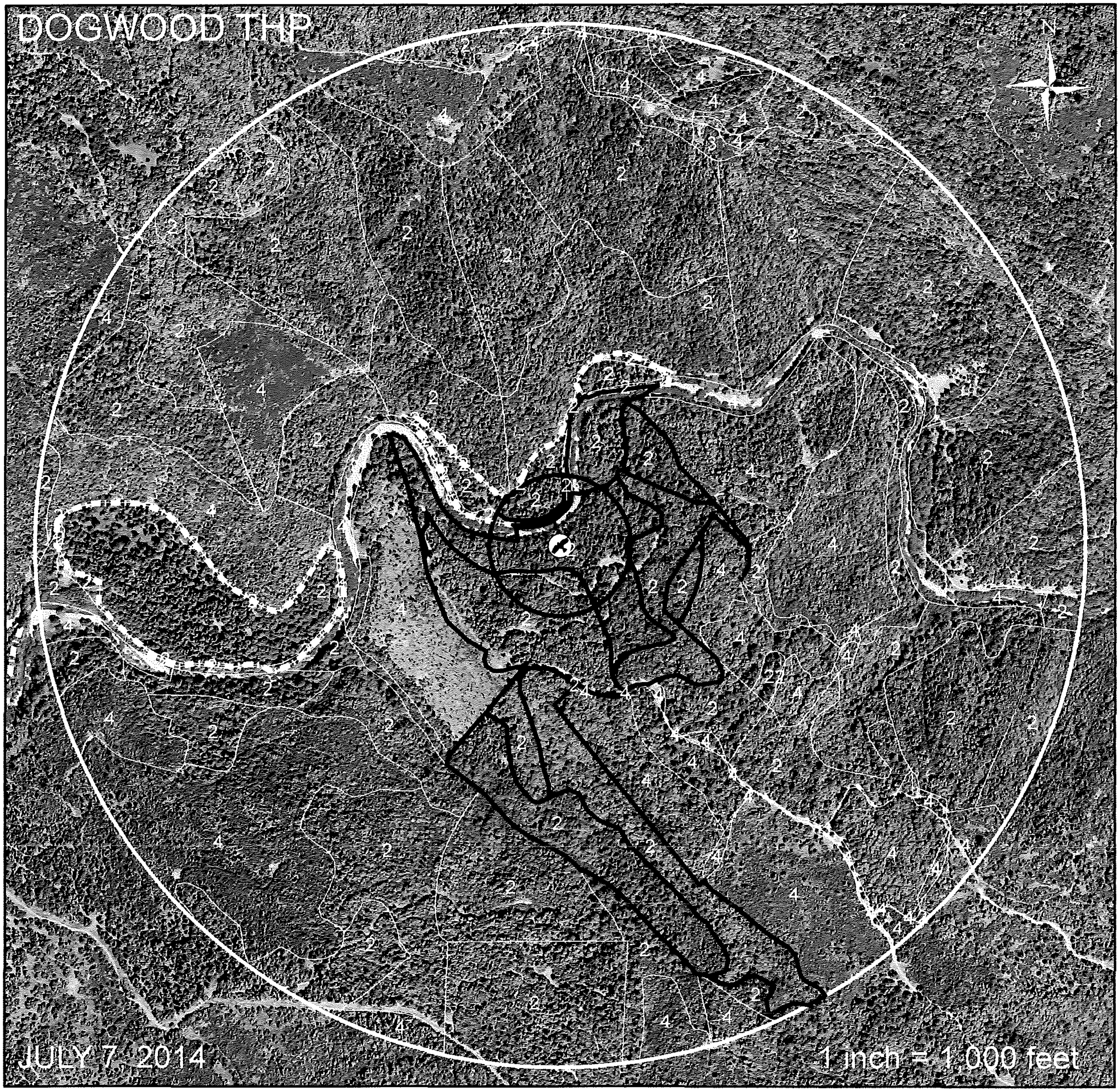
TOTAL ACRES 985 ac.
CORE AREA = 113 ac. N/R

Legend

SON 0012 LOCATION
500 FOOT BUFFER
SON 0012 CORE AREA
DOGWOOD THP

HABITAT TYPE

NEST/ROOST
FORAGE
UNSUITABLE



SON0 012 PRE AND POSTHARVEST HABITAT MAP (0.7 MILE)

Legend

SON 0012 LOCATION

500 FOOT BUFFER

SON 0012 CORE AREA

DOGWOOD THP

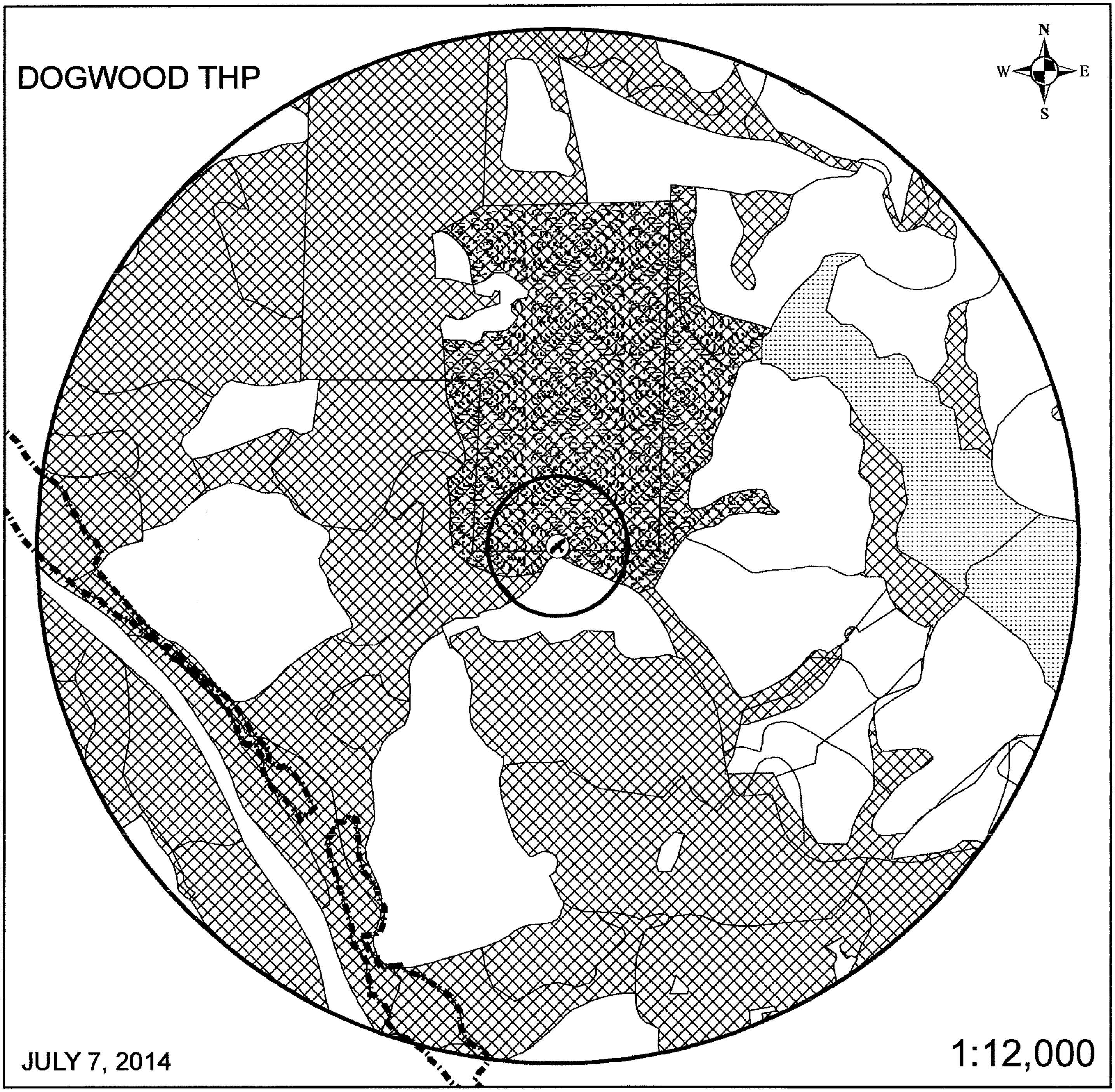
0.7 MILE RADIUS HABITAT

NEST/ROOST	668 ac.
FORAGING	1 ac.
NON HABITAT	316 ac.
TOTAL ACRES	985 ac.

CORE AREA = 113 ac. N/R

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE

430



SON 0085 PRE AND POST HARVEST
HABITAT MAP (0.7 MILE)

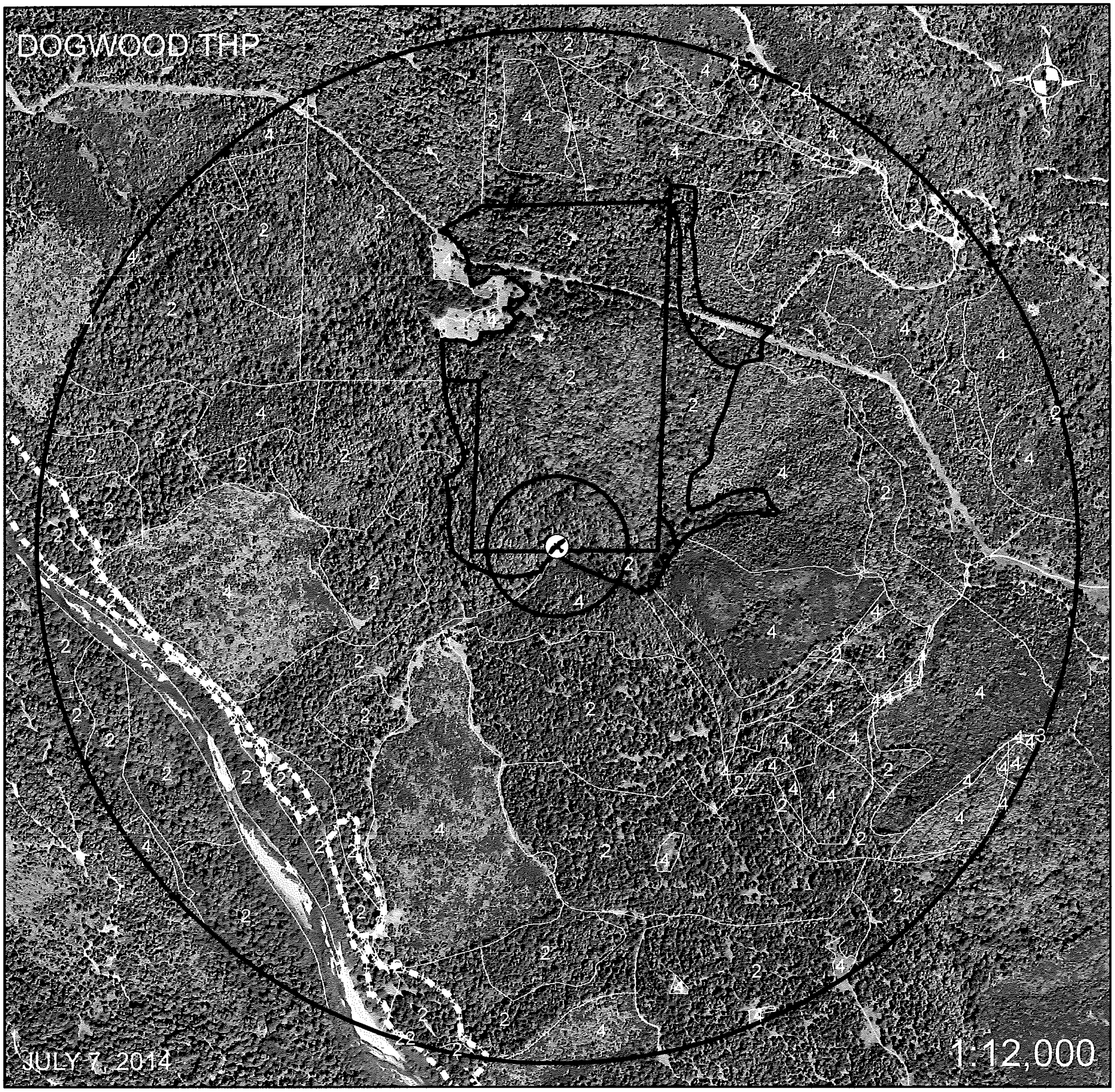
HABITAT TOTALS

NEST/ROOST 592 ac.
FORAGE 46 ac.
UNSUITABLE 347 ac.

TOTAL ACRES 985 ac.
CORE AREA = 122 ac. N/R

Legend

SON 0085 LOCATION
500 FOOT BUFFER
0.7 MILE BUFFER
SON 0085 CORE AREA
DOGWOOD THP
NEST/ROOST
FORAGE
UNSUITABLE



SON 0085 PRE AND POST HARVEST
HABITAT MAP (0.7 MILE)

HABITAT TOTALS

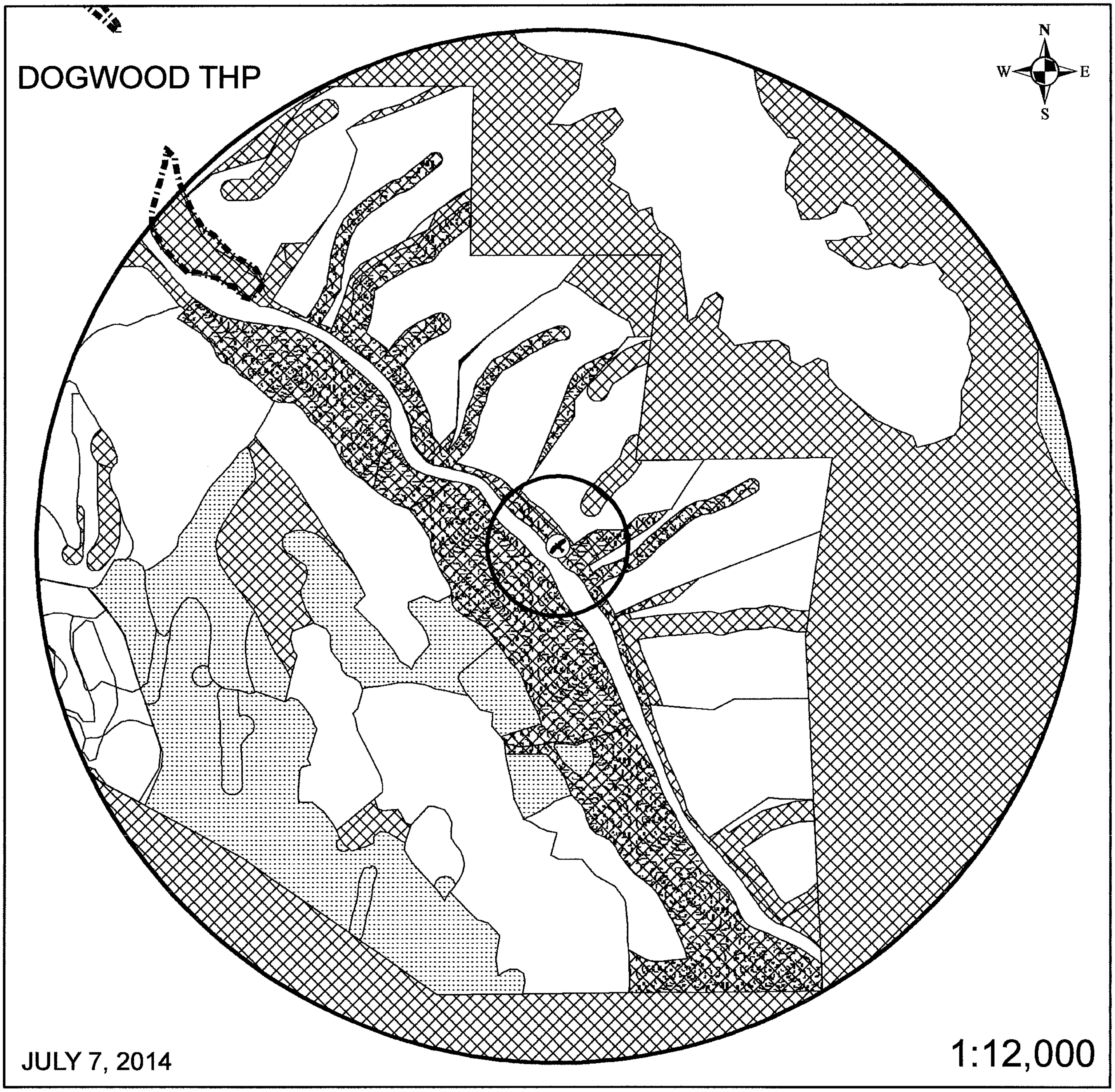
NEST/ROOST	592 ac.
FORAGE	46 ac.
UNSUITABLE	347 ac.
TOTAL ACRES	985 ac.

CORE AREA = 122 ac. N/R

Legend

- SON 0085 LOCATION
- 500 FOOT BUFFER
- 0.7 MILE BUFFER
- SON 0085 CORE AREA
- DOGWOOD THP

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE



SON 0094 PRE AND POST HARVEST
HABITAT MAP (0.7 MILE)

HABITAT TOTALS

NEST/ROOST	458 ac.
FORAGE	105 ac.
UNSUITABLE	422 ac.

TOTAL ACRES 985 ac.
CORE AREA = 107 ac. N/R

Legend

- SON0094 LOCATION
- 500 FOOT BUFFER
- 0.7 MILE BUFFER
- SON0094 CORE AREA
- DOGWOOD THP
- NEST/ROOST
- FORAGE
- UNSUITABLE

SON 0094 PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

HABITAT TOTALS

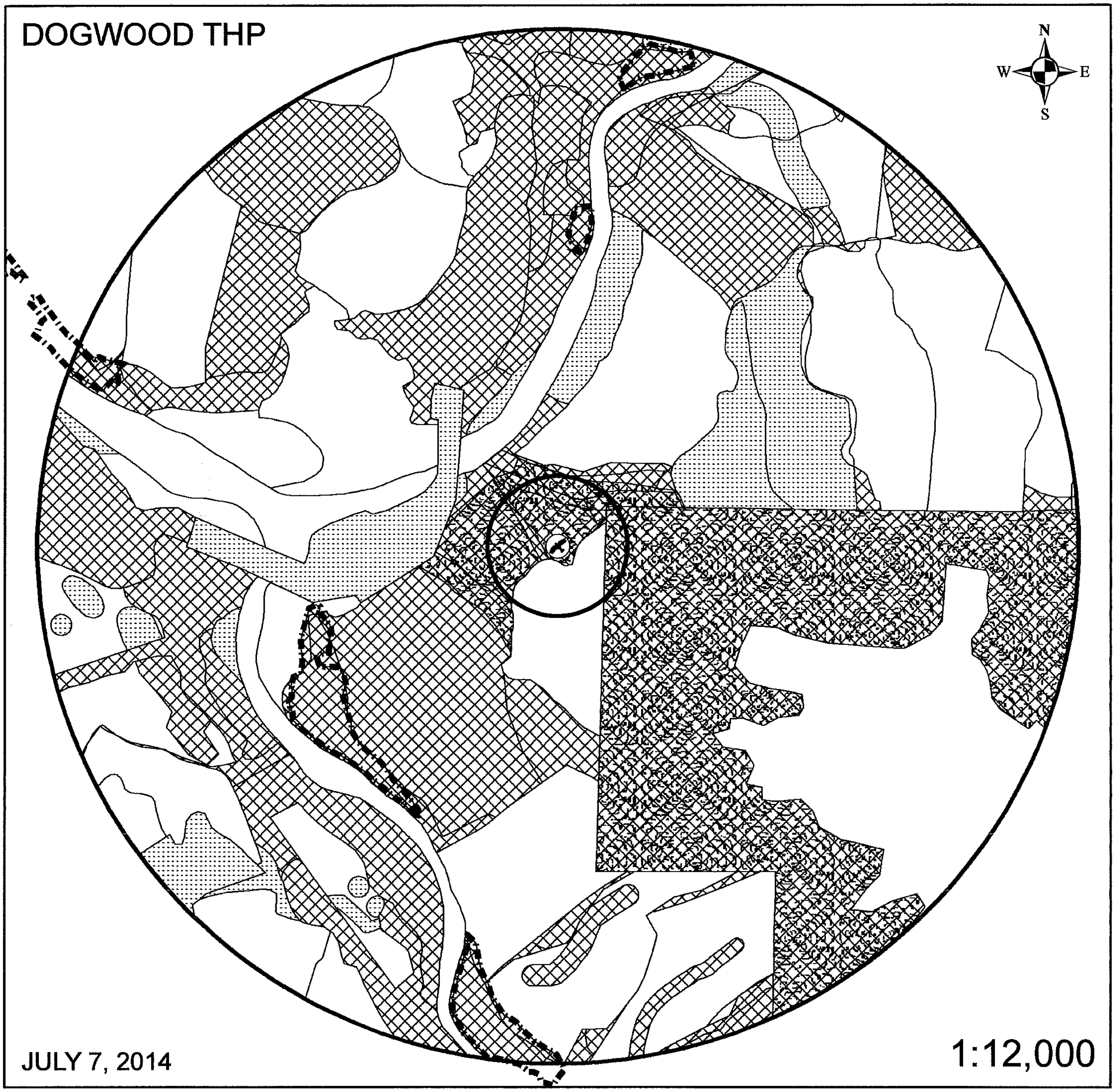
NEST/ROOST	458 ac.
FORAGE	105 ac.
UNSUITABLE	422 ac.

TOTAL ACRES 985 ac.
CORE AREA = 107 ac. N/R

Legend

- SON0094 LOCATION
- 500 FOOT BUFFER
- 0.7 MILE BUFFER
- SON0094 CORE AREA
- DOGWOOD THP

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE



SON VC PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

HABITAT TOTALS

NEST/ROOST	450 ac.
FORAGE	82 ac.
UNSUITABLE	453 ac.
TOTAL ACRES	985 ac.

CORE AREA = 159 ac. N/R

Legend

- SON VC LOCATION
- 500 FOOT BUFFER
- SONVC_core_area
- DOGWOOD THP

HABITAT TYPE

- NEST/ROOST
- FORAGE
- UNSUITABLE

SON VC PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

HABITAT TOTALS

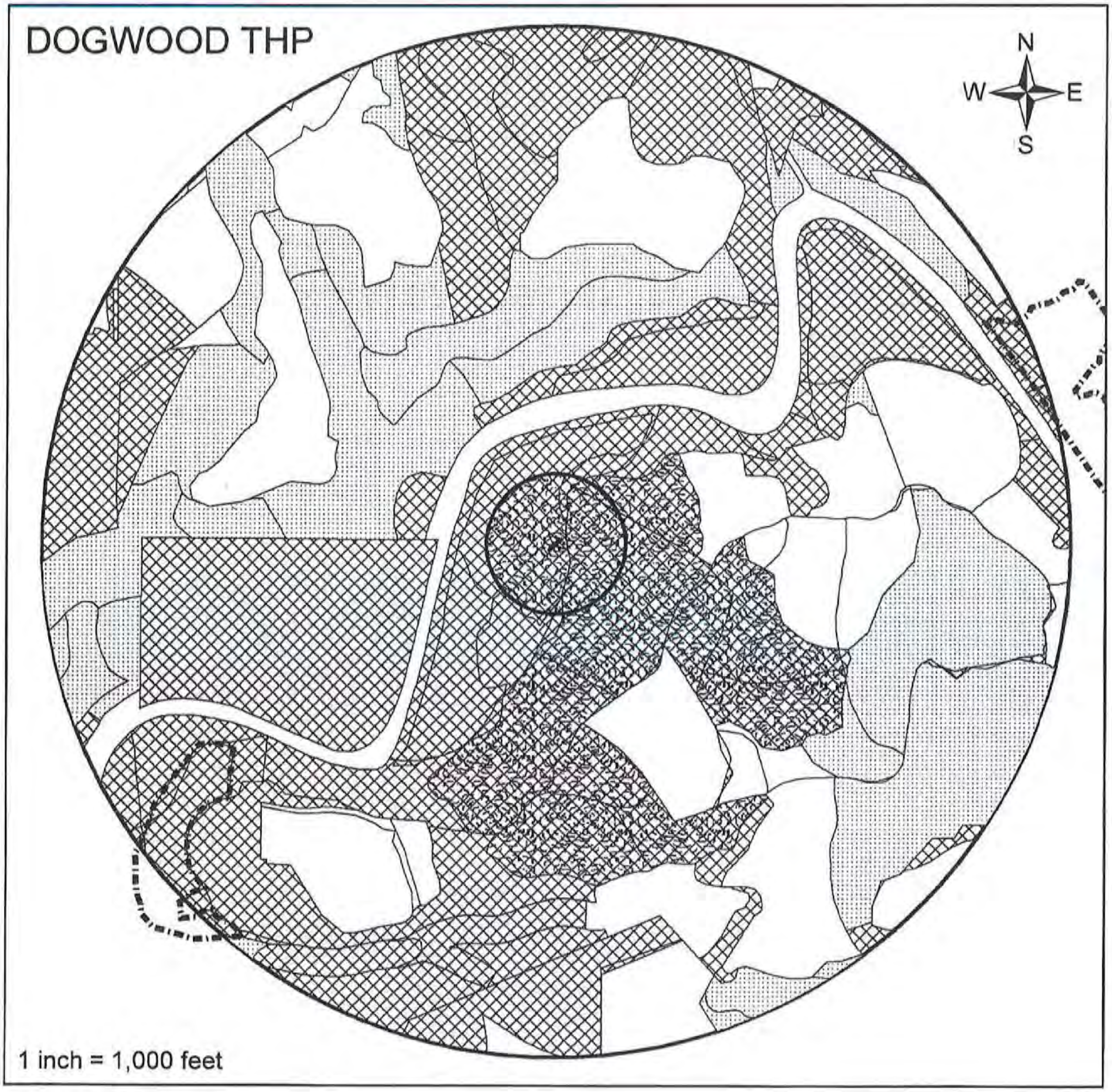
NEST/ROOST	450 ac.
FORAGE	82 ac.
UNSUITABLE	453 ac.

TOTAL ACRES 985 ac.
CORE AREA = 159 ac. N/R

Legend

- SON VC LOCATION
- 500 FOOT BUFFER
- SONVC_core_area
- DOGWOOD THP

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE



SON082 PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

PART OF PLAN

0.7 MILE RADIUS

NEST/ROOST 492 ac.
FORAGING 214 ac.
UNSUITABLE 279 ac.

TOTAL ACRES 985 ac.
CORE AREA = 110 ac. N/R

February 23, 2018
436.1

LEGEND

- SON082 LOCATION
- DOGWOOD THP
- SON0082 CORE AREA
- 500 FOOT BUFFER

HABITAT TYPE

- NEST/ROOST
- FORAGE
- UNSUITABLE
- 0.7 MILE BUFFER

SON082 PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

0.7 MILE RADIUS

PART OF PLAN RECEIVED

MAR 13 2018

COAST AREA OFFICE
RESOURCE MANAGEMENT

NEST/ROOST	492 ac.
FORAGING	214 ac.
UNSUITABLE	279 ac.

TOTAL ACRES 985 ac.

CORE AREA = 110 ac. N/R

LEGEND

SON082 LOCATION

DOGWOOD THP

SON0082 CORE AREA

500 FOOT BUFFER

HABITAT TYPE

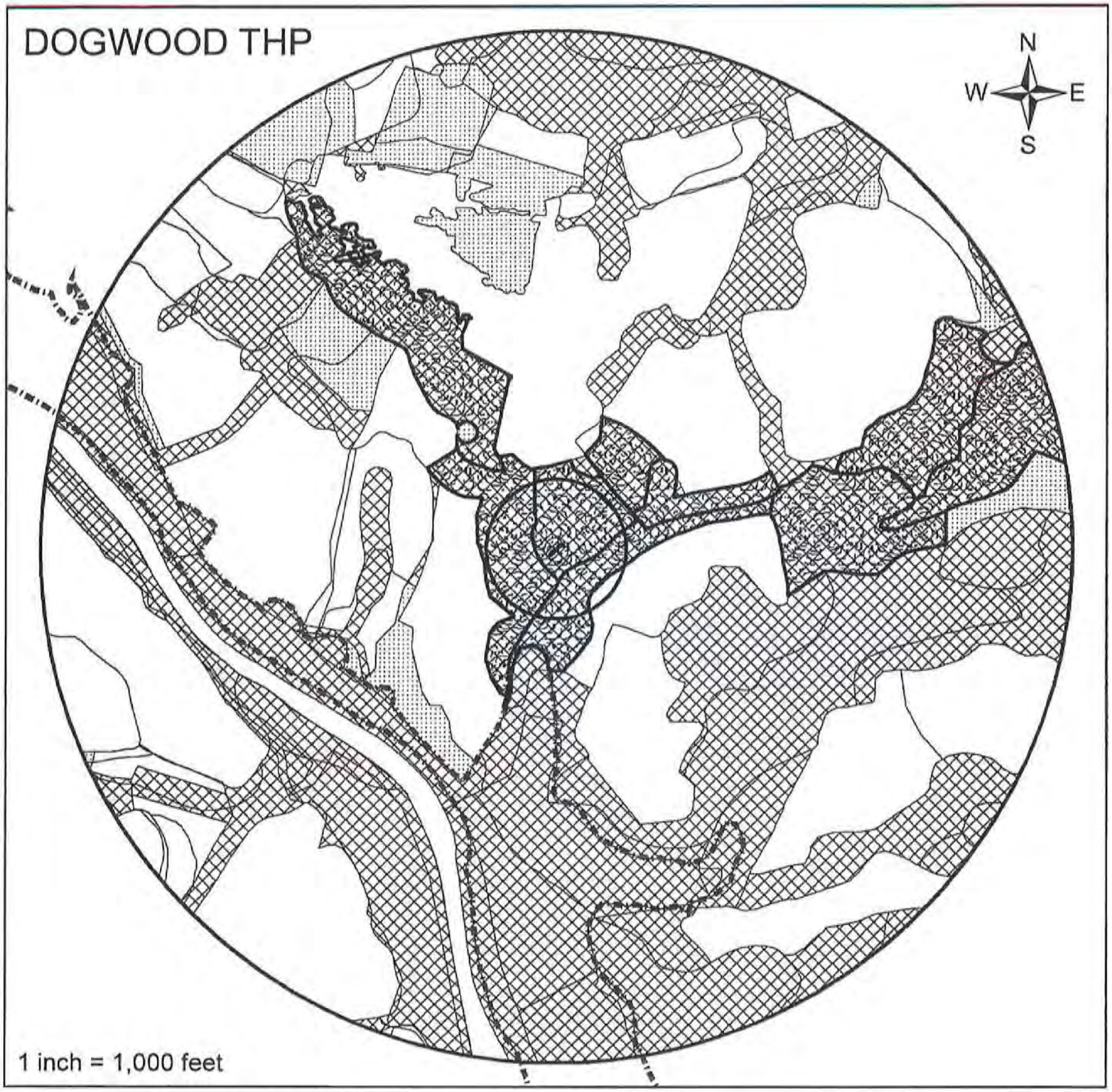
2 = NEST/ROOST

3 = FORAGE

4 = UNSUITABLE

FEBRUARY 23, 2018

436.2



SON017 PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

0.7 MILE RADIUS

NEST/ROOST	487 ac.
FORAGING	59 ac.
UNSUITABLE	439 ac.

TOTAL ACRES 985 ac.
CORE AREA = 108 ac. N/R

2/23/18

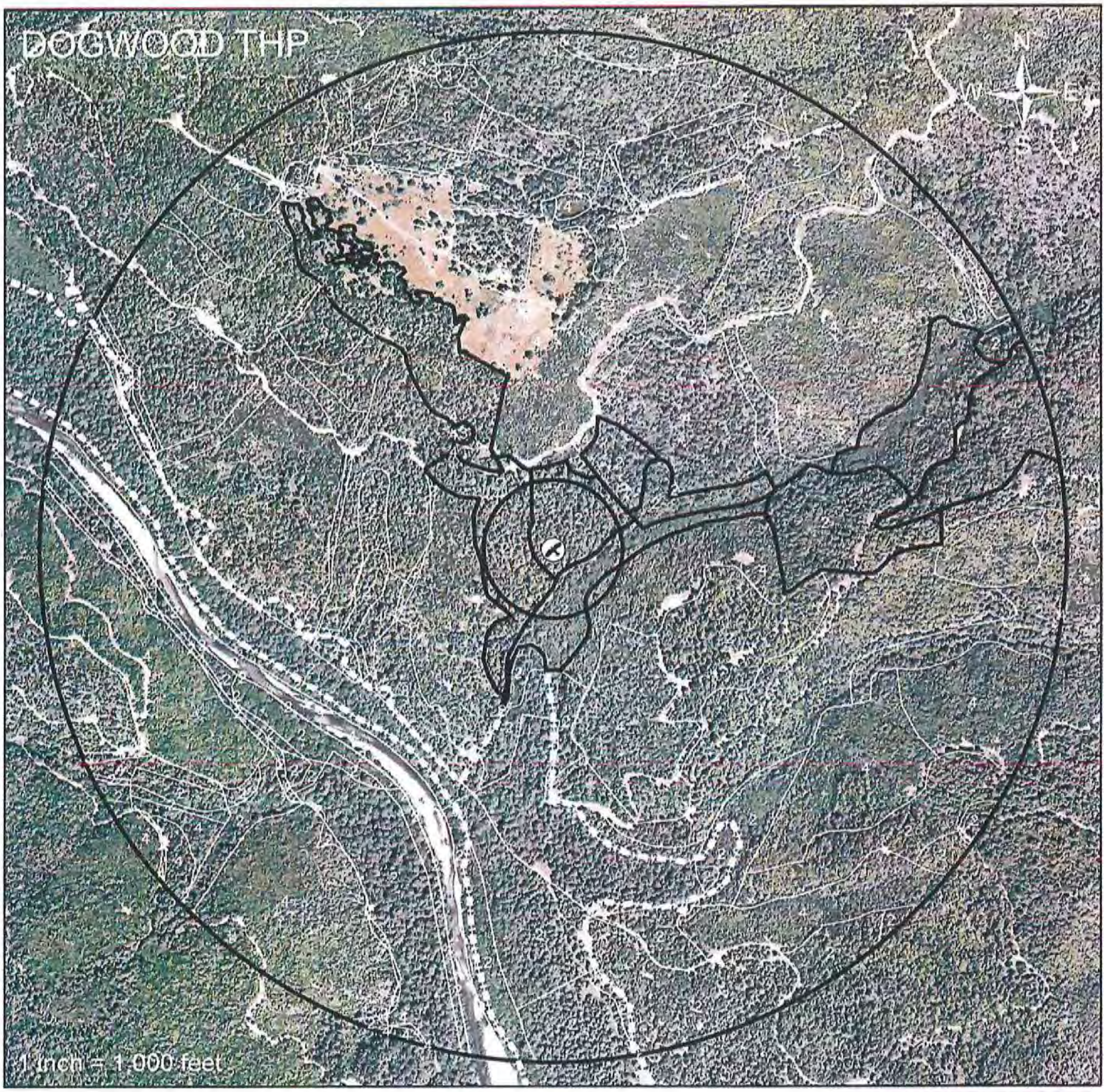
436.3

LEGEND

SON017 LOCATION
0.7 MILE BUFFER
SON0017 CORE AREA
500 FOOT BUFFER
DOGWOOD THP

HABITAT TYPE

NEST/ROOST
FORAGE
UNSUITABLE



SON017 PRE AND POST HARVEST HABITAT MAP (0.7 MILE)

0.7 MILE RADIUS PART OF PLAN

RECEIVED
MAR 13 2018
COAST AREA OFFICE
RESOURCE MANAGEMENT

NEST/ROOST 487 ac.
FORAGING 59 ac.
UNSUITABLE 439 ac.

TOTAL ACRES 985 ac.
CORE AREA = 108 ac. N/R

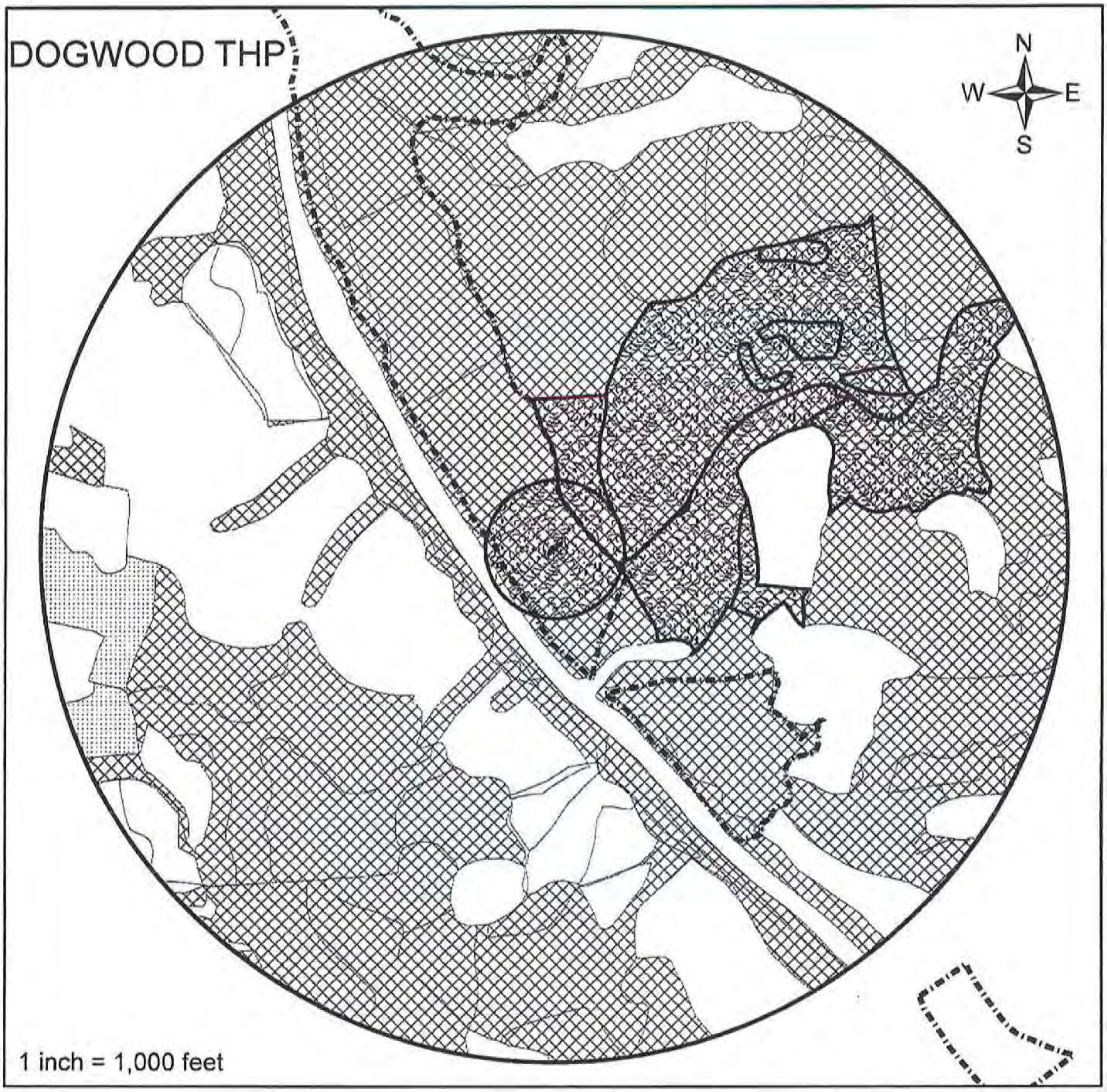
2/23/18

436.4

LEGEND

SON017 LOCATION
SON0017 CORE AREA
500 FOOT BUFFER
DOGWOOD THP
0.7 MILE BUFFER

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE



**SON045 (FLATS LOCATION)
PRE AND POST HARVEST
HABITAT MAP (0.7 MILE)**

0.7 MILE RADIUS

NEST/ROOST	676 ac.
FORAGING	17 ac.
UNSUITABLE	292 ac.

TOTAL ACRES 985 ac.
CORE AREA = 119 ac. N/R

PART OF PLAN

2/23/18

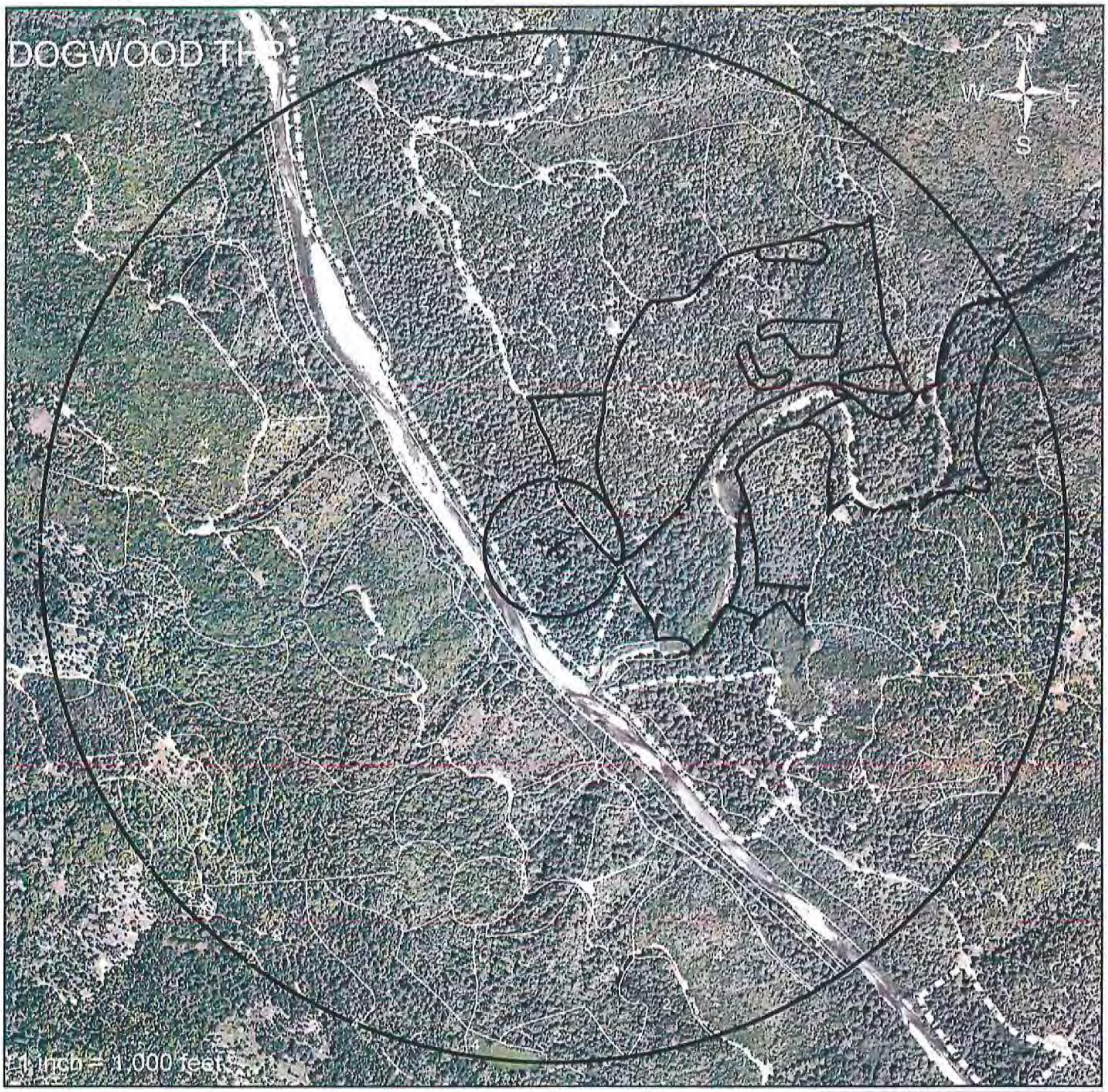
436.5

LEGEND

- SON045 FLATS LOCATION
- 0.7 MILE BUFFER
- DOGWOOD THP
- 500 FOOT BUFFER
- CORE AREA

HABITAT TYPE

- NEST/ROOST
- FORAGE
- UNSUITABLE



SON045 (FLATS) PRE AND POST HARVEST HABITAT MAP

PART OF PLAN

0.7 MILE RADIUS

NEST/ROOST	676 ac.
FORAGING	17 ac.
UNSUITABLE	292 ac.
TOTAL ACRES	985 ac.

CORE AREA = 119 ac. N/R

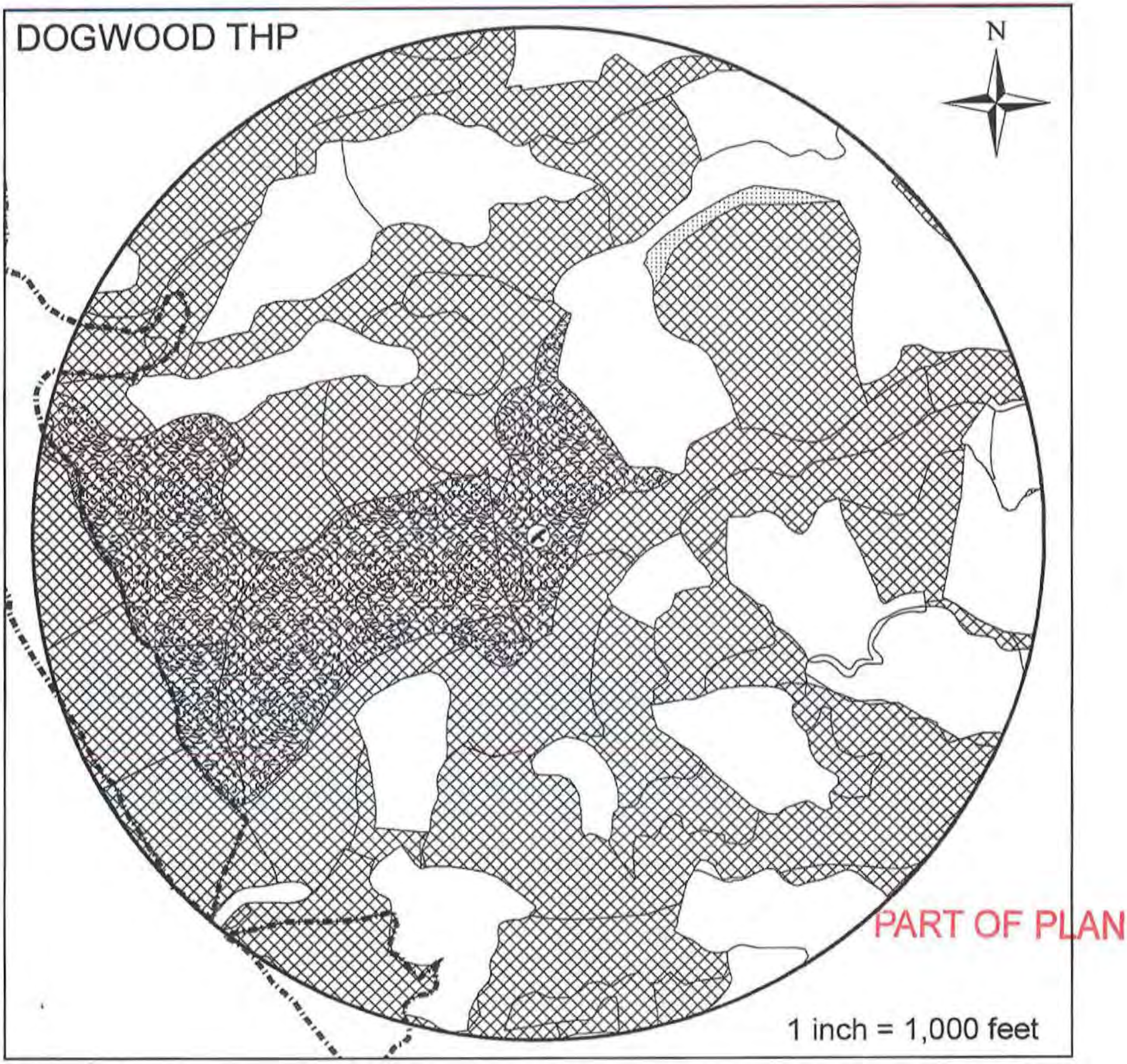
2/23/18

436.6

LEGEND

SON045 FLATS LOCATION
0.7 MILE BUFFER
500 FOOT BUFFER
CORE AREA
DOGWOOD THP

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE



SON 045 (ROCKPILE LOCATION)
PRE AND POST-HARVEST HABITAT MAP
(0.7 mile radius)

0.7 MILE RADIUS HABITAT

NEST/ROOST	686 ac.
FORAGING	4 ac.
NON HABITAT	295 ac.

TOTAL ACRES 985 ac.
CORE AREA = 139 ac. N/R

2/23/18

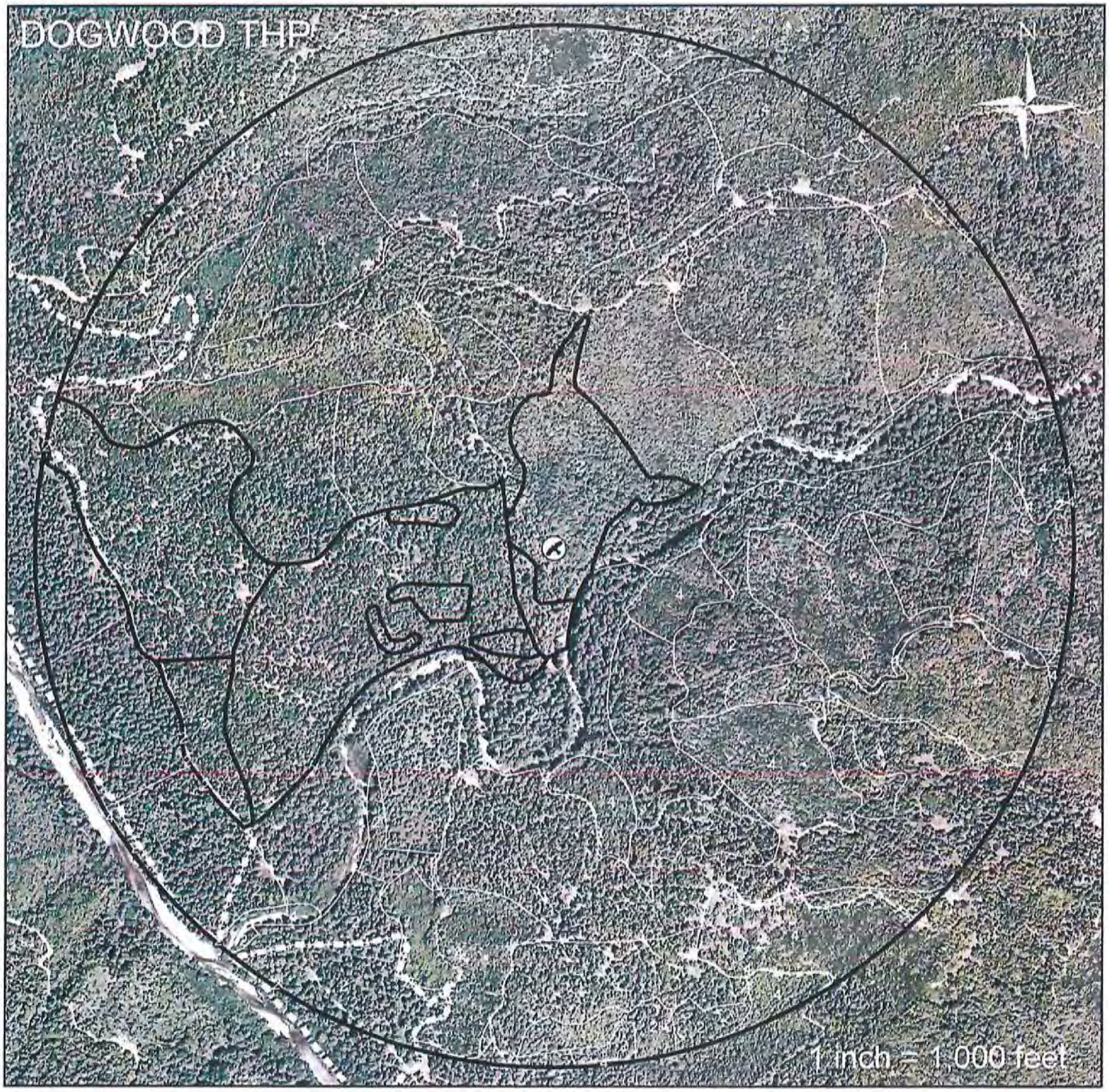
436.7

Legend

SON045 LOCATION
DOGWOOD THP
0.7 MILE BUFFER
SON045 CORE AREA

HABITAT TYPE

NEST/ROOST
FORAGE
UNSUITABLE



SON 045 (ROCKPILE LOCATION)
PRE AND POST-HARVEST HABITAT MAP
(0.7 mile radius)

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0.7 MILE RADIUS HABITAT

NEST/ROOST	686 ac.
FORAGING	4 ac.
NON HABITAT	295 ac.

TOTAL ACRES 985 ac.
CORE AREA = 139 ac. N/R

2/23/18

436.8

Legend

- SON045 LOCATION
- 0.7 MILE BUFFER
- SON045 CORE AREA
- DOGWOOD THP

HABITAT TYPE
2 = NEST/ROOST
3 = FORAGE
4 = UNSUITABLE

AMENDMENT NO 1 (Minor)

From:	John Bennett <JBennett@pacificstates.com>
Sent:	Friday, July 01, 2016 11:39 AM
To:	Santa Rosa Review Team@CALFIRE
Cc:	Henry Alden
Subject:	Request for minor amendment (NSO) THP 1-15-042-SON
Attachments:	Dogwood survey stations.pdf; Spotted Owl Visit Summary.pdf; son12 walkin.pdf; son17 walkin.pdf; son45 walkin.pdf; son82 walkin.pdf; son85 walkin.pdf; son94 walkin.pdf; son110 (formerly val xing) walkin.pdf; CNDDB report 1.pdf

July 1, 2016

This amendment conforms to the rules and the regulations of the Board of Forestry and the Forest Practice Act. NTMS
Reviewed by MR date routed 11 Jul 2016
cc: Unit (2) ~~DFG WQ CF FR~~ BoE Sub RPF

Dominik Schwab
CalFire
135 Ridgway Ave.
Santa Rosa, CA. 95401

**Re: Timber Harvest Plan 1-15-042-SON (Dogwood THP)
Request for minor amendment**

**NSO
Valid Until:** 02-01-2017

Dear Mr. Schwab:

Please amend the attached NSO survey package to THP 1-15-042-SON.

The THP was approved under the requirements of 14CCR 919.9(e). Habitat retention standards required by the Plan will be met post-harvest.

All surveys are in conformance with the USFWS 2011 (revised Jan. 9, 2012) Northern Spotted Owl Survey Protocol. The THP is currently in survey year 3. For 2016, 3 complete spot check surveys have been conducted at stations within 0.25 miles of the Plan area. A map of stations surveyed is attached.

The "Spotted Owl Visit Summary" report summarizes survey information for each station by year. Many stations have more than three survey nights reported. These stations are being surveyed for another THP as well.

There are 7 NSO Activity Centers within 0.7 miles of the Plan area; SON0012, SON0017, SON0045, SON0082, SON0085, SON0094 and SON0110. Walk-in survey reports for these activity centers are attached.

A CDFW NSO database query was conducted on 06/14/16. Report 1 is attached.

Should you have any questions, please call me at (707) 291-0819.

Attachments:

1) Dogwood survey stations.pdf
2) Spotted Owl Visit Summary.pdf
3) Seven walk-in reports
4) CNDDB Report 1.pdf

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Sincerely,

John Bennett, RPF #2650
Gualala Redwood Timber, LLC
P.O. Box 197
39951 Old Stage Road
Gualala, CA. 95445
jbennett@pacificstates.com
707-291-0819

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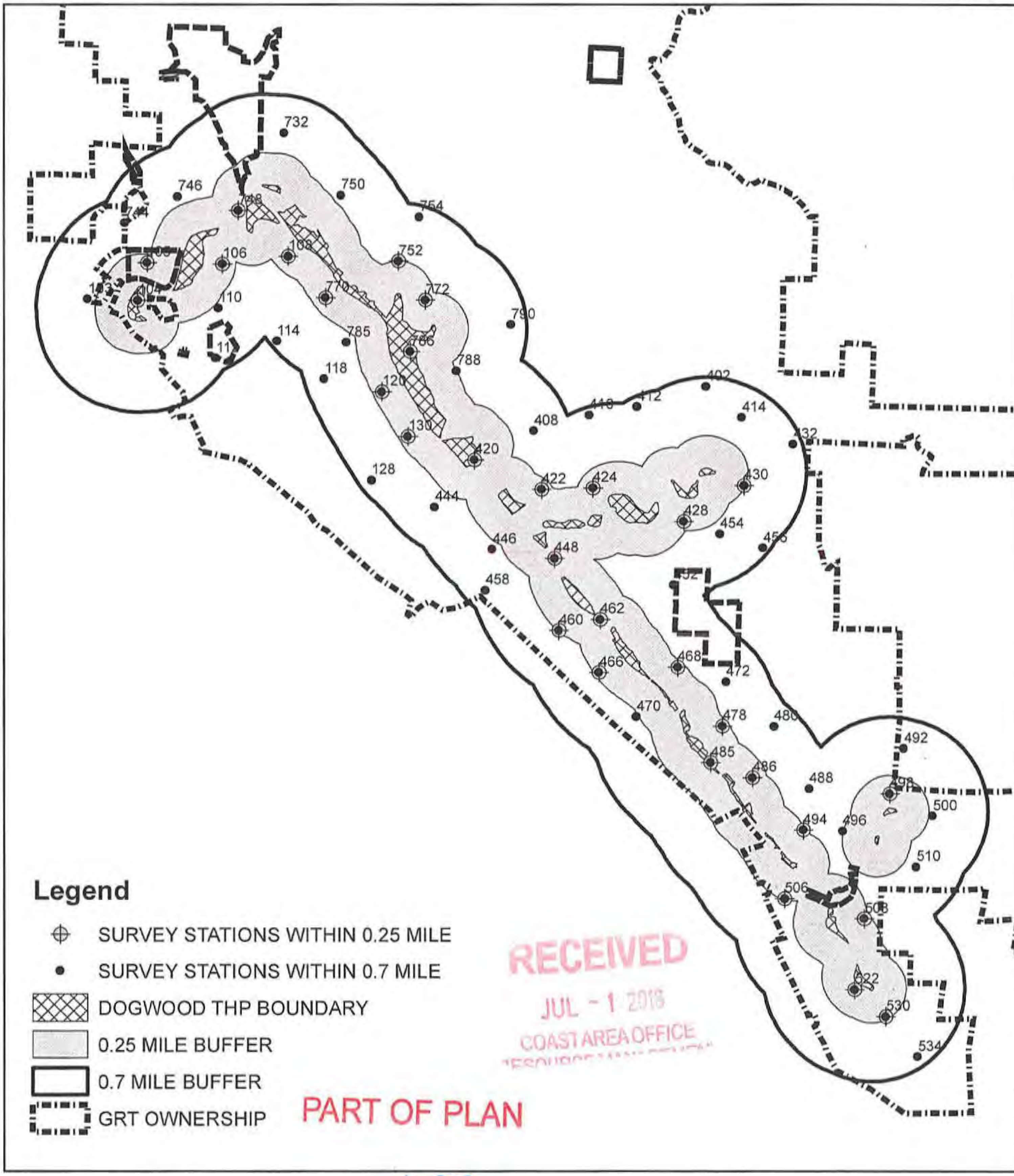
DOGWOOD THP
NSO SURVEY STATIONS 0.7 MILES

JUNE 13, 2016

1:63,360



Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente *Visit Sta.* *Date* *Surveyor* *Start* *End* *Wind* *Weather* *Mouse Result* *Occupancy* *T R Sec* *DBH BA* *Visit Type*

Son0017 Big Peppe 742 0 03/06/14 Town, Pam 8:30 9:30 <1 mph Overcast Vocal Male 0 Walk-in

Walk up Pepperwood Creek around historic AC. Heard 1 hoot from southern side of P. Creek. Looked all around and no more vocalization heard. Birds not seen

PLWO, DEJU, WIWR, CORA, HUMM.

Son0017 Big Peppe 752 0 04/16/14 Town, Pam 8:40 9:40 4-7 mph Clear Vocal Male 0 Walk-in

Walk up Pepperwood Creek toward historic AC. Got 1 male hoot near creek in high canopy. Could not see owl and owl went quiet. No other detections.

Son0017 Big Peppe 771 0 04/09/15 Town, Pam 18:10 19:10 1-3 mph Clear No Contact No Contact 11N 14W 30 Walk-in

Walk up to historic AC up Pepperwood Creek broadcast calling. No detections.

BEKI, STJA, AMRO, MODO, CBCH, DEJU.

Son0017 Big Peppe 775 0 04/14/15 Town, Pam 9:00 10:15 13-18 m Clear No Contact No Contact 11N 14W 30 Walk-in

From station 752 walked along upper road following Pepperwood Creek. Each time stopped for hooting was mobbed by STJA (jays). No detections.

DEJU, ACWO, STJA, TUVU, WIWR, CAQU, squirrel, SOSP.

Son0017 Big Peppe 782 0 05/07/15 Town, Pam 17:55 19:00 8-12 mp Clear No Contact No Contact 11N 14W 30 Walk-in

Walked up Pepperwood Creek broadcast calling to historic AC. After no response went back to main road along Gualala River and surveyed about 1/4 mile in bc directions from Pepperwood Creek.

No detections.

Frogs, MODO, STJA, CBCH, duck, BEKI, DEJU, SWTH.

Son0017 Big Peppe 803 0 03/08/16 Town, Pam 10:30 11:30 1-3 mph Overcast No Contact No Contact 0 Walk-in

Parked just inside gate on road next to Gualala River and broadcast called along road to Pepperwood Creek. Was very wet on road. Near Pepperwood Creek a bobcat sat in road and watched us for a fuw minutes. Periodic drizzle.

Son0017 Big Peppe 808 0 04/04/16 Town, Pam 17:10 18:40 8-12 mp Clear No Contact No Contact 0 Walk-in

Walked up Pepperwood Creek broadcast calling. Walked up to station 772 and back to river road. Walked along the river road to the north and south of Pepperw Creek. No detections.
Other species: WITU, STJA, CORA, WIWR, DEJU.

Son0017 Big Peppe 817 0 05/24/16 Town, Pam 13:45 15:45 4-7 mph Partly Clo No Contact No Contact 0 Walk-in

Walk up road past station 772 and station 774 calling in both Pepperwood and Little Pepperwood creek. Walk up to historic AC and then walk along main road a Gualala River. No detections.

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Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0085	Radke	751	0	04/10/14	Town, Pam	17:00	19:00	1-3 mph	Partly Clo	No Contact	No Contact				0		Walk-in

Walked along lower road. Had detection in the area from station 470 on 4/9/14 evening.

Walked up road to historic AC. No detection.

RWBL, DEJU, STJA, TUVU, WIWR, deer.

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0085	Radke	772	0	04/10/15	Town, Pam	18:20	19:30	<1 mph	Clear	No Contact	No Contact	10N	14W	9			Walk-in

Walked up road to historic AC and thru Apple unit. No detections.

DEJU, NOFL, TUVU, AMRO, CAQU, CORA.

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0085	Radke	783	0	05/12/15	Town, Pam	17:30	18:30	8-12 mp	Partly Clo	No Contact	No Contact				0		Walk-in

Walk up to historic AC and on lower road broadcast calling. No detections.

A silent owl flew in and then hooted a few times before flying up river. Barred owl.

Skunk, TUVU, WLWR, Barred owl.

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0085	Radke	794	0	03/02/16	Town, Pam	14:00	16:00	<1 mph	Partly Clo	No Contact	No Contact				0		Walk-in

Started walking around Station 485 and up to station 468 and around Apple unit. At 14:36 heard two barred owls across river and back toward statioin 486. Othe species frogs, RTHA, WILR and heavy equipment. Weather was 2/5/3.

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0085	Radke	813	0	05/18/16	Town, Pam	16:50	18:00	1-3 mph	Clear	No Contact	No Contact				0		Walk-in

Start just north of station 485 and walk up road toward station 468. Follow stream up toward historic AC. Very thick vegetation. No detections.

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Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T R Sec	DBH	BA	Visit Type
Son0045	Rock Low	748	0	03/10/14	Town, Pam	8:00	9:00	<1 mph	Clear	Vocal	Unknown		0		Walk-in
Walk up road near where heard owl on 3/8/14. Begging call heard once and saw owl near Rockpile Creek. Put out 1 mouse but it escaped. Owl fell asleep and le owl.															
Son0045	Rock Low	753	0	04/14/14	Town, Pam	6:30	8:15	<1 mph	Fog	No Contact	No Contact		0		Walk-in
Searched lower river road as had heard owl down here on another evening. No detections. Walked up road to upper AC. No detections. STJA, DEJU, CORA, SWTH, WIWR, NOFL, AMRO, WREN.															
Son0045	Rock Low	756	0	07/01/14	Town, Pam	7:30	7:50	4-7 mph	Clear	Inconclusive	Pair		0		Walk-in
Walk in road along Rockpile Creek and pair both responded at 07:42. One owl flew to road but I had no mice. Near historic (upstream) AC.															
Son0045	Rock Low	759	0	07/11/14	Town, Pam	7:40	9:00	1-3 mph	Partly Clo	Inconclusive	Pair		0		Walk-in
Up Rockpile Creek (which has very little water), heard both male and female respond. On South side of creek but near historic AC. Put mouse ut. Male took and Mouse #2, they watched and appeared to go to sleep, lost interest.															
Son0045	Rock Low	768	0	03/06/15	Town, Pam	16:45	17:45	<1 mph	Clear	No Contact	No Contact	11N 14W 31			Walk-in
Walk up road next to Rockpile Creek to historic ACs. Very quiet. No response.															
Son0045	Rock Low	780	0	04/16/15	Town, Pam	18:30	19:15	<1 mph	Clear	No Contact	No Contact		0		Walk-in
Walk up to historic AC hooting. No detections. BEKI, AMRO, CAQV, STJA, WIWR, YEWA.															
Son0045	Rock Low	789	0	05/14/15	Town, Pam	19:00	19:45	4-7 mph	Partly Clo	No Contact	No Contact		0		Walk-in
Walk up to historic AC broadcast calling. No detections.															
Son0045	Rock Low	804	0	03/28/16	Town, Pam	16:45	19:00	4-7 mph	Clear	Inconclusive	Male		0		Walk-in
Followed road up Rockpile Creek. Heard male on south side of Rockpile Creek, upslope. Saw male at 17:07. Male kept looking upslope and vanished with mous and mouse #3. Couldn't find after #3. Assume bringing to female but she was quiet. Map attached to walk-in report.															

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Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0094	SF Up	784	0	05/11/15	Town, Pam	17:00	18:00	8-12 mp	Clear	No Contact	No Contact				0		Walk-in

Walk from fork in road past Station 522 through station 534 broadcast calling. No detections.

CAQU, STJA, SLWR, SWTH, bear scat, CBCH, TUVU, deer.

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T	R	Sec	DBH	BA	Visit Type
Son0094	SF Up	799	0	03/06/16	Town, Pam	9:00	10:45	1-3 mph	Overcast	No Contact	No Contact				0		Walk-in

Wet and river noise (good storm on 3/3/16). Start walking at road junction before Station 522 and walk along road broadcast calling. Walk to Station 542 and bac
No response. At 10:30 sprinkles on and off. Weather 3 through 5. Other spcies: Frogs STJA DEJA TUVU Ducks AMRO

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Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente		Visit	Sta.	Date	Surveyor	Start	End	Wind	Weather	Mouse Result	Occupancy	T R Sec	DBH BA	Visit Type
Son0012	Buckeye	757	0	07/02/14	Town, Pam	7:50	8:30	4-7 mph	Fog	Inconclusive	Unknown		0	Walk-in

ACS in historic site ~ found NSO as being mobbed by STJAs. Owl was silent and have not heard owl during evening surveys. Wouldn't take mouse.

Son0012	Buckeye	776	0	04/14/15	Town, Pam	18:30	19:45	8-12 mp	Clear	No Contact	No Contact	10N 14W 5		Walk-in

Wind was calm with periodic breezes.

Start at station 428 and walk toward 430, then down to historic AC. No detections.

SOSP, MOQU, CAQU, NOFL, ACWO, DEJU, CBCH, TUVU, CORA, AMRO, kinglet, wren.

Son0012	Buckeye	785	0	05/11/15	Town, Pam	19:15	20:00	4-7 mph	Partly Clo	No Contact	No Contact		0	Walk-in

Walk from station 428 to station 430 broadcast calling. No detections.

CAQU, TUVU.

Son0012	Buckeye	815	0	05/21/16	Town, Pam	10:00	12:30	1-3 mph	Partly Clo	No Contact	No Contact		0	Walk-in

Walked to historic AC. Get light rain and then sun and clouds.

Large earless owl flew in and landed high in dense canopy redwood trees. No amount of coaxing could get better view or vocalization from owl. No possitive identification on owl but STJAs didn't like it.

Son0012	Buckeye	820	0	05/23/16	Town, Pam	16:00	19:00	1-3 mph	Clear	No Contact	No Contact		0	Walk-in

Start at station 428 and walk down road to historic AC. Followed river to near crossing. Walked back upstream and back to road and out to station 430. No respc

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Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente		*Visit*	*Sta.*	*Date*	*Surveyor*	*Start*	*End*	*Wind*	*Weather*	*Mouse*	*Result*	*Occupancy*	*T*	*R*	*Sec*	*DBH*	*BA*	*Visit Type*
Son0082	Switchville	743	0	03/05/14	Town, Pam	8:00	9:00	<1 mph	Overcast		No Contact	No Contact				0		Walk-in
Walked around historic AC and along road. No response.																		
Salamander, CBCH, AMRO, BRCR, BTPI, HUMM, CORA.																		
Son0082	Switchville	760	0	07/11/14	Town, Pam	10:11	11:15	1-3 mph	Partly Clo		No Contact	No Contact				0		Walk-in
Walked along road near AC and surrounding area. No response.																		
Son0082	Switchville	773	0	04/11/15	Town, Pam	18:00	19:00	<1 mph	Clear		No Contact	No Contact	11N	15W	26			Walk-in
Walk around historic AC broadcast calling. No response.																		
HUMM, DEJU, TUVU, NOFL, AMRO, CBCH, STJA, frogs.																		
Son0082	Switchville	819	0	05/25/16	Town, Pam	13:10	14:15	4-7 mph	Clear		No Contact	No Contact				0		Walk-in
Start near station 106 and walked along road in both directions (to gate and to corner near station 108) with no response. Walked into woods by historic AC. No response.																		

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Spotted Owl Walk-In Visit Information

As of: 01/01/14

Cente		*Visit*	*Sta.*	*Date*	*Surveyor*	*Start*	*End*	*Wind*	*Weather*	*Mouse Result*	*Occupancy*	*T*	*R*	*Sec*	*DBH*	*BA*	*Visit Type*
Son0110	ValCross	755	0	04/18/14	Town, Pam	9:00	10:30	1-3 mph	Clear	No Contact	No Contact				0		Walk-in

Started at gate and walked up toward Station 502. Cruised in both directions SONVC not contacted.
DEJU, NOFL, TUVU, CORA, STJA, YEWA, AMRO, WREN, SWTH.

Son0110	ValCross	763	0	07/09/14	Town, Pam	7:45	9:00	1-3 mph	Partly Clo	Inconclusive	Pair				0		Walk-in

Walked in lower road ~ female very vocal and flew to surveyor on road. Male hooted twice then quiet and stayed in upper canopy. Female mobbed by 8 STJA bu even when they left she was vocal but would not take a mouse.

Son0110	ValCross	774	0	04/13/15	Town, Pam	18:00	19:45	8-12 mp	Clear	Vocal	Unknown				0		Walk-in

Park at gate near AC SON0110 and start walking up road. Walk up road to historic AC SON0009 (east side). No detections.

SON0110, begging call and quiet up at historic AC at 1935 hours.
Wind was picking up so gave up.

CAQU, STJA, CORA, SOSP, TUVU, DEJU, frogs, ducks, CBCH, deer.

Son0110	ValCross	790	0	05/15/15	Town, Pam	17:00	18:00	4-7 mph	Clear	Inconclusive	Pair				0		Walk-in

Walk up Garrett driveway and out road. Broadcast calling. Heard pair vocalizing. Mouse #1 male ate. Mouse #2 and mouse #3 escape. Within historic AC.

Son0110	ValCross	795	0	03/02/16	Town, Pam	16:20	16:30	<1 mph	Partly Clo	Vocal	Pair				0		Walk-in

Stopped at gate on Annapolis Road & hooted into historic AC. Pair immediately responded.

Son0110	ValCross	814	0	05/20/16	Town, Pam	18:00	20:00	1-3 mph	Partly Clo	Inconclusive	Unknown				0		Walk-in

Silent owl flys in near historic AC. Ate mouse #1 and #3. Mouse #2 was watched for a long time and eventually muse got away. Owl silent entire time so sex unk

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Data Version Date:
06/03/2016

Report Generation Date:
6/14/2016

Report #1 - Spotted Owl Sites Found

Known Spotted Owl sites having observations within the search area.

Meridian, Township, Range, Section (MTRS) searched:

M_11N_15W Sections(23,24,25,26,27,34,35,36);

M_10N_14W Sections(04,05,06,07,08,09,10,14,15,16,17,18,20,21,22,23,26,27,28,29);

M_11N_14W Sections(19,29,30,31,32,33,34);

M_10N_15W Sections(01,02,03,12);

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	Masterowl	*Subspecies*	*LatDD NAD83*	*LonDD NAD83*	*MTRS*	*AC Coordinate Source*
	MEN0179	NORTHERN	38.789047	-123.503752	M 11N 15W 23	Contributor
	MEN0371	NORTHERN	38.809983	-123.518251	M 11N 15W 10	Contributor
	MEN0412	NORTHERN	38.783113	-123.456980	M 11N 14W 20	Contributor
	SON0009	NORTHERN	38.713479	-123.400581	M 10N 14W 15	Contributor
*	SON0012	NORTHERN	38.747254	-123.431493	M 10N 14W 04	Contributor
*	SON0017	NORTHERN	38.766541	-123.477305	M 11N 14W 30	Contributor
	SON0034	NORTHERN	38.764380	-123.430330	M 11N 14W 28	Contributor
	SON0043	NORTHERN	38.693170	-123.363431	M 10N 14W 24	Contributor
*	SON0045	NORTHERN	38.761302	-123.457819	M 11N 14W 32	Contributor
*	SON0082	NORTHERN	38.771471	-123.505195	M 11N 15W 26	Contributor
*	SON0085	NORTHERN	38.725073	-123.434696	M 10N 14W 08	Contributor
	SON0090	NORTHERN	38.760280	-123.417760	M 11N 14W 34	Contributor
*	SON0094	NORTHERN	38.680074	-123.392003	M 10N 14W 26	Contributor
*	SON0110	NORTHERN	38.700594	-123.408161	M 10N 14W 22	Activity center

* NSO within 0.7 miles of Plan area

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Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
Year 2014										
103	03/04/14	Town	<1 mph	Overcast	20:25	20:35	No Contact	No Contact	0	0
103	03/11/14	Town	4-7 mph	Clear	23:15	23:25	No Contact	No Contact	0	0
103	04/10/14	Town	<1 mph	Fog	22:05	22:15	No Contact	No Contact	0	0
103	05/09/14	Town	<1 mph	Clear	4:10	4:20	No Contact	No Contact	0	0
103	05/16/14	Town	<1 mph	Clear	2:27	2:37	No Contact	No Contact	0	0
103	06/08/14	Town	<1 mph	Clear	3:25	3:35	No Contact	No Contact	0	0
Year 2015										
103	03/02/15	Town	1-3 mph	Partly Cloud	23:00	23:10	No Contact	No Contact	0	0
103	03/09/15	Town	<1 mph	Partly Cloud	20:05	20:15	No Contact	No Contact	0	0
			Dogs							
103	04/08/15	Town	1-3 mph	Clear	0:28	0:38	No Contact	No Contact	0	0
			Frogs							
103	04/15/15	Town	<1 mph	Clear	21:28	21:38	No Contact	No Contact	0	0
103	05/06/15	Town	8-12 mph	Clear	2:04	2:14	No Contact	No Contact	0	0
103	05/14/15	Town	4-7 mph	Partly Cloud	23:15	23:25	No Contact	No Contact	0	0
Year 2016										
103	03/03/16	Town	<1 mph	Partly Cloud	23:40	23:50	No Contact	No Contact	0	0
103	03/10/16	Town	1-3 mph	Overcast	23:11	23:21	No Contact	No Contact	0	0
			Ocean noise							
103	03/28/16	Town	1-3 mph	Clear	21:59	22:09	No Contact	No Contact	0	0
103	04/04/16	Town	1-3 mph	Clear	22:14	22:24	No Contact	No Contact	0	0
103	05/17/16	Town	1-3 mph	Clear	22:29	22:39	No Contact	No Contact	0	0
103	05/24/16	Town	4-7 mph	Partly Cloud	0:19	0:29	No Contact	No Contact	0	0
Year 2014										
104	03/01/14	Town	1-3 mph	Overcast	0:37	0:47	No Contact	No Contact	0	0
104	04/09/14	Town	1-3 mph	Fog	0:57	1:07	No Contact	No Contact	0	0
104	04/17/14	Town	8-12 mph	Clear	3:00	3:10	No Contact	No Contact	0	0
104	05/12/14	Town	<1 mph	Clear	3:23	3:33	No Contact	No Contact	0	0
104	06/10/14	Town	1-3 mph	Clear	3:20	3:30	No Contact	No Contact	0	0
104	07/07/14	Town	1-3 mph	Partly Cloud	4:00	4:10	No Contact	No Contact	0	0
Year 2015										
104	03/01/15	Town	4-7 mph	Partly Cloud	0:00	0:10	No Contact	No Contact	0	0
104	03/08/15	Town	<1 mph	Clear	1:25	1:35	No Contact	No Contact	0	0
104	03/25/15	Bennett	<1 mph	Clear	0:17	0:27	No Contact	No Contact	0	0
104	04/11/15	Town	<1 mph	Clear	1:20	1:30	No Contact	No Contact	0	0
104	04/18/15	Town	8-12 mph	Clear	23:46	23:56	No Contact	No Contact	0	0
104	05/08/15	Town	4-7 mph	Clear	1:30	1:40	No Contact	No Contact	0	0
Year 2016										
104	03/07/16	Town	8-12 mph	Partly Cloud	0:15	0:25	No Contact	No Contact	0	0
104	03/26/16	Town	4-7 mph	Partly Cloud	1:45	1:55	No Contact	No Contact	0	0
104	04/02/16	Town	<1 mph	Clear	1:30	1:40	No Contact	No Contact	0	0
104	05/15/16	Town	4-7 mph	Clear	2:00	2:10	No Contact	No Contact	0	0
104	05/22/16	Town	1-3 mph	Fog	2:25	2:35	No Contact	No Contact	0	0
104	05/29/16	Town	1-3 mph	Clear	2:30	2:40	No Contact	No Contact	0	0
Year 2014										
105	03/04/14	Town	<1 mph	Overcast	20:38	20:48	No Contact	No Contact	0	0
105	03/11/14	Town	4-7 mph	Clear	23:28	23:38	No Contact	No Contact	0	0
105	04/10/14	Town	<1 mph	Fog	22:26	22:36	No Contact	No Contact	0	0
105	05/09/14	Town	<1 mph	Clear	3:55	4:05	No Contact	No Contact	0	0
105	05/16/14	Town	<1 mph	Clear	2:40	2:50	No Contact	No Contact	0	0

440.9

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
105	06/08/14	Town	<1 mph	Clear	3:40	3:50	No Contact	No Contact	0	0
Year	*2015*									
105	03/04/15	Town	<1 mph	Clear	19:05	19:15	No Contact	No Contact	0	0
105	04/09/15	Town	1-3 mph	Clear	21:53	22:03	No Contact	No Contact	0	0
105	04/16/15	Town	<1 mph	Clear	23:50	0:00	No Contact	No Contact	0	0
			Frogs.							
105	05/07/15	Town	4-7 mph	Clear	0:20	0:30	No Contact	No Contact	0	0
105	05/14/15	Town	4-7 mph	Partly Cloud	22:59	23:09	No Contact	No Contact	0	0
105	05/27/15	Bennett	<1 mph	Clear	0:20	0:30	No Contact	No Contact	0	0
Year	*2016*									
105	03/03/16	Town	<1 mph	Partly Cloud	23:26	23:36	No Contact	No Contact	0	0
105	03/11/16	Town	1-3 mph	Overcast	23:45	23:55	No Contact	No Contact	0	0
105	03/28/16	Town	1-3 mph	Clear	21:44	21:54	No Contact	No Contact	0	0
105	04/04/16	Town	1-3 mph	Clear	22:00	22:10	No Contact	No Contact	0	0
105	05/17/16	Town	1-3 mph	Clear	22:14	22:24	No Contact	No Contact	0	0
			Campers							
105	05/24/16	Town	4-7 mph	Partly Cloud	0:39	0:49	No Contact	No Contact	0	0
Year	*2014*									
106	03/01/14	Town	1-3 mph	Overcast	23:57	0:07	No Contact	No Contact	0	0
106	04/09/14	Town	1-3 mph	Fog	0:14	0:24	No Contact	No Contact	0	0
106	04/17/14	Town	8-12 mph	Clear	1:25	1:35	No Contact	No Contact	0	0
106	05/12/14	Town	<1 mph	Clear	1:49	1:59	No Contact	No Contact	0	0
106	06/10/14	Town	1-3 mph	Clear	2:50	3:00	No Contact	No Contact	0	0
106	07/07/14	Town	1-3 mph	Partly Cloud	3:05	3:15	No Contact	No Contact	0	0
Year	*2015*									
106	03/01/15	Town	4-7 mph	Partly Cloud	23:25	23:35	No Contact	No Contact	0	0
106	03/08/15	Town	<1 mph	Clear	1:06	1:16	No Contact	No Contact	0	0
106	03/25/15	Bennett	<1 mph	Clear	21:08	21:18	No Contact	No Contact	0	0
106	04/11/15	Town	<1 mph	Clear	0:56	1:06	No Contact	No Contact	0	0
106	04/18/15	Town	8-12 mph	Clear	23:23	23:33	No Contact	No Contact	0	0
106	05/08/15	Town	4-7 mph	Clear	23:30	23:40	No Contact	No Contact	0	0
Year	*2016*									
106	03/07/16	Town	8-12 mph	Partly Cloud	22:30	22:40	No Contact	No Contact	0	0
106	03/26/16	Town	4-7 mph	Partly Cloud	0:57	1:07	No Contact	No Contact	0	0
106	04/02/16	Town	<1 mph	Clear	19:45	19:55	No Contact	No Contact	0	0
106	05/15/16	Town	4-7 mph	Clear	1:10	1:20	No Contact	No Contact	0	0
106	05/22/16	Town	1-3 mph	Fog	1:37	1:47	No Contact	No Contact	0	0
106	05/29/16	Town	1-3 mph	Clear	2:07	2:17	No Contact	No Contact	0	0
Year	*2014*									
108	03/01/14	Town	1-3 mph	Overcast	23:35	23:45	No Contact	No Contact	0	0
108	03/20/14	Bennett	<1 mph	Clear	21:46	21:56	No Contact	No Contact	0	0
108	04/01/14	Bennett	<1 mph	Overcast	21:33	21:43	No Contact	No Contact	0	0
108	04/09/14	Town	1-3 mph	Fog	23:44	23:54	No Contact	No Contact	0	0
108	04/17/14	Town	8-12 mph	Clear	1:10	1:20	No Contact	No Contact	0	0
108	05/12/14	Town	<1 mph	Clear	1:34	1:44	No Contact	No Contact	0	0
			GHOW (same pair as station 785).							
108	07/07/14	Town	1-3 mph	Partly Cloud	2:47	2:57	No Contact	No Contact	0	0
Year	*2015*									
108	03/01/15	Town	4-7 mph	Partly Cloud	23:12	23:22	No Contact	No Contact	0	0
108	03/08/15	Town	<1 mph	Clear	0:50	1:00	No Contact	No Contact	0	0
			WSOW							
108	03/25/15	Bennett	<1 mph	Clear	21:21	21:31	No Contact	No Contact	0	0
108	04/11/15	Town	<1 mph	Clear	0:39	0:49	No Contact	No Contact	0	0
108	04/18/15	Town	8-12 mph	Clear	23:08	23:18	No Contact	No Contact	0	0
108	05/08/15	Town	4-7 mph	Clear	23:16	23:26	No Contact	No Contact	0	0
Year	*2016*									

PART OF PLAN

440.10

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
108	03/07/16	Town	8-12 mph	Partly Cloud	22:15	22:25	No Contact	No Contact	0	0
108	03/26/16	Town	4-7 mph	Partly Cloud	0:36	0:46	No Contact	No Contact	0	0
108	04/02/16	Town	<1 mph	Clear	19:59	20:09	No Contact	No Contact	0	0
108	05/15/16	Town	4-7 mph	Clear	0:51	1:01	No Contact	No Contact	0	0
108	05/22/16	Town	1-3 mph	Fog	1:20	1:30	No Contact	No Contact	0	0
108	05/29/16	Town	1-3 mph	Clear	1:36	1:46	No Contact	No Contact	0	0
Year 2014										
110	03/01/14	Town	1-3 mph	Overcast	0:15	0:25	No Contact	No Contact	0	0
110	04/09/14	Town	1-3 mph	Fog	0:35	0:45	No Contact	No Contact	0	0
110	04/17/14	Town	8-12 mph	Clear	1:50	2:00	No Contact	No Contact	0	0
110	05/12/14	Town	<1 mph	Clear	2:20	2:30	No Contact	No Contact	0	0
110	06/10/14	Town	1-3 mph	Clear	1:20	1:30	No Contact	No Contact	0	0
110	07/07/14	Town	1-3 mph	Partly Cloud	3:35	3:45	No Contact	No Contact	0	0
Year 2015										
110	03/01/15	Town	4-7 mph	Partly Cloud	23:40	23:50	No Contact	No Contact	0	0
110	03/08/15	Town	<1 mph	Clear	23:26	23:36	No Contact	No Contact	0	0
110	03/25/15	Bennett	<1 mph	Clear	0:00	0:10	No Contact	No Contact	0	0
110	04/11/15	Town	<1 mph	Clear	23:06	23:16	No Contact	No Contact	0	0
110	04/18/15	Town	8-12 mph	Clear	0:09	0:19	No Contact	No Contact	0	0
110	05/08/15	Town	4-7 mph	Clear	0:46	0:56	No Contact	No Contact	0	0
Year 2016										
110	03/07/16	Town	8-12 mph	Partly Cloud	23:05	23:15	No Contact	No Contact	0	0
110	03/26/16	Town	4-7 mph	Partly Cloud	1:30	1:40	No Contact	No Contact	0	0
110	04/02/16	Town	<1 mph	Clear	1:07	1:17	No Contact	No Contact	0	0
110	05/15/16	Town	4-7 mph	Clear	1:35	1:45	No Contact	No Contact	0	0
110	05/22/16	Town	1-3 mph	Fog	2:05	2:15	No Contact	No Contact	0	0
110	05/29/16	Town	1-3 mph	Clear	1:15	1:25	No Contact	No Contact	0	0
Year 2014										
112	03/01/14	Town	1-3 mph	Overcast	1:07	1:17	No Contact	No Contact	0	0
112	04/09/14	Town	1-3 mph	Fog	1:24	1:34	No Contact	No Contact	0	0
112	04/17/14	Town	8-12 mph	Clear	2:25	2:35	No Contact	No Contact	0	0
112	05/12/14	Town	<1 mph	Clear	2:55	3:05	No Contact	No Contact	0	0
112	06/10/14	Town	1-3 mph	Clear	0:59	1:09	No Contact	No Contact	0	0
112	07/07/14	Town	1-3 mph	Partly Cloud	4:25	4:35	No Contact	No Contact	0	0
Year 2015										
112	03/01/15	Town	4-7 mph	Partly Cloud	21:45	21:55	No Contact	No Contact	0	0
112	03/08/15	Town	<1 mph	Clear	23:09	23:19	No Contact	No Contact	0	0
112	04/11/15	Town	<1 mph	Clear	22:40	22:50	No Contact	No Contact	0	0
112	04/18/15	Town	8-12 mph	Clear	0:36	0:46	No Contact	No Contact	0	0
112	05/08/15	Town	4-7 mph	Clear	1:09	1:19	No Contact	No Contact	0	0
112	05/15/15	Town	1-3 mph	Clear	22:00	22:10	No Contact	No Contact	0	0
Year 2016										
112	03/07/16	Town	8-12 mph	Partly Cloud	23:39	23:49	No Contact	No Contact	0	0
112	03/26/16	Town	4-7 mph	Partly Cloud	2:40	2:50	No Contact	No Contact	0	0
112	04/02/16	Town	<1 mph	Clear	2:00	2:10	No Contact	No Contact	0	0
112	05/15/16	Town	4-7 mph	Clear	23:23	23:33	No Contact	No Contact	0	0
112	05/22/16	Town	1-3 mph	Fog	23:40	23:50	No Contact	No Contact	0	0
112	05/29/16	Town	1-3 mph	Clear	2:45	2:55	No Contact	No Contact	0	0
Year 2014										
114	03/01/14	Town	1-3 mph	Overcast	20:29	20:39	No Contact	No Contact	0	0
114	04/09/14	Town	1-3 mph	Fog	1:45	1:55	No Contact	No Contact	0	0
114	04/17/14	Town	8-12 mph	Clear	2:08	2:18	No Contact	No Contact	0	0
114	05/12/14	Town	<1 mph	Clear	2:36	2:46	No Contact	No Contact	0	0
114	06/10/14	Town	1-3 mph	Clear	0:45	0:55	No Contact	No Contact	0	0
114	07/07/14	Town	1-3 mph	Partly Cloud	1:55	2:05	No Contact	No Contact	0	0
Year 2015										

PART OF PLAN

440. 11

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
114	03/01/15	Town	4-7 mph	Partly Cloud	21:28	21:38	No Contact	No Contact	0	0
114	03/08/15	Town	<1 mph	Clear	22:54	23:04	No Contact	No Contact	0	0
114	03/25/15	Bennett	<1 mph	Clear	23:46	23:56	No Contact	No Contact	0	0
114	04/11/15	Town	<1 mph	Clear	22:24	22:34	No Contact	No Contact	0	0
114	04/18/15	Town	8-12 mph	Clear	0:23	0:33	No Contact	No Contact	0	0
114	05/08/15	Town	4-7 mph	Clear	0:25	0:35	No Contact	No Contact	0	0
Year 2016										
114	03/07/16	Town	8-12 mph	Partly Cloud	23:24	23:34	No Contact	No Contact	0	0
114	03/26/16	Town	4-7 mph	Partly Cloud	23:06	23:16	No Contact	No Contact	0	0
114	04/02/16	Town	<1 mph	Clear	21:40	21:50	No Contact	No Contact	0	0
114	05/15/16	Town	4-7 mph	Clear	23:10	23:20	No Contact	No Contact	0	0
114	05/22/16	Town	1-3 mph	Fog	23:27	23:37	No Contact	No Contact	0	0
114	05/29/16	Town	1-3 mph	Clear	1:00	1:10	No Contact	No Contact	0	0
Year 2014										
118	03/01/14	Town	1-3 mph	Overcast	20:12	20:22	No Contact	No Contact	0	0
118	04/09/14	Town	1-3 mph	Fog	22:26	22:36	No Contact	No Contact	0	0
118	04/17/14	Town	8-12 mph	Clear	23:39	23:49	No Contact	No Contact	0	0
118	05/11/14	Town	<1 mph	Clear	22:48	22:58	No Contact	No Contact	0	0
118	06/10/14	Town	1-3 mph	Clear	0:28	0:38	No Contact	No Contact	0	0
118	07/07/14	Town	1-3 mph	Partly Cloud	1:40	1:50	No Contact	No Contact	0	0
Year 2015										
118	03/01/15	Town	4-7 mph	Partly Cloud	21:13	21:23	No Contact	No Contact	0	0
			WSOW							
118	03/08/15	Town	<1 mph	Clear	22:40	22:50	No Contact	No Contact	0	0
118	03/25/15	Bennett	<1 mph	Clear	23:32	23:42	No Contact	No Contact	0	0
118	04/11/15	Town	<1 mph	Clear	22:09	22:19	No Contact	No Contact	0	0
118	04/18/15	Town	8-12 mph	Clear	21:53	22:03	No Contact	No Contact	0	0
118	05/08/15	Town	4-7 mph	Clear	0:09	0:19	No Contact	No Contact	0	0
			SWOW							
Year 2016										
118	03/07/16	Town	8-12 mph	Partly Cloud	20:46	20:56	No Contact	No Contact	0	0
118	03/26/16	Town	4-7 mph	Partly Cloud	22:47	22:57	No Contact	No Contact	0	0
118	04/02/16	Town	<1 mph	Clear	21:27	21:37	No Contact	No Contact	0	0
118	05/15/16	Town	4-7 mph	Clear	22:55	23:05	No Contact	No Contact	0	0
118	05/22/16	Town	1-3 mph	Fog	23:13	23:23	No Contact	No Contact	0	0
118	05/29/16	Town	1-3 mph	Clear	0:43	0:53	No Contact	No Contact	0	0
Year 2014										
120	03/01/14	Town	1-3 mph	Overcast	22:50	23:00	No Contact	No Contact	0	0
			Mist							
120	04/09/14	Town	1-3 mph	Fog	22:59	23:09	No Contact	No Contact	0	0
120	04/17/14	Town	8-12 mph	Clear	0:15	0:25	No Contact	No Contact	0	0
120	05/12/14	Town	<1 mph	Clear	0:50	1:00	No Contact	No Contact	0	0
120	06/10/14	Town	1-3 mph	Clear	2:09	2:19	No Contact	No Contact	0	0
			GHOW (same as from station 130).							
120	07/07/14	Town	1-3 mph	Partly Cloud	1:23	1:33	No Contact	No Contact	0	0
Year 2015										
120	03/01/15	Town	4-7 mph	Partly Cloud	22:30	22:40	No Contact	No Contact	0	0
			GHOW							
120	03/08/15	Town	<1 mph	Clear	0:04	0:14	No Contact	No Contact	0	0
			GHOW							
120	03/25/15	Bennett	<1 mph	Clear	22:02	22:12	No Contact	No Contact	0	0
120	04/11/15	Town	<1 mph	Clear	23:53	0:03	No Contact	No Contact	0	0
			GHOW, same as at station 130.							
120	04/18/15	Town	8-12 mph	Clear	22:27	22:37	No Contact	No Contact	0	0
			GHOW pair.Same as station 130.							

PART OF PLAN

440.12

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
120	05/08/15	Town	4-7 mph	Clear	22:28	22:38	No Contact	No Contact	0	0
			GHOW same owl as station 130.							
Year 2016										
120	03/07/16	Town	8-12 mph	Partly Cloud	21:24	21:34	No Contact	No Contact	0	0
			GHOW							
120	03/26/16	Town	4-7 mph	Partly Cloud	23:45	23:55	No Contact	No Contact	0	0
			GHOW							
120	04/02/16	Town	<1 mph	Clear	21:03	21:13	No Contact	No Contact	0	0
120	05/15/16	Town	4-7 mph	Clear	0:06	0:16	No Contact	No Contact	0	0
			Skunk							
120	05/22/16	Town	1-3 mph	Fog	0:31	0:41	No Contact	No Contact	0	0
			GHOW							
120	05/29/16	Town	1-3 mph	Clear	0:09	0:19	No Contact	No Contact	0	0
			GHOW							
Year 2014										
128	03/01/14	Town	1-3 mph	Overcast	19:35	19:45	No Contact	No Contact	0	0
128	04/09/14	Town	1-3 mph	Fog	21:56	22:06	No Contact	No Contact	0	0
128	04/17/14	Town	8-12 mph	Clear	23:10	23:20	No Contact	No Contact	0	0
128	05/11/14	Town	<1 mph	Clear	22:17	22:27	No Contact	No Contact	0	0
128	06/09/14	Town	1-3 mph	Clear	23:50	0:00	No Contact	No Contact	0	0
128	07/06/14	Town	1-3 mph	Partly Cloud	21:34	21:44	No Contact	No Contact	0	0
Year 2015										
128	03/01/15	Town	4-7 mph	Partly Cloud	20:45	20:55	No Contact	No Contact	0	0
128	03/08/15	Town	<1 mph	Clear	22:15	22:25	No Contact	No Contact	0	0
128	03/25/15	Bennett	<1 mph	Clear	23:04	23:14	No Contact	No Contact	0	0
128	04/11/15	Town	<1 mph	Clear	21:39	21:49	No Contact	No Contact	0	0
			WSOW							
128	04/18/15	Town	8-12 mph	Clear	21:34	21:44	No Contact	No Contact	0	0
128	05/08/15	Town	4-7 mph	Clear	21:49	21:59	No Contact	No Contact	0	0
Year 2016										
128	03/07/16	Town	8-12 mph	Partly Cloud	20:15	20:25	No Contact	No Contact	0	0
128	03/26/16	Town	4-7 mph	Partly Cloud	22:14	22:24	No Contact	No Contact	0	0
128	04/02/16	Town	<1 mph	Clear	22:13	22:23	No Contact	No Contact	0	0
128	05/15/16	Town	4-7 mph	Clear	22:24	22:34	No Contact	No Contact	0	0
128	05/22/16	Town	1-3 mph	Fog	22:45	22:55	No Contact	No Contact	0	0
128	05/29/16	Town	1-3 mph	Clear	23:14	23:24	No Contact	No Contact	0	0
			Fox							
Year 2014										
130	03/01/14	Town	1-3 mph	Overcast	22:36	22:46	No Contact	No Contact	0	0
130	04/09/14	Town	1-3 mph	Fog	22:45	22:55	3-4 note Call	Male	1,300	45
			SON0045 by the river.							
130	04/17/14	Town	8-12 mph	Clear	0:00	0:10	No Contact	No Contact	0	0
130	05/11/14	Town	<1 mph	Clear	23:10	23:20	No Contact	No Contact	0	0
130	06/10/14	Town	1-3 mph	Clear	1:48	1:58	No Contact	No Contact	0	0
			GHOW							
130	07/07/14	Town	1-3 mph	Partly Cloud	1:08	1:18	No Contact	No Contact	0	0
Year 2015										
130	03/01/15	Town	4-7 mph	Partly Cloud	22:17	22:27	No Contact	No Contact	0	0
			GHOW							
130	03/08/15	Town	<1 mph	Clear	23:50	0:00	No Contact	No Contact	0	0
			GHOW							
130	03/25/15	Bennett	<1 mph	Clear	22:17	22:27	No Contact	No Contact	0	0
130	04/11/15	Town	<1 mph	Clear	23:40	23:50	No Contact	No Contact	0	0
			GHOW							
130	04/18/15	Town	8-12 mph	Clear	22:14	22:24	No Contact	No Contact	0	0
			GHOW pair.							

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
130	05/08/15	Town	4-7 mph	Clear	22:15	22:25	No Contact	No Contact	0	0
			GHOW							
Year 2016										
130	03/07/16	Town	8-12 mph	Partly Cloud	21:07	21:17	No Contact	No Contact	0	0
			Bobcat							
130	03/26/16	Town	4-7 mph	Partly Cloud	23:27	23:37	No Contact	No Contact	0	0
130	04/02/16	Town	<1 mph	Clear	0:40	0:50	No Contact	No Contact	0	0
130	05/15/16	Town	4-7 mph	Clear	23:50	0:00	No Contact	No Contact	0	0
			SWOW							
130	05/22/16	Town	1-3 mph	Fog	0:08	0:25	3-4 note Call	Unknown	2,500	45
			SON045. Owl far away across river up Rockpile Creek.							
130	05/29/16	Town	1-3 mph	Clear	23:51	0:01	No Contact	No Contact	0	0
Year 2014										
402	03/07/14	Town	1-3 mph	Clear	20:09	20:19	No Contact	No Contact	0	0
402	04/12/14	Town	<1 mph	Overcast	22:27	22:37	No Contact	No Contact	0	0
402	04/19/14	Town	1-3 mph	Partly Cloud	22:23	22:33	No Contact	No Contact	0	0
402	05/12/14	Town	<1 mph	Clear	22:25	22:35	No Contact	No Contact	0	0
402	06/10/14	Town	4-7 mph	Clear	21:30	21:40	No Contact	No Contact	0	0
402	07/05/14	Town	1-3 mph	Clear	21:20	21:30	No Contact	No Contact	0	0
Year 2015										
402	03/05/15	Town	<1 mph	Clear	19:07	19:17	No Contact	No Contact	0	0
402	04/07/15	Town	4-7 mph	Overcast	21:53	22:03	No Contact	No Contact	0	0
402	04/14/15	Town	8-12 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
			SWOW							
402	05/04/15	Town	4-7 mph	Partly Cloud	21:10	21:20	No Contact	No Contact	0	0
402	05/11/15	Town	1-3 mph	Partly Cloud	23:06	23:16	No Contact	No Contact	0	0
402	05/18/15	Town			0:45	0:55	No Contact	No Contact	0	0
Year 2016										
402	03/04/16	Town	4-7 mph	Overcast	18:49	18:59	No Contact	No Contact	0	0
402	03/25/16	Town	1-3 mph	Partly Cloud	20:21	20:31	No Contact	No Contact	0	0
402	04/01/16	Town	<1 mph	Clear	20:45	20:55	No Contact	No Contact	0	0
Year 2014										
408	03/07/14	Town	1-3 mph	Clear	18:57	19:07	No Contact	No Contact	0	0
408	04/12/14	Town	<1 mph	Overcast	20:55	21:05	No Contact	No Contact	0	0
408	04/19/14	Town	1-3 mph	Partly Cloud	21:00	21:10	No Contact	No Contact	0	0
408	05/12/14	Town	<1 mph	Clear	20:30	20:40	No Contact	No Contact	0	0
408	06/10/14	Town	4-7 mph	Clear	22:21	22:31	No Contact	No Contact	0	0
408	07/05/14	Town	1-3 mph	Clear	22:10	22:20	No Contact	No Contact	0	0
Year 2015										
408	03/05/15	Town	<1 mph	Clear	20:05	20:15	No Contact	No Contact	0	0
408	04/07/15	Town	4-7 mph	Overcast	20:45	20:55	No Contact	No Contact	0	0
408	04/14/15	Town	8-12 mph	Clear	23:39	23:49	No Contact	No Contact	0	0
408	05/04/15	Town	4-7 mph	Partly Cloud	22:08	22:18	No Contact	No Contact	0	0
408	05/11/15	Town	1-3 mph	Partly Cloud	0:00	0:10	No Contact	No Contact	0	0
408	05/18/15	Town			1:40	1:50	No Contact	No Contact	0	0
Year 2014										
410	03/07/14	Town	1-3 mph	Clear	19:41	19:51	No Contact	No Contact	0	0
410	04/12/14	Town	<1 mph	Overcast	21:56	22:06	No Contact	No Contact	0	0
410	04/19/14	Town	1-3 mph	Partly Cloud	21:49	21:59	No Contact	No Contact	0	0
410	05/12/14	Town	<1 mph	Clear	21:52	22:02	No Contact	No Contact	0	0
410	06/10/14	Town	4-7 mph	Clear	22:05	22:15	No Contact	No Contact	0	0
410	07/05/14	Town	1-3 mph	Clear	21:54	22:04	No Contact	No Contact	0	0
Year 2015										
410	03/05/15	Town	<1 mph	Clear	19:47	19:57	No Contact	No Contact	0	0
410	04/07/15	Town	4-7 mph	Overcast	21:06	21:16	No Contact	No Contact	0	0

PART OF PLAN

440.14

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
410	04/14/15	Town	8-12 mph	Clear	23:25	23:35	No Contact	No Contact	0	0
			WOOW							
410	05/04/15	Town	4-7 mph	Partly Cloud	21:54	22:04	No Contact	No Contact	0	0
410	05/11/15	Town	1-3 mph	Partly Cloud	23:47	23:57	No Contact	No Contact	0	0
410	05/18/15	Town			1:24	1:34	No Contact	No Contact	0	0
Year	*2016*									
410	03/04/16	Town	4-7 mph	Overcast	19:22	19:32	No Contact	No Contact	0	0
410	03/25/16	Town	1-3 mph	Partly Cloud	20:54	21:04	No Contact	No Contact	0	0
410	04/01/16	Town	<1 mph	Clear	21:17	21:27	No Contact	No Contact	0	0
Year	*2014*									
412	03/07/14	Town	1-3 mph	Clear	19:55	20:05	No Contact	No Contact	0	0
412	04/12/14	Town	<1 mph	Overcast	22:13	22:23	No Contact	No Contact	0	0
412	04/19/14	Town	1-3 mph	Partly Cloud	22:05	22:15	No Contact	No Contact	0	0
412	05/12/14	Town	<1 mph	Clear	22:08	22:18	No Contact	No Contact	0	0
412	06/10/14	Town	4-7 mph	Clear	21:47	21:57	No Contact	No Contact	0	0
412	07/05/14	Town	1-3 mph	Clear	21:36	21:46	No Contact	No Contact	0	0
Year	*2015*									
412	03/05/15	Town	<1 mph	Clear	19:33	19:43	No Contact	No Contact	0	0
412	04/07/15	Town	4-7 mph	Overcast	21:22	21:32	No Contact	No Contact	0	0
412	04/14/15	Town	8-12 mph	Clear	23:12	23:22	No Contact	No Contact	0	0
412	05/04/15	Town	4-7 mph	Partly Cloud	21:37	21:47	No Contact	No Contact	0	0
412	05/11/15	Town	1-3 mph	Partly Cloud	23:33	23:43	No Contact	No Contact	0	0
412	05/18/15	Town			1:10	1:20	No Contact	No Contact	0	0
Year	*2016*									
412	03/04/16	Town	4-7 mph	Overcast	19:07	19:17	No Contact	No Contact	0	0
412	03/25/16	Town	1-3 mph	Partly Cloud	20:36	20:46	No Contact	No Contact	0	0
412	04/01/16	Town	<1 mph	Clear	21:03	21:13	No Contact	No Contact	0	0
			WSOW							
Year	*2014*									
414	03/07/14	Town	1-3 mph	Clear	20:39	20:49	No Contact	No Contact	0	0
414	04/12/14	Town	<1 mph	Overcast	22:50	23:00	No Contact	No Contact	0	0
414	04/19/14	Town	1-3 mph	Partly Cloud	22:40	22:50	No Contact	No Contact	0	0
414	05/12/14	Town	<1 mph	Clear	22:43	22:53	No Contact	No Contact	0	0
414	06/10/14	Town	4-7 mph	Clear	21:13	21:23	No Contact	No Contact	0	0
414	07/05/14	Town	1-3 mph	Clear	21:04	21:14	No Contact	No Contact	0	0
Year	*2015*									
414	03/05/15	Town	<1 mph	Clear	18:54	19:04	No Contact	No Contact	0	0
414	04/07/15	Town	4-7 mph	Overcast	22:10	22:20	No Contact	No Contact	0	0
			Frogs							
414	04/14/15	Town	8-12 mph	Clear	22:33	22:43	No Contact	No Contact	0	0
414	05/04/15	Town	4-7 mph	Partly Cloud	20:51	21:01	No Contact	No Contact	0	0
414	05/11/15	Town	1-3 mph	Partly Cloud	22:50	23:00	No Contact	No Contact	0	0
414	05/18/15	Town			0:31	0:41	No Contact	No Contact	0	0
Year	*2016*									
414	03/04/16	Town	4-7 mph	Overcast	18:34	18:44	No Contact	No Contact	0	0
414	03/25/16	Town	1-3 mph	Partly Cloud	20:06	20:16	No Contact	No Contact	0	0
414	04/01/16	Town	<1 mph	Clear	20:29	20:39	No Contact	No Contact	0	0
Year	*2014*									
420	03/07/14	Town	1-3 mph	Clear	18:40	18:50	No Contact	No Contact	0	0
420	04/12/14	Town	<1 mph	Overcast	19:45	19:55	No Contact	No Contact	0	0
420	04/19/14	Town	1-3 mph	Partly Cloud	20:00	20:10	No Contact	No Contact	0	0
420	05/12/14	Town	<1 mph	Clear	20:15	20:25	No Contact	No Contact	0	0
420	06/10/14	Town	4-7 mph	Clear	0:06	0:16	No Contact	No Contact	0	0
420	07/05/14	Town	1-3 mph	Clear	23:27	23:37	No Contact	No Contact	0	0
Year	*2015*									
420	03/05/15	Town	<1 mph	Clear	21:00	21:10	No Contact	No Contact	0	0

PART OF PLAN

440.15

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
420	03/18/15	Bennett	<1 mph	Clear	20:48	20:58	No Contact.	No Contact	0	0
420	03/26/15	Bennett	<1 mph	Clear	21:16	21:26	No Contact	No Contact	0	0
420	04/07/15	Town	4-7 mph	Overcast	19:45	19:55	No Contact	No Contact	0	0
			Frogs							
420	04/14/15	Town	8-12 mph	Clear	0:27	0:37	No Contact	No Contact	0	0
420	05/04/15	Town	4-7 mph	Partly Cloud	22:26	22:36	No Contact	No Contact	0	0
			WSOW							
420	05/11/15	Town	1-3 mph	Partly Cloud	0:45	0:55	No Contact	No Contact	0	0
Year 2016										
420	03/04/16	Town	4-7 mph	Overcast	19:46	19:56	No Contact	No Contact	0	0
420	03/25/16	Town	1-3 mph	Partly Cloud	21:36	21:46	No Contact	No Contact	0	0
420	04/01/16	Town	<1 mph	Clear	22:40	22:50	No Contact	No Contact	0	0
420	04/08/16	Town	4-7 mph	Overcast	19:50	20:00	No Contact	No Contact	0	0
420	05/18/16	Town	1-3 mph	Clear	20:20	20:30	No Contact	No Contact	0	0
420	05/25/16	Town	1-3 mph	Partly Cloud	20:25	20:35	No Contact	No Contact	0	0
Year 2014										
422	03/07/14	Town	1-3 mph	Clear	18:24	18:34	No Contact	No Contact	0	0
422	04/12/14	Town	<1 mph	Overcast	20:07	20:17	No Contact	No Contact	0	0
422	04/19/14	Town	1-3 mph	Partly Cloud	20:20	20:30	No Contact	No Contact	0	0
422	05/12/14	Town	<1 mph	Clear	20:47	20:57	No Contact	No Contact	0	0
422	06/10/14	Town	4-7 mph	Clear	23:24	23:34	No Contact	No Contact	0	0
422	07/05/14	Town	1-3 mph	Clear	22:53	23:03	No Contact	No Contact	0	0
Year 2015										
422	03/05/15	Town	<1 mph	Clear	20:26	20:36	No Contact	No Contact	0	0
422	04/07/15	Town	4-7 mph	Overcast	20:04	20:14	No Contact	No Contact	0	0
			Frogs							
422	04/14/15	Town	8-12 mph	Clear	23:54	0:04	No Contact	No Contact	0	0
422	05/04/15	Town	4-7 mph	Partly Cloud	22:45	22:55	No Contact	No Contact	0	0
422	05/11/15	Town	1-3 mph	Partly Cloud	0:16	0:26	No Contact	No Contact	0	0
422	05/18/15	Town			1:54	2:04	No Contact	No Contact	0	0
Year 2016										
422	03/04/16	Town	4-7 mph	Overcast	20:01	20:11	No Contact	No Contact	0	0
422	03/25/16	Town	1-3 mph	Partly Cloud	21:55	22:05	No Contact	No Contact	0	0
422	04/01/16	Town	<1 mph	Clear	22:00	22:10	No Contact	No Contact	0	0
			swow							
422	04/08/16	Town	4-7 mph	Overcast	20:07	20:17	No Contact	No Contact	0	0
422	05/18/16	Town	1-3 mph	Clear	20:37	20:47	No Contact	No Contact	0	0
422	05/25/16	Town	1-3 mph	Partly Cloud	20:43	20:53	No Contact	No Contact	0	0
Year 2014										
424	03/07/14	Town	1-3 mph	Clear	18:10	18:20	No Contact	No Contact	0	0
424	04/12/14	Town	<1 mph	Overcast	20:24	20:34	No Contact	No Contact	0	0
424	04/19/14	Town	1-3 mph	Partly Cloud	20:38	20:48	No Contact	No Contact	0	0
424	05/12/14	Town	<1 mph	Clear	20:59	21:09	No Contact	No Contact	0	0
424	06/10/14	Town	4-7 mph	Clear	23:40	23:50	No Contact	No Contact	0	0
424	07/05/14	Town	1-3 mph	Clear	23:08	23:18	No Contact	No Contact	0	0
Year 2015										
424	03/05/15	Town	<1 mph	Clear	20:43	20:53	No Contact	No Contact	0	0
424	04/07/15	Town	4-7 mph	Overcast	20:19	20:29	No Contact	No Contact	0	0
424	04/14/15	Town	8-12 mph	Clear	0:09	0:19	No Contact	No Contact	0	0
424	05/04/15	Town	4-7 mph	Partly Cloud	22:59	23:09	No Contact	No Contact	0	0
424	05/11/15	Town	1-3 mph	Partly Cloud	0:30	0:40	No Contact	No Contact	0	0
424	05/18/15	Town			2:08	2:18	No Contact	No Contact	0	0
Year 2016										
424	03/04/16	Town	4-7 mph	Overcast	20:14	20:24	No Contact	No Contact	0	0
424	03/25/16	Town	1-3 mph	Partly Cloud	22:15	22:25	No Contact	No Contact	0	0
424	04/01/16	Town	<1 mph	Clear	22:13	22:23	No Contact	No Contact	0	0

PART OF PLAN

440.16

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
424	04/08/16	Town	4-7 mph	Overcast	20:24	20:34	No Contact	No Contact	0	0
424	05/18/16	Town	1-3 mph	Clear	20:55	21:05	No Contact	No Contact	0	0
424	05/25/16	Town	1-3 mph	Partly Cloud	20:58	21:08	No Contact	No Contact	0	0
Year	*2014*									
428	03/07/14	Town	1-3 mph	Clear	23:04	23:14	No Contact	No Contact	0	0
428	04/11/14	Town	<1 mph	Fog	19:59	20:09	No Contact	No Contact	0	0
428	04/18/14	Town	<1 mph	Clear	20:18	20:28	No Contact	No Contact	0	0
428	05/13/14	Town	1-3 mph	Clear	1:46	2:00	No Contact	No Contact	0	0
428	05/13/14	Town	1-3 mph	Clear	2:21	2:31	No Contact	No Contact	0	0
428	06/09/14	Town	<1 mph	Clear	3:30	3:40	No Contact	No Contact	0	0
428	07/02/14	Town	1-3 mph	Fog	2:51	3:01	No Contact	No Contact	0	0
Year	*2015*									
428	03/05/15	Town	<1 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
428	04/07/15	Town	4-7 mph	Overcast	0:56	1:06	No Contact	No Contact	0	0
			Frogs							
428	04/14/15	Town	8-12 mph	Clear	19:49	20:00	No Contact	No Contact	0	0
428	05/04/15	Town	4-7 mph	Partly Cloud	0:44	0:54	No Contact	No Contact	0	0
428	05/11/15	Town	1-3 mph	Partly Cloud	20:24	20:34	No Contact	No Contact	0	0
			WSOW							
428	05/18/15	Town			3:47	3:57	No Contact	No Contact	0	0
Year	*2016*									
428	03/04/16	Town	4-7 mph	Overcast	21:50	22:00	No Contact	No Contact	0	0
			Sprinkling							
428	03/25/16	Town	1-3 mph	Partly Cloud	1:09	1:19	No Contact	No Contact	0	0
428	04/01/16	Town	<1 mph	Clear	0:15	0:25	No Contact	No Contact	0	0
Year	*2014*									
430	03/07/14	Town	1-3 mph	Clear	23:21	23:31	No Contact	No Contact	0	0
430	04/11/14	Town	<1 mph	Fog	19:45	19:55	No Contact	No Contact	0	0
430	04/18/14	Town	<1 mph	Clear	20:00	20:10	No Contact	No Contact	0	0
430	05/13/14	Town	1-3 mph	Clear	2:07	2:17	No Contact	No Contact	0	0
430	06/09/14	Town	<1 mph	Clear	3:48	3:58	No Contact	No Contact	0	0
430	07/02/14	Town	1-3 mph	Fog	2:35	2:45	No Contact	No Contact	0	0
Year	*2015*									
430	03/05/15	Town	<1 mph	Clear	22:56	23:15	No Contact	No Contact	0	0
430	04/07/15	Town	4-7 mph	Overcast	1:10	1:30	No Contact	No Contact	0	0
			Walk down road							
430	04/14/15	Town	8-12 mph	Clear	19:35	19:45	No Contact	No Contact	0	0
			ACS one hour before this survey.							
430	05/04/15	Town	4-7 mph	Partly Cloud	0:56	1:06	No Contact	No Contact	0	0
430	05/11/15	Town	1-3 mph	Partly Cloud	20:10	20:20	No Contact	No Contact	0	0
430	05/18/15	Town			4:04	4:14	No Contact	No Contact	0	0
Year	*2016*									
430	03/04/16	Town	4-7 mph	Overcast	22:07	22:17	No Contact	No Contact	0	0
			Rain and wind increasing ended survey							
430	03/25/16	Town	1-3 mph	Partly Cloud	1:26	1:36	No Contact	No Contact	0	0
430	04/01/16	Town	<1 mph	Clear	0:30	0:40	No Contact	No Contact	0	0
Year	*2014*									
432	03/07/14	Town	1-3 mph	Clear	20:54	21:04	No Contact	No Contact	0	0
432	04/12/14	Town	<1 mph	Overcast	23:04	23:14	No Contact	No Contact	0	0
432	04/19/14	Town	1-3 mph	Partly Cloud	22:55	23:05	No Contact	No Contact	0	0
432	05/12/14	Town	<1 mph	Clear	22:59	23:09	No Contact	No Contact	0	0
432	06/10/14	Town	4-7 mph	Clear	20:59	21:09	No Contact	No Contact	0	0
432	07/05/14	Town	1-3 mph	Clear	20:49	21:00	No Contact	No Contact	0	0
Year	*2015*									
432	03/05/15	Town	<1 mph	Clear	18:26	18:36	No Contact	No Contact	0	0
			WSOW							

PART OF PLAN

440.17

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
432	04/07/15	Town	4-7 mph	Overcast	22:24	22:34	No Contact	No Contact	0	0
432	04/14/15	Town	8-12 mph	Clear	22:19	22:29	No Contact	No Contact	0	0
432	05/04/15	Town	4-7 mph	Partly Cloud	20:36	20:46	No Contact	No Contact	0	0
432	05/11/15	Town	1-3 mph	Partly Cloud	22:34	22:44	No Contact	No Contact	0	0
432	05/18/15	Town			0:18	0:28	No Contact	No Contact	0	0
Year 2016										
432	03/04/16	Town	4-7 mph SWOW	Overcast	18:20	18:30	No Contact	No Contact	0	0
432	03/25/16	Town	1-3 mph	Partly Cloud	19:50	20:00	No Contact	No Contact	0	0
432	04/01/16	Town	<1 mph	Clear	20:15	20:25	No Contact	No Contact	0	0
Year 2014										
444	03/01/14	Town	1-3 mph	Overcast	19:18	19:28	No Contact	No Contact	0	0
444	04/09/14	Town	1-3 mph	Fog	20:59	21:09	No Contact	No Contact	0	0
444	04/17/14	Town	8-12 mph	Clear	22:56	23:06	No Contact	No Contact	0	0
444	05/11/14	Town	<1 mph	Clear	22:04	22:14	No Contact	No Contact	0	0
444	06/09/14	Town	1-3 mph	Clear	21:56	22:06	No Contact	No Contact	0	0
444	07/06/14	Town	1-3 mph	Partly Cloud	22:37	22:47	No Contact	No Contact	0	0
Year 2015										
444	03/01/15	Town	4-7 mph	Partly Cloud	19:21	19:31	No Contact	No Contact	0	0
444	03/08/15	Town	<1 mph	Clear	20:30	20:40	No Contact	No Contact	0	0
444	03/25/15	Bennett	<1 mph	Clear	22:50	23:00	No Contact	No Contact	0	0
444	04/11/15	Town	<1 mph	Clear	21:09	21:19	No Contact	No Contact	0	0
444	04/18/15	Town	8-12 mph	Clear	21:20	21:30	No Contact	No Contact	0	0
444	05/08/15	Town	4-7 mph	Clear	21:30	21:40	No Contact	No Contact	0	0
Year 2016										
444	03/07/16	Town	8-12 mph	Partly Cloud	19:56	20:06	No Contact	No Contact	0	0
444	03/26/16	Town	4-7 mph	Partly Cloud	22:00	22:10	No Contact	No Contact	0	0
444	04/02/16	Town	<1 mph	Clear	22:29	22:39	No Contact	No Contact	0	0
444	05/15/16	Town	4-7 mph	Clear	21:36	21:46	No Contact	No Contact	0	0
444	05/22/16	Town	1-3 mph	Fog	22:16	22:26	No Contact	No Contact	0	0
444	05/29/16	Town	1-3 mph	Clear	22:44	22:54	No Contact	No Contact	0	0
Year 2014										
446	03/01/14	Town	1-3 mph GHOW	Overcast	22:15	22:25	No Contact	No Contact	0	0
446	04/09/14	Town	1-3 mph	Fog	20:44	20:54	No Contact	No Contact	0	0
446	04/17/14	Town	8-12 mph	Clear	20:38	20:48	No Contact	No Contact	0	0
446	05/11/14	Town	<1 mph	Clear	23:24	23:34	No Contact	No Contact	0	0
446	06/09/14	Town	1-3 mph	Clear	22:13	22:23	No Contact	No Contact	0	0
446	07/06/14	Town	1-3 mph	Partly Cloud	23:30	23:40	No Contact	No Contact	0	0
Year 2015										
446	03/01/15	Town	4-7 mph	Partly Cloud	19:07	19:17	No Contact	No Contact	0	0
446	03/08/15	Town	<1 mph	Clear	20:13	20:23	No Contact	No Contact	0	0
446	03/25/15	Bennett	<1 mph	Clear	22:36	22:46	No Contact	No Contact	0	0
446	04/11/15	Town	<1 mph	Clear	20:54	21:04	No Contact	No Contact	0	0
446	04/18/15	Town	8-12 mph	Clear	19:50	20:00	No Contact	No Contact	0	0
446	05/08/15	Town	4-7 mph	Clear	21:15	21:25	No Contact	No Contact	0	0
Year 2016										
446	03/07/16	Town	8-12 mph	Partly Cloud	19:14	19:24	No Contact	No Contact	0	0
446	03/26/16	Town	4-7 mph	Partly Cloud	21:09	21:19	No Contact	No Contact	0	0
446	04/02/16	Town	<1 mph	Clear	22:43	22:53	No Contact	No Contact	0	0
446	05/15/16	Town	4-7 mph	Clear	21:15	21:25	No Contact	No Contact	0	0
446	05/22/16	Town	1-3 mph	Fog	22:00	22:10	No Contact	No Contact	0	0
446	05/29/16	Town	1-3 mph	Clear	22:30	22:40	No Contact	No Contact	0	0
Year 2014										
448	03/06/14	Town	1-3 mph	Clear	18:23	18:33	No Contact	No Contact	0	0
448	04/13/14	Town	1-3 mph	Partly Cloud	19:45	19:55	No Contact	No Contact	0	0

440.18

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
448	05/10/14	Town	<1 mph	Clear	4:35	4:45	No Contact	No Contact	0	0
448	05/17/14	Town	1-3 mph	Clear	4:00	4:10	No Contact	No Contact	0	0
448	06/05/14	Town	<1 mph	Clear	4:44	4:54	No Contact	No Contact	0	0
448	07/02/14	Town	1-3 mph	Fog	4:35	4:45	No Contact	No Contact	0	0
Year 2015										
448	03/03/15	Town	<1 mph	Clear	20:34	20:44	No Contact	No Contact	0	0
448	04/10/15	Town	<1 mph	Clear	23:20	23:30	No Contact	No Contact	0	0
448	04/17/15	Town	<1 mph	Clear	23:21	23:31	No Contact	No Contact	0	0
448	05/05/15	Town	8-12 mph	Clear	0:14	0:24	No Contact	No Contact	0	0
448	05/12/15	Town	<1 mph	Partly Cloud	22:33	22:43	No Contact	No Contact	0	0
448	05/28/15	Bennett	<1 mph	Fog	20:46	20:56	No Contact	No Contact	0	0
Year 2016										
448	03/02/16	Town	<1 mph	Overcast	18:18	18:28	No Contact	No Contact	0	0
448	03/11/16	Town	1-3 mph	Overcast	18:36	18:46	No Contact	No Contact	0	0
448	03/29/16	Town	<1 mph	Clear	23:07	23:17	No Contact	No Contact	0	0
448	04/07/16	Town	4-7 mph	Partly Cloud	23:29	23:39	No Contact	No Contact	0	0
448	05/18/16	Town	1-3 mph	Clear	21:20	21:30	No Contact	No Contact	0	0
448	05/25/16	Town	1-3 mph	Partly Cloud	21:40	21:50	No Contact	No Contact	0	0
Year 2014										
452	03/06/14	Town	1-3 mph	Clear	18:08	18:18	No Contact	No Contact	0	0
452	04/11/14	Town	<1 mph	Fog	21:04	21:14	No Contact	No Contact	0	0
452	05/10/14	Town	<1 mph	Clear	4:15	4:25	No Contact	No Contact	0	0
452	05/17/14	Town	1-3 mph	Clear	4:15	4:25	No Contact	No Contact	0	0
452	06/05/14	Town	<1 mph	Clear	4:28	4:38	No Contact	No Contact	0	0
452	07/02/14	Town	1-3 mph	Fog	3:55	4:05	No Contact	No Contact	0	0
Year 2015										
452	03/03/15	Town	<1 mph	Clear	20:49	20:59	No Contact	No Contact	0	0
452	04/10/15	Town	<1 mph	Clear	23:35	23:45	No Contact	No Contact	0	0
452	04/17/15	Town	<1 mph	Clear	23:37	23:47	No Contact	No Contact	0	0
452	05/05/15	Town	8-12 mph	Clear	0:30	0:40	No Contact	No Contact	0	0
452	05/12/15	Town	<1 mph	Partly Cloud	22:50	23:00	No Contact	No Contact	0	0
452	05/28/15	Bennett	<1 mph	Fog	21:05	21:15	No Contact	No Contact	0	0
Year 2016										
452	03/02/16	Town	<1 mph	Overcast	18:00	18:15	No Contact	No Contact	0	0
452	03/11/16	Town	1-3 mph	Overcast	18:20	18:30	No Contact	No Contact	0	0
452	03/29/16	Town	<1 mph	Clear	23:25	23:35	No Contact	No Contact	0	0
452	04/07/16	Town	4-7 mph	Partly Cloud	21:09	21:19	No Contact	No Contact	0	0
452	05/18/16	Town	1-3 mph	Clear	21:36	21:46	No Contact	No Contact	0	0
452	05/25/16	Town	1-3 mph	Partly Cloud	21:24	21:34	No Contact	No Contact	0	0
Year 2014										
454	03/07/14	Town	1-3 mph	Clear	22:49	22:59	No Contact	No Contact	0	0
454	04/11/14	Town	<1 mph	Fog	20:15	20:25	No Contact	No Contact	0	0
454	04/18/14	Town	<1 mph	Clear	20:35	20:45	No Contact	No Contact	0	0
454	05/13/14	Town	1-3 mph	Clear	1:30	1:40	No Contact	No Contact	0	0
454	06/09/14	Town	<1 mph	Clear	3:14	3:24	No Contact	No Contact	0	0
454	07/02/14	Town	1-3 mph	Fog	3:05	3:15	No Contact	No Contact	0	0
Year 2015										
454	03/05/15	Town	<1 mph	Clear	23:26	23:36	No Contact	No Contact	0	0
454	04/07/15	Town	4-7 mph	Overcast	0:40	0:50	No Contact	No Contact	0	0
			Frogs							
454	04/14/15	Town	8-12 mph	Clear	20:04	20:14	No Contact	No Contact	0	0
454	05/04/15	Town	4-7 mph	Partly Cloud	0:30	0:40	No Contact	No Contact	0	0
454	05/11/15	Town	1-3 mph	Partly Cloud	20:39	20:49	No Contact	No Contact	0	0
454	05/18/15	Town			3:34	3:44	No Contact	No Contact	0	0
Year 2014										
456	03/07/14	Town	1-3 mph	Clear	22:35	22:45	No Contact	No Contact	0	0

PART OF PLAN

440.19

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
456	04/11/14	Town	<1 mph	Fog	20:30	20:40	No Contact	No Contact	0	0
456	04/18/14	Town	<1 mph	Clear	20:50	21:00	No Contact	No Contact	0	0
456	05/13/14	Town	1-3 mph	Clear	1:15	1:25	No Contact	No Contact	0	0
456	06/09/14	Town	<1 mph	Clear	2:59	3:09	No Contact	No Contact	0	0
456	07/02/14	Town	1-3 mph	Fog	3:20	3:30	No Contact	No Contact	0	0
Year 2015										
456	03/05/15	Town	<1 mph	Clear	23:41	23:51	No Contact	No Contact	0	0
456	04/07/15	Town	4-7 mph	Overcast	0:25	0:35	No Contact	No Contact	0	0
			Frogs							
456	04/14/15	Town	8-12 mph	Clear	20:18	20:28	No Contact	No Contact	0	0
456	05/04/15	Town	4-7 mph	Partly Cloud	0:15	0:25	No Contact	No Contact	0	0
456	05/11/15	Town	1-3 mph	Partly Cloud	20:54	21:04	No Contact	No Contact	0	0
456	05/18/15	Town			3:20	3:30	No Contact	No Contact	0	0
Year 2014										
458	03/01/14	Town	1-3 mph	Overcast	21:59	22:09	No Contact	No Contact	0	0
458	04/09/14	Town	1-3 mph	Fog	20:27	20:37	No Contact	No Contact	0	0
458	04/17/14	Town	8-12 mph	Clear	20:19	20:29	No Contact	No Contact	0	0
458	05/15/14	Town	<1 mph	Clear	4:20	4:30	No Contact	No Contact	0	0
458	06/09/14	Town	1-3 mph	Clear	22:27	22:37	No Contact	No Contact	0	0
458	07/06/14	Town	1-3 mph	Partly Cloud	23:14	23:24	No Contact	No Contact	0	0
Year 2015										
458	03/01/15	Town	4-7 mph	Partly Cloud	18:49	18:59	No Contact	No Contact	0	0
458	03/08/15	Town	<1 mph	Clear	20:00	20:10	No Contact	No Contact	0	0
458	04/11/15	Town	<1 mph	Clear	20:39	20:49	No Contact	No Contact	0	0
			Barred owl on Sea Ranch.							
458	04/18/15	Town	8-12 mph	Clear	20:03	20:13	No Contact	No Contact	0	0
458	05/08/15	Town	4-7 mph	Clear	20:58	21:08	No Contact	No Contact	0	0
			Raccoon							
458	05/15/15	Town	1-3 mph	Clear	21:14	21:24	No Contact	No Contact	0	0
Year 2016										
458	03/07/16	Town	8-12 mph	Partly Cloud	18:59	19:09	No Contact	No Contact	0	0
458	03/26/16	Town	4-7 mph	Partly Cloud	20:51	21:01	No Contact	No Contact	0	0
458	04/02/16	Town	<1 mph	Clear	23:47	23:57	No Contact	No Contact	0	0
458	05/15/16	Town	4-7 mph	Clear	21:00	21:10	No Contact	No Contact	0	0
458	05/22/16	Town	1-3 mph	Fog	21:21	21:31	No Contact	No Contact	0	0
458	05/29/16	Town	1-3 mph	Clear	21:59	22:09	No Contact	No Contact	0	0
Year 2014										
460	03/01/14	Town	1-3 mph	Overcast	21:44	21:54	No Contact	No Contact	0	0
460	04/09/14	Town	1-3 mph	Fog	20:14	20:24	No Contact	No Contact	0	0
460	04/17/14	Town	8-12 mph	Clear	20:05	20:15	No Contact	No Contact	0	0
460	05/11/14	Town	<1 mph	Clear	23:40	23:50	No Contact	No Contact	0	0
			SWOW							
460	06/09/14	Town	1-3 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
460	07/07/14	Town	1-3 mph	Partly Cloud	0:00	0:10	No Contact	No Contact	0	0
Year 2015										
460	03/01/15	Town	4-7 mph	Partly Cloud	18:35	18:45	No Contact	No Contact	0	0
460	03/08/15	Town	<1 mph	Clear	19:45	19:55	No Contact	No Contact	0	0
			WSOW							
460	04/11/15	Town	<1 mph	Clear	20:17	20:27	No Contact	No Contact	0	0
460	04/18/15	Town	8-12 mph	Clear	20:20	20:30	No Contact	No Contact	0	0
460	05/08/15	Town	4-7 mph	Clear	20:39	20:49	No Contact	No Contact	0	0
460	05/15/15	Town	1-3 mph	Clear	21:00	21:10	No Contact	No Contact	0	0
Year 2016										
460	03/07/16	Town	8-12 mph	Partly Cloud	18:43	18:53	No Contact	No Contact	0	0
460	03/26/16	Town	4-7 mph	Partly Cloud	20:30	20:40	No Contact	No Contact	0	0
460	04/02/16	Town	<1 mph	Clear	23:00	23:10	No Contact	No Contact	0	0

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
460	05/15/16	Town	4-7 mph	Clear	20:46	20:56	No Contact	No Contact	0	0
460	05/22/16	Town	1-3 mph	Fog	21:00	21:10	No Contact	No Contact	0	0
460	05/29/16	Town	1-3 mph	Clear	21:44	21:54	No Contact	No Contact	0	0
Year 2014										
462	03/06/14	Town	1-3 mph	Clear	18:36	18:46	No Contact	No Contact	0	0
462	04/13/14	Town	1-3 mph	Partly Cloud	19:59	20:09	No Contact	No Contact	0	0
462	05/10/14	Town	<1 mph	Clear	3:55	4:05	No Contact	No Contact	0	0
462	05/17/14	Town	1-3 mph	Clear	3:45	3:55	No Contact	No Contact	0	0
462	06/05/14	Town	<1 mph	Clear	4:10	4:20	No Contact	No Contact	0	0
462	07/02/14	Town	1-3 mph	Fog	4:20	4:30	No Contact	No Contact	0	0
Year 2015										
462	03/03/15	Town	<1 mph	Clear	20:20	20:30	No Contact	No Contact	0	0
462	04/10/15	Town	<1 mph	Clear	23:07	23:17	No Contact	No Contact	0	0
462	04/17/15	Town	<1 mph	Clear	23:08	23:18	No Contact	No Contact	0	0
462	05/05/15	Town	8-12 mph	Clear	23:56	0:06	No Contact	No Contact	0	0
462	05/12/15	Town	<1 mph	Partly Cloud	22:17	22:27	No Contact	No Contact	0	0
462	05/28/15	Bennett	<1 mph	Fog	21:25	21:35	No Contact	No Contact	0	0
Year 2016										
462	03/02/16	Town	<1 mph	Overcast	18:32	18:42	No Contact	No Contact	0	0
462	03/11/16	Town	1-3 mph	Overcast	18:50	19:00	No Contact	No Contact	0	0
462	03/29/16	Town	<1 mph	Clear	22:53	23:03	No Contact	No Contact	0	0
462	04/07/16	Town	4-7 mph	Partly Cloud	23:14	23:24	No Contact	No Contact	0	0
462	05/18/16	Town	1-3 mph	Clear	21:55	22:05	No Contact	No Contact	0	0
462	05/25/16	Town	1-3 mph	Partly Cloud	21:54	22:04	No Contact	No Contact	0	0
Year 2014										
466	03/01/14	Town	1-3 mph	Overcast	21:25	21:35	No Contact	No Contact	0	0
466	04/09/14	Town	1-3 mph	Fog	20:00	20:10	No Contact	No Contact	0	0
466	04/17/14	Town	8-12 mph	Clear	19:50	20:00	No Contact	No Contact	0	0
466	05/12/14	Town	<1 mph	Clear	23:54	0:04	No Contact	No Contact	0	0
466	06/09/14	Town	1-3 mph	Clear	22:58	23:08	No Contact	No Contact	0	0
466	07/07/14	Town	1-3 mph	Partly Cloud	0:14	0:24	No Contact	No Contact	0	0
Year 2015										
466	03/01/15	Town	4-7 mph	Partly Cloud	18:18	18:28	No Contact	No Contact	0	0
466	03/08/15	Town	<1 mph	Clear	19:29	19:39	No Contact	No Contact	0	0
466	04/11/15	Town	<1 mph	Clear	20:04	20:14	No Contact	No Contact	0	0
466	04/18/15	Town	8-12 mph	Clear	20:36	20:46	No Contact	No Contact	0	0
			WSOW.							
466	05/08/15	Town	4-7 mph	Clear	20:24	20:34	No Contact	No Contact	0	0
466	05/15/15	Town	1-3 mph	Clear	20:44	20:54	No Contact	No Contact	0	0
Year 2016										
466	03/07/16	Town	8-12 mph	Partly Cloud	18:25	18:35	No Contact	No Contact	0	0
466	03/26/16	Town	4-7 mph	Partly Cloud	20:14	20:24	No Contact	No Contact	0	0
466	04/02/16	Town	<1 mph	Clear	23:13	23:23	No Contact	No Contact	0	0
466	05/15/16	Town	4-7 mph	Clear	20:29	20:39	No Contact	No Contact	0	0
466	05/22/16	Town	1-3 mph	Fog	20:44	20:54	No Contact	No Contact	0	0
466	05/29/16	Town	1-3 mph	Clear	21:26	21:36	No Contact	No Contact	0	0
			WSOW							
Year 2014										
468	03/06/14	Town	1-3 mph	Clear	18:50	19:00	No Contact	No Contact	0	0
468	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
468	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							

440.21

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
468	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
468	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
468	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
Year	*2015*									
468	03/03/15	Town	<1 mph	Clear	20:04	20:14	No Contact	No Contact	0	0
468	04/10/15	Town	<1 mph	Clear	22:54	23:04	No Contact	No Contact	0	0
468	04/17/15	Town	<1 mph	Clear	22:55	23:05	No Contact	No Contact	0	0
468	05/05/15	Town	8-12 mph	Clear	23:35	23:45	No Contact	No Contact	0	0
468	05/12/15	Town	<1 mph	Partly Cloud	22:03	22:13	No Contact	No Contact	0	0
			WSOW							
468	05/28/15	Bennett	<1 mph	Fog	21:38	21:48	No Contact	No Contact	0	0
Year	*2016*									
468	03/02/16	Town	<1 mph	Overcast	18:45	18:55	No Contact	No Contact	0	0
			On lower road							
468	03/11/16	Town	1-3 mph	Overcast	19:06	19:16	No Contact	No Contact	0	0
468	03/29/16	Town	<1 mph	Clear	22:37	22:47	No Contact	No Contact	0	0
			WSOW.							
468	04/07/16	Town	4-7 mph	Partly Cloud	23:00	23:10	No Contact	No Contact	0	0
468	05/18/16	Town	1-3 mph	Clear	22:10	22:20	No Contact	No Contact	0	0
468	05/25/16	Town	1-3 mph	Partly Cloud	22:09	22:19	No Contact	No Contact	0	0
Year	*2014*									
470	03/01/14	Town	1-3 mph	Overcast	21:07	21:17	No Contact	No Contact	0	0
470	04/09/14	Town	1-3 mph	Fog	19:45	19:55	3-4 note Call	Unknown	1,400	90
			SON0085 across the river.							
470	04/17/14	Town	8-12 mph	Clear			Skipped Station	No Contact	0	0
			Skip. This station picks up SON0085.							
470	05/12/14	Town	<1 mph	Clear	0:09	0:19	No Contact	No Contact	0	0
470	06/09/14	Town	1-3 mph	Clear	23:15	23:25	No Contact	No Contact	0	0
470	07/07/14	Town	1-3 mph	Partly Cloud	0:30	0:40	No Contact	No Contact	0	0
Year	*2015*									
470	03/01/15	Town	4-7 mph	Partly Cloud	18:05	18:15	No Contact	No Contact	0	0
470	03/08/15	Town	<1 mph	Clear	19:15	19:25	No Contact	No Contact	0	0
470	04/11/15	Town	<1 mph	Clear	19:50	20:00	No Contact	No Contact	0	0
470	04/18/15	Town	8-12 mph	Clear	20:50	21:00	No Contact	No Contact	0	0
470	05/08/15	Town	4-7 mph	Clear	20:10	20:20	No Contact	No Contact	0	0
470	05/15/15	Town	1-3 mph	Clear	20:30	20:40	No Contact	No Contact	0	0
Year	*2016*									
470	03/07/16	Town	8-12 mph	Partly Cloud	18:10	18:20	No Contact	No Contact	0	0
470	03/26/16	Town	4-7 mph	Partly Cloud	20:00	20:10	No Contact	No Contact	0	0
470	04/02/16	Town	<1 mph	Clear	23:26	23:36	No Contact	No Contact	0	0
470	05/15/16	Town	4-7 mph	Clear	20:15	20:25	No Contact	No Contact	0	0
470	05/22/16	Town	1-3 mph	Fog	20:30	20:40	No Contact	No Contact	0	0
470	05/29/16	Town	1-3 mph	Clear	21:10	21:20	No Contact	No Contact	0	0
Year	*2014*									
472	03/06/14	Town	1-3 mph	Clear	20:38	20:48	No Contact	No Contact	0	0
472	04/13/14	Town	1-3 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skipped station. SON0085 contacted on 4/9/14							
472	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							

440.22

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
472	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
472	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
472	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
Year	*2015*									
472	03/03/15	Town	<1 mph	Clear	22:04	22:14	No Contact	No Contact	0	0
472	04/10/15	Town	<1 mph	Clear	21:40	21:50	No Contact	No Contact	0	0
472	04/17/15	Town	<1 mph	Clear	21:37	21:47	No Contact	No Contact	0	0
472	05/05/15	Town	8-12 mph	Clear	22:09	22:19	No Contact	No Contact	0	0
472	05/12/15	Town	<1 mph	Partly Cloud	20:10	20:20	No Contact	No Contact	0	0
472	05/28/15	Bennett	<1 mph	Fog	23:00	23:10	No Contact	No Contact	0	0
Year	*2016*									
472	03/02/16	Town	<1 mph	Overcast	20:52	21:02	No Contact	No Contact	0	0
			Periodic sprinkles							
472	03/11/16	Town	1-3 mph	Overcast	21:09	21:19	No Contact	Unknown	1,500	350
			SON085? Heard a NSO like noise toward historic AC at 21:10 but silence after. Could no follow up in next 48 hours due to rain and wind.							
472	03/29/16	Town	<1 mph	Clear	21:20	21:30	No Contact	No Contact	0	0
472	04/07/16	Town	4-7 mph	Partly Cloud	21:40	21:50	No Contact	No Contact	0	0
472	05/18/16	Town	1-3 mph	Clear	23:30	23:40	No Contact	No Contact	0	0
472	05/25/16	Town	1-3 mph	Partly Cloud	23:34	23:44	No Contact	No Contact	0	0
Year	*2014*									
478	03/06/14	Town	1-3 mph	Clear	19:03	19:13	No Contact	No Contact	0	0
478	04/13/14	Town	1-3 mph	Partly Cloud	20:20	20:30	No Contact	No Contact	0	0
478	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
478	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
478	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
478	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0085 was contacted during evening survey 4/9/14.							
Year	*2015*									
478	03/03/15	Town	<1 mph	Clear	19:48	19:58	No Contact	No Contact	0	0
478	04/10/15	Town	<1 mph	Clear	22:40	22:50	No Contact	No Contact	0	0
478	04/17/15	Town	<1 mph	Clear	22:40	22:50	No Contact	No Contact	0	0
478	05/05/15	Town	8-12 mph	Clear	23:18	23:28	No Contact	No Contact	0	0
478	05/12/15	Town	<1 mph	Partly Cloud	21:49	21:59	No Contact	No Contact	0	0
			One barred owl. Same as stations 485 and 486.							
478	05/28/15	Bennett	<1 mph	Fog	21:53	22:03	No Contact	No Contact	0	0
Year	*2016*									
478	03/02/16	Town	<1 mph	Overcast	19:03	19:13	No Contact	No Contact	0	0
478	03/11/16	Town	1-3 mph	Overcast	19:24	19:34	No Contact	No Contact	0	0
478	03/29/16	Town	<1 mph	Clear	22:22	22:32	No Contact	No Contact	0	0
478	04/07/16	Town	4-7 mph	Partly Cloud	22:43	22:53	No Contact	No Contact	0	0
478	05/18/16	Town	1-3 mph	Clear	22:24	22:34	No Contact	No Contact	0	0
478	05/25/16	Town	1-3 mph	Partly Cloud	22:22	22:32	No Contact	No Contact	0	0
Year	*2014*									
480	03/06/14	Town	1-3 mph	Clear	20:25	20:35	No Contact	No Contact	0	0

PART OF PLAN

440.23

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
480	04/13/14	Town	1-3 mph	Partly Cloud	22:00	22:10	No Contact	No Contact	0	0
480	05/10/14	Town	<1 mph	Clear	2:21	2:31	No Contact	No Contact	0	0
480	05/17/14	Town	1-3 mph	Clear	2:00	2:10	No Contact	No Contact	0	0
480	06/05/14	Town	<1 mph	Clear	2:45	2:55	No Contact	No Contact	0	0
480	07/03/14	Town	4-7 mph	Clear	2:20	2:30	No Contact	No Contact	0	0
Year	*2015*									
480	03/03/15	Town	<1 mph	Clear	21:51	22:01	No Contact	No Contact	0	0
480	04/10/15	Town	<1 mph	Clear	21:24	21:34	No Contact	No Contact	0	0
480	04/17/15	Town	<1 mph	Clear	21:22	21:32	No Contact	No Contact	0	0
480	05/05/15	Town	8-12 mph	Clear	21:55	22:05	No Contact	No Contact	0	0
480	05/12/15	Town	<1 mph	Partly Cloud	20:24	20:34	No Contact	No Contact	0	0
480	05/28/15	Bennett	<1 mph	Fog	23:21	23:31	No Contact	No Contact	0	0
Year	*2016*									
480	03/02/16	Town	<1 mph	Overcast	20:38	20:48	No Contact	No Contact	0	0
480	03/11/16	Town	1-3 mph	Overcast	20:55	21:05	No Contact	No Contact	0	0
480	03/29/16	Town	<1 mph	Clear	21:04	21:14	No Contact	No Contact	0	0
480	04/07/16	Town	4-7 mph	Partly Cloud	21:25	21:35	No Contact	No Contact	0	0
480	05/18/16	Town	1-3 mph	Clear	23:15	23:25	No Contact	No Contact	0	0
480	05/25/16	Town	1-3 mph	Partly Cloud	23:20	23:30	No Contact	No Contact	0	0
Year	*2014*									
485	03/06/14	Town	1-3 mph	Clear	19:15	19:25	No Contact	No Contact	0	0
485	04/13/14	Town	1-3 mph	Partly Cloud	20:33	20:43	No Contact	No Contact	0	0
485	05/10/14	Town	<1 mph	Clear	3:35	3:45	No Contact	No Contact	0	0
			Saw-Whet owl.							
485	05/17/14	Town	1-3 mph	Clear	3:18	3:28	No Contact	No Contact	0	0
485	06/05/14	Town	<1 mph	Clear	3:55	4:05	No Contact	No Contact	0	0
485	07/03/14	Town	4-7 mph	Clear	3:40	3:50	No Contact	No Contact	0	0
Year	*2015*									
485	03/03/15	Town	<1 mph	Clear	19:36	19:46	No Contact	No Contact	0	0
485	04/10/15	Town	<1 mph	Clear	22:27	22:37	No Contact	No Contact	0	0
485	04/17/15	Town	<1 mph	Clear	22:27	22:37	No Contact	No Contact	0	0
485	05/05/15	Town	8-12 mph	Clear	23:05	23:15	No Contact	No Contact	0	0
485	05/12/15	Town	<1 mph	Partly Cloud	21:36	21:46	No Contact	No Contact	0	0
			Pair of barred owls. Same as station 486.							
485	05/28/15	Bennett	<1 mph	Fog	22:07	22:17	No Contact	No Contact	0	0
Year	*2016*									
485	03/02/16	Town	<1 mph	Overcast	19:16	19:26	No Contact	No Contact	0	0
			Pair barred owls							
485	03/11/16	Town	1-3 mph	Overcast	19:38	19:48	No Contact	No Contact	0	0
485	03/29/16	Town	<1 mph	Clear	22:10	22:20	No Contact	No Contact	0	0
			Barred owl pair.							
485	04/07/16	Town	4-7 mph	Partly Cloud	22:28	22:38	No Contact	No Contact	0	0
			Barred Owl pair							
485	05/18/16	Town	1-3 mph	Clear	22:37	22:47	No Contact	No Contact	0	0
485	05/25/16	Town	1-3 mph	Partly Cloud	22:35	22:45	No Contact	No Contact	0	0
Year	*2014*									
486	03/06/14	Town	1-3 mph	Clear	19:28	19:38	No Contact	No Contact	0	0
486	04/13/14	Town	1-3 mph	Partly Cloud	20:49	20:59	No Contact	No Contact	0	0
486	05/10/14	Town	<1 mph	Clear	3:23	3:33	No Contact	No Contact	0	0
			Saw-Whet owl.							
486	05/17/14	Town	1-3 mph	Clear	3:05	3:15	No Contact	No Contact	0	0
			SWOW							
486	06/05/14	Town	<1 mph	Clear	3:43	3:53	No Contact	No Contact	0	0
486	07/03/14	Town	4-7 mph	Clear	3:27	3:37	No Contact	No Contact	0	0
Year	*2015*									
486	03/03/15	Town	<1 mph	Clear	19:24	19:34	No Contact	No Contact	0	0

PART OF PLAN

440.24

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
486	04/10/15	Town	<1 mph	Clear	22:14	22:24	No Contact	No Contact	0	0
486	04/17/15	Town	<1 mph	Clear	22:14	22:24	No Contact	No Contact	0	0
486	05/05/15	Town	8-12 mph	Clear	22:53	23:03	No Contact	No Contact	0	0
486	05/12/15	Town	<1 mph	Partly Cloud	21:23	21:33	No Contact	No Contact	0	0
			Pair of barred owls.							
486	05/28/15	Bennett	<1 mph	Fog	22:21	22:31	No Contact	No Contact	0	0
Year 2016										
486	03/02/16	Town	<1 mph	Overcast	19:40	19:50	No Contact	No Contact	0	0
			Same barred owls							
486	03/11/16	Town	1-3 mph	Overcast	19:52	20:02	No Contact	No Contact	0	0
			Barred owls, pair							
486	03/29/16	Town	<1 mph	Clear	21:56	22:06	No Contact	No Contact	0	0
			Barred owl pair.							
486	04/07/16	Town	4-7 mph	Partly Cloud	22:15	22:25	No Contact	No Contact	0	0
			Barred Owl pair							
486	05/18/16	Town	1-3 mph	Clear	22:50	23:00	No Contact	No Contact	0	0
			Barred Owl.							
486	05/25/16	Town	1-3 mph	Partly Cloud	22:50	23:00	No Contact	No Contact	0	0
			Barred owl.							
Year 2014										
488	03/06/14	Town	1-3 mph	Clear	20:11	20:21	No Contact	No Contact	0	0
488	04/13/14	Town	1-3 mph	Partly Cloud	21:45	21:55	No Contact	No Contact	0	0
488	05/10/14	Town	<1 mph	Clear	2:35	2:45	No Contact	No Contact	0	0
488	05/17/14	Town	1-3 mph	Clear	2:16	2:26	No Contact	No Contact	0	0
488	06/05/14	Town	<1 mph	Clear	3:02	3:12	No Contact	No Contact	0	0
488	07/03/14	Town	4-7 mph	Clear	2:40	2:50	No Contact	No Contact	0	0
Year 2015										
488	03/03/15	Town	<1 mph	Clear	21:38	21:48	No Contact	No Contact	0	0
488	04/10/15	Town	<1 mph	Clear	21:09	21:19	No Contact	No Contact	0	0
488	04/17/15	Town	<1 mph	Clear	21:09	21:19	No Contact	No Contact	0	0
488	05/05/15	Town	8-12 mph	Clear	21:39	21:49	No Contact	No Contact	0	0
488	05/12/15	Town	<1 mph	Partly Cloud	20:39	20:49	No Contact	No Contact	0	0
488	05/28/15	Bennett	<1 mph	Fog	23:35	23:45	No Contact	No Contact	0	0
Year 2016										
488	03/02/16	Town	<1 mph	Overcast	20:25	20:35	No Contact	No Contact	0	0
488	03/11/16	Town	1-3 mph	Overcast	20:41	20:51	No Contact	No Contact	0	0
488	03/29/16	Town	<1 mph	Clear	20:49	20:59	No Contact	No Contact	0	0
Year 2014										
492	03/06/14	Town	1-3 mph	Clear	22:48	22:58	No Contact	No Contact	0	0
492	04/11/14	Town	<1 mph	Fog	22:34	22:44	No Contact	No Contact	0	0
492	04/18/14	Town	<1 mph	Clear	22:55	23:05	No Contact	No Contact	0	0
492	05/11/14	Town	<1 mph	Clear	3:06	3:16	No Contact	No Contact	0	0
492	05/18/14	Town	1-3 mph	Partly Cloud	4:28	4:38	No Contact	No Contact	0	0
492	06/06/14	Town	4-7 mph	Clear	4:05	4:15	No Contact	No Contact	0	0
Year 2015										
492	03/03/15	Town	<1 mph	Clear	23:10	23:20	No Contact	No Contact	0	0
492	04/10/15	Town	<1 mph	Clear	0:15	0:25	No Contact	No Contact	0	0
492	04/17/15	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Within 0.25 mile of SON0009.							
492	05/05/15	Town	8-12 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. Would hear SON0009 detected at station 498							
492	05/12/15	Town	<1 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile SON0009.							
492	05/28/15	Bennett	<1 mph	Fog			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0009.							

Year 2014

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
494	03/06/14	Town	1-3 mph	Clear	19:43	19:53	No Contact	No Contact	0	0
494	04/13/14	Town	1-3 mph	Partly Cloud	21:06	21:16	No Contact	No Contact	0	0
494	05/10/14	Town	<1 mph	Clear	3:10	3:20	No Contact	No Contact	0	0
494	05/17/14	Town	1-3 mph	Clear	2:48	2:58	No Contact	No Contact	0	0
494	06/05/14	Town	<1 mph	Clear	3:30	3:40	No Contact	No Contact	0	0
494	07/03/14	Town	4-7 mph	Clear	3:11	3:21	No Contact	No Contact	0	0
Year	*2015*									
494	03/03/15	Town	<1 mph	Clear	19:10	19:20	No Contact	No Contact	0	0
			Lower Rd. SWOW							
494	04/10/15	Town	<1 mph	Clear	22:00	22:10	No Contact	No Contact	0	0
			WSOW							
494	04/17/15	Town	<1 mph	Clear	22:00	22:10	No Contact	No Contact	0	0
494	05/05/15	Town	8-12 mph	Clear	22:37	22:47	No Contact	No Contact	0	0
494	05/12/15	Town	<1 mph	Partly Cloud	21:09	21:19	No Contact	No Contact	0	0
494	05/28/15	Bennett	<1 mph	Fog	22:34	22:44	No Contact	No Contact	0	0
Year	*2016*									
494	03/02/16	Town	<1 mph	Overcast	19:55	20:05	No Contact	No Contact	0	0
494	03/11/16	Town	1-3 mph	Overcast	20:10	20:20	No Contact	No Contact	0	0
494	03/29/16	Town	<1 mph	Clear	21:43	21:53	No Contact	No Contact	0	0
Year	*2014*									
496	03/06/14	Town	1-3 mph	Clear	19:57	20:07	No Contact	No Contact	0	0
496	04/13/14	Town	1-3 mph	Partly Cloud	21:26	21:36	No Contact	No Contact	0	0
496	05/10/14	Town	<1 mph	Clear	2:50	3:00	No Contact	No Contact	0	0
496	05/17/14	Town	1-3 mph	Clear	2:31	2:41	No Contact	No Contact	0	0
			Barred							
496	06/05/14	Town	<1 mph	Clear	3:15	3:25	No Contact	No Contact	0	0
496	07/03/14	Town	4-7 mph	Clear	2:54	3:04	No Contact	No Contact	0	0
Year	*2015*									
496	03/03/15	Town	<1 mph	Clear	21:25	21:35	No Contact	No Contact	0	0
			SWOW							
496	04/10/15	Town	<1 mph	Clear	20:56	21:06	Agitation Call	Unknown	2,000	170
			SON0110							
496	04/17/15	Town	<1 mph	Clear	20:55	21:05	No Contact	No Contact	0	0
496	05/05/15	Town	8-12 mph	Clear	21:25	21:35	No Contact	No Contact	0	0
496	05/12/15	Town	<1 mph	Partly Cloud	20:55	21:05	No Contact	No Contact	0	0
496	05/28/15	Bennett	<1 mph	Fog	23:51	0:01	No Contact	No Contact	0	0
Year	*2016*									
496	03/02/16	Town	<1 mph	Overcast	20:09	20:19	No Contact	No Contact	0	0
496	03/11/16	Town	1-3 mph	Overcast	20:27	20:37	No Contact	No Contact	0	0
496	03/29/16	Town	<1 mph	Clear	20:35	20:45	No Contact	No Contact	0	0
Year	*2014*									
498	03/06/14	Town	1-3 mph	Clear	22:35	22:45	No Contact	No Contact	0	0
498	04/11/14	Town	<1 mph	Fog	22:47	22:57	No Contact	No Contact	0	0
			Barred Owl							
498	04/18/14	Town	<1 mph	Clear	23:24	23:34	No Contact	No Contact	0	0
498	05/11/14	Town	<1 mph	Clear	3:35	3:45	No Contact	No Contact	0	0
498	05/18/14	Town	1-3 mph	Partly Cloud	4:00	4:10	No Contact	No Contact	0	0
498	06/06/14	Town	4-7 mph	Clear	3:37	3:47	3-4 note Call	Unknown	2,000	180
			SONVC far away.							
Year	*2015*									
498	03/03/15	Town	<1 mph	Clear	22:58	23:08	No Contact	No Contact	0	0
498	04/10/15	Town	<1 mph	Clear	0:29	0:39	3-4 note Call	Pair	700	190
			SON0009 down by river. Very vocal. Called from pullout on Annapolis road but azimuth based on survey station point.							
498	04/17/15	Town	<1 mph	Clear	0:30	0:40	3-4 note Call	Pair	500	180
			SON0009.							

PART OF PLAN

440.26

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
498	05/05/15	Town	8-12 mph	Clear	1:15	1:25	3-4 note Call	Pair	1,000	180
			SON0009							
498	05/12/15	Town	<1 mph	Partly Cloud	23:36	23:46	3-4 note Call	Pair	1,000	180
			SON0009							
498	05/28/15	Bennett	<1 mph	Fog			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0009.							
Year	*2016*									
498	03/02/16	Town	<1 mph	Overcast			Skipped Station	No Contact	0	0
			Heard Son 009 and Son 110 earlier in the day							
498	03/11/16	Town	1-3 mph	Overcast			Skipped Station	No Contact	0	0
			SON009 active							
498	03/29/16	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			SON009 active.							
498	05/18/16	Town	1-3 mph	Clear	0:05	0:15	No Contact	No Contact	0	0
			barred Owl.							
Year	*2014*									
500	03/06/14	Town	1-3 mph	Clear	23:01	23:11	No Contact	No Contact	0	0
500	04/11/14	Town	<1 mph	Fog	23:34	23:44	No Contact	No Contact	0	0
500	04/18/14	Town	<1 mph	Clear	23:08	23:18	No Contact	No Contact	0	0
500	05/11/14	Town	<1 mph	Clear	3:20	3:30	No Contact	No Contact	0	0
500	05/18/14	Town	1-3 mph	Partly Cloud	4:13	4:23	No Contact	No Contact	0	0
500	06/06/14	Town	4-7 mph	Clear	3:50	4:00	No Contact	No Contact	0	0
Year	*2015*									
500	03/03/15	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip. Contacted SON0009 at station 502.							
500	04/10/15	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip due to 3 NSO at station 510							
500	04/17/15	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Within 0.25 mile of SON0009.							
500	05/05/15	Town	8-12 mph	Clear	1:28	1:38	3-4 note Call	Male	2,000	280
			Could hear SON0009 downstream.							
500	05/12/15	Town	<1 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile SON0009.							
500	05/28/15	Bennett	<1 mph	Fog			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0009.							
Year	*2014*									
506	03/06/14	Town	1-3 mph	Clear	23:20	23:30	No Contact	No Contact	0	0
506	04/11/14	Town	<1 mph	Fog	1:45	1:55	No Contact	No Contact	0	0
506	04/18/14	Town	<1 mph	Clear	1:15	1:25	No Contact	No Contact	0	0
506	05/11/14	Town	<1 mph	Clear	2:35	2:45	No Contact	No Contact	0	0
506	05/18/14	Town	1-3 mph	Partly Cloud	2:00	2:10	No Contact	No Contact	0	0
506	06/06/14	Town	4-7 mph	Clear	1:55	2:05	No Contact	No Contact	0	0
Year	*2015*									
506	03/03/15	Town	<1 mph	Clear	23:51	0:01	No Contact	No Contact	0	0
506	04/10/15	Town	<1 mph	Clear	1:05	1:15	No Contact	No Contact	0	0
506	04/17/15	Town	<1 mph	Clear	1:07	1:17	No Contact	No Contact	0	0
506	05/05/15	Town	8-12 mph	Clear	1:50	2:00	No Contact	No Contact	0	0
506	05/12/15	Town	<1 mph	Partly Cloud	1:25	1:35	No Contact	No Contact	0	0
506	05/28/15	Bennett	<1 mph	Fog	0:12	0:22	No Contact	No Contact	0	0
Year	*2016*									
506	03/02/16	Town	<1 mph	Overcast	22:08	22:18	No Contact	No Contact	0	0
			Raining now							
506	03/11/16	Town	1-3 mph	Overcast	22:55	23:05	No Contact	No Contact	0	0
506	03/29/16	Town	<1 mph	Clear	20:06	20:16	No Contact	No Contact	0	0

Year *2014*

RECEIVED

PART OF PLAN

440.27

COAST AREA OFFICE
RESOURCE MANAGEMENT

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
508	03/06/14	Town	1-3 mph	Clear	20:59	21:09	3-4 note Call	Female	1,500	25
			From gate, SON VC (SON0110) was upstream from AC. She was very vocal.							
508	04/11/14	Town	<1 mph	Fog	23:56	0:06	3-4 note Call	Pair	1,000	10
			SON VC (SON0110) pair							
508	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC (SON0110) was contacted during evening survey 4/11/14.							
508	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC (SON0110) was contacted during evening survey 4/11/14.							
508	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC (SON0110) was contacted during evening survey 4/11/14.							
508	04/18/14	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SONVC (SON0110).							
Year	*2015*									
508	03/03/15	Town	<1 mph	Clear	22:30	22:40	3-4 note Call	Pair	700	10
			SON0110							
508	04/10/15	Town	<1 mph	Clear	0:44	1:00	3-4 note Call	Pair	100	360
			SON0009 and SON0110. Female SON0110 hooted after 2 minutes. At 5 minutes a pair (SON0009) were very vocal and flew in close to vehicle (could hear SON0009 pair flying downstream the Wheatfield Fork toward surveyor). Three NSOs vocalize at onec.							
508	04/17/15	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Within 0.25 mile of SON0110.							
508	05/05/15	Town	8-12 mph	Clear	21:00	21:10	3-4 note Call	Pair	1,200	70
			SON0110							
508	05/12/15	Town	<1 mph	Partly Cloud	23:20	23:30	3-4 note Call	Pair	1,200	10
			SON0110.							
508	05/28/15	Bennett	<1 mph	Fog			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0110.							
Year	*2016*									
508	03/02/16	Town	<1 mph	Overcast			Skipped Station	No Contact	0	0
			Heard son 110 earlier							
508	03/11/16	Town	1-3 mph	Overcast			Skipped Station	No Contact	0	0
			SON110 active							
508	03/29/16	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			SON110 active.							
Year	*2014*									
510	03/06/14	Town	1-3 mph	Clear	22:25	22:28	Agitation Call	Female	1,000	270
			SON VC.							
510	04/11/14	Town	<1 mph	Fog	23:20	23:30	No Contact	No Contact	0	0
510	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC was contacted during evening survey 4/11/14.							
510	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC was contacted during evening survey 4/11/14.							
510	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC was contacted during evening survey 4/11/14.							
510	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON VC was contacted during evening survey 4/11/14.							
510	04/18/14	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SONVC.							
Year	*2015*									
510	03/03/15	Town	<1 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
510	04/10/15	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip due to 3 NSO at station 510							

PART OF PLAN

440.28

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
510	04/17/15	Town	<1 mph	Clear	0:17	0:27	3-4 note Call	Male	2,000	350
			Annapolis Road. SON0009.							
510	05/05/15	Town	8-12 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. Could still hear SON0110.							
510	05/12/15	Town	<1 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile SON0110.							
510	05/28/15	Bennett	<1 mph	Fog			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0110.							
Year	*2014*									
522	03/06/14	Town	1-3 mph	Clear	21:30	21:40	No Contact	No Contact	0	0
522	04/11/14	Town	<1 mph	Fog	0:35	0:45	No Contact	No Contact	0	0
522	04/18/14	Town	<1 mph	Clear	0:15	0:25	No Contact	No Contact	0	0
522	05/11/14	Town	<1 mph	Clear	4:10	4:20	No Contact	No Contact	0	0
522	05/18/14	Town	1-3 mph	Partly Cloud	2:38	2:48	No Contact	No Contact	0	0
522	06/06/14	Town	4-7 mph	Clear	3:10	3:20	No Contact	No Contact	0	0
Year	*2015*									
522	03/03/15	Town	<1 mph	Clear	18:36	18:46	No Contact	No Contact	0	0
522	04/10/15	Town	<1 mph	Clear	19:54	20:04	No Contact	No Contact	0	0
			Frogs							
522	04/17/15	Town	<1 mph	Clear	20:19	20:29	No Contact	No Contact	0	0
522	05/05/15	Town	8-12 mph	Clear	20:34	20:44	No Contact	No Contact	0	0
522	05/12/15	Town	<1 mph	Partly Cloud	0:26	0:36	No Contact	No Contact	0	0
			Some animal screaming but not owl. Maybe fox or mt. lion.							
522	05/28/15	Bennett	<1 mph	Fog	0:36	0:46	No Contact	No Contact	0	0
Year	*2016*									
522	03/02/16	Town	<1 mph	Overcast	21:36	21:46	No Contact	No Contact	0	0
			Wsow							
522	03/11/16	Town	1-3 mph	Overcast	22:10	22:20	No Contact	No Contact	0	0
522	03/29/16	Town	<1 mph	Clear	19:49	20:00	No Contact	No Contact	0	0
Year	*2014*									
530	03/06/14	Town	1-3 mph	Clear	21:44	21:54	No Contact	No Contact	0	0
530	04/11/14	Town	<1 mph	Fog	0:49	0:59	No Contact	No Contact	0	0
530	04/18/14	Town	<1 mph	Clear	0:30	0:40	No Contact	No Contact	0	0
530	05/11/14	Town	<1 mph	Clear	4:24	4:34	No Contact	No Contact	0	0
530	05/18/14	Town	1-3 mph	Partly Cloud	2:54	3:04	No Contact	No Contact	0	0
530	06/06/14	Town	4-7 mph	Clear	2:55	3:05	No Contact	No Contact	0	0
Year	*2015*									
530	03/03/15	Town	<1 mph	Clear	18:21	18:31	No Contact	No Contact	0	0
530	04/10/15	Town	<1 mph	Clear	20:07	20:17	No Contact	No Contact	0	0
			Frogs							
530	04/17/15	Town	<1 mph	Clear	20:04	20:14	No Contact	No Contact	0	0
530	05/05/15	Town	8-12 mph	Clear	20:21	20:31	No Contact	No Contact	0	0
530	05/12/15	Town	<1 mph	Partly Cloud	0:40	0:50	No Contact	No Contact	0	0
530	05/28/15	Bennett	<1 mph	Fog	0:52	1:02	No Contact	No Contact	0	0
Year	*2016*									
530	03/02/16	Town	<1 mph	Overcast	21:50	22:00	No Contact	No Contact	0	0
530	03/11/16	Town	1-3 mph	Overcast	22:29	22:39	No Contact	No Contact	0	0
530	03/29/16	Town	<1 mph	Clear	19:30	19:45	No Contact	No Contact	0	0
Year	*2014*									
534	03/06/14	Town	1-3 mph	Clear	21:57	22:07	No Contact	No Contact	0	0
534	04/11/14	Town	<1 mph	Fog	1:06	1:16	No Contact	No Contact	0	0
534	04/18/14	Town	<1 mph	Clear	0:45	0:55	No Contact	No Contact	0	0
534	05/11/14	Town	<1 mph	Clear	4:40	4:50	No Contact	No Contact	0	0
534	05/18/14	Town	1-3 mph	Partly Cloud	3:08	3:18	No Contact	No Contact	0	0
534	06/06/14	Town	4-7 mph	Clear	2:41	2:51	No Contact	No Contact	0	0
Year	*2015*									

440.29

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
534	03/03/15	Town	<1 mph	Clear	18:00	18:16	No Contact	No Contact	0	0
534	04/10/15	Town	<1 mph	Clear	20:25	20:35	No Contact	No Contact	0	0
			Frogs							
534	04/17/15	Town	<1 mph	Clear	19:50	20:00	No Contact	No Contact	0	0
534	05/05/15	Town	8-12 mph	Clear	20:05	20:15	No Contact	No Contact	0	0
534	05/12/15	Town	<1 mph	Partly Cloud	0:54	1:04	No Contact	No Contact	0	0
534	05/28/15	Bennett	<1 mph	Fog	1:06	1:16	No Contact	No Contact	0	0
Year	*2014*									
732	03/01/14	Town	<1 mph	Overcast	6:00	6:10	No Contact	No Contact	0	0
732	03/08/14	Town	<1 mph	Partly Cloud	21:30	21:40	No Contact	No Contact	0	0
732	03/20/14	Bennett	<1 mph	Clear	0:28	0:38	No Contact	No Contact	0	0
732	04/16/14	Town	<1 mph	Clear	21:48	21:58	No Contact	No Contact	0	0
732	05/09/14	Town	<1 mph	Clear	3:05	3:15	No Contact	No Contact	0	0
732	05/16/14	Town	<1 mph	Clear	4:30	4:40	No Contact	No Contact	0	0
732	06/08/14	Town	<1 mph	Clear	4:20	4:30	No Contact	No Contact	0	0
Year	*2015*									
732	03/04/15	Town	<1 mph	Clear	19:25	19:35	No Contact	No Contact	0	0
			WSOW							
732	04/09/15	Town	1-3 mph	Clear	22:10	22:20	No Contact	No Contact	0	0
732	04/16/15	Town	<1 mph	Clear	23:15	23:25	No Contact	No Contact	0	0
732	05/07/15	Town	4-7 mph	Clear	23:50	0:00	No Contact	No Contact	0	0
			Deer.							
732	05/14/15	Town	4-7 mph	Partly Cloud	22:30	22:40	No Contact	No Contact	0	0
732	05/27/15	Bennett	<1 mph	Clear	23:42	23:52	No Contact	No Contact	0	0
Year	*2016*									
732	03/08/16	Town	1-3 mph	Overcast	21:57	22:07	No Contact	No Contact	0	0
732	03/27/16	Town	8-12 mph	Clear	22:39	22:49	No Contact	No Contact	0	0
732	04/03/16	Town	1-3 mph	Clear	22:41	22:51	No Contact	No Contact	0	0
732	05/17/16	Town	1-3 mph	Clear	21:05	21:15	No Contact	No Contact	0	0
732	05/24/16	Town	4-7 mph	Partly Cloud	21:31	21:41	No Contact	No Contact	0	0
732	05/31/16	Town	4-7 mph	Clear	2:14	2:24	No Contact	No Contact	0	0
Year	*2014*									
744	03/04/14	Town	<1 mph	Overcast	20:07	20:17	No Contact	No Contact	0	0
744	03/11/14	Town	4-7 mph	Clear	19:57	20:07	No Contact	No Contact	0	0
744	04/10/14	Town	<1 mph	Fog	21:50	22:00	No Contact	No Contact	0	0
744	05/09/14	Town	<1 mph	Clear	4:25	4:35	No Contact	No Contact	0	0
744	05/16/14	Town	<1 mph	Clear	2:10	2:20	No Contact	No Contact	0	0
744	06/08/14	Town	<1 mph	Clear	3:05	3:15	No Contact	No Contact	0	0
Year	*2015*									
744	03/02/15	Town	1-3 mph	Partly Cloud	22:46	22:56	No Contact	No Contact	0	0
744	03/09/15	Town	<1 mph	Partly Cloud	20:18	20:28	No Contact	No Contact	0	0
744	04/08/15	Town	1-3 mph	Clear	0:15	0:25	No Contact	No Contact	0	0
744	04/15/15	Town	<1 mph	Clear	21:14	21:24	No Contact	No Contact	0	0
			Dogs.							
744	05/06/15	Town	8-12 mph	Clear	1:50	2:00	No Contact	No Contact	0	0
744	05/13/15	Town	1-3 mph	Partly Cloud	1:20	1:30	No Contact	No Contact	0	0
Year	*2016*									
744	03/03/16	Town	<1 mph	Partly Cloud	23:56	0:06	No Contact	No Contact	0	0
744	03/10/16	Town	1-3 mph	Overcast	22:56	23:06	No Contact	No Contact	0	0
744	03/28/16	Town	1-3 mph	Clear	22:15	22:25	No Contact	No Contact	0	0
744	04/04/16	Town	1-3 mph	Clear	22:30	22:40	No Contact	No Contact	0	0
744	05/17/16	Town	1-3 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
744	05/24/16	Town	4-7 mph	Partly Cloud	0:04	0:14	No Contact	No Contact	0	0
Year	*2014*									
746	03/04/14	Town	<1 mph	Overcast	19:47	19:57	No Contact	No Contact	0	0
746	03/11/14	Town	4-7 mph	Clear	22:50	23:00	No Contact	No Contact	0	0

440.30

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
746	03/21/14	Bennett	<1 mph	Clear	20:06	20:16	No Contact	No Contact	0	0
746	04/10/14	Town	<1 mph	Fog	23:15	23:25	No Contact	No Contact	0	0
746	05/09/14	Town	<1 mph	Clear	3:40	3:50	No Contact	No Contact	0	0
746	05/16/14	Town	<1 mph	Clear	2:54	3:04	No Contact	No Contact	0	0
746	06/08/14	Town	<1 mph	Clear	3:53	4:03	No Contact	No Contact	0	0
Year 2015										
746	03/02/15	Town	1-3 mph	Partly Cloud	20:27	20:37	No Contact	No Contact	0	0
746	04/08/15	Town	1-3 mph	Clear	20:32	20:42	No Contact	No Contact	0	0
			WSOW							
746	04/15/15	Town	<1 mph	Clear	20:29	20:39	No Contact	No Contact	0	0
746	05/06/15	Town	8-12 mph	Clear	0:16	0:26	No Contact	No Contact	0	0
			WSOW.							
746	05/13/15	Town	1-3 mph	Partly Cloud	23:57	0:07	No Contact	No Contact	0	0
			WSOW							
746	05/26/15	Bennett	<1 mph	Fog	1:20	1:30	No Contact	No Contact	0	0
			Opossum.							
Year 2016										
746	03/03/16	Town	<1 mph	Partly Cloud	21:15	21:25	No Contact	No Contact	0	0
746	03/10/16	Town	1-3 mph	Overcast	19:00	19:10	No Contact	No Contact	0	0
746	03/28/16	Town	1-3 mph	Clear	22:47	22:57	No Contact	No Contact	0	0
746	04/04/16	Town	1-3 mph	Clear	23:00	22:40	No Contact	No Contact	0	0
			Rabbits.							
746	05/17/16	Town	1-3 mph	Clear	23:20	23:30	No Contact	No Contact	0	0
746	05/24/16	Town	4-7 mph	Partly Cloud	23:30	23:40	No Contact	No Contact	0	0
Year 2014										
748	03/04/14	Town	<1 mph	Overcast	18:28	18:38	No Contact	No Contact	0	0
748	03/11/14	Town	4-7 mph	Clear	23:42	23:52	No Contact	No Contact	0	0
748	03/21/14	Bennett	<1 mph	Clear	21:28	21:38	No Contact	No Contact	0	0
748	04/10/14	Town	<1 mph	Fog	22:44	22:54	No Contact	No Contact	0	0
748	05/09/14	Town	<1 mph	Clear	3:26	3:36	No Contact	No Contact	0	0
748	05/16/14	Town	<1 mph	Clear	3:08	3:18	No Contact	No Contact	0	0
748	06/08/14	Town	<1 mph	Clear	4:06	4:16	No Contact	No Contact	0	0
Year 2015										
748	03/04/15	Town	<1 mph	Clear	21:24	21:34	No Contact	No Contact	0	0
748	04/09/15	Town	1-3 mph	Clear	21:39	21:49	No Contact	No Contact	0	0
748	04/16/15	Town	<1 mph	Clear	23:36	23:46	No Contact	No Contact	0	0
748	05/07/15	Town	4-7 mph	Clear	0:07	0:17	No Contact	No Contact	0	0
			Ducks. Lots of bats.							
748	05/14/15	Town	4-7 mph	Partly Cloud	22:44	22:54	No Contact	No Contact	0	0
748	05/27/15	Bennett	<1 mph	Clear	0:07	0:17	No Contact	No Contact	0	0
Year 2016										
748	03/03/16	Town	<1 mph	Partly Cloud	23:10	23:20	No Contact	No Contact	0	0
748	03/11/16	Town	1-3 mph	Overcast	23:59	0:09	No Contact	No Contact	0	0
748	03/28/16	Town	1-3 mph	Clear	21:30	21:40	No Contact	No Contact	0	0
748	04/04/16	Town	1-3 mph	Clear	21:46	21:56	No Contact	No Contact	0	0
748	05/17/16	Town	1-3 mph	Clear	21:56	22:06	No Contact	No Contact	0	0
748	05/24/16	Town	4-7 mph	Partly Cloud	21:50	22:00	No Contact	No Contact	0	0
Year 2014										
750	03/01/14	Town	<1 mph	Overcast	4:33	4:43	No Contact	No Contact	0	0
750	03/08/14	Town	<1 mph	Partly Cloud	20:00	20:10	No Contact	No Contact	0	0
750	03/20/14	Bennett	<1 mph	Clear	23:04	23:14	No Contact	No Contact	0	0
750	04/16/14	Town	<1 mph	Clear	21:20	21:30	No Contact	No Contact	0	0
750	05/09/14	Town	<1 mph	Clear	2:30	2:40	No Contact	No Contact	0	0
750	05/15/14	Town	<1 mph	Clear	2:45	2:55	No Contact	No Contact	0	0
Year 2015										
750	03/04/15	Town	<1 mph	Clear	20:00	20:10	No Contact	No Contact	0	0

PART OF PLAN

440.31

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
750	03/18/15	Bennett	<1 mph	Clear	22:30	22:40	No Contact	No Contact	0	0
750	03/31/15	Bennett	1-3 mph	Clear	22:07	22:17	No Contact	No Contact	0	0
750	04/09/15	Town	1-3 mph	Clear	22:57	23:07	No Contact	No Contact	0	0
750	04/16/15	Town	<1 mph	Clear	22:14	22:24	No Contact	No Contact	0	0
750	05/07/15	Town	4-7 mph	Clear	22:58	23:08	No Contact	No Contact	0	0
Year	*2016*									
750	03/08/16	Town	1-3 mph	Overcast	20:27	20:37	No Contact	No Contact	0	0
750	03/28/16	Town	1-3 mph	Clear	21:05	21:15	No Contact	No Contact	0	0
750	04/04/16	Town	1-3 mph	Clear	21:24	21:34	No Contact	No Contact	0	0
750	05/17/16	Town	1-3 mph	Clear	21:30	21:40	No Contact	No Contact	0	0
750	05/24/16	Town	4-7 mph	Partly Cloud	20:25	20:35	No Contact	No Contact	0	0
750	05/31/16	Town	4-7 mph	Clear	2:40	2:50	No Contact	No Contact	0	0
Year	*2014*									
752	03/01/14	Town	<1 mph	Overcast			Skipped Station	No Contact	0	0
			Skip. SON017 heard from station 754 3/1/14.							
752	03/08/14	Town	<1 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skip. SON017 previously detected within historic AC during walk-in visit 3/6/14.							
752	03/20/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Station within 1/2 mile of SON0017. SON0017 was contacted during ACS on 3/6/14.							
752	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
752	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
752	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
Year	*2015*									
752	03/04/15	Town	<1 mph	Clear	19:47	19:57	No Contact	No Contact	0	0
752	03/18/15	Bennett	<1 mph	Clear	22:07	22:17	No Contact	No Contact	0	0
752	03/31/15	Bennett	1-3 mph	Clear	21:35	21:45	No Contact	No Contact	0	0
752	04/09/15	Town	1-3 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
752	04/16/15	Town	<1 mph	Clear	22:00	22:10	No Contact	No Contact	0	0
752	05/07/15	Town	4-7 mph	Clear	22:45	22:55	No Contact	No Contact	0	0
			Deer.							
Year	*2016*									
752	03/08/16	Town	1-3 mph	Overcast	20:15	20:25	No Contact	No Contact	0	0
752	03/28/16	Town	1-3 mph	Clear	20:50	21:00	No Contact	No Contact	0	0
752	04/04/16	Town	1-3 mph	Clear	21:09	21:19	No Contact	No Contact	0	0
Year	*2014*									
754	03/01/14	Town	<1 mph	Overcast	4:47	4:57	3-4 note Call	Male	1,000	190
			SON017 in historic AC							
754	03/08/14	Town	<1 mph	Partly Cloud	20:13	20:23	No Contact	No Contact	0	0
754	03/20/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Station within 1/2 mile of SON0017. SON0017 was contacted during ACS on 3/6/14.							
754	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
754	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
754	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
Year	*2015*									
754	03/04/15	Town	<1 mph	Clear	20:16	20:26	No Contact	No Contact	0	0
754	03/18/15	Bennett	<1 mph	Clear	21:49	21:59	No Contact	No Contact	0	0

PART OF PLAN

440.32

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
754	03/31/15	Bennett	1-3 mph	Clear	21:17	21:27	No Contact	No Contact	0	0
754	04/09/15	Town	1-3 mph	Clear	23:12	23:22	No Contact	No Contact	0	0
			SWOW							
754	04/16/15	Town	<1 mph	Clear	22:29	22:39	No Contact	No Contact	0	0
754	05/07/15	Town	4-7 mph	Clear	23:15	23:25	No Contact	No Contact	0	0
Year 2014										
770	03/01/14	Town	1-3 mph	Overcast	23:21	23:31	No Contact	No Contact	0	0
			Mist - GHOW							
770	03/20/14	Bennett	<1 mph	Clear	21:59	22:09	No Contact	No Contact	0	0
770	04/01/14	Bennett	<1 mph	Overcast	21:18	21:28	No Contact	No Contact	0	0
770	04/09/14	Town	1-3 mph	Fog	23:30	23:40	No Contact	No Contact	0	0
			GHOW							
770	04/17/14	Town	8-12 mph	Clear	0:56	1:06	No Contact	No Contact	0	0
			GHOW							
770	05/12/14	Town	<1 mph	Clear	1:19	1:29	No Contact	No Contact	0	0
			GHOW (same pair as station 785).							
770	07/07/14	Town	1-3 mph	Partly Cloud	2:34	2:44	No Contact	No Contact	0	0
Year 2015										
770	03/01/15	Town	4-7 mph	Partly Cloud	22:57	23:07	No Contact	No Contact	0	0
770	03/08/15	Town	<1 mph	Clear	0:36	0:46	No Contact	No Contact	0	0
770	03/25/15	Bennett	<1 mph	Clear	21:34	21:44	No Contact	No Contact	0	0
770	04/11/15	Town	<1 mph	Clear	0:24	0:34	No Contact	No Contact	0	0
770	04/18/15	Town	8-12 mph	Clear	22:55	23:05	No Contact	No Contact	0	0
770	05/08/15	Town	4-7 mph	Clear	23:00	23:10	No Contact	No Contact	0	0
Year 2016										
770	03/07/16	Town	8-12 mph	Partly Cloud	21:56	22:06	No Contact	No Contact	0	0
770	03/26/16	Town	4-7 mph	Partly Cloud	0:17	0:27	No Contact	No Contact	0	0
770	04/02/16	Town	<1 mph	Clear	20:16	20:26	No Contact	No Contact	0	0
770	05/15/16	Town	4-7 mph	Clear	0:35	0:45	No Contact	No Contact	0	0
770	05/22/16	Town	1-3 mph	Fog	1:03	1:13	No Contact	No Contact	0	0
770	05/29/16	Town	1-3 mph	Clear	1:50	2:00	No Contact	No Contact	0	0
Year 2014										
772	03/01/14	Town	<1 mph	Overcast			Skipped Station	No Contact	0	0
			Skip. SON017 heard from station 754 3/1/14.							
772	03/08/14	Town	<1 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skip. SON017 previously detected within historic AC during walk-in visit 3/6/14.							
772	03/20/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Station within 1/2 mile of SON0017. SON0017 was contacted during ACS on 3/6/14.							
772	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
772	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
772	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0017 was contacted during AC visit 3/6/14.							
Year 2015										
772	03/04/15	Town	<1 mph	Clear	21:06	21:16	No Contact	No Contact	0	0
772	04/09/15	Town	1-3 mph	Clear	21:13	21:23	No Contact	No Contact	0	0
			GHOW (same as station 786)							
772	04/16/15	Town	<1 mph	Clear	21:35	21:45	No Contact	No Contact	0	0
			GHOW (same as station 786).							
772	05/07/15	Town	4-7 mph	Clear	22:11	22:21	No Contact	No Contact	0	0
			GHOW pair. Same as Station 786.							
772	05/14/15	Town	4-7 mph	Partly Cloud	22:08	22:18	No Contact	No Contact	0	0

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
772	05/27/15	Bennett	<1 mph	Clear	23:16	23:26	No Contact	No Contact	0	0
			GHOW down by station 786.							
Year 2016										
772	03/08/16	Town	1-3 mph	Overcast	19:49	20:00	No Contact	No Contact	0	0
			GHOW pair (same as 786)							
772	03/28/16	Town	1-3 mph	Clear	20:27	20:37	No Contact	No Contact	0	0
772	04/04/16	Town	1-3 mph	Clear	20:47	20:57	No Contact	No Contact	0	0
			GHOW.							
Year 2014										
785	03/01/14	Town	1-3 mph	Overcast	23:06	23:16	No Contact	No Contact	0	0
			Mist							
785	03/20/14	Bennett	<1 mph	Clear	22:12	22:22	No Contact	No Contact	0	0
785	04/09/14	Town	1-3 mph	Fog	23:16	23:26	No Contact	No Contact	0	0
785	04/17/14	Town	8-12 mph	Clear	0:39	0:49	No Contact	No Contact	0	0
785	05/12/14	Town	<1 mph	Clear	1:04	1:14	No Contact	No Contact	0	0
			GHOW							
785	06/10/14	Town	1-3 mph	Clear	2:24	2:34	No Contact	No Contact	0	0
785	07/07/14	Town	1-3 mph	Partly Cloud	2:15	2:25	No Contact	No Contact	0	0
Year 2015										
785	03/01/15	Town	4-7 mph	Partly Cloud	22:44	22:54	No Contact	No Contact	0	0
785	03/08/15	Town	<1 mph	Clear	0:19	0:29	No Contact	No Contact	0	0
785	03/25/15	Bennett	<1 mph	Clear	21:49	21:59	No Contact	No Contact	0	0
785	04/11/15	Town	<1 mph	Clear	0:09	0:19	No Contact	No Contact	0	0
785	04/18/15	Town	8-12 mph	Clear	22:42	22:52	No Contact	No Contact	0	0
785	05/08/15	Town	4-7 mph	Clear	22:46	22:56	No Contact	No Contact	0	0
Year 2016										
785	03/07/16	Town	8-12 mph	Partly Cloud	21:37	21:47	No Contact	No Contact	0	0
			GHOW							
785	03/26/16	Town	4-7 mph	Partly Cloud	0:03	0:13	No Contact	No Contact	0	0
785	04/02/16	Town	<1 mph	Clear	20:45	20:55	No Contact	No Contact	0	0
			ghow							
785	05/15/16	Town	4-7 mph	Clear	0:21	0:31	No Contact	No Contact	0	0
785	05/22/16	Town	1-3 mph	Fog	0:45	0:55	No Contact	No Contact	0	0
			GHOW (same owl following me).							
785	05/29/16	Town	1-3 mph	Clear	0:22	0:32	No Contact	No Contact	0	0
			GHOW							
Year 2014										
786	03/08/14	Town	<1 mph	Partly Cloud			Skipped Station	No Contact	0	0
			Skip. Contacted SON045 from station 788.							
786	04/16/14	Town	<1 mph	Clear	20:45	20:55	No Contact	No Contact	0	0
786	05/07/14	Town	<1 mph	Clear	3:00	3:10	No Contact	No Contact	0	0
			Pair of great horned owls.							
786	05/14/14	Town	<1 mph	Clear	4:35	4:45	No Contact	No Contact	0	0
786	06/07/14	Town	<1 mph	Clear	2:48	2:58	No Contact	No Contact	0	0
			GHOW pair.							
786	07/04/14	Town	1-3 mph	Clear	5:20	5:30	No Contact	No Contact	0	0
Year 2015										
786	03/06/15	Town	<1 mph	Clear	18:10	18:20	No Contact	No Contact	0	0
786	04/09/15	Town	1-3 mph	Clear	21:00	21:10	No Contact	No Contact	0	0
			GHOW							
786	04/16/15	Town	<1 mph	Clear	21:23	21:33	No Contact	No Contact	0	0
			GHOW.							
786	05/07/15	Town	4-7 mph	Clear	21:48	22:08	No Contact	No Contact	0	0
			GHOW pair.							
786	05/14/15	Town	4-7 mph	Partly Cloud	21:55	22:05	No Contact	No Contact	0	0
			GHOW. Same as station 788.							
786	05/27/15	Bennett	<1 mph	Clear	22:51	23:01	No Contact	No Contact	0	0

PART OF PLAN

440.34

Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
Year 2016										
786	03/08/16	Town	1-3 mph	Overcast	19:36	19:45	No Contact	No Contact	0	0
			GHOW pair							
786	03/28/16	Town	1-3 mph	Clear	20:14	20:24	No Contact	No Contact	0	0
			GHOW pair.							
786	04/04/16	Town	1-3 mph	Clear	20:33	20:43	No Contact	No Contact	0	0
			GHOW.							
Year 2014										
788	03/08/14	Town	<1 mph	Partly Cloud	19:30	19:40	3-4 note Call	Male	800	100
			SON045 by the river.							
788	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0045 was contacted during AC visit 3/10/14.							
788	04/16/14	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0045 which was previously contacted in 2014.							
788	05/07/14	Town	<1 mph	Clear	3:15	3:25	No Contact	No Contact	0	0
			Pair of great horned owls. Followed from station 786.							
788	05/14/14	Town	<1 mph	Clear	4:18	4:28	No Contact	No Contact	0	0
788	06/07/14	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. SON0045 contacted earlier in season. Also, GHOW nearby.							
Year 2015										
788	03/06/15	Town	<1 mph	Clear	20:30	20:40	No Contact	No Contact	0	0
			GHOW pair.							
788	04/09/15	Town	1-3 mph	Clear	20:47	20:57	No Contact	No Contact	0	0
			Skunk							
788	04/16/15	Town	<1 mph	Clear	21:08	21:18	No Contact	No Contact	0	0
788	05/07/15	Town	4-7 mph	Clear	21:35	21:45	No Contact	No Contact	0	0
788	05/14/15	Town	4-7 mph	Partly Cloud	21:39	21:49	No Contact	No Contact	0	0
			GHOW							
788	05/27/15	Bennett	<1 mph	Clear	22:37	22:47	No Contact	No Contact	0	0
Year 2016										
788	03/08/16	Town	1-3 mph	Overcast	19:21	19:31	No Contact	No Contact	0	0
788	03/28/16	Town	1-3 mph	Clear			Skipped Station	No Contact	0	0
			Found SON045 earlier today.							
788	04/04/16	Town	1-3 mph	Clear			Skipped Station	No Contact	0	0
			Skip. Moused SON0045 on 3/28/16.							
Year 2014										
790	03/08/14	Town	<1 mph	Partly Cloud	19:17	19:27	No Contact	No Contact	0	0
790	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0045 was contacted during AC visit 3/10/14.							
790	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0045 was contacted during AC visit 3/10/14.							
790	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0045 was contacted during AC visit 3/10/14.							
790	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0045 was contacted during AC visit 3/10/14.							
790	04/14/14	Bennett	<1 mph	Clear			Skipped Station	No Contact	0	0
			Database place holder. Skip station because SON0045 was contacted during AC visit 3/10/14.							
790	04/16/14	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
			Skip station. Within 1/2 mile of SON0045 which was previously contacted in 2014.							
790	05/07/14	Town	<1 mph	Clear	3:30	3:40	No Contact	No Contact	0	0
			Pair of great horned owls. Followed from station 788.							
790	05/14/14	Town	<1 mph	Clear	4:00	4:10	No Contact	No Contact	0	0

PART OF PLAN

440.35

	Station	Date	Surveyor	Wind	Weather	Start	End	Behavior	Sex	Dist.	Azm
	790	06/07/14	Town	<1 mph	Clear			Skipped Station	No Contact	0	0
				Skip station. SON0045 contacted earlier in season. Also, GHOW nearby.							
Year	*2015*										
	790	03/06/15	Town	<1 mph	Clear	18:46	18:56	No Contact	No Contact	0	0
	790	04/09/15	Town	1-3 mph	Clear	20:31	20:41	No Contact	No Contact	0	0
				WSOW							
	790	04/16/15	Town	<1 mph	Clear	20:53	21:03	No Contact	No Contact	0	0
	790	05/07/15	Town	4-7 mph	Clear	21:20	21:30	No Contact	No Contact	0	0
	790	05/14/15	Town	4-7 mph	Partly Cloud	21:24	21:34	No Contact	No Contact	0	0
	790	05/27/15	Bennett	<1 mph	Clear	22:22	22:32	No Contact	No Contact	0	0
Year	*2016*										
	790	03/08/16	Town	1-3 mph	Overcast	19:04	19:14	No Contact	No Contact	0	0
	790	03/28/16	Town	1-3 mph	Clear			Skipped Station	No Contact	0	0
				Found SON045 earlier today.							
	790	04/04/16	Town	1-3 mph	Clear			Skipped Station	No Contact	0	0
				Skip. Moused SON0045 on 3/28/16.							

PART OF PLAN

440.36

Reeves, Meghan@CALFIRE

From: Keiser (Whitney), Kate@Wildlife
Sent: Friday, July 08, 2016 1:52 PM
To: Reeves, Meghan@CALFIRE
Cc: John Bennett
Subject: SON0012 and SON0045
Attachments: SON0012_2001_Nest.pdf

Meghan,

I spoke with John Bennett and I will be updating the SON0012 and SON0045 activity centers to the locations he has provided.

The discrepancy between his records and those in the database appear to be a result of past mapping techniques. Prior to the mid-2000s, many detections were mapped at the centroid level – quarter-section, half-section, and section centroid. As we started mapping data more accurately, activity centers were placed at detections with accurate locations. This sometimes resulted in the shifting of ACs away from nests that were mapped at a centroid.

SON0012's activity center will be placed at the 2001 nest location. The nest is currently mapped at the quarter-section centroid. The nest will be re-mapped to the location provided in the datasheet (attached) which is the same location that was provided in a shapefile by Henry Alden.

SON0045's activity center will be placed at the 2003 nest location. This nest is also currently mapped at the quarter-section centroid. The nest will be re-mapped to the location provided in the shapefile (-123.462567 38.758815 NAD83). There is a datasheet for the 2003 detection; however, the 2001 nest was mapped as a reference point and the 2003 nest was not drawn.

John also plans on using the 5/23/1991 nest as an alternate activity center. Due to formatting constraints, there can only be one activity center per site in the Spotted Owl Observations Database. I see no issue with John placing protections on both sites.

Thank you for bringing these sites to my attention. The database updates will be visible in the August distribution.

Kate

Kate Whitney Keiser
Spotted Owl Database Manager
California Department of Fish and Wildlife
Biogeographic Data Branch
(916) 445-5006, FAX (916) 324-0475
Mailing Address:
1416 9th Street, Suite 1266
Sacramento, CA 95814
Kate.Keiser@wildlife.ca.gov

PART OF PLAN

GUALALA REDWOODS, INC.
SPOTTED OWL WALK-IN REPORT

Leopardo Wildlife Associates

Date: 5/4/01		Activity Center (AC) Name: BUCKEYE CRK	AC#: SO-12
Project Area:		Observer(s): ROSAN	Response Station
Start Time: 1445	End Time: 1510		

WIND CODE

1	Calm (<1 mph)
(2)	Light air (1 - 3 mph)
3	Light breeze (4 - 7 mph)
4	Gentle breeze (8 - 12 mph)
5	Moderate breeze (13 - 18 mph)
6	Fresh breeze (19 - 24 mph)
7	Strong breeze (25 + mph))

MOUSING RESULT (Circle Number)

1	No Contact
2	Vocal Detection Only
3	Visual Detection (took no mice)
4	Owl(s) Moused; Inconclusive (stayed but did not eat 4 mice)
5	Owl(s) Moused; Inconclusive (left and did not eat 4 mice)
6	Owl(s) Moused; Non Nesting Inferred (took and ate 4 mice each)
(7)	Owl(s) Moused; Nesting Inferred (nesting behavior observed)
(8)	Owl(s) Moused; Nest Tree Located

SEX CODE

0	No Contact
1	Male
2	Female
3	Unknown Sex
4	Adult with Juvenile
5	Adult with two Juveniles
(6)	Pair
7	Pair and Juvenile
8	Pair and two Juveniles

WEATHER CODE

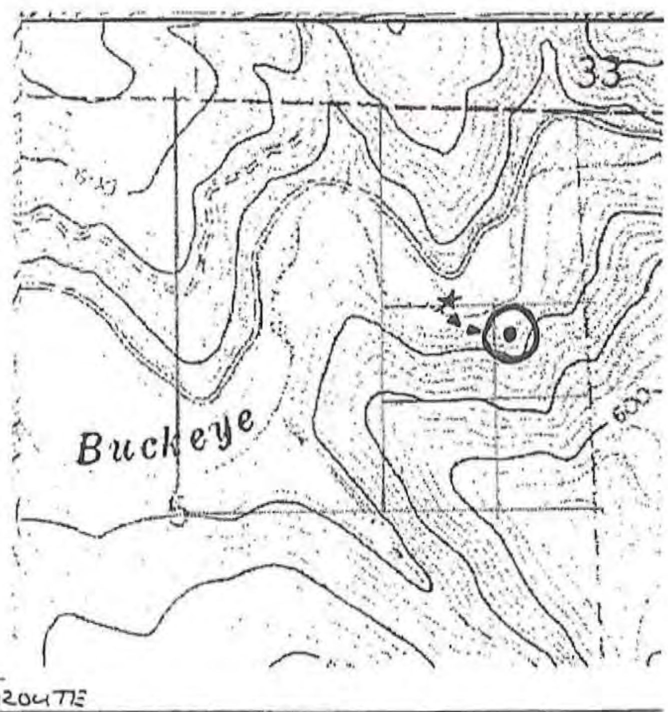
(1)	Clear
2	Fog
3	Partly Cloudy
4	Overcast
5	Light Rain
6	Rain
7	Snow

MOUSE OUTCOME SUMMARY

MOUSE #	OUTCOME	TIME	SEX	MOUSE #	OUTCOME	TIME	SEX
#1	T	1505	1-2	#5			
#2				#6			
#3				#7			
#4				#8			

MOUSING ROUTE/NSO LOCATION MAP

Section: 5 T: 10N, R: 14W NE SE NE
Map Scale- 1" = 1200' County: SON



OUTCOME KEY

E	Eats Mouse
C	Caches Mouse
T	Takes Mouse to Another Owl
H	Holds Mouse Until Observer Leaves
I	Ignores Mouse Until Observer Leaves
L	Leaves with Mouse and is Relocated Without Mouse
X	Leaves with Mouse and is not Relocated

Notes: ⊙ = LOCATION OF ♂ ♀, NEST
★ = START/STOP POINT ▶▶▶ = SEARCH ROUTE
MALE TOOK THE MOUSE TO THE FEMALE IN THE NEST
NEST IS A BROKEN TOP R.W. IN A CLUMP OF R.W.'S

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440.38

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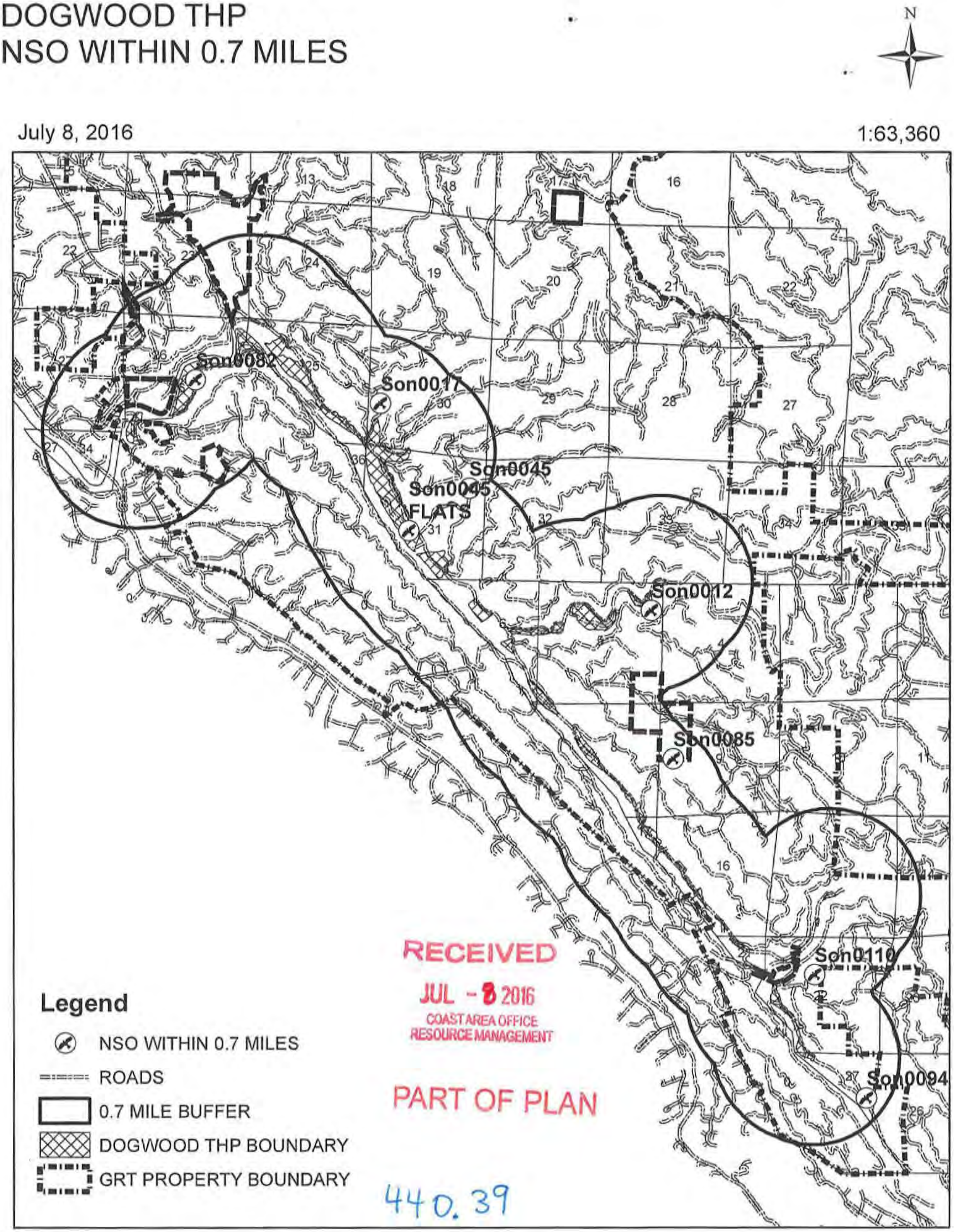
DOGWOOD THP
NSO WITHIN 0.7 MILES

July 8, 2016

1:63,360



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From: Keiser (Whitney), Kate@Wildlife
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To: Reeves, Meghan@CALFIRE
Cc: John Bennett
Subject: SON0012 and SON0045
Attachments: SON0012_2001_Nest.pdf

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1416 9th Street, Suite 1266
Sacramento, CA 95814
Kate.Keiser@wildlife.ca.gov

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RESOURCE MANAGEMENT

440.40

PART OF PLAN

GUALALA REDWOODS, INC.
SPOTTED OWL WALK-IN REPORT

Leopardo Wildlife Associates

Date: 5/4/01	Activity Center (AC) Name: BUCKEYE CRK	AC#: SO-12
Project Area:	Observer(s): ROSAN	Response Station
Start Time: 1445	End Time: 1510	

WIND CODE

1	Calm (<1 mph)
(2)	Light air (1 - 3 mph)
3	Light breeze (4 - 7 mph)
4	Gentle breeze (8 - 12 mph)
5	Moderate breeze (13 - 18 mph)
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2	Female
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(6)	Pair
7	Pair and Juvenile
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3	Partly Cloudy
4	Overcast
5	Light Rain
6	Rain
7	Snow

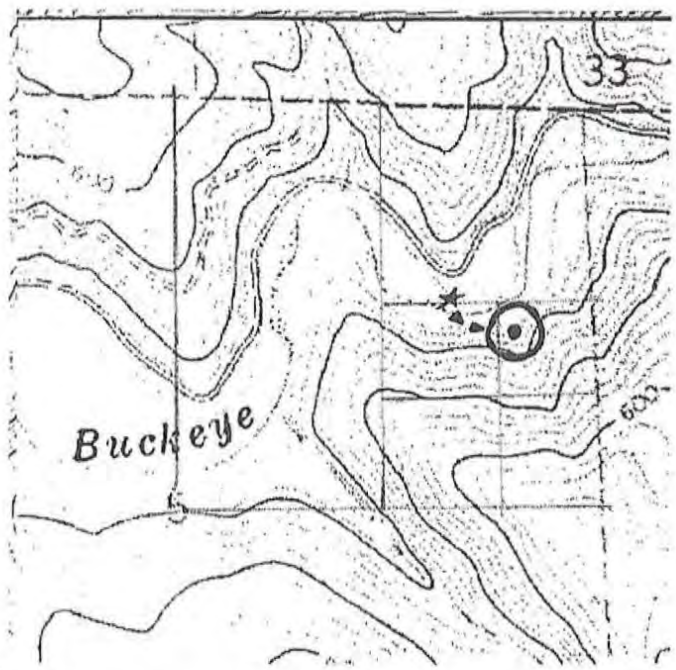
MOUSE OUTCOME SUMMARY

MOUSE #	OUTCOME	TIME	SEX	MOUSE #	OUTCOME	TIME	SEX
#1	T	1505	1-2	#5			
#2				#6			
#3				#7			
#4				#8			

MOUSING ROUTE/NSO LOCATION MAP

Section: 5 T: 10N, R: 14W NESENE

Map Scale- 1" = 1200' County: SON



OUTCOME KEY

E	Eats Mouse
C	Caches Mouse
T	Takes Mouse to Another Owl
H	Holds Mouse Until Observer Leaves
I	Ignores Mouse Until Observer Leaves
L	Leaves with Mouse and is Relocated Without Mouse
X	Leaves with Mouse and is not Relocated

Notes: ⊙ = LOCATION OF ♂, ♀, NEST

★ = START/STOP POINT ▶▶▶ = SEARCH ROUTE

MALE TOOK THE MOUSE TO THE FEMALE IN THE NEST

NEST IS A BROKEN TOP R.W. IN A CLUMP OF R.W.'S

RECEIVED

JUL - 8 2016

COAST AREA OFFICE
RESOURCE MANAGEMENT

PART OF PLAN

440.41

June 11, 2010

TO: Henry Alden
Gualala Redwoods, Inc.

PROFESSIONAL GEOLOGIST
M.D. O'Connor
No. 2449
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

FROM: Matthew O'Connor, PhD, CEG #2449
President, O'Connor Environmental, Inc.

Jeremy Kobor, MS, RG (OR-2142)
Senior Hydrologist

SUBJECT: Hydrologic Assessment of Water Withdrawal for Dust Control Use

Introduction

Gualala Redwoods, Inc., (GRI) is required to control dust on forest roads during certain forestry operations on its property in the Gualala River watershed. GRI obtains some of this water by direct pumping from a pool in the South Fork Gualala River just downstream of the confluence with the Wheatfield Fork. The water is pumped into a 5,000 gallon truck and pumping rates range from 100 to 300 gallons per minute (gpm). This document describes an assessment of the potential hydrologic impacts of the withdrawal of water from the South Fork Gualala by pumping from a pool to a water truck for dust control use.

During portions of the summer months, streamflow in the South Fork Gualala River typically drops to zero such that water is present in the pool due to the position of the water table, but no flow enters or exits the pool. During these dry conditions the potential effects of water withdrawals by pumping would be expected to be greatest, and thus this condition was the focus of our analysis. The potential effect of the water withdrawals were evaluated by estimating the flux of groundwater in the streambed alluvium relative to the pumping rates using regional discharge relationships developed from gauging data from tributary watersheds, and by developing a finite-difference groundwater flow model to simulate the groundwater and pumping dynamics in the vicinity of the pool.

440.42

ADDED 6/23/15
PART OF PLAN

Discharge Analysis

Since December of 2005, O'Connor Environmental, Inc. (OEI) has been collecting discharge data at four gauging stations in Gualala River tributary watersheds. These gauges are located on three tributaries of Buckeye Creek (Francini Creek, Soda Springs Creek, and upper Buckeye Creek), -and one tributary of the Wheatfield Fork (South Fork Fuller Creek). The contributing areas at these gauge sites range from 1.2 to 3.1 square miles (Figure 1). The channels at these upper watershed gauging locations have relatively limited sediment storage and thus groundwater underflow is expected to be minimal such that the gauging records approximate the total flux of water down these tributary streams.

In order to estimate the average baseflow conditions (summer low flow) at these gauging locations, we tabulated the mean daily discharges for July through September for each of the four years with available data (2006-2009) at each location and expressed the discharges on both a watershed area and flow length basis. The mean baseflow discharge at the four locations ranged from 0.05 to 0.09 cfs per square mile of drainage area and from 0.03 to 0.04 cfs per mile of stream length depending on the year (Tables 1 and 2).

Scaling these baseflow estimates up to the drainage area and stream length at the pumping location near the confluence of the South and Wheatfield Forks of the Gualala River yields mean summertime (July through September) baseflow estimates of 8.4 to 14.9 cfs using drainage area and 10.4 to 14.2 cfs using flow length as the scaling variable. Although these scaling techniques are rather crude, they utilize recent gauging data in the watershed and represent a reasonable estimate of the flux of water moving through the alluvium at the pumping locations.

Based on pumping log records maintained by GRI during July of 2008, typical pumping rates range from 100 to 300 gpm and typical daily pumping volumes range from 4,000 to 20,000 gallons. These rates are equivalent to discharges of 0.22 to 0.67 cfs which represents 1.5 to 8.0% of the instantaneous discharge through the alluvium depending on which baseflow estimate is used. Typical pumping durations are quite short and range from 12 to 20 minutes to fill up one truck. At most five trucks are filled within a single day. Thus when expressed relative to the daily volume, the withdrawals represent less than 0.1 % of the total daily flow for one truckload and less than 0.5% for five truckloads.

440.43

ADDED 6/23/15

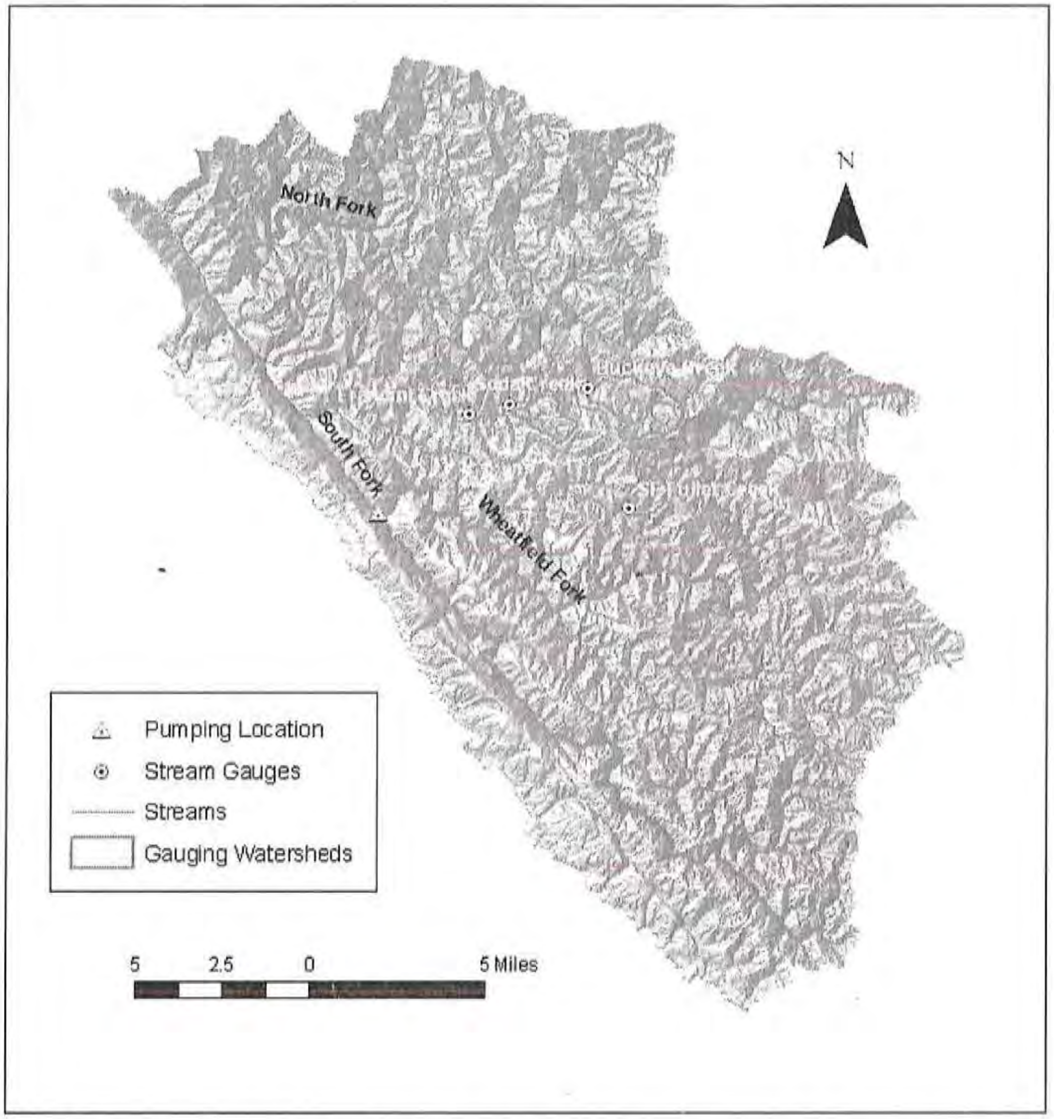


Figure 1: Overview map of the Gualala River Watershed showing the pumping location, the locations of the streamflow monitoring stations, and the stream coverage used for the discharge analysis.

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OEI

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Table 1: Mean daily discharges at the four upper watershed gauging locations expressed on a watershed area basis.

	Drainage Area (mi^2)	Mean Discharge (cfs/mi^2) July - Sept. 2006	July - Sept. 2007	July - Sept. 2008	July - Sept. 2009
S.F. Fuller	1.16	0.063	0.000	0.142	0.144
Soda Springs	1.53	0.041	0.065	0.013	0.022
Francini	1.82	0.109	0.090	0.110	0.162
Buckeye	3.10	0.034	0.053	0.005	0.041
Mean		**0.062**	**0.052**	**0.068**	**0.092**

Table 2: Mean daily discharges at the four upper watershed gauging locations expressed on a flow length basis.

	Flow Length (mi)	Mean Discharge (cfs/mi) July - Sept. 2006	July - Sept. 2007	July - Sept. 2008	July - Sept. 2009
S.F. Fuller	1.84	0.040	0.000	0.089	0.078
Soda Springs	3.39	0.018	0.029	0.006	0.007
Francini	3.15	0.063	0.052	0.063	0.052
Buckeye	4.39	0.024	0.037	0.004	0.009
Mean		**0.036**	**0.030**	**0.041**	**0.036**

Groundwater Modeling Analysis

The use of a groundwater model to evaluate the potential effects of withdrawal of water from an isolated pool in the South Fork stems from our conceptualization of the pool as analogous to a large diameter well in a sandy-gravel alluvial aquifer. Pumping from the pool will create drawdown in the adjacent aquifer material that will be proportional to the rate and duration of pumping.

A finite-difference groundwater model of the alluvial aquifer near the confluence of the South and Wheatfield Forks of the Gualala River was constructed using the Gridded Surface Subsurface Hydrologic Analysis (GSSHA) model developed by the U.S. Army Corps of Engineers. The model utilized the high resolution (1-m) LiDAR data acquired as part of the EarthScope Northern California LiDAR project to define the upper surface of the model. The lateral extent of the model was

440-45

ADDED 6/23/15

defined as the extent of the stream channel alluvium as determined from existing geologic mapping and examination of the LiDAR data. The model includes the lower-most 0.3 river miles of the Wheatfield Fork and 0.6 river miles of the South Fork upstream and 2.0 river miles downstream of the confluence with the Wheatfield Fork (Figure 2).

The character and thickness of the alluvium in this vicinity is unknown. Two geologic cross sections were available several miles downstream of the project location near the confluence of the North and South Forks of the Gualala River (Ludorff & Scalmanini, undated). These sections indicate that the alluvium consists primarily of sand and gravel with lesser amounts of silt, and that maximum thicknesses are on the order of 175 ft near the center of the valley bottom and tapering towards the valley margins. The area near the confluence of the South and Wheatfield Forks is most likely a depositional zone as evidenced by the marked reduction in channel gradient that occurs near the confluence and the presence of an active gravel mining operation. Thus the alluvium is likely relatively thick in this area and we assumed a uniform thickness of 20 meters (65.6 ft). A uniform hydraulic conductivity of 1,000 ft/day was assumed for the aquifer which represents a mid-range estimate for unconsolidated sand and gravel deposits. Constant head boundary conditions equivalent to the thalweg elevations at the edges of the model were used for both upstream boundaries along the Wheatfield and South Forks and for the downstream boundary along the South Fork.

Initial water surface elevations were set equal to the surface topography and the model was evaluated for a 10-day period prior to introducing the pumping in order to allow the water table to equilibrate to the steady-state boundary conditions. The pumping was represented in the model with the addition of eight pumping wells located in a large pool approximately 35 ft downstream of the confluence (Figure 2). Eight wells were used in order to distribute the pumping across multiple grid cells so that the area across which water is extracted from the model approximates the area of the pool. The maximum pumping rate (300 gpm) from the pumping log maintained by GRI from July 2008 was distributed across the eight wells. The wells were activated for a duration of 12 minutes and the water surface elevations in the vicinity of the pool was tabulated. The steady-state simulated water table elevations are shown for the full model domain in Figure 2.

The modeling results indicate that water levels in the pool decrease very slightly during pumping with a maximum decrease of less than 0.1 ft and recover to within 0.01 ft of the starting water level within one hour (Figure 3). These findings are consistent with the GRI pumping log (Attachment 1) which indicates that on no occasion did the pool water level change during pumping within the measurement interval of 0.1 ft. The lack of significant changes in water level

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during pumping can be attributed to the relatively low pumping rates and the relatively high transmissivity of the streambed alluvium. The transmissivity is sufficiently high relative to the pumping rates that water can flow laterally towards the pool quickly enough to maintain a relatively static water level in the pool.

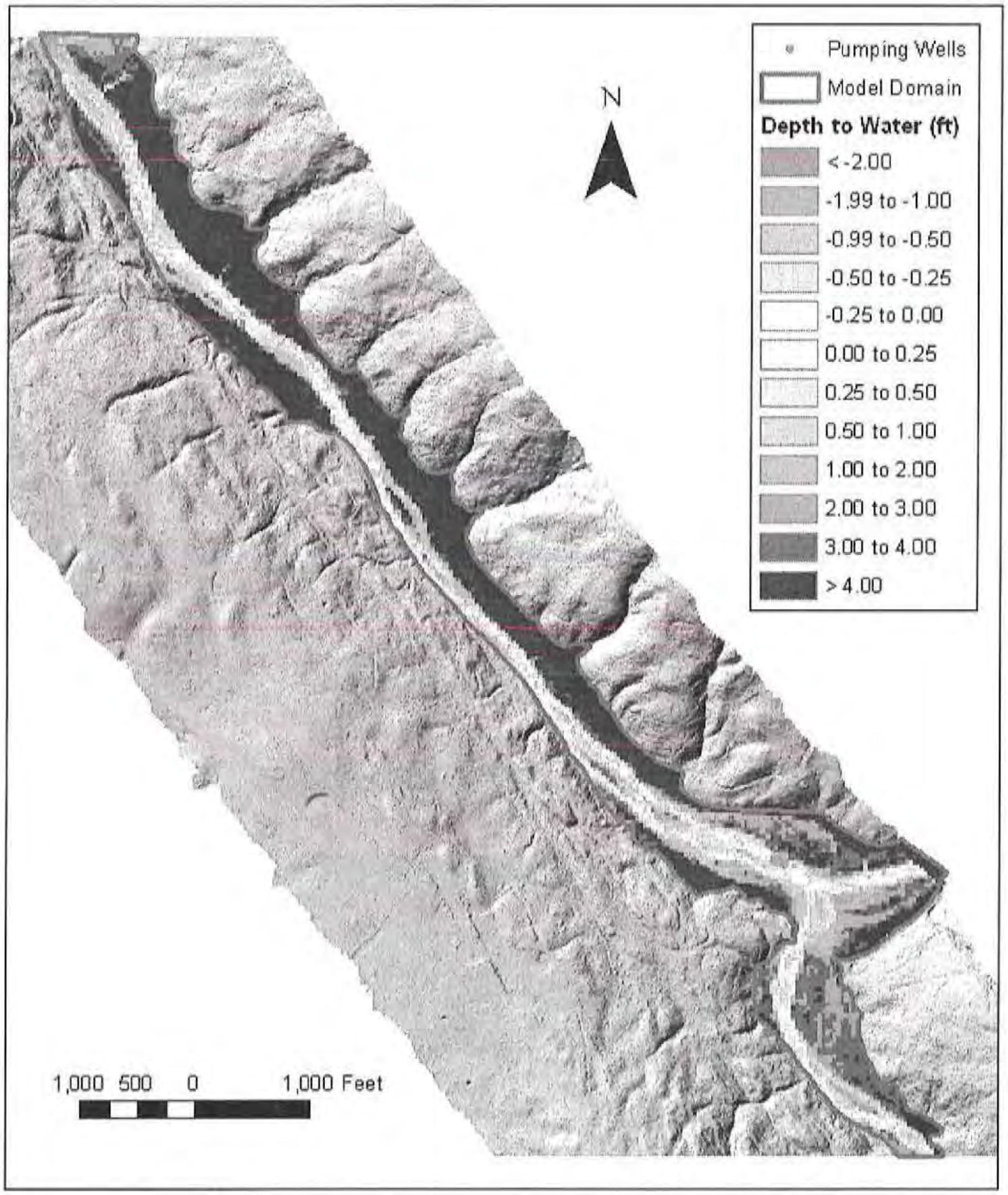

Figure 2: Shaded relief map showing the groundwater model domain, locations of pumping "wells", and the simulated steady-state depths to the water table (negative values indicate a water table above land surface).

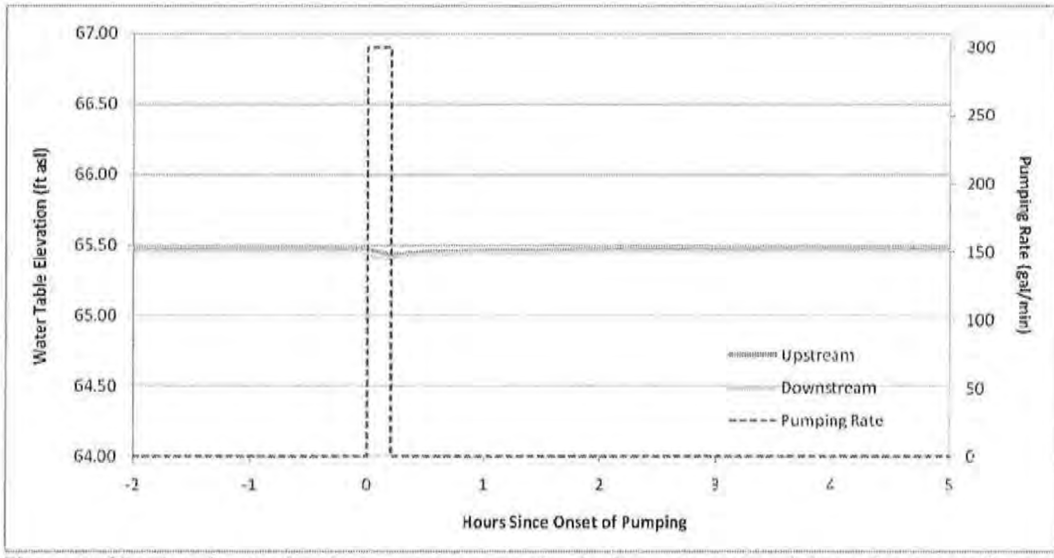

Figure 3: Simulated water level response to pumping in the upstream and downstream portions of the pool.

Summary and Conclusions

The potential impacts of water withdrawals for dust control from a pool located just downstream of the confluence of the South and Wheatfield Forks of the Gualala River were evaluated using two independent approaches. The first method utilized gauging data from tributary watersheds to estimate the flux of water moving through the alluvial substrate during the summer months and considered the relative magnitude of the pumping relative to the total flux. This analysis showed that the pumping represents less than 0.5% of the daily flux of water through the alluvium. The second method evaluated the pumping with a numerical groundwater flow model, and this effort indicated that the pumping does not result in significant changes in pool water levels.

Fish habitat and fish use in the South Fork of the Gualala River has been evaluated in a recent Biological Opinion by the National Marine Fisheries Service, Southwest Region.[1] limited During the low flow season (approximately July 1 to October 1), fish use would be limited to juvenile steelhead. There would be no use by smolts or adult migrants, and no incubating eggs or alevins would be present. Density of juvenile steelhead use in this area is low. The proposed pumping would have very little effect on flow levels (Figure 3), and would not be expected to significantly affect juvenile steelhead habitat. This limited potential fish use, combined with the relatively small proportion of the daily flow through

[1] Biological Opinion, Clean Water Act section 404 5-year permit issuance to Bed Rock Products Inc. for in-stream gravel mining in the Wheatfield and South Forks of the Gualala River, Sonoma County, California. For U.S. Army Corps of Engineers, San Francisco District, by National Marine Fisheries Service, August 18, 2008.

the streambed alluvium represented by the pumping and the lack of observable change in pool water levels during pumping lead us to conclude that the pumping even at low flows does not have a significant effect on flow, pool levels, anadromous fish or other aquatic biota at the South Fork pool site or downstream.

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Stream Temperature Modeling of the Gualala River Using the *Heat Source* Model

by

Dennis T. Schult
Dale J. McGreer, P.G.
Western Watershed Analysts
Clarkston, Washington

for

Gualala Redwoods
Gualala, California

August 13, 2004

Introduction

The *Heat Source* model was developed at Oregon State University as a tool for analyzing stream temperature data (Boyd, 1996), but has been updated and improved through the years. Version 7.0 was applied by Western Watershed Analysts to the South fork Gualala River for this project.

Heat Source is used to predict effects on stream temperatures resulting from changes in various environmental parameters, and allows evaluation of variations due to different management scenarios. The *Heat Source* model has been described in detail by the Oregon Department of Environmental Quality (ODEQ, 1999a). The code is written in Visual Basic, with an Excel spreadsheet input/output interface. *Heat Source* uses the same fundamental physical and thermodynamic concepts as many other process-based models. The fundamental premise of the model is that the water temperature at any given time and location in the stream is the result of the physical heat transfer processes between the stream and its surrounding environment. As a reach-based model, *Heat Source* predicts water temperatures at 2-hour intervals at downstream locations based on known water temperatures at an upstream location. Version 7.0 allows modeling of vegetation conditions that vary with distance from the stream; in application to the Gualala River, timber harvest plan (THP) prescriptions require treatments that vary in different riparian zones (0-30, 30-75, and 75-150 feet), and the model was applied accordingly within these zones.

The model itself requires four basic types of input:

1. stream characteristics - location, aspect, wetted width, flow, groundwater inflow, etc.
2. riparian characteristics - buffer height, width, canopy density, etc.
3. atmospheric conditions - air temperature, humidity, wind speed
4. water temperatures at the upstream end of the reach (boundary conditions)

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Based on these inputs, the model predicts water temperatures throughout the modeled reach, and displays the results in tabular and graphic formats.

Model Inputs

Figure 1 is a topographic map of the area surrounding the THP proposed by Gualala Redwoods along the South Fork Gualala River. The most recent version of the *Heat Source* model available was employed for this exercise - version 7.0 - obtained through the Oregon Department of Environmental Quality web site. Table 1 shows the model input parameters that were held constant throughout the modeling. Table 2 shows the variable input parameters.

Table 1. Constant Model Input Parameters

Date	7/3/2001
Latitude	38.8°N
Longitude	123.5°W
Stream aspect	320° from north
Reach length	10.3 km
Bankfull width	50 m
Stream gradient	0.1%
Stream width/depth ratio	40
Streambed conductivity	17 mm/s
Upstream flow volume	0.14 m^3/s
Downstream flow volume	0.24 m^3/s
Tree overhang	0 m
Topographic shade angle	10°
Minimum air temperature	12°C
Maximum air temperature	28°C
Minimum humidity	32%
Maximum humidity	48%
Wind speed	1.9 m/s

Table 2. Variable Model Input Parameters

Stream elevation	6.7 - 17 m
Buffer height	24 - 36 m
Buffer density, pre-harvest	95%
Buffer density, post-harvest	65 - 95%

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Figure 1. Map of South Fork Gualala River and Vicinity

Much of the input data, such as latitude, longitude, aspect, reach length, gradient, topographic shade, and elevation, were derived from readily available topographic maps, as in Figure 1. A number of other input parameters, such as bankfull stream width, buffer height, pre-harvest buffer density, etc., were measured during stream survey monitoring conducted by Gualala Redwoods. Air temperature, humidity, and wind speed were obtained from monitoring data gathered by Gualala Redwoods in the drainage and from a nearby weather station. Streamflow data was obtained from a local water company. The change in streamflow in the downstream direction (due to three primary tributaries that enter the South Fork Gualala within the study reach) was estimated based on relative drainage areas of the mainstem and the tributaries. The

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date, July 3, 2001, was chosen because it was the date of warmest water temperatures recorded in the South Fork Gualala River based on approximately eight years (1994-2001) of water temperature monitoring by Gualala Redwoods.

Post-harvest buffer densities were based on the harvest prescriptions placed on the THP: no harvest within 30 feet of the streambank; maintain 85% canopy density from 30 to 75 feet from the streambank; and maintain 65% canopy density from 75 to 150 feet from the steambank. This prescription was applied to the southwest bank of the stream only; no harvest is planned to the northeast of the stream, so modeled riparian parameters on that side of the stream were left unchanged between pre- and post-harvest.

Results

Figure 2 compares the modeled maximum stream temperatures to the stream temperature measured near the downstream end of each reach for July 3, 2001. The modeled temperature at the monitoring location is within 0.3°C of the measured temperature. Because the model calibration agrees quite well with measured pre-harvest stream temperatures, confidence in the modeling results is reasonably high (for comparison, during model validation for temperature analysis done for the Upper Grande Ronde TMDL, Oregon DEQ found average deviations of 0.7 to 0.9°C between measured and modeled temperatures (ODEQ, 1999b)).

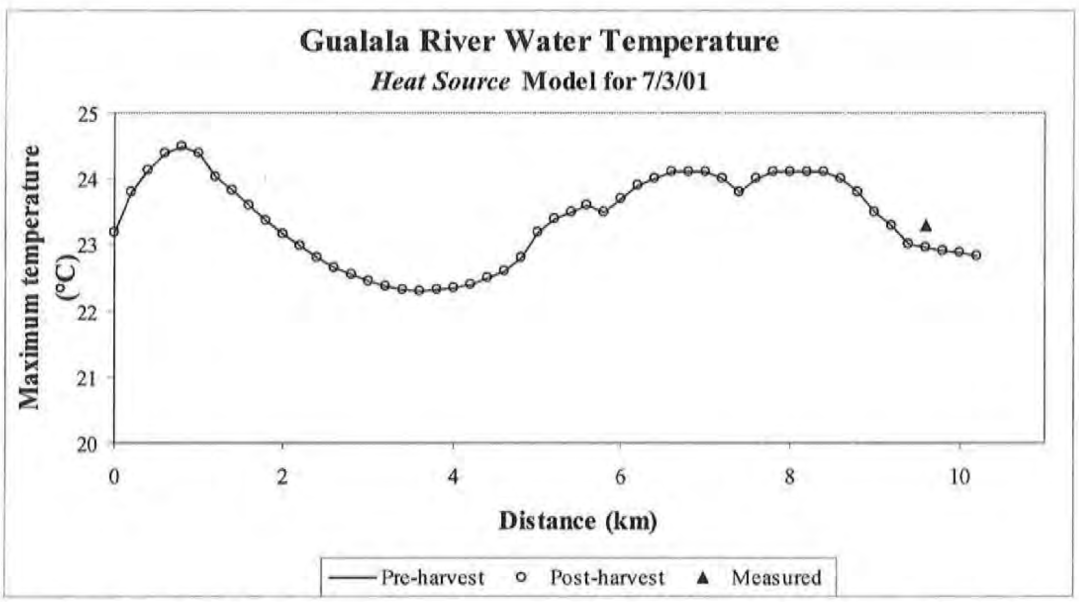

Figure 2. Effect of THP Riparian Prescription on Daily Maximum Water Temperatures

The modeling reveals no discernible differences between the pre-harvest and post-harvest stream temperatures, as evidenced by the essentially identical observation points for both pre-harvest and post-harvest in Figure 2. These results demonstrate that the harvest proposed by Gualala Redwoods for the South Fork Gualala River in accordance with the THP riparian prescriptions will result in no impact to water temperatures.

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References

Boyd, M. S. 1996. *Heat Source*: stream temperature prediction. Master's thesis, Departments of Civil and Bioresource Engineering, Oregon State University, Corvallis, Oregon.

ODEQ. 1999a. *Heat Source* methodology review: reach analysis of stream and river temperature dynamics. Oregon Department of Environmental Quality, Portland, Oregon. 83 p.

ODEQ. 1999b. Upper Grande Ronde River sub-basin Total Maximum Daily Load - Appendix A, temperature analysis. Oregon Department of Environmental Quality, Pendleton, Oregon. 94 p.

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State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

July 1, 2016

Henry Alden
Gualala Redwood Timber, LLC
P.O. Box 197
Gualala, CA 95445

Subject: Final Streambed Alteration Agreement
Notification No. 1600-2015-0155-R3
1-15-042 SON Dogwood

Dear Mr. Alden:

Enclosed is the final Streambed Alteration Agreement ("Agreement") for the Dogwood Project ("Project"). Please note that this Agreement requires notice to CDFW immediately prior to initiation of work within the stream zone and immediately following completion. In addition, given the drought conditions in California, particular attention should be given to water drafting, conditions in the Agreement. Per FPR 923.7(l)(3), detailed water drafting logs must be submitted to CAL FIRE following completion of drafting activities. Per this Agreement, water drafting logs must also be submitted to CDFW.

Before CDFW may issue an Agreement, it must comply with the California Environmental Quality Act ("CEQA"). In this case, CDFW, acting as a responsible agency, filed a notice of determination ("NOD") on July 1, 2016, based on information contained in the Timber Harvest/Nonindustrial Timber Management Plan the California Department of Forestry and Fire Protection approved for the Project.

Under CEQA, filing a NOD starts a 30-day period within which a party may challenge the filing agency's approval of the project. You may begin your project before the 30-day period expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Jeanne Wetzel Chinn, Environmental Scientist, at (707) 944-5523 or Jeanne.Chinn@wildlife.ca.gov.

Sincerely,

Randi Adair

for Craig J. Weightman
Environmental Program Manager
Bay Delta Region

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cc: John Bennett; jbennett@deltapac.com
Lieutenant Jones, CDFW.
Warden Wolvek, CDFW

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
BAY DELTA REGION
7329 SILVERADO TRAIL
NAPA, CALIFORNIA 94558
(707) 944-5500
WWW.WILDLIFE.CA.GOV

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2015-0155-R3
CLASS I, II AND CLASS III TRIBUTARIES TO THE GUALALA RIVER

HENRY ALDEN
1-15-042 SON DOGWOOD

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Henry Alden (Permittee) on behalf of Gualala Redwoods, Inc.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on April 16, 2015, that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

PART OF PLAN

PROJECT LOCATION

The project is located 0.75 miles east of the Town of Gualala, within the Mouth of the Gualala, Big Pepperwood, Little Creek, and Annapolis Planning Watersheds, and includes seven Class I watercourses, specifically the Main Stem of the Gualala River, Groshong Gulch, Big Pepperwood Creek, Little Pepperwood Creek, Buckeye Creek, Wheatfield Fork Gualala River, and South Fork Gualala River, as well as numerous unnamed Class II-Large (Class II-L), Class II-Standard (Class II-S) and Class III tributaries to the above-named Class I rivers, in Sonoma County, State of California; Sections 4, 5, 6, 8, 15, 16, 17, 21, 22, 25, 26, 27, 30, 31, 33, and 35, Townships 10N

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and 11N, Ranges 14W and 15W, U.S. Geological Survey (USGS) maps Gualala 1977, Stewarts Point 1978, and McGuire Ridge 1991, Mt. Diablo base and meridian.

PROJECT DESCRIPTION

The project is limited to installation and removal of four temporary bridges – Pepperwood Crossing (South Fork Gualala, 29), Summer Crossing (North Fork Gualala, 670), Rockpile Crossing (672), and Buckeye Crossing (673), water drafting at four gravel bar water drafting sites and three off-site water holes, installation of temporary pipe 6-inches or larger, adequate to handle water flow if wet at time of operations, at three temporary skid trail watercourse crossings (road points 66, 361, and 605), two temporary road watercourse crossings at road points (537 and 538); a temporary culvert installation at road point 146, a permanent culvert replacement at road point 575 unless a rocked dip is more appropriate; and watercourse crossing stabilization at road points 68, 90, and 579 and 928. See attached Figure 1, a map of temporary bridges and map/road points.

Temporary Bridges 29, 670, 672, and 673
Four temporary bridges are proposed for installation over Class I watercourses. The bridges shall consist of a 50-foot railroad flatcar. To construct the crossings, brow logs or Monschke blocks shall be placed on each side of the wetted channel within the banks of the active watercourse channel. Up to approximately 3000 cubic feet of gravel shall be used to backfill behind each of the abutments to create the bridge approaches between the bank and the bridge abutments. A tractor and excavator shall be used to install the bridge abutments and to place and remove the railroad flatcars from the abutments. Bridge abutments shall be removed from within the banks of the watercourse channel immediately following the removal of the railroad flatcar. Only small amounts of vegetation will either be pruned or removed from the project sites.

Watercourse *Crossing Road Points 66, 361, 537, 538, and 605*
Temporary skid trail watercourse crossing road points 66, 361, and 605, and temporary road watercourse crossing road points 537 and 538 are over unnamed Class II watercourses. Construction is limited to installation of temporary pipe 6-inches or larger, adequate to handle water flow if wet at the time of operations. Any piping installed will be removed by October 15 of the same year.

Watercourse Crossing Road Point 146
Temporary watercourse crossing road point 146 is over an unnamed Class II watercourse and will have a 12-inch temporary culvert with packed fill installed prior to harvest operations. The culvert will be removed and dipped out upon completion of harvest operations.

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Watercourse Crossing Road Point 575
Permanent watercourse crossing road point 575 is over an unnamed Class III watercourse. The damaged 24-inch culvert will be replaced with a permanent in-kind culvert or a rocked ford will be installed using 6-inch and larger rock. The width of the rocked ford will be at least equal to the watercourse width and road level will be at least as high as the watercourse banks.

Watercourse Crossing Road Point 90
At temporary watercourse crossing road point 90, a Class III watercourse is running down a spur road into the flat alluvial plain. The flow will be redirected to run straight across the road by placing a berm on the downhill side.

Watercourse Crossing Road Points 68, 579, and 928
Watercourse crossing road points 68, 579, and 928 are existing rocked fords over unnamed Class II watercourses. Permanent watercourse crossing road point 68 is on the main haul road and will be dipped out 6-inches to 1-foot on both sides of the road and left as a rolling mound after completion of harvest operations. Seasonal watercourse crossing road point 579 will have additional rock added to the outlet for protection from sediment delivery during rain events. Seasonal watercourse crossing road point 928 is on the main haul road and will have 12-inch rock keyed in at the outlet with additional 6-inch rock placed against the larger rock for protection from sediment delivery during rain events.

Water Drafting
Water drafting for timber harvesting road dust abatement and emergency fire suppression may be conducted at three off-site water holes via a pump to a water truck, and at four gravel bar water drafting sites. Water will not be drafted directly from the wetted channel, in areas where fish may be present.

Road/Crossing Deactivation
Three crossings, Road Points 89, 5659, and 5660, and the road connecting them, covered under 1600-2014-0012-R3 in Kestrel THP 1-11-087 SON, and also being used in this 1600-2015-0155-R3 Agreement, will be deactivated as part of this Agreement under 1-15-042 SON Dogwood THP.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

- Coho salmon (*Oncorhynchus kisutch*)
- Chinook salmon (*Oncorhynchus tshawytscha*)
- Steelhead trout (*Oncorhynchus mykiss*)
- Foothill yellow-legged frog (*Rana boylii*)
- California red-legged frog (*Rana draytonii*)
- Western pond turtle (*Clemmys marmorata*)
- Northern spotted owl (*Strix occidentalis caurina*)
- Marbled murrelet (*Brachyramphus marmoratus*)

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- Riparian habitat
- Nesting and migratory birds
- Terrestrial and aquatic habitat
- Aquatic organisms

The adverse effects the project could have on the fish or wildlife resources identified above include:

- Loss of natural bed or bank
- Relocation of stream channel
- Change in contour of bed, channel or bank
- Change in gradient of bed, channel or bank
- Change in channel cross-section (confinement or widening)
- Degradation or aggradation of channel
- Accelerated channel scour
- Loss of bank stability during construction
- Increase of bank erosion during construction
- Change in channel form (e.g., loss of pools or riffles)
- Loss or decline of instream channel habitat
- Change to, or loss or decline of natural bed substrate
- Restriction or increase in sediment transport
- Increased turbidity
- Loss or decline of riparian and/or emergent marsh habitat
- Colonization by exotic plant or animal species;
- Direct take of fish or other aquatic species, including redds
- Change in flow depth, width or velocity
- Disturbance from project activity

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of

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Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Notification of Work Initiation. Permittee shall notify CDFW 48 hours prior to the initiation of construction.

1.5 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site at any time to verify compliance with the Agreement.

1.6 Inspections. CDFW personnel or its agents may inspect the work performed at the project site at any time. As a result of field inspection, CDFW may require that additional conditions be applied to protect sensitive biological resources. Such conditions may be amended into this Agreement with the agreement of both parties.

1.7 Consistency with Notification. All work shall be completed in accordance with the plans, drawings and project description submitted with the project notification (Exhibit A), and the Timber Harvest Plan (THP) 1-15-042 SON (Exhibit B). If Permittee wishes to modify the project described in this Agreement, CDFW shall first be notified, and an amendment or new notification may be required.

1.8 Access to Property Not Owned by Permittee. This agreement does not grant the Permittee authority to enter, use, or otherwise encroach upon on the property rights of individuals or organizations not party to this Agreement. Permittee shall obtain written authorization from outside parties, in accordance with applicable laws, if access to property not owned by Permittee is necessary.

1.9 Unauthorized Take. The Permittee is required to comply with all applicable state and federal laws, including the California and Federal Endangered Species Act. This Agreement does not authorize the take of any state or federally endangered listed species. Liability for any take or incidental take of such species remains the responsibility of the Permittee for the duration of the project. Any unauthorized take of such special status species may result in prosecution and nullification of the agreement.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

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Work Periods and Planning

2.1 Work Period. All work within the project area as described in the project description shall be confined to periods of low or no stream flow between June 1 and October 15, except for water drafting in gravel bars, which shall be limited to between June 15 and October 15. The project area is defined as the bed, bank, channel, and associated riparian habitat. Revegetation work above the high water level is not confined to this work period. All erosion control facilities must be fully installed by October 15.

2.2 Work Period Extension. If the Permittee needs more time to complete the authorized activity, the work period may be extended on a weekly basis by contacting Jeanne Wetzel Chinn, Environmental Scientist, at (707) 944-5523, Jeanne.Chinn@wildlife.ca.gov, or, alternatively, by the Yountville office at (707) 944-5520.

2.2.1 Temporary Bridge Removal Extension. Temporary bridges shall be removed no later than October 15 unless the 7 day weather forecast does not include a prediction of greater than 30% chance of rain and CDFW authorizes an extension of this date. Requests for extensions may be requested on a week-by-week basis and shall include a copy of the 7 day weather forecast.

2.3 National Weather Service Forecast. Work shall be restricted to periods with minimal or no precipitation to minimize bank disturbance and erosion. No phase of the project shall be initiated if work and installation of associated erosion control measures cannot be completed prior to the onset of a storm event greater chance of ¼-inch over a 24-hour period predicted by 72-hour weather forecasts from the National Weather Service. If an unanticipated storm event occurs, Permittee shall inspect all sites currently under construction and scheduled to begin work within 72 hours for indications of bank erosion and/or channel sedimentation; if noticeable erosion or sedimentation has occurred, Permittee shall implement additional erosion control features and consult with CDFW regarding corrective actions. If a precipitation event exceeding ¼-inch of rain over a 24-hour period occurs, Permittee shall wait a minimum of 24 hours before resuming construction.

Wildlife Protection

2.4 Pre-Construction Training. Prior to timber harvest operations, a qualified biologist or registered professional forester (RPF) knowledgeable in identification of special species shall conduct a pre-construction training session for work crew members. The training session shall describe locations of jurisdictional waters, riparian and other sensitive habitats, and inform personnel of the value of these habitats. The training will include a discussion of sensitive biological resources within the project area and the potential presence of special-status species,

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special-status species' habitats, and protection measures to ensure species are not impacted by project activities and project boundaries. The training session shall address the penalties for violating these legal protections, their responsibilities, applicable mitigation measures, and the roles and authority of the biological monitor(s). The training session shall also include an orientation regarding the importance of preventing the spread of invasive weeds. If non-English-speaking workers will be on site, Permittee shall provide interpreters.

2.5 Wildlife Encounters. Permittee shall allow any wildlife encountered during the course of construction to leave the construction area unharmed. This authorization does not allow for the trapping, capture, or relocation of any state or federally listed species.

2.6 Marbled Murrelet Avoidance. Permittee shall follow all recommendations from the marbled murrelet pre-consultation letter dated July 22, 2014, for THP 1-11-087 SON "Kestrel".

2.7 Foothill Yellow-Legged Frog and California Red-Legged Frog Avoidance. A qualified biologist or Registered Professional Forester knowledgeable in identification of foothill yellow-legged frogs and California red-legged frogs shall conduct a pre-work survey within 72 hours of the commencement of work in the designated habitat areas and seasonally appropriate buffers. If special-status frogs are found, CDFW and the U.S. Fish and Wildlife Service shall be notified immediately, and work in the stream shall be placed on hold. CDFW reserves the right to provide additional provisions to this Agreement in the event that special-status frogs are discovered.

2.8 Injury or Mortality of Listed Species. If Permittee or its employees, contractors, or agents injures or kills a listed species, or finds any such animal injured or dead, all activities in the work area shall immediately cease, and CDFW and U.S. Fish and Wildlife Service shall be notified by telephone within 8 hours or as soon as feasible of the discovery. A written report detailing the time, location, and general circumstances under which the dead or injured individual animal was found shall be submitted to CDFW and the U.S. Fish and Wildlife Service (USFWS) no later than five (5) business days following the incident. Any injured listed species shall be immediately transported to an approved wildlife rehabilitation clinic (http://dfg.ca.gov/wildlife/WIL/rehab/facilities.html).

2.9 Vehicular Speed. Vehicular speed in the WLPZ shall be kept to a maximum of 15 miles per hour. Permittee shall place signs on the haul roads in Units 2, 5, and 6 at both ends of the 300 foot buffers for red-legged frog habitat identified in the THP on maps in Section II, pages 72-73. During the rainy season, drivers shall avoid any amphibians present on the road. Amphibians shall not be handled and shall be allowed to disperse on their own.

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Habitat/Vegetation Protection

2.10 Prohibited Plant Species. Permittee shall not plant, seed or otherwise introduce invasive exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: http://www.cal-ipc.org/paf/.

2.11 Vegetation Removal. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete work. Precautions shall be taken to avoid other damage to vegetation by people or equipment.

Erosion and Sediment Control

2.12 Erosion Control Best Management Practices (BMPs). All bare mineral soil exposed in conjunction with crossing construction, deconstruction, maintenance or repair, shall be treated for erosion prior to the onset of precipitation capable of generating runoff. Erosion control shall consist of packed slash or straw mulch. If the site is seeded, a mix of native grasses common to the area shall be used, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment. No annual (Italian) ryegrass (*Lolium multiflorum*) shall be used. Seeding placed after October 15 shall be covered with broadcast straw, jute netting, coconut fiber blanket, light mulch or a similar erosion control method. Erosion control blankets with monofilament or woven plastic strands shall not be used. Modifications, repairs and improvements to erosion control BMPs shall be made as needed to protect water quality. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream.

2.13 Cover Spoil Piles. Permittee shall have readily available plastic sheeting or visquine to cover exposed spoil piles and exposed areas in order to prevent loose soil from moving into the stream. These covering materials shall be applied when it is evident rainy conditions threaten to erode loose soils into the stream.

2.14 Excavation Material. No castings or spoils from excavation operations shall be placed on the stream side of the excavation site, within the channel or at the top of bank that will increase sedimentation to a watercourse. Excavated spoil and any resulting cut bank shall be sloped back from the channel and stabilized or removed to an area where the sediment will not deliver to a watercourse. Native seed, mulch, rock armor, or other similar treatment shall be used to stabilize exposed soils.

2.15 Fill Soils. All fill material placed on top of culverts (i.e. backfill) shall be free of rocks, limbs or other debris (greater than six inches in diameter). Soils imported to the site for fill shall have similar chemical properties, drainage characteristics, and composition to native soils. Fill removed from watercourse crossings shall

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either be end-hauled, or placed in a stable location and mulched, and where it will not drain into a watercourse.

2.16 Road Approaches. Road approaches to watercourse crossings shall be hydrologically disconnected and treated for erosion control as needed to minimize soil erosion and sediment transport to watercourses. Road approaches, inside ditches and drainage structures that cannot be hydrologically disconnected, and where there exists potential for measurable sediment discharge, shall be treated with drain rock, or other effective erosion control measures within the Watercourse and Lake Protection Zone (WLPZ), between the watercourse and first hydrologic break.

2.17 Rock Bank and Bed Stabilization. Riprap (rock slope protection) shall not be grouted or mortared. Only rocks and boulders free, to the extent feasible, of organic material and soil shall be used for the project. Riprap shall be properly keyed into the bank and be of sufficient size to remain in place and withstand the highest velocity of water anticipated within the stream channel.

Water Drafting

2.18 Drought-related Emergency Regulations. Permittee shall comply with all state and local water use restriction orders issued during drought conditions.

2.19 Water Drafting From Fish-Bearing Streams. To avoid take of fish, Permittee shall not draft water from the flowing stream channel; instead, all water shall be drafted from pits dug in gravel bars or upland locations.

2.20 Intake Closure at End of Operations. To terminate water drafting at the end of drafting operations each season during the winter period or during periods of extended non-use (>1 week), intakes shall be removed from the water holes and gravel bar water drafting sites and plugged, capped, or otherwise blocked (i.e., using a shut-off valve), or removed from flood prone areas.

2.21 South Fork Gualala River Drafting Sites:

2.21.1 Permittee shall divert water from an excavated hole in the gravel bar only at the four proposed drafting sites. Impoundments shall not be constructed in the Class I watercourse.

2.21.2 The gravel bar hole shall be no less than 10 feet from the wetted channel. Excavation of the gravel bar hole shall be conducted in isolation from the flowing stream. There shall be no work or equipment in the flowing stream.

2.21.3 No more than 25,000 gallons per day shall be drafted.

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2.21.4 The instantaneous drafting rate shall be no more than 300 gallons per minute.

2.21.5 The gravel bar hole shall be filled and otherwise restored to its original shape prior to October 15 or Measure 2.2 each year it is excavated to prevent stranding of aquatic resources.

2.21.6 Drafting operations shall not commence until a pre-operational meeting [pursuant to Forest Practice Rules §§ 1035.2 and 916.9(r)(3)(G)] has taken place in the field to discuss conditions of the water drafting in this agreement.

2.21.7 Water truck operators shall be in possession of log books that shall contain the following information, kept current during operations: 1) drafting site location, 2) date, 3) time, 4) pump rate, 5) filling time 6) screen cleaning/inspection notes, 7) pre- and post-drafting pool water elevation as recorded from the water level gauge.

2.21.8 Drafting logbook data shall be submitted to CDFW and Cal-FIRE every month that drafting operations occur, or sooner upon request.

2.22 Flow Requirements for Water Drafting from South Fork Gualala River:

2.22.1 Each of the four drafting sites shall have a downstream pool designated within the wetted channel that is easily observable from the drafting site but as far away as possible. This pool shall be used to determine any flow changes from drafting activities. A water level gauge with at least 0.05 foot increments shall be installed in this pool.

2.22.2 A pump test, as described in Measure 2.23, shall be conducted in order to determine the maximum allowable change on the water level gauge during drafting activities.

2.22.3 If, during any drafting activity, the water level as read on the water gauge falls below the amount determined to cause a change of 0.10 foot to the wetted width, pumping shall immediately cease and a pump test shall be conducted to determine the maximum rate of diversion that can occur without causing significant reductions as defined by a 0.10 foot change in the wetted width. CDFW shall immediately be notified with the results of the pump test.

2.22.4 At least once a month during drafting activities the Registered Professional Forester (RPF) shall accompany the drafting truck during one or more drafting events to ensure compliance with this Agreement. The presence of the RPF during the drafting event shall be recorded in the log

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book (see Measure 2.21.7).

2.22.5 Drafting activities shall not cause stream flows to become intermittent.

2.23 Pump Tests for South Fork Gualala River Drafting Sites:

2.23.1 A pump test shall be conducted at each site prior to commencement of any drafting activities. The purpose of this test is to establish if enough flow is present to allow for water drafting without significantly altering flow as measured by the wetted width of the channel. The test shall provide an estimate of the maximum change in water surface elevation as measured at the downstream water level gauge that would result in a change of less than 0.10 foot to the wetted width at each monitoring site.

2.23.2 During the pump test, the watercourse shall be monitored at least 200 feet below the point of diversion to determine whether pumping caused, or could cause, stream flows to become intermittent.

2.23.3 Additional pump tests shall be completed as required under 2.22.3. The RPF shall be present during these pump tests.

2.23.4 The edge of the wetted width of the channel at the first riffle crest downstream of the pool with the water level gauge shall be clearly marked with a flagged stake. This shall be referred to as the monitoring site.

2.23.5 During each pump test a photo with a date and time stamp shall be taken at the monitoring site prior to and after drafting. Photos shall be submitted to CDFW within 48 hours of each pump test.

2.23.6 If the wetted width of the channel is reduced greater than 0.10 foot during any pump test, water drafting operations shall immediately cease and CDFW shall be notified. If the wetted width of the channel is not reduced greater than 0.10 foot during any pump test, drafting activities may commence.

2.23.7 The change in the water level gauge shall be measured during the pump test. If the pump test did not reduce the wetted width of the channel by more than 0.10 foot, the change in the water level gauge shall be considered the maximum allowable change during subsequent pumping activities.

2.23.8 If no change in the water level gauge or wetted width of the channel is detected during the pump test, then drafting may commence and continue until a change of up to 0.10 foot in the water level gauge is detected. At that time, another pump test shall occur and follow measures as described under 2.23.7 to determine the maximum allowable change in the water level gauge.

2.24 Third Party Use of Drafting Site. Permittee shall not grant permission to other entities and persons to use water drafting sites or water drafted under this Agreement for purposes other than activities described in the THP.

2.25 Pre-operation Measure Review. Prior to drafting, a meeting shall take place between the RPF and the licensed timber operator (LTO) responsible for field operations. The meeting shall take place at a representative sample of the drafting sites, including all drafting sites with unique, site-specific conditions. The LTO shall inform all water truck operators of their responsibilities under this Agreement.

2.26 Excavation for Water Intakes. Permittee shall not allow excavating or filling a live stream for water intakes at drafting sites.

2.27 Road Approaches near Drafting Sites. Road approaches to all drafting sites shall be treated with river run gravel to eliminate the generation and transport of sediment to streams. Treatment locations shall include, but not be limited to, road surfaces and road drainage ditches. Permittee shall install effective erosion control measures (e.g., waterbars, gravel berms), where overflow run-off from water trucks or storage tanks may enter the stream, and absorbent pads shall be placed under water trucks at drafting sites. Permittee shall place appropriately sized angular rock in the ditch along the north side of the road approach to the Pepperwood gravel bar pit site to prevent sedimentation from entering the stream.

2.28 Pesticide Truck Drafting Restrictions. Pesticide mix trucks shall not directly draft water from a stream or pond, nor shall drafted water be used for pesticide application. Pesticide shall not be mixed where runoff may enter a stream or hydrologically connected drainage facility.

2.29 Limitation on Water Drafting Equipment. Drafting by more than one pipe or hose shall not occur simultaneously at the same site.

2.30 Waterhole Maintenance. Permittee shall maintain waterholes only between June 15 and October 15, or pursuant to Measure 2.2 unless the waterhole is dry. Each hole shall provide a ramp with a grade of no more than 45 degrees to allow any animals that fall into the pit to escape.

Temporary Bridges

2.31 Heavy Equipment Operations

2.31.1 Seasonal Bridge at Map Point 670. There shall be no operations within the flowing water or wetted pools. All work must be performed in isolation from the flowing stream.

2.31.2 Seasonal Bridges at Map Points 29, 672, and 673. No heavy equipment shall operate in the live stream, except to install and remove the temporary bridges, railroad flatcars and abutments. An excavator and a cat shall each be limited to crossing the live stream each year a total of two passes at each site (a pass is defined as across the stream and back).

2.31.3 Installation of Seasonal Bridges at Map Points 29, 672, and 673. During installation of temporary bridges, the bridge surfaces (e.g., railroad flatcars) and abutments (e.g., brow logs and Monschke blocks) shall be lifted over and not dragged through the wetted channel. The bridges may be temporarily set in the wetted channel until heavy equipment is able to lift it onto the opposite bank side.

2.31.4 Excavation for All Seasonal Bridges. Prior to yarding the bridges across the active channel, the operator shall excavate all loose dirt from the end of the bridge that may accumulate when moving the bridge to prevent sediment deposition in the channel.

2.32 Temporary Bridge Abutments

2.32.1 Bridge abutments shall be constructed of a combination of gravel and large-sized brow logs, or gravel and Monschke blocks (i.e., large cement blocks).

2.32.2 Each abutment shall provide a stable base for the bridge and be constructed to prevent erosion of the watercourse bank below the surface.

2.32.3 Abutments shall not reduce the wetted width of the channel or constrict stream flow at any time.

2.32.4 Road approaches to the temporary bridges shall be treated within the WLPZ to prevent generation and transport of sediment to receiving watercourses. Treatment shall consist of rocking prior to October 15. The rock shall be imported clean, durable, and angular or river run gravel from a nearby gravel bar. The rock shall be applied at least six inches deep. All road approaches and their drainage facilities shall be ameliorated where there is evidence of the generation and transport of sediment to watercourses, such as road surface, cut and fillslope, rilling, and gullying and ditch relief culvert failures.

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2.33 Gravel Extraction for Bridge Abutments

2.33.1 Only gravel needed for the temporary bridge crossing abutments and road approach rocking addressed in this Lake and Streambed Alteration Agreement (1600-2015-0155-R3) shall be extracted.

2.33.2 Gravel extracted at the watercourse crossing locations shall not be used for any other purpose except as authorized in this Agreement.

2.33.3 For the purpose of constructing temporary bridge abutments, rock may be removed from the gravel bars adjacent to the crossing locations once per year per crossing during the term of this Lake and Streambed Alteration Agreement (1600-2015-0155-R3).

2.33.4 Only imported gravel or gravel from dry gravel bars located above the wetted stream and immediately adjacent to the temporary bridge crossing locations shall be used.

2.33.5 Scraping or skimming of dry gravel bars shall not result in concave, low areas where fish could be stranded after high river flows.

2.33.6 The low flow channel shall be defined as the water surface elevation on June 15.

2.33.7 Throughout the life of the project or for the specified time period during which gravel removal from the active channel occurs, no gravel shall be extracted from the low flow channel, nor alterations of any kind made to the low flow channel except by prior approval of CDFW.

2.33.8 Gravel bar scraping or skimming shall not occur within 5 (five) feet of the low flow channel.

2.33.9 The longitudinal slopes of gravel bars and the channel bottom shall be left with post-extraction slopes that match those of the natural gradient up- and downstream of the excavation area.

2.33.10 The cross-sectional slopes of gravel bars and the channel bottom shall be left with post-extraction slopes that match those of the natural cross-sectional slopes up- and downstream of the excavation area starting from the edge of the low flow channel.

2.34 Aquatic Biological Resource Protection for Map Points 29, 672, and 673

2.34.1 Fisheries Biologist or Designated Fisheries Technician: A qualified fisheries biologist shall perform aquatic habitat review and administer the fisheries impact minimization plan. Alternatively, a designated fisheries technician may perform these functions under the condition that Permittee provide in writing, and be approved by CDFW, the fisheries technicians' name, qualifications including fisheries training and experience with fish exclusion methods, address and contact information at least 30 days prior to aquatic habitat review and implementation of the fisheries impact minimization plan.

2.34.2 Prior to the first time the temporary bridges are installed under this Agreement, the Operator shall convene a meeting with a qualified fisheries biologist or an experienced fisheries technician to review the aquatic habitat features of the bridge installation sites and discuss the fisheries impact minimization plan. CDFW shall be notified of the meeting at least ten business days prior to the meeting.

2.34.3 During the pre-bridge installation meeting described above in Measure 2.34.1, a qualified fisheries biologist or an experienced fisheries technician shall accomplish the following:

1. Identify life history stages of salmonids at the sites,
2. Identify locations that may contain fish,
3. Locate in-stream features (pools, undercut banks, submerged woody debris) that could be used by fish as a refuge from disturbance,
4. Determine if the substrate may be of suitable size to be used by fish as cover,
5. Determine the preferred direction to move fish out of the path of heavy equipment and bridge structures,
6. Determine the number of field support technicians, in addition to the experienced fisheries technician, that would be required to move fish from the construction zone;
7. Provide a demonstration to field support technicians of the fisheries impact minimization plan.

2.34.3 The fisheries impact minimization plan shall consist of the following minimum criteria:

1. At each site, prior to bridge installation and removal, the experienced fisheries technician (and trained field support technicians, if needed) shall perform fish hazing. This shall include a minimum of three sweeps with hand-held nets or other suitable tools to be used when walking in a downstream direction beating the water until in-stream habitat is reached that contains suitable cover that fish can move into and hide,
2. The qualified fisheries biologist or experienced fisheries technician shall determine the need, and if necessary install a block-net upstream of the watercourse crossing site to keep new fish from moving into the path of the heavy equipment,
3. The qualified fisheries biologist or experienced fisheries technician

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shall ensure no listed or special status species are present within the watercourse crossing site; should a listed or special status species make it through the block-net or sweeping the downstream water activities shall stop until the listed or special status species has left the area on its own accord,

4. Following the initial hazing described above, the experienced fisheries technician shall walk in front of the heavy equipment as it crosses the watercourse and agitate the water and substrate to move any remaining fish out of the path of the heavy equipment,
5. CDFW may consider other options to the fisheries impact minimization plan described above. If the Licensed Timber Operator (LTO) wishes to modify the fisheries impact minimization plan, the LTO shall immediately notify CDFW.

2.35 Temporary Bridge Deconstruction

2.35.1 All bridges and any associated abutments shall be removed, and channel restored prior to October 15th, or as otherwise allowed for in Measure 2.2.1 of each year of timber operations.

2.35.2 River run gravel used for road approaches and abutments shall be drifted back over the gravel bar to replicate its original contours.

2.35.3 During the non-work period, bridge surfaces and bridge abutments (i.e., brow logs and/or Monschke blocks) shall be stored at least 150 feet from the bridge crossing.

Temporary Road Crossings

2.36 Temporary Crossing Installation and Removal. Temporary crossings shall not be installed after October 15. All temporary crossings, associated materials and debris shall be completely removed from the watercourses and WLPZ, and erosion protection measures shall be set in place as soon as harvest operations are complete in that location or until rainfall exceeds 4-inches after October 15 of the year it was constructed, whichever comes first.

2.37 Stream Crossing Removal: When stream crossings are removed, all fill shall be excavated down to the original stream channel and outwards, horizontally, as wide as or wider than the natural channel to form a channel as close as feasible to the natural stream grade and alignment. The restored stream bank slope shall be no steeper than a 2:1 slope (horizontal:vertical) or original ground. The natural slope shall be stabilized to prevent slumping and to minimize soil erosion that could lead to sediment deposition into Waters of the State. Excavated fill shall be placed in stable areas where it cannot enter or erode into a stream.

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2.38 Access Prevention Barricades: Permittee shall effectively prevent access by standard-production four-wheel-drive passenger vehicles and all-terrain vehicles (ATVs) to deactivated roads and crossings.

Permanent Culverts

2.39 Culverts Appropriately Sized and Designed. The Permittee shall size permanent culverts at stream crossings to pass the estimated 100-year flood flow, including debris and sediment loads, without overtopping or diverting. Culvert sizing factors shall include transportation of bedload, the abundance and size of woody debris likely to be introduced to the stream upstream of the culvert crossing, resistance to washout, and erosion of the stream bed, stream banks and/or fill. Water velocity shall be dissipated at the outfall, to reduce erosion. Culverts shall be long enough to extend completely beyond the toe of fill.

2.40 Culvert Alignment. The Permittee shall align culverts within the watercourse channel. Culverts shall extend beyond the road fill and shall not be perched (suspended). Culverts shall be installed at watercourse gradient or have downspouts or energy dissipators at the outfall to prevent erosion.

2.41 Culvert Protection. The Permittee shall protect culvert inlets and outlets from erosion as appropriate through armoring constructed of rock rip-rap, large woody debris (LWD) or other non-erodible material. Where used, rock rip-rap or armoring shall be of sufficient size and depth to remain in place during 100-year peak flows, extend at least as high as the top of the pipe on inlets, and shall extend sufficient distance upstream as wing walls to prevent bank erosion. Where armoring is used, the channel at the culvert outlet shall set rip-rap below or at stream grade so as to allow the natural accumulation of bedload at watercourse grade.

2.42 Excavate and Dispose of Sediment Depositions. Permittee shall excavate and dispose of sediment depositions in the stream channels at the inlets of the culvert at a location and in a manner where sediment shall not enter into the waters of the State.

2.43 Maintenance of Culverts. Permanent culverts shall be maintained and kept open year round. The Permittee is responsible for such maintenance as long as the culvert remains in the stream.

Rocked Fords

2.44 Outside Fill Face to Form a Spillway. Permittee shall ensure that the outside fill face be a dished-out rock apron fill face that forms a spillway. The spillway shall extend from the rocked ford outfall break-in-slope down to a location where it shall be keyed-in to the slope and remain stable. The outside fill face slope (spillway) ratio of the ford shall be no steeper than 1.5:1 (horizontal:vertical; 67%).

2.45 Coarse Rock Armor. Permittee shall place coarse rock armor and large enough to remain in place during 100-year flood flows on the outer road bed/ford fill, in the toe of the downstream fill, and upstream as needed to provide erosion control and maintain stream gradient following installation of the ford.

2.46 Ford Approaches. Permittee shall ensure that for crossings where water flow is present, ford approaches shall be permanently rocked, paved, or otherwise armored to a minimum depth of 4 inches using river run gravel to prevent tracking of soil into the crossing.

2.47 Prevention of Washout. Permittee shall maintain fords to prevent washout and erosion of the streambed, streambanks, and fill. By the end of the work period each year, fording sites shall be left in a condition capable of passing 100-year flood flows, including bedload and debris, without diverting or substantially downcutting or headcutting.

2.48 Leave Channel in Stable Condition. Permittee shall leave the channel and bank configurations of the disturbed areas of any ford site in stable condition, with a low flow channel returned as nearly as possible to its natural state. The streambed shall be as wide, or slightly wider than what existed prior to the ford installation.

Maintenance and Inspections

2.49 Perform Routine Corrective Work. All crossings appurtenant to proposed operations shall be inspected by the Permittee at least once after October 15th following the first storm event producing bankfull stage flow prior to completion of operations. The inspection shall ensure that crossings are functioning as designed, road approaches hydrologically disconnect the road prism from waters, and the fine sediment present on road approach surfaces is prevented from delivery to streams. Inspection results and follow up corrective measures shall be documented and shall be provided to CDFW within 10 business days of the inspection or corrective measures. Permittee shall respond to CDFW no more than 48 hours following a request for inspection of crossings, and Permittee shall available within five days for a site visit.

2.50 Inspect Decommissioned and Abandoned Road Crossings. Permittee shall inspect decommissioned/abandoned road crossings following the first storm event producing bankfull stage after decommissioning/abandoning and again prior to filing the completion report. The inspection shall verify the effectiveness of treatments in preventing sediment discharges to waters and shall ensure treatments are functioning to restore natural drainage and hillslope stability. If treatments are found to be ineffective, further treatments shall be applied, in consultation with CDFW.

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2.51 Leave Encroachments in Finished Condition. Permittee shall ensure that work at encroachments is left in a finished condition with all hydrologic connectivity from the road or ditch to the crossing eliminated as feasible and effective erosion control in place prior to any rainfall event capable of generating runoff. Effective erosion control shall extend away from the crossing to at least the first waterbreak.

Equipment and Vehicles

2.52 Equipment Maintenance and Fueling. Any equipment or vehicles driven and/or operated adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that could be deleterious to aquatic and terrestrial life or riparian habitat. No equipment maintenance or fueling shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas.

2.53 Clean Equipment Use. Prior to operations, all heavy equipment and vehicles shall be cleaned of all external materials, which may be deleterious to aquatic life, wildlife, and riparian habitat (such as oil, grease, or hydraulic fluid). Cleaning shall not occur within a watercourse, stream channel or stream bank or within a WLPZ, equipment exclusion zone (EEZ) or equipment limitation zone (ELZ).

2.54 Storage and Stationary Equipment. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to the stream shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak.

Debris Materials and Waste

2.55 Trash Abatement. The Permittee shall not dump any litter or debris within the stream zone. All debris and waste shall be picked up daily and properly disposed of at an appropriate site. All construction debris and associated materials shall be removed from the work site upon Project completion.

Hazardous Materials and Spills

2.56 Storage and Handling of Hazardous Materials. Hazardous or toxic materials that could be deleterious to aquatic life shall be contained in watertight containers or stored in an upland location. Such materials include, but are not limited to, debris soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, and oil or other petroleum products. These materials shall be prevented from contaminating the soil and/or entering the waters of the State. Any such materials, placed by Permittee or any party working under contract, or with permission of Permittee, within or where they may enter streams or wetlands, shall be removed

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immediately. Best management practices (BMPs) shall be employed to accomplish these requirements.

2.57 Spill Containment and Cleanup. All activities performed in or near a stream shall have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. Permittee shall begin the cleanup of all spills immediately. CDFW shall be notified immediately by the Permittee of any spills and shall be consulted regarding cleanup procedures.

3. Reporting Measures

Permittee shall meet each reporting requirement described below.

3.1 Notification to the California Natural Diversity Database. If any sensitive or special status species are observed within the project area or during project surveys, Permittee shall submit California Natural Diversity Database (CNDDB) forms to the CDFW Biogeographic Data Branch (CNDDB@wildlife.ca.gov) with all pre-construction survey data within five working days of the sightings, and provide regional CDFW staff with copies of the CNDDB forms and survey maps.

3.2 Completion of Construction. The Permittee shall notify CDFW by October 15 of the completion of work within the stream zone on this project. Notification shall be made either by email to Jeanne.Chinn@wildlife.ca.gov, or by phone (707) 944-5523. Refer to Notification Number 1600-2015-0155-R3 when notifying CDFW.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other.

To Permittee:
Henry Alden
Gualala Redwood Timber, LLC
P.O. Box 197
Gualala, CA 95445

To CDFW:
California Department of Fish and Wildlife
Bay Delta Region
7329 Silverado Trail
Napa, California 94558
Attn: Lake and Streambed Alteration Program – Jeanne Wetzel Chinn

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Notification #1600-2015-0155-R3
Fax (707) 944-5523
Jeanne.Chinn@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and

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subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

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EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)). .

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall expire on December 31, 2020, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

A. Notification of Lake or Streambed Alteration 1600-2015-0155-R3
B. Timber Harvest Plan 1-15-042 SON "Dogwood"
Figure 1 – Map of Temporary Bridges and Map/Road Points

AUTHORITY

PART OF PLAN

440.78

revised 9/18/17

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

440.79

revised 9/18/17

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR GUALALA REDWOOD TIMBER, LLC

Ty Alden 4-5-16

Henry Alden — Date

Registered Professional Forester

FOR DEPARTMENT OF FISH AND WILDLIFE

Randi Adair 7/1/16

for Craig J. Weightman — Date

Environmental Program Manager

Prepared by: Jeanne Wetzel Chinn
Environmental Scientist

Date Sent:	June 30, 2015
Resent via email:	August 10, 2015
Resent:	December 4, 2015
Resent:	December 21, 2015
Resent:	February 24, 2016

PART OF PLAN

440.80 revised 9/18/17

INTENTIONALLY
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440.81

revised
9/18/17

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

July 22, 2014

Henry Alden
Gualala Redwoods, Inc.
Post Office Box 197
Gualala, CA 95445

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2014-0012-R3
THP 1-11-087 SON "Kestrel"

Dear Mr. Henry Alden:

Enclosed is the final Streambed Alteration Agreement ("Agreement") for the Kestrel THP, 1-11-087 SON ("Project"). Before the Department may issue an Agreement, it must comply with the California Environmental Quality Act ("CEQA"). In this case, the Department, acting as a responsible agency, filed a notice of determination ("NOD") on July 22, 2014 based on information contained in the Negative Declaration the lead agency prepared for the Project.

Under CEQA, filing a NOD starts a 30-day period within which a party may challenge the filing agency's approval of the project. You may begin your project before the 30-day period expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Julie Coombes, Environmental Scientist, at (707) 944-5529 or Julie.Coombes@wildlife.ca.gov.

Sincerely,

CWeightman

Craig J. Weightman
Environmental Program Manager
Bay Delta Region

cc: Lieutenant Jones
Warden Esquivel

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RESOURCE MANAGEMENT

Conserving California's Wildlife Since 1870

440.82

ADDED 7/1/15

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
BAY DELTA REGION
7329 SILVERADO TRAIL
NAPA, CALIFORNIA 94558
(707) 944-5500
WWW.WILDLIFE.CA.GOV

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2014-0012-R3
Unnamed Class II Watercourse Tributaries to South Fork Gualala River, Class I Watercourse South Fork Gualala River

HENRY ALDEN
GUALALA REDWOODS, INC.
P.O. BOX 197
GUALALA, CA 95445

KESTREL THP 1-11-087 SON

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Gualala Redwoods, Inc. (Permittee) as represented by Henry Alden.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on January 8, 2014 that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project is located on multiple unnamed Class II watercourse tributaries to South Fork Gualala River and on the South Fork Gualala River, a Class I watercourse, in the County of Sonoma, State of California; U.S. Geological Survey (USGS) map McGuire Ridge and Stewarts Point , Mt. Diablo base and meridian, Assessor's Parcel Number 121-010-03, 121-030-01, 121-030-02, 122-020-01, 122-040-02, and 122-040-04. Project activities are mapped in the Notification (included as Exhibit A to this Agreement) at Road Points 10, 11, 12, 13, 17, 19, 23, 28, 29, 39, 43, 5655, 5656, 5659, 5660, and although the Large Woody Debris (LWD) enhancement project does not have specific road point numbers, the locations are depicted on the Kestrel Proposed LWD Locations map (Exhibit A: Section II, pages 75.11-76).

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ADDED 7/1/15

PROJECT DESCRIPTION

The project is limited to six temporary ford crossings over unnamed Class II watercourses, two culvert replacements on unnamed Class II watercourses, two temporary bridges over the South Fork Gualala River, one culvert replacement or crossing removal on an unnamed Class II watercourse, two permanent rocked fords over unnamed Class II watercourses, two crossing removals on unnamed Class II watercourses, and a Large Woody Debris (LWD) enhancement project in the South Fork Gualala River. These features will be constructed as part of the Timber Harvest Plan (THP) 1-11-087 SON "Kestrel".

Permittee will construct temporary ford crossings over a Class II watercourse crossing at Road Points 10, 11, 12, 13, 17, and 19. The crossings have low gradient approaches and the banks are low. Grasses, ground cover and a few small willows (*Salix* spp.) may be affected at each crossing. The total area disturbed per each crossing will be approximately 400 square feet or less. The banks will be returned to pre-crossing condition or better, and any loose soil will be removed, placed in a stable location where it will not drain to a watercourse and mulched. If the crossing is wet a temporary 4-inch or larger pipe will be installed. Sandbags filled with clean gravel will be used to construct a coffer dam, and the temporary pipe will be covered with a layer of straw and then dirt to create a running surface. If no water is present, a layer of straw and then dirt will be placed to create a running surface. All crossing material will be removed prior to the winter period, October 15. At the close of operations and prior to November 15, the crossing approaches will be seeded and mulched.

Permittee will replace a failing 24-inch culvert with a 36-inch diameter, 80-foot long culvert over a Class II watercourse crossing at Road Point 23. The old culvert is located 100 feet north of the watercourse and drains an inside ditch. The new culvert will be aligned with the watercourse and the culvert will be positioned to direct the flow to a large root wad just downstream of the outlet. Approximately 400 yards of fill will be excavated. Permittee will replace a 36-inch culvert with a 48-inch diameter, 40-foot long culvert over a Class II watercourse crossing at Road Point 39. The new culvert will be installed at grade if possible, resulting in a longer culvert length, and if not, a downspout will be used. Approximately 600 cubic yards of fill will be excavated. Permittee will either replace a failing 48-inch culvert with a 72-inch diameter, 40-foot long culvert or remove the culvert and replace with a rocked ford at close of operations over a Class II watercourse at Road Point 43. Approximately 200 cubic yards of fill will be excavated. If water is present during culvert removal and installation at Road Points 23, 39 and 43, a temporary dam will be installed by placing hay bales or dirt with plastic covering on the upstream side and water will be diverted around the site.

Permittee will replace two Humboldt crossings with rock armored fords on Class II watercourse crossings at Road Point 5655 and 5656. Road Point 5655 consists of a steep watercourse that crosses the road at the flood plain with signs of suspended sediment transport. The crossing is about 200 feet from the confluence with the South Fork Gualala River. Approximately 40 cubic yards of fill will be excavated at the crossing and 30 yards of rock will be used in the ford installation. Road Point 5656 consists of an eroding Humboldt crossing with a 2-foot by 3-foot gully. The channel flattens approximately 150 feet downstream of the crossing and disappears into the flood plain 500 feet downstream. Approximately 50 cubic yards of fill will be excavated at the crossing and 40 yards of rock will be used in the ford installation. If water is present during operations at Road Points 5655 and 5656, a temporary dam will be installed by placing hay bales or dirt with plastic covering on the upstream side and water will be diverted around the site.

440.84 APPED 7/1/15

At Road Points 5659 and 5660, a Class II watercourse flows through a road crossing directly to the South Fork Gualala River. At point 5659 the road is partially eroded due to the failed crossing. At point 5660 a debris slide caused the majority of the road to erode downstream. The Permittee will remove both crossings by excavating the remaining fill down to the original channel and stabilizing the banks as close to the natural slope as can be determined. Approximately 200 cubic yards of fill will be removed, placed in a stable location where it will not drain to a watercourse and mulched. Approximately 10 yards of rip rap will be placed in the channel bottom at the downslope end of excavation. All exposed channel banks will be straw mulched. If water is present during operations, a temporary dam will be installed by placing hay bales or dirt with plastic covering on the upstream side and water will be diverted around the site. In order to access the Dogwood THP unit (THP not yet submitted), a temporary culvert may be installed at each of these road points prior to deactivation. If a temporary culvert is installed it will be sized appropriate to stream flow, and the temporary pipe will be covered with a layer of straw and then dirt to create a running surface. All crossing material will be removed prior to the winter period, October 15. At the close of operations and prior to November 15, the crossing approaches will be seeded and mulched.

Permittee will install two temporary bridges over the South Fork Gualala River, a Class I watercourse. The Pepperwood Crossing Bridge is located approximately 3000 feet downstream from the confluence of the South Fork Gualala River and Pepperwood Creek at Road Point 29. The Powerline Crossing Bridge is located approximately 1300 feet upstream from the confluence of the South Fork Gualala River and Buckeye Creek at Road Point 28. The channel bank full width at the two crossing sites is approximately 200 feet and the wetted channel width during the summer and early fall is approximately 30 feet wide and 6 inches deep. At each crossing location temporary bridges using 50-foot long and 8-feet wide railroad flatcars will be constructed. The Permittee will install a 12-foot long, 24-inch diameter brow log or three large cement Monschke blocks that are 2 feet wide, 2 feet high and 6 feet long on each side of the wetted channel within the banks of the active watercourse channel and up to approximately 3000 cubic feet of gravel will be used to backfill behind each of the abutments to create the bridge approaches between the bank and the abutments. The abutments will not reduce the wetted width of the channel or constrict stream flow at any time. A tractor and excavator will be used to install and remove the bridge abutments and railroad flatcar. Bridge abutments will be removed from within the banks for the watercourse channel immediately following the removal of the railroad flatcar. Equipment will cross the watercourse the minimum amount necessary to install the bridges, and equipment fording the watercourse will not change the channel configuration.

Fisheries Impact Minimization Plan: Prior to bridge installation and removal, fish hazing will include at least three sweeps with hand-held nets or other suitable tools while walking in a downstream direction beating the water until in-stream habitat is reached that contains suitable cover into which fish can safely move and hide. A seine net will be installed upstream of the watercourse crossing site to keep new fish from moving into the path of heavy equipment. Following the initial hazing, a biological monitor will walk in front of the heavy equipment as it crosses the watercourse and agitate the water and substrate to move any remaining fish out of the path of heavy equipment.

Gravel Extraction: Gravel used for the temporary bridge abutments will be clean river run gravel removed from gravel bars adjacent to the crossing locations. Scraping or skimming

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440.85 ADDED 7/1/15

of dry gravel bars will not result in concave, low areas where fish could be stranded after high river flows, and will not occur within five feet of the low flow channel. All gravel used for abutments will be placed back in its original location and the gravel bars will be re-contoured to pre-project conditions.

Permittee will fell four trees into the South Fork Gualala River, a Class I watercourse, as part of a Large Woody Debris (LWD) fish habitat enhancement project. The selection criteria for candidate trees includes: safe to fall, second-growth redwood, larger than 30-inch diameter at breast height (dbh), part of a group to minimize canopy impact, ability to fall with minimum breakage, ability to wedge the tree between existing trees or stumps, and fall onto dry river bar. The project will include one or a combination of the following conditions for at least two of the sites: trees are pushed into the channel zone with root wads attached, trees are felled between other trees in the clump, felled trees are cabled to other stockpiled cull logs once they are in the channel, trees are anchored to adjacent standing trees with cables or I-beams, I-beams are attached to the butt of the tree to act as an artificial root wad. The candidate trees may not be felled if the key conditions cannot be met when the professional faller assesses the situation.

Four Candidate Trees: 1) Tree #64, 44-inch dbh, positioned high on bank, will be felled between two existing large trees pointing into the active channel. 2) Tree #65, 36-inch dbh, will be felled upstream between the bank and a stump in the active channel, cabled to stump to prevent drifting. 3) Tree #66, 36-inch dbh, part of a group with thick sprouts growing up between the trees, felled upstream between two trees. 4) Tree #67, 56-inch dbh, felled upstream between two redwoods.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include:

- Marbled murrelet (*Brachyramphus marmoratus*)
- Steelhead trout (*Oncorhynchus mykiss*)
- California red-legged frog (*Rana draytonii*)
- Northern spotted owl (*Strix occidentalis*)
- Western pond turtle (*Clemmys marmorata*)
- Foothill yellow-legged frog (*Rana boylii*)
- Riparian habitat
- Terrestrial and aquatic habitat
- Aquatic organisms
- Nesting birds

The adverse effects the project could have on the fish or wildlife resources identified above include:

- take of listed or special-status species;
- loss of natural bed or bank;
- relocation of stream channel;
- change in contour of bed, channel or bank;
- change in gradient of bed, channel or bank;
- change in channel cross-section (confinement or widening);
- degradation or aggradation of channel;

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- accelerated channel scour;
- loss of bank stability during construction;
- increase of bank erosion during construction;
- change in composition of channel materials (Large Woody Debris or substrate particle size);
- change in channel form (e.g., loss of pools or riffles);
- soil compaction or other disturbance to soil layer;
- restriction or increase in sediment transport;
- increased turbidity;
- increased sedimentation (chronic or episodic);
- short-term release of contaminants (e.g., incidental from construction);
- change in water temperature;
- loss or decline of riparian and/or emergent marsh habitat;
- colonization by exotic plant or animal species;
- direct take of fish and other aquatic species, including redds;
- disturbance from project activity;
- loss or decline of aquatic species' habitat: migration corridors, spawning or rearing areas;
- debris transport impedance (from culverts and bridges);
- diversion of flow water from, or around, activity site;
- dewatering and rewatering;
- change in flow depth, width or velocity;
- impediment to migration of aquatic and terrestrial species.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the project site at any time to verify compliance with the Agreement.

440.87 ADDED 7/1/15

1.5 Inspections. CDFW personnel or its agents may inspect the work performed at the project site at any time. As a result of field inspection, CDFW may require that additional conditions be applied to protect sensitive biological resources. Such conditions may be amended into this Agreement with the agreement of both parties.

1.6 Consistency with Notification. All work shall be completed in accordance with the plans, drawings and project description submitted with the project notification (Exhibit A). If Permittee wishes to modify the project described in this Agreement, CDFW shall first be notified, and an amendment or new notification may be required.

1.7 Access to Property Not Owned by Permittee. This Agreement does not grant the Permittee authority to enter, use, or otherwise encroach upon on the property rights of individuals or organizations not party to this Agreement. Permittee shall obtain written authorization from outside parties, in accordance with applicable laws, if access to property not owned by Permittee is necessary.

1.8 Unauthorized Take. The project site has been identified as an area that is potentially occupied by special-status species. This Agreement does not authorize the take, including incidental take, of any state or federally listed threatened or endangered listed species, or of species that are otherwise protected under California Fish and Game Code. Any unauthorized take of listed species may result in prosecution and nullification of this agreement.

1.9 Work Period Extension. If the Permittee needs additional time to complete the authorized activity, the work period may be extended on a weekly basis by contacting Julie Coombes, Environmental Scientist, at (707) 944-5529, or, alternatively, by the Yountville office at (707) 944-5500.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

Work Periods and Planning

2.1 Work Period – Seasonal Restriction. Work within the project area as described in the project description shall be limited to the period of April 1 to October 15 for in-stream work, and April 1 to November 15 for work outside of the wetted channel. The large wood debris installation encroachments shall be limited to the period of June 15 to October 15. The project area is defined as the bed, bank, channel, and associated riparian habitat. Revegetation work above the mean high water level may be done at any time, provided that appropriate erosion control BMPs are implemented. See also Measure 2.21.

2.2 Work Limit – Precipitation. Work shall be restricted to periods with minimal or no precipitation to minimize bank disturbance and erosion. No phase of the project shall be initiated if work and installation of associated erosion control measures cannot be completed prior to the onset of a storm event greater than ¼ inch over a 24-hour period predicted by 72-hour weather forecasts from the National Weather Service. If an unanticipated storm event occurs, the Permittee shall inspect all sites currently under

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440.88 ADDED 7/1/15

construction and scheduled to begin work within 72 hours for indications of bank erosion and/or channel sedimentation; if noticeable erosion or sedimentation has occurred, the Permittee shall implement additional erosion control features and consult with CDFW regarding corrective actions. If a precipitation event exceeding ¼-inch of rain over a 24-hour period occurs, Permittee shall wait a minimum of 24 hours before resuming construction.

2.3 Vehicles and Equipment in Stream. Permittee shall not cross delineated wetlands or stream features in motorized vehicles or heavy equipment, unless designated vehicular access crossings have been defined in this Agreement. Permittee shall not operate equipment in wetted areas (including but not limited to ponded, flowing, or wetland areas) without the prior written approval of CDFW.

2.4 Planned Timber Operations. At each temporary crossing location, timber operations shall be planned and conducted to minimize the number of installations and removals.

Wildlife Protection

2.5 Wildlife Encounters. Permittee shall allow any wildlife encountered during the course of construction to leave the construction area unharmed. This Agreement does not allow for the trapping, capture, or relocation of any state or federally listed species or other species protected under Fish and Game Code.

2.6 Special-Status Amphibian Surveys and Avoidance. A qualified biologist shall conduct a pre-work survey for the California red-legged frog and foothill yellow-legged frog within 48 hours of the commencement of work. If special-status amphibians are found, CDFW shall be notified immediately, and work shall be placed on hold. CDFW reserves the right to provide additional provisions to this Agreement in the event that special-status amphibians are discovered.

2.7 Nesting Bird Protection. Permittee shall comply with the requirements of Fish and Game Code sections 3503, 3503.5, 3511, and 3513.

2.8 Marbled Murrelet. Permittee shall follow all recommendations from the Marbled Murrelet Consultation for the Kestrel Timber Harvesting Plan (1-11-087 SON). Consultation letter will be prepared by CDFW once the survey data from 2013 and 2014 is submitted by the Permittee.

2.9 Biological Monitor. A biological monitor is an individual experienced with construction level biological monitoring and who is able to recognize species in the project area and who is familiar with the habits and behavior of those species. Biological monitors shall have academic and professional experience in biological sciences and related resource management activities as it pertains to this project.

2.10 Injury or Mortality of Special-Status Species. If Permittee or its employees, contractors, or agents injures or kills a special-status species, or finds any such animal injured or dead, all activities in the work area shall immediately cease, and CDFW and U.S. Fish and Wildlife Service shall be notified by telephone within 30 minutes of the discovery. A written report detailing the time, location, and general circumstances under which the dead or injured individual animal was found shall be submitted to CDFW and the U.S.

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Fish and Wildlife Service no later than five (5) business days following the incident. Any injured special-status species shall be immediately transported to an approved wildlife rehabilitation clinic (http://dfg.ca.gov/wildlife/rehab/facilities.html).

2.11 Vehicular Speed. Vehicular speed in the WLPZ shall be kept to a maximum of 15 miles per hour. During the rainy season, drivers shall avoid any amphibians present on the road. Amphibians shall not be handled and shall be allowed to disperse on their own.

Habitat/Vegetation Protection

2.12 Vegetation Removal. The disturbance or removal of vegetation shall not exceed the minimum necessary to complete work. Precautions shall be taken to avoid other damage to vegetation by people or equipment.

2.13 Prohibited Plant Species. Permittee shall not plant, seed or otherwise introduce invasive exotic plant species. Prohibited exotic plant species include those identified in the California Exotic Pest Plant Council's database, which is accessible at: http://www.cal-ipc.org/paf/

In-Stream Structures

2.14 Culvert Size. Culverts shall be adequately sized to carry the 100-year storm flow for the tributary. The culvert shall be properly aligned within the stream and otherwise engineered, installed, and maintained, to assure resistance to washout, and erosion of the stream bed, stream banks, and/or fill.

2.15 Culvert Width and Grade. The culvert shall maintain the natural stream width and grade and shall be installed to ensure positive drainage flow. Culverts shall not cause damming or pooling.

2.16 Culvert Installation. Low gradient culverts (<2% stream thalweg slope) shall be installed with a minimum 10% and a maximum 20% of its diameter below the stream bed and shall be maintained and kept open year round. The Permittee is responsible for such maintenance as long as the culvert remains in the stream. All other culverts shall maintain fish passage.

2.17 Culvert Inlet and Outlet. Culvert inlet and outlet shall be armored with appropriately-sized rock. Only clean, angular, durable boulders shall be used.

2.18 Hardscape (Riprap, Rocks, Boulders, etc.). Riprap (rock slope protection) shall not be grouted or mortared. Interstitial spaces between rocks shall be backfilled with native soils or imported fill and planted with trees, shrubs, or other vegetation to minimize habitat loss. Only rocks and boulders free of organic material and soil shall be used for the project. Riprap shall be properly keyed into the bank and be of sufficient size to remain in place and withstand the highest velocity of water anticipated within the stream channel.

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Watercourse Crossings

2.19 Temporary Crossing Installation and Removal. Temporary crossings shall not be installed after October 15. All temporary crossings, associated materials and debris shall be completely removed from the watercourses and WLPZ, and erosion protection measures shall be set in place as soon as harvest operations are complete in that location or by November 15 of the year it was constructed, whichever comes first.

2.20 Water Diversions. If watercourse is wet at the time of operations, water tight coffer dams shall be constructed upstream and downstream of the work area. Water shall be diverted through a suitably sized pipe from upstream of the coffer dam and discharged downstream of the work area. Diversion pipes shall be appropriately sized so that flow velocities passing through the diversion structure do not exceed natural flow velocities. Flow diversions shall be done in a manner that prevents turbidity and that provides flows of sufficient quality and quantity and appropriate temperature to support fish and other aquatic life both above and below the diversion structure. Coffer dams shall be constructed of a non-erodible material which does not contain soil or fine sediment. Coffer dams and the stream diversion system shall remain in place and functional throughout the construction period, and shall be constructed with the least amount of disruption to the channel. If the coffer dams or stream diversion fail, they shall be repaired immediately. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.

2.21 Soil Fill. All fill material placed on top of culverts (i.e. backfill) shall be free of rocks, limbs or other debris (greater than six inches in diameter). Soils imported to the site for fill shall have similar chemical properties, drainage characteristics, and composition to native soils. Large volumes of fill removed from watercourse crossings shall either be end-hauled, or placed in a stable location where it will not drain to a watercourse and mulched.

Temporary Bridges

2.22 Work Period. All wet water crossings and channel construction activities shall occur between June 15 and October 15.

2.23 Work Limit – Bridge Work. The work period for completing the bridge work within the stream zone, shall be restricted to periods of low stream flow and dry weather. Excavation for and placement of the abutments shall not begin unless a no precipitation forecast is obtained covering the construction phase (within the area covered in this agreement) and the time necessary to implement erosion control measures.

2.24 Pre-Project Condition. Before any equipment is allowed into the WLPZ, photographs shall be taken of the site. This will allow restoration of the river bed to as close to the pre-activity condition as possible.

2.25 Bridge Size and Elevation. The bridge shall fully span the wetted channel. The bridge shall be placed of sufficient height above the stream to allow flow and debris to pass beneath unrestricted. As long as the bridge remains, the Permittee is responsible for maintaining free-flowing conditions under the bridge and clearing of all debris.

440.91 ADDED 7/1/15

2.26 Trees and Large Woody Debris. Established trees (greater than 6-inches in diameter at breast height) and large woody debris shall not be removed from the stream channel or bank during operations unless necessary for human safety, or to facilitate stream channel and bank restoration activities (i.e., removal of fill materials). All large woody debris in the channel zone, if removed, shall be set aside for replacement after the bridge is removed.

2.27 Bridge Abutments. Bridge abutments shall be constructed of a combination of gravel and large brow logs or large cement blocks. Abutments shall not reduce the wetted width of the channel or constrict stream flow at any time. Abutments shall be removed from within the banks of the watercourse channel immediately following the removal of the railroad flatcar.

2.28 Gravel Extraction for Abutments. Gravel used for the bridge abutments shall only be clean river run gravel. Scraping or skimming of dry gravel bars shall not result in concave, low areas where fish could be stranded after high river flows. During the time period in which gravel removal from the active channel occurs, no gravel shall be extracted from the low flow channel, nor alterations of any kind made to the low flow channel except by prior approval of CDFW. Gravel bar scraping or skimming shall not occur with five feet of the low flow channel. All gravel extracted for abutments shall be returned to the gravel bars it originated from and the gravel bars shall be re-contoured to pre-project conditions prior to October 15.

2.29 Bridge Placement. Each piece of heavy equipment required for bridge installation shall be allowed no more than one crossing to install and one crossing to remove. Equipment fording the watercourse shall not alter the channel configuration. Prior to all wetted channel crossings:

1) Heavy equipment shall be cleaned of all loose dirt and debris in an area outside of the WLPZ (CDFW recommends using a portable power washer, powered by a portable generator and supplied water from a water truck, to wash loose dirt and grease off the treads, wheels and gears and undercarriage of track equipment).

2.30 Fisheries Impact Minimization. At each site, immediately prior to heavy equipment entering the wetted channel stream, a Registered Professional Forester (RPF) or biologist shall attempt to displace and prevent take of aquatic wildlife. Within the crossing area, large cobbles, boulders, or other structure that may provide cover for fish shall be turned by hand. Additionally, an RPF or biologist shall perform a minimum of three sweeps with hand-held nets or other suitable tools to be used when walking in a downstream direction beating the water until in-stream habitat is reached that contains suitable cover into which fish can move and hide. A seine net shall be installed upstream of the watercourse crossing site to keep new fish from moving into the path of heavy equipment. Following the initial hazing, someone shall walk in front of the heavy equipment as it crosses the watercourse and agitate the water and substrate to move any remaining fish out of the path of the heavy equipment.

Rocked Ford Crossings

440.92 ADDED 7/1/15

2.31 Rock Material. The rock ford shall be constructed of clean durable angular rock. The rock ford shall be designed, sized, installed, and maintained to assure resistance to washout and erosion of the streambed, stream banks, and/or fill.

2.32 Rock Placement. Rock shall be placed (e.g., by an excavator) and not dumped in any stream channel.

Large Woody Debris Habitat Enhancement

2.33 Candidate Tree Criteria. Trees selected for use as large woody debris habitat shall meet the following criteria: 1) Trees are safe to fall. 2) Second growth Redwood. 3) Larger than 30-inch diameter at breast height. 4) Selected trees are part of a group to minimize the impact on shade canopy. 5) Ability to fall the trees with a minimum of breakage. 6) Ability to be felled in a way that they will wedge between existing trees or stumps and be more likely to stay in place and continue to function. 7) Trees shall be felled onto a dry river bar or dry side channel, eliminating direct take of fish. If the above criteria cannot be met when the professional faller assesses the situation, the selected trees shall not be felled.

2.34 Site Criteria. The Habitat Enhancement project shall include one or a combination of the following for at least two of the sites: 1) Trees are pushed into the channel zone with root wads attached. 2) Trees are felled between other trees in the clump. 3) Felled trees are cabled to other stockpiled cull logs once they are in the channel. 4) Trees are anchored to adjacent standing trees with cables or I-beams. 5) I-beams are attached to the butt of the tree to act as an artificial root wad.

2.35 Habitat Enhancement Monitoring. All project sites shall be inspected after the first winter period. Sites shall be evaluated to determine effectiveness and a detailed report shall be submitted to CDFW after evaluation. The monitoring reports shall contain: unique ID tagged to each tree; pre-project and post-project photos for each site; information about each tree including but not limited to, length, diameter, length in active channel, angle, distance from river mouth.

Dewatering and Water Diversions

2.36 Coffer Dams and Other Diversion and Containment Structures. Coffer dams shall be constructed when there is water present in the channel, to dewater the work area and the area around temporary earthen crossings. Coffer dams shall be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream if it is similar in size and shape to the natural substrate, but coffer dams and other flow obstructions must be removed/breached to return the stream flow to its natural channel. If water temperatures behind a coffer dam are different than downstream flow temperatures, or if sediment has built up behind the coffer dam, the breach shall be done gradually. Diversion structures shall be in place for a maximum of seven months, and normal flow shall be restored to the stream by November 15. Silt fences and other instream containment structures shall be adequately secured/braced to contain anticipated sediment and debris loads.

440.93 ADDED 7/1/15

2.37 Fish Screen. If pumps are used to dewater the area behind the coffer dams, the pumps shall be screened to protect aquatic species according to current CDFW fish screen criteria, which can be found at: http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_ScreenCriteria.asp

2.38 Stranded Aquatic Life. In portions of the channel subject to water diversions, Permittee shall check daily for stranded aquatic life as the water level drops. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets and by hand. Captured aquatic life shall be released immediately in the body of water closest to the work site. Efforts will be made to reduce collecting and handling stress, minimize the time that animals are held in buckets, and minimize handling stress during processing and release. No employee or contractor shall remove any fish, dead or alive, from the site for personal use.

2.39 Dewatering. Sediment-laden water from dewatering shall be held in a settling container located in a flat stable area outside of the stream channel or discharged in an upland location where it will not drain directly into surface water bodies. These waters are to be recycled or properly disposed of, according to law. At no time shall water(s) from settling containers be allowed to enter back into the stream channel.

Erosion and Sediment Control

2.40 Watercourse Road Approaches. Road approaches to all watercourse crossings shall be treated to prevent sediment delivery to the watercourse.

2.41 Erosion Control Best Management Practices (BMPs). All exposed soils within the work area shall be stabilized immediately following the completion of earthmoving activities to prevent erosion into the stream channel. Erosion control BMPs, such as silt fences, straw hay bales, gravel or rock lined ditches, water check bars, and broadcasted straw shall be used. Erosion control BMPs shall be monitored at sites actively under construction during and after each storm event for effectiveness. Modifications, repairs and improvements to erosion control BMPs shall be made as needed to protect water quality. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream.

2.42 Sediment Control Fencing. Prior to any construction activities in coordination with a biological monitor, qualified biologist or an RPF, sediment control fencing, such as silt fencing, and a secondary containment mechanism, such as straw waddles, shall be installed on the down slope side of the project area above the wetted channel for sediment containment.

2.43 Cover Exposed Spoils. The contractor shall have readily available plastic sheeting or visquine and will cover exposed spoil piles and exposed areas to prevent these areas from losing loose soil into any unnamed drainage. These covering materials shall be applied when it is evident rainy conditions threaten to erode loose soils into state waters.

2.44 Trenching/Excavation Spoils. No castings or spoil from the trenching/excavation operations shall be placed on the streamside of the trenching/excavation site, within the

440.94 ADDED 7/1/15

channel or at the top of bank. Excavated spoil shall be removed to an area where the sediment will not deliver to a watercourse.

Equipment and Vehicles

2.45 Clean Equipment Use. Prior to operations, all heavy equipment and vehicles shall be cleaned of all external materials, which may be deleterious to aquatic life, wildlife, and riparian habitat (such as oil, grease, or hydraulic fluid). Cleaning shall not occur within the WLPZ.

2.46 Staging Areas. Staging areas shall be located in a dry upland location, above the top of bank. Staging areas shall be within a paved or gravel-lined site, if feasible. Vegetation disturbance shall be limited to the immediate work footprint and a single access pathway.

2.47 Storage and Stationary Equipment. Stationary equipment such as motors, pumps, generators, compressors and welders, located within adjacent to the stream, shall be positioned over drip-pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak.

2.48 No Equipment Operated on Wet Bed of Creek. Equipment shall not be operated in wetted areas including but not limited to ponded, flowing, or wetland areas, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site or as otherwise specifically provided for in this agreement.

2.49 Decontamination of Clothing and Equipment. Any equipment that will enter the water during construction shall be decontaminated before after construction to prevent the spread of aquatic diseases, such as ranavirus, and invasive aquatic species. Workers shall also decontaminate waders, boots and other clothing that will come in direct contact with the water. Decontamination of clothing and equipment shall be done through one or more of the following methods:

- Drying equipment in an upland location following last aquatic use. If average daytime temperatures exceed 80° F, drying times shall be at least 7 days. If average daytime temperatures are below 80° F, drying times shall be at least 30 days;
- Scalding water wash (at least 140° F) with varying high and low pressure spray to dislodge pathogens, vegetation, and contaminated sediment;
- Freezing at a temperature of less than 32° F for more than 72 hours; and/or
- Soaking in a CDFW-approved disinfectant solution for at least two minutes (or longer, depending on the disinfectant used). To avoid harm to non-target species, disinfected clothing and equipment shall be thoroughly rinsed in a water bath before entering the stream.

Repeat decontamination is required only if the equipment/clothing is removed from the site, used within a different waterbody, and returned to the project site. Decontamination shall take place in an upland location, and any chemicals used during decontamination shall be prevented from entering water bodies or stormwater drains.

PART OF PLAN

440.95

ADDED 7/1/15

Hazardous Materials and Spills

2.50 Storage and Handling of Hazardous Materials. Any hazardous or toxic materials that could be deleterious to aquatic life shall be contained in watertight containers or removed from the project site. Such materials include, but are not limited to, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, and oil or other petroleum products. These materials shall be prevented from contaminating the soil and/or entering the waters of the State. Any such materials, placed within or where they may enter a stream or lake, by Permittee or any party working under contract, or with permission of Permittee, shall be removed immediately. Best management practices (BMPs) shall be employed to accomplish these requirements.

2.51 Spill Containment and Cleanup. All activities performed in or near a stream shall have absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. Permittee shall begin the cleanup of all spills immediately. CDFW shall be notified immediately by the Permittee of any spills and shall be consulted regarding cleanup procedures.

Debris Materials and Waste

2.52 Trash Abatement. The Permittee shall remove all raw construction materials and wastes from the project site following the completion of work. All debris and waste shall be removed on a daily basis and properly disposed of at an appropriate site. All temporary fences, barriers, and/or flagging shall be completely removed from work sites and properly disposed of upon completion of work. Permittee or its contractors shall not dump any litter or construction debris within the riparian/stream zone.

Vegetation Restoration/Enhancement

2.53 Revegetate or Seed Disturbed Soils. All exposed/disturbed soils left barren of vegetation following work activities shall be revegetated with native plants and mulched and/or seeded with an erosion control seed mix consisting of native forbs, shrubs, wildflowers and grasses, wood chips (sourced from material not contaminated with the sudden oak death pathogen), weed-free straw, or a similar biodegradable mulch. Annual (Italian) ryegrass (*Lolium multiflorum*) shall not be used. Revegetation shall be completed as soon as possible after earthmoving activities cease; however, plantings will be most successful if done during the rainy season. Seeding placed after October 15 shall be applied by hydroseed or shall be covered with broadcast straw, jute netting, coconut fiber blanket, light mulch or a similar erosion control method. Erosion control blankets with monofilament or woven plastic strands shall not be used. To allow successful re-establishment of native vegetation in temporarily disturbed areas, Permittee shall monitor these areas following replanting/reseeding for establishment of invasive species.

3. Reporting Measures

Permittee shall meet each reporting requirement described below.

3.1 Notification to the California Natural Diversity Database. If any sensitive species are observed during project surveys or at any time during project activities, Permittee shall

440.96. ADDED 7/1/15

submit California Natural Diversity Database (CNDDB) forms to the CDFW Biogeographic Data Branch (CNDDB@wildlife.ca.gov) with all pre-construction survey data within five working days of the sightings, and provide regional CDFW staff with copies of the CNDDB forms and survey maps.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other.

To Permittee:

Henry Alden
Gualala Redwoods, Inc.
P.O. Box 197
Gualala, CA 95445
halden@deltapac.com

To CDFW:

Department of Fish and Wildlife
Bay Delta Region
7329 Silverado Trail
Napa, California 94558
Attn: Lake and Streambed Alteration Program – Julie Coombes
Notification #1600-2014-0012-R3
Fax (707) 944-5553
Julie.Coombes@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include

440.97 ADDED 7/1/15

instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq*. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW

440.98 ADDED 7/1/15

a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (FGC section 1605(f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall expire on December 31, 2018, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

EXHIBITS

The documents listed below are included as exhibits to the Agreement and incorporated herein by reference.

A. Timber Harvest Plan 1-11-087 SON "Kestrel"

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

PART OF PLAN

440.99 ADDED 7/1/15

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR GUALALA REDWOODS, INC.

Hy Alder 7-14-14

Henry Alden — Date

Registered Professional Forester, Gualala Redwoods, Inc.

FOR DEPARTMENT OF FISH AND WILDLIFE

CJWeightman 7/22/14

Craig J. Weightman — Date

Environmental Program Manager

Prepared by: Julie Coombes, Environmental Scientist

Date Sent: May 29, 2014
Date Revised: July 10, 2014

440.100 ADDED 7/1/15

FOR DEPARTMENT USE ONLY				
Date Received	Amount Received	Amount Due	Date Complete	Notification No.
1/8/14	$ exempt -0-	$		1600-2014-0012

Coombs
H. Jones
Wdn. Esquivel

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE
NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

Fish & Game
JAN 08 2014
Yountville

1. APPLICANT PROPOSING PROJECT

Name	Henry Alden		
Business/Agency	Gualala Redwoods, Inc.		
Street Address	P.O. Box 197		
City, State, Zip	Gualala, CA. 95445		
Telephone	707-884-4226	Fax	707-884-1942
Email	halden@deltapac.com		

2. CONTACT PERSON (*Complete only if different from applicant*)

Name	John Bennett		
Street Address	P.O. Box 197		
City, State, Zip	Gualala, CA. 95445		
Telephone	707-884-3469	Fax	707-884-1942
Email	jbennett@deltapac.com		

3. PROPERTY OWNER (*Complete only if different from applicant*)

Name	Gualala Redwoods, Inc.		
Street Address	P.O. Box 197		
City, State, Zip	Gualala, CA. 95445		
Telephone	707-884-4226	Fax	707-884-1942
Email	halden@deltapac.com		

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Kestrel THP		
B. Agreement Term Requested		☑ Regular (*5 years or less*) ☐ Long-term (*greater than 5 years*)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (*year*)	Ending (*year*)	Start Date (*month/day*)	End Date (*month/day*)	
2014	2018	04/01	11/15	20

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COAST AREA OFFICE
RESOURCE MANAGEMENT

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440.10) ADDED 7/1/15

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.	
A.	☐ Standard *(Most construction projects, excluding the categories listed below)*
B.	☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:*
C.	☑ Timber Harvesting (*Attachment B*) *THP Number:* 1-11-087-SON
D.	☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:*
E.	☐ Routine Maintenance (*Attachment D*)
F.	☐ CDFW Fisheries Restoration Grant Program (FRGP) *FRGP Contract Number*
G.	☐ Master
H.	☐ Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

	A. Project	B. Project Cost	C. Project Fee
1	Timber Harvest - No fee		
2			
3			
4			
5			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE ENCLOSED	0

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☑ Yes (*Provide the information below*) ☐ No

Applicant: Gualala Redwoods, Inc. Notification Number: R3-2000-0064 and 0066 Date: 01/28/00

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☑ No ☐ Yes (*Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

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440.102 ADDED 7/1/15

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

8. PROJECT LOCATION

A. Address or description of project location.

(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)

See continuation sheet attached.

☑ *Continued on additional page(s)*

B. River, stream, or lake affected by the project.	Unnamed Class II watercourses
C. What water body is the river, stream, or lake tributary to?	South Fork Gualala River
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☑ No ☐ Unknown
E. County	Sonoma

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
See continuation sheet				

☑ *Continued on additional page(s)*

K. Meridian (*check one*) ☐ Humboldt ☑ Mt. Diablo ☐ San Bernardino

L. Assessor's Parcel Number(s)

See continuation sheet

☑ *Continued on additional page(s)*

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*

Latitude/Longitude	*Latitude:*	*Longitude:*	
	☐ Degrees/Minutes/Seconds	☐ Decimal Degrees	☐ Decimal Minutes
UTM	*Easting:* 464700	*Northing:* 4282900	☑ Zone 10 ☐ Zone 11
Datum used for Latitude/Longitude or UTM		☑ NAD 27	☐ NAD 83 or WGS 84

4-40.103 ADDED 7/1/15

9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	☐	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☑	☐	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☐	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Diversion structure – weir or pump intake	☐	☐	☐
Filling of wetland, river, stream, or lake	☐	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☑	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☐	☐	☐
Sediment removal – pond, stream, or marina	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☑	☐	☐
Utility crossing : Horizontal Directional Drilling	☐	☐	☐
Jack/bore	☐	☐	☐
Open trench	☐	☐	☐
Other *(specify)*:	☐	☐	☐

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RESOURCE MANAGEMENT

PART OF PLAN

440.104 ADDED 7/1/15

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

See continuation sheet attached.

☑ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

Bulldozer, backhoe and/or excavator.

☑ *Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).	☑ Yes ☐ No (*Skip to box 11*)
D. Will the proposed project require work in the wetted portion of the channel?	☑ Yes (*Enclose a plan to divert water around work site*) ☐ No

440.105 ADDED 7/1/15

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

See continuation sheets.

☑ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☐ Yes (*Complete the tables below*) ☑ No

Vegetation Type	Temporary Impact	Permanent Impact
	Linear feet: ______	Linear feet: ______
	Total area: ______	Total area: ______
	Linear feet: ______	Linear feet: ______
	Total area: ______	Total area: ______

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)

☐ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☑ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

Downstream from the site are Steelhead trout and Coho salmon(possible), Western Pond turtle (possible), Northern Red Legged Frog (possible), Yellow Legged Frog (possible).

☐ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

Kestrel THP biological evaluation for cumulative impacts.

☐ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☑ Yes (*Enclose the hydrological study*) ☐ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

440.106. ADDED 7/1/15

12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

See continuation sheet.

☑ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

See continuation sheet.

☑ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

See continuation sheet.

☑ *Continued on additional page(s)*

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. Timber Harvest Plan (1-11-087-SON) ☐ Applied ☑ Issued

B. ☐ Applied ☐ Issued

C. ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

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44 D.107

ADDED 7/1/15

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

☑ Yes *(Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each)*

☐ No *(Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)*

☐ Notice of Exemption	☐ Mitigated Negative Declaration	☐ NEPA document (*type*):
☐ Initial Study	☐ Environmental Impact Report	☐ CESA document (*type*):
☐ Negative Declaration	☐ Notice of Determination *(Enclose)*	☐ ESA document (*type*):
☑ THP/ NTMP	☐ Mitigation, Monitoring, Reporting Plan	

B. State Clearinghouse Number (*if applicable*)			
C. Has a CEQA lead agency been determined?	☑ Yes *(Complete boxes D, E, and F)*		☐ No *(Skip to box 14.G)*
D. CEQA Lead Agency	CalFire		
E. Contact Person	Leslie Markham	F. Telephone Number	707-576-2953

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

Kestrel Timber Harvest Plan (1-11-087-SON)

Also, O'Connor Inc. hydrological study dated July 11, 2010 referred to above in item 11(F) has been previously submitted to CDF&W as part of another 1600 agreement.

☐ *Continued on additional page(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☐ Yes (*Enclose proof of payment*) ☑ No (*Briefly explain below the reason a filing fee has not been paid*)

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☑ I request the Department to first contact (*insert name*) John Bennett at (*insert telephone number*) 707-884-3469 to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

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44a.10.6

ADDED 7/1/15

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☐ Yes (Please enclose the information via digital media with the completed notification form)

☑ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

H Alden — 01/07/14

Signature of Applicant or Applicant's Authorized Representative — Date

Henry Alden

Print Name

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440.109 -

APPED 7/1/15

Forest Ecosystem Management, PLLC
PO Box 455 * Potomac, MT 59823
(406) 490-7427 * cptown@blackfoot.net

April 5, 2016

Gualala Redwoods Timber Company
PO Box 197
Gualala, CA 95445

RE: Addendum to 2013 & 2014 Marbled Murrelet Surveys

This addendum is to be added to the marbled murrelet summary report completed in 2014 for Gualala Redwoods, Inc. I, Pamela Town, was the surveyor for the 2013 and 2014 surveys along the Gualala River. I have completed MAMU surveys in both Mendocino and Sonoma Counties in the late 1990s and early 2000s. As it had been a few years since I was certified prior to the 2013 survey year, and due to the low detection rates within the area; in both 2013 and 2014, I completed the 4-day training program and certification from Sean McAllister with Mad River Biologists. Mad River Biologists teach and certify MAMU surveyors using the Pacific Seabird Group's protocol.

If you have any questions, please feel free to contact me.

Sincerely,

EMAILED TO Henry Alden @
halden@pacificstates.com

Pamela J. Town
Consulting Wildlife Biologist

44 D.110

ADDED 4/8/16

State of California

Memorandum

To: Mr. David Driscoll, Chief
Northern Region Headquarters
California Department of Forestry
and Fire Protection
135 Ridgway Avenue
Santa Rosa, CA 95401

Date: October 16, 2002

Attention Charlie Martin, Review Team Chairperson
Via fax (707) 459-7447

From: C. Catalano for Robert W. Floerke, Regional Manager
Department of Fish and Game - Central Coast Region, Post Office Box 47, Yountville, California 94599

Subject: Marbled Murrelet 2001-2002 Years Survey Effort
'Green Bridge' Site on the Gualala River

Department of Fish and Game (DFG) personnel have reviewed the submitted marbled murrelet (*Brachyramphus marmoratus*) survey for the years of 2001 and 2002 for the 'Green Bridge' site on the Gualala River in Mendocino County. DFG finds the surveys adequate and the information described sufficient to support the findings that future operations associated with the above mentioned site will not affect nor result in the incidental take of marbled murrelet. Seasonal restrictions associated with this site can be discontinued.

Should you have any questions regarding this letter, please contact Mr. Thomas Engelhardt, Environmental Scientist, at (707) 462-1181 or Mr. Richard Macedo, Senior Environmental Scientist, at (707) 928-4369.

cc: Mr. Troy Leopardo
Post Office Box 1022
Arcata, CA 95518

Mr. John Hunter
U. S. Fish and Wildlife Service
1655 Heindon Road
Arcata, CA 95521-4573

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44Q.111

ADDED 4/8/16

State of California

Memorandum

To: Ms. Leslie Markham, Deputy Chief
Northern Region Headquarters
California Department of Forestry
and Fire Protection
135 Ridgway Avenue
Santa Rosa, CA 95401

Date: August 31, 2005

Attention Anthony Lukacic, Review Team Chairperson
Via fax (707) 576-2608

C. Cattaneo

From: Robert W. Floerke, Regional Manager
Department of Fish and Game - Central Coast Region, Post Office Box 47, Yountville, California 94599

Subject: Review of Marbled Murrelet Survey Results and Post-Survey Consultation for the Iris Timber Harvesting Plan 1-03-185 SON, Gualala Redwoods, Inc., South Fork Gualala River, Sonoma County

This memorandum responds to a verbal request from Mr. Henry Alden of Gualala Redwoods, Inc. on August 22, 2005, for a post-survey consultation with the Department of Fish and Game (DFG) for marbled murrelet (*Brachyramphus marmoratus*). At issue is whether results of audio-visual surveys for marbled murrelets are adequate to determine if timber harvesting operations associated with the Iris Timber Harvesting Plan (THP) 1-03-185 SON are likely to "take" or adversely affect murrelets. The marbled murrelet is listed as State endangered pursuant to Fish and Game Code Section 2050 *et seq.*, Federally threatened pursuant to Section 1531, Title 16, United States Code *et seq.*, and is a sensitive species as defined by Section 895.1, Title 14, California Code of Regulations (14 CCR). This consultation is being conducted pursuant to 14 CCR sections 898 and 919.13, which require consultation with DFG.

The Iris THP lies approximately two miles southeast of the town of Gualala, on east-facing slopes overlooking the South Fork Gualala River. The 253-acre plan stretches from just below Big Pepperwood Creek south to just downstream of the South Fork Gualala River and Wheatfield Fork Gualala River confluence (T10N, R14W, Sections 5, 6, 7, 8, 16, 17 and T11N, R15W, Sections 25, 31, 36; MDB&M; Stewarts Point and McGuire Ridge USGS quad maps). The potential marbled murrelet habitat consists of approximately 30 large old trees, many of which are legacy redwood trees. These trees are scattered along the banks of the South Fork Gualala River.

DFG has received and reviewed the marbled murrelet surveys conducted in 2004 and 2005. No marbled murrelets were detected. Based on our review of

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submitted results, it appears that surveys were adequately conducted to conclude that marbled murrelets are likely absent from the THP area. Therefore, DFG determines that the proposed THP is unlikely to "take" or adversely affect marbled murrelets.

Please note that all timber harvesting restrictions described in a memorandum from DFG to the California Department of Forestry and Fire Protection dated February 14, 2004, may be disregarded. However, we continue to recommend, as stated in the memorandum's Condition 1, that all conifers identified as potential marbled murrelet nest trees be retained. Absent modification to the THP, no further consultation with DFG is necessary at this time.

If you have questions or comments, please contact Ms. Stacy Martinelli, Environmental Scientist, at (707) 539-1985; or Mr. Rick Macedo, Senior Environmental Scientist, at (707) 928-4369.

cc: Mr. John Hunter
U. S. Fish and Wildlife Service
1655 Heindon Road
Arcata, CA 95521

Mr. Henry Alden
Gualala Redwoods Inc.
Post Office Box 197
Gualala, CA 95445

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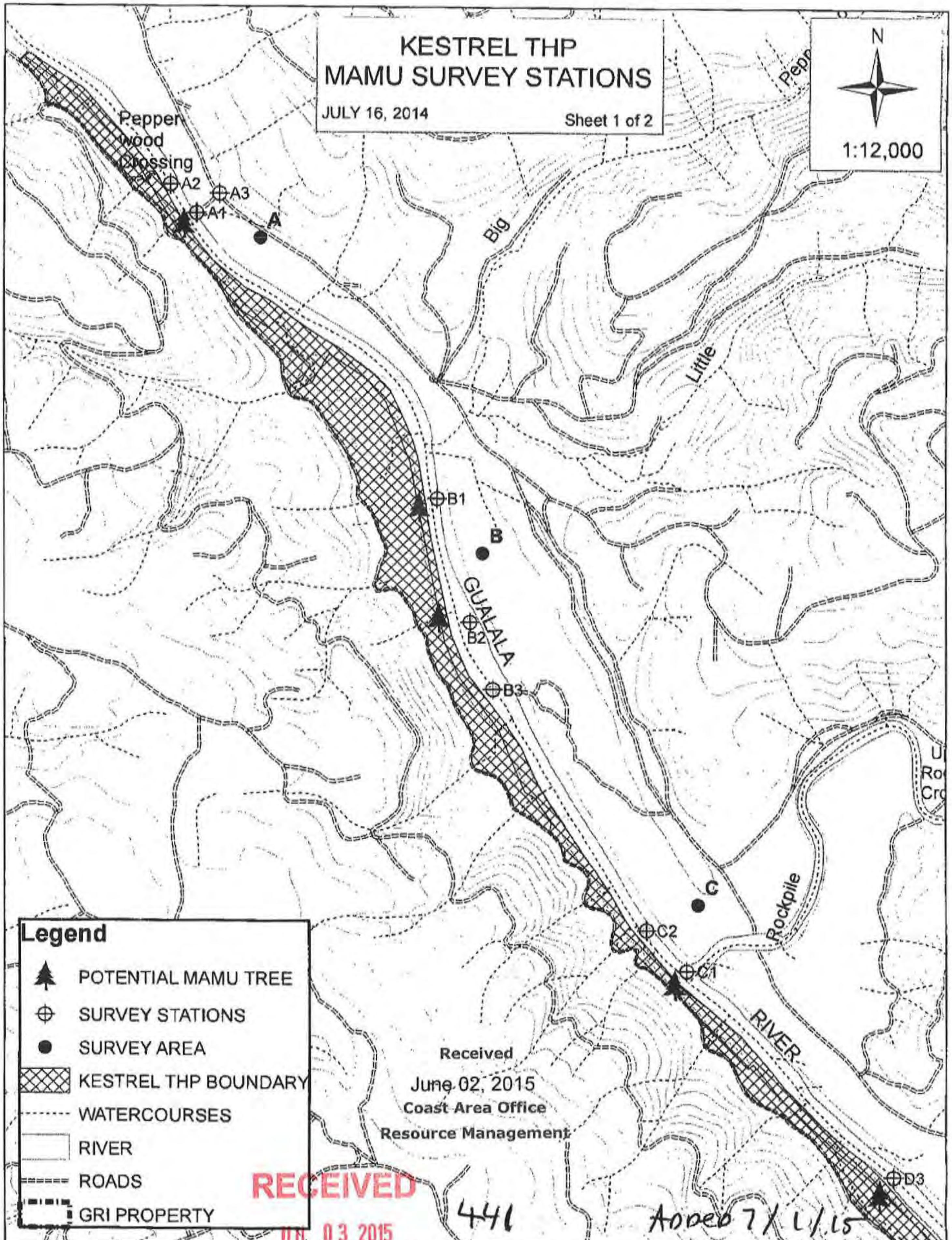

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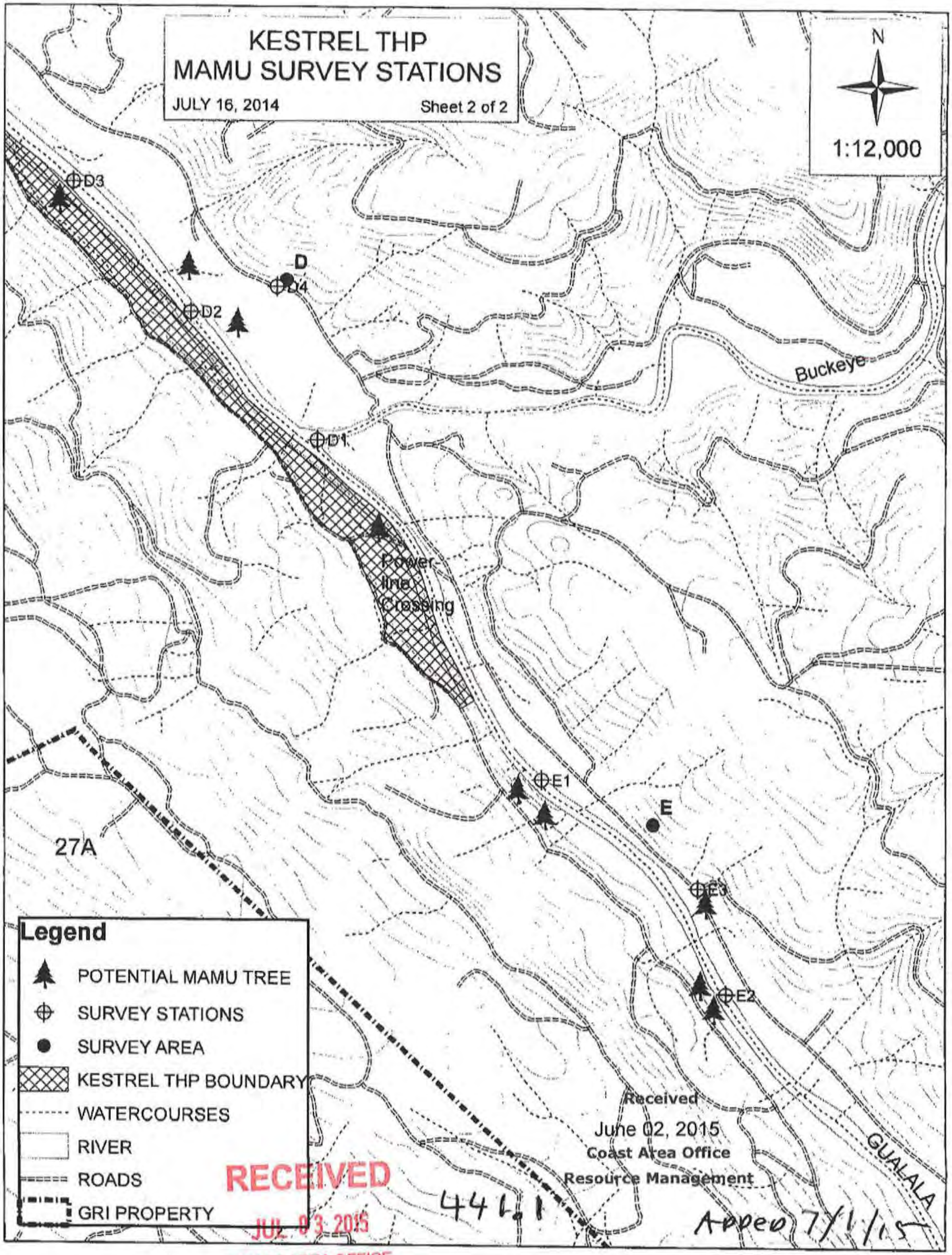
KESTREL THP
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Legend
POTENTIAL MAMU TREE
SURVEY STATIONS
SURVEY AREA
KESTREL THP BOUNDARY
WATERCOURSES
RIVER
ROADS
GRI PROPERTY
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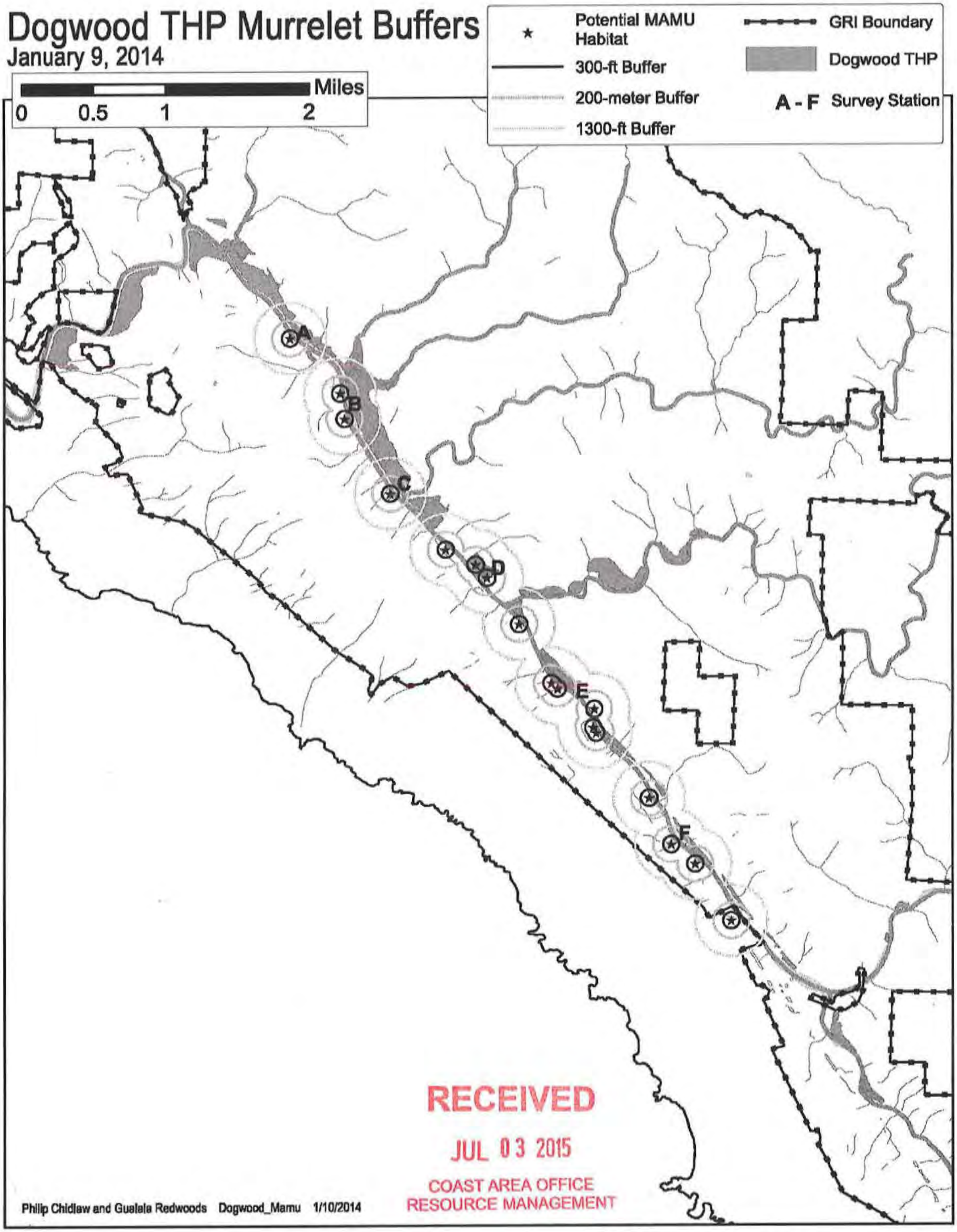
Dogwood THP Murrelet Buffers

January 9, 2014



Philip Chidlaw and Gualala Redwoods Dogwood_Mamu 1/10/2014

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441.2 ADDED 7/1/15

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State of California
Department of Fish and Wildlife

Flex your POWER

Memorandum

Date: July 30, 2014

To: Ms. Leslie Markham, Deputy Chief
Northern Region Headquarters
California Department of Forestry and Fire Protection
135 Ridgway Avenue
Santa Rosa, CA 95401
SantaRosaReviewTeam@fire.ca.gov

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Original signed by

From: Scott Wilson, Regional Manager
California Department of Fish and Wildlife – Bay Delta Region, 7329 Silverado Trail, Napa, California 94558

Subject: Marbled Murrelet Consultation for the Kestrel Timber Harvesting Plan (1-11-087 SON), Gualala Redwoods Inc., South Fork Gualala River Watershed, Sonoma County

This memorandum responds to a request by Mr. Henry Alden, Registered Professional Forester (RPF), for a marbled murrelet (*Brachyramphus marmoratus*) consultation for the approved Kestrel Timber Harvesting Plan (THP) 1-11-087 SON. California Department of Fish and Wildlife (CDFW) staff has reviewed the marbled murrelet survey results provided by Mr. Henry Alden and Mr. John Bennett detailing the results of murrelet surveys conducted in 2013 and 2014 of a stand of suitable marbled murrelet nesting habitat located within the Kestrel THP boundary (Figures 1a and 1b).

The marbled murrelet is listed as state endangered pursuant to Fish and Game Code 2050 *et seq.*, federally threatened pursuant to Title 16, United States Code 1531 *et seq.*, and is a sensitive species as defined by Title 14, California Code of Regulations (14 CCR) § 895.1. Marbled murrelet consultations for THPs are required pursuant to 14 CCR § 919.11 where there is evidence of an active marbled murrelet nest site in or adjacent to the project site, or where the project has the potential to impact the marbled murrelet.

The marbled murrelet is a small seabird which, in California, uses coastal coniferous forests from Del Norte to Santa Cruz County during the breeding season (March 24 to September 15). Marbled murrelets have been documented nesting in mature, old-growth forests as well as younger forest stands with late-seral elements such as large trees with moss-covered limbs >6 inches wide or limb defects (McShane *et al.* 2004). Mature conifer stands often have a complex tree crown structure with gaps in the canopy which allow access by adult murrelets to and from nest platforms during parental incubation exchanges and chick feeding (Ralph *et al.* 1995).

Project Location and Description

The Kestrel THP is located in Sonoma County within the Mouth of the Gualala and Big Pepperwood sub-watersheds of the larger South Fork Gualala River Watershed. The plan area is 2.1 miles east of the Town of Gualala near the Sonoma and Mendocino County border (T10N R14W, Section 6; T11N, R15W, Sections 25 and 36; T11W, R14W, Section 31). The 112-acre plan covers 3.3 miles along the side slopes and alluvial flats on

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the west side of the South Fork of the Gualala River, a Class I watercourse. The South Fork of the Gualala River is a tributary to the Gualala River which empties into the Pacific Ocean.

The Kestrel THP was approved by the California Department of Forestry and Fire Protection (CALFIRE) on August 29, 2012. However, the THP required that timber operations would not commence until marbled murrelet surveys had been completed. As of the date of this letter, timber operations for the Kestrel THP have not started.

Background

Marbled murrelets are known to occur in the South Fork Gualala River watershed. Sites with "presence" are those sites where there has been at least one murrelet detection (i.e., the sighting or hearing of one or more birds), while "occupied sites" are sites where murrelets have been observed exhibiting sub canopy behaviors (i.e. flying below, thru, into, or out of the forest canopy within or adjacent to a site of potential habitat), which indicate that the site has some importance for breeding or important social behaviors (for a full description see Evans Mack 2003).

As documented in observation records from the California Natural Diversity Database, marbled murrelet occupancy was detected along the South Fork of the Gualala River in 2007 approximately 8 miles southeast of the Kestrel THP. This area contains approximately 58 suitable nest trees, with additional suitable habitat further upstream.

The Buckeye Creek Watershed, approximately 6 miles east of the Kestrel THP, has suitable habitat yet no current protocol level surveys are being conducted to determine presence of marbled murrelets (CDFW file data).

Marbled Murrelet Habitat Assessment

A stand of suitable marbled murrelet nesting habitat consisting of approximately 33 remnant large-diameter redwood trees are scattered over 17 locations along the east and west banks of the South Fork Gualala River. The nest trees occur approximately 50 feet from the river channel on low and steep gradient slopes.

CDFW staff conducted a field inspection of this marbled murrelet habitat on November 12, 2003 as part of the Iris THP (1-03-185 SON, withdrawn). During the field inspection, these trees were observed supporting adequately-sized platforms with adequate overhead and lateral foliar cover. CDFW determined this stand to be suitable nesting habitat for the marbled murrelet (CDFW 2004a and CDFW 2004b). On January 22, 2014 CDFW staff conducted a very limited field inspection of the suitable marbled murrelet habitat along portions of the South Fork of the Gualala River and concurred with the 2004 suitable habitat determination.

Marbled Murrelet Survey Results

Audio-visual surveys for marbled murrelets were performed in 2004 and 2005 for the Iris THP (1-03-185 SON). No murrelets were detected and CDFW concluded that marbled murrelets were likely absent from the proposed THP area (CDFW 2005). The results for this survey expired in 2008 as CDFW's Marbled Murrelet Survey Protocol Guidelines state that surveys that reveal probable non-occupancy remain valid for three years after completion of the surveys.

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ADDED 7/1/15

Audio-visual surveys for marbled murrelets were recently performed in 2013 and 2014 for the Kestrel THP (1-11-087 SON). CDFW has received and reviewed the results of 2013 and 2014 marbled murrelet surveys submitted by Mr. Henry Alden and Mr. John Bennett. Five surveys were conducted at each of the five survey stations, Sites A thru E, in both 2013 and 2014 (Figures 1a and 1b) by Ms. Pam Town, consulting wildlife biologist. No murrelets were detected during the two-year protocol level surveys, satisfying the protocol's five-survey stopping rule for negative detections. The surveys concluded that habitat within the Kestrel THP area does not appear to be utilized by marbled murrelets at this point in time.

Steller's jays (*Cyanocitts stelleri*) and common ravens (*Corvus corax*) were detected at every survey station. Ravens, crows and jays, which have large home ranges, are known predators of marbled murrelet eggs and nestlings (Marzluff and Neatherlin 2006).

Based on the survey reports submitted, CDFW has determined that the surveys followed CDFW-endorsed survey protocol and that the Kestrel THP area may be classified as a "Probable Absence" site. Additional surveys may be required to maintain this status after a lapse of surveys of three years.

Recommendations

CDFW has determined that the Kestrel THP area may be considered a "Probable Absence" site. Survey results will be considered valid for up to three years. However, because marbled murrelets occupy habitat within the South Fork Gualala watershed, the following protective measures should be amended into the THP:

1. If marbled murrelets are detected during the harvest, work shall stop immediately, and CDFW shall be consulted. Take of marbled murrelet is prohibited under the California Endangered Species Act without appropriate incidental take coverage.

2. To avoid attracting ravens, crows and jays, known nest predators of marbled murrelets, timber harvesting crews shall pack out all litter and food scraps. Food shall be consumed inside vehicles when possible.

3. Trees with canopy deformities or limbs exceeding six inches in diameter that provide relatively flat potential nesting platforms shall be retained as wildlife trees. The Licensed Timber Operator shall avoid felling immediately adjacent trees if doing so could harm retained wildlife trees.

CDFW's evaluation and recommendations are consistent with recovery objectives and goals of the Marbled Murrelet Recovery Plan (U.S. Fish and Wildlife Service 1997).

Please ensure that the above listed measures are incorporated into the THP as enforceable conditions. If you have questions or comments, please contact Ms. Robynn Swan, Environmental Scientist, at (707) 944-5586 or robynn.swan@wildlife.ca.gov; or Ms. Randi Adair, Senior Environmental Scientist (Supervisory), at (707) 944-5596 or randi.adair@wildlife.ca.gov.

Attachments: Figure 1a and 1b – Kestral THP MAMU Survey Stations

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cc: Kim Sone, CALFIRE – Kim.Sone@fire.ca.gov
Henry Alden, Gualala Redwoods, Inc. – halden@detlapac.com
John Bennett, Gualala Redwoods, Inc. – jbennett@deltapac.com

References

California Department of Fish and Wildlife (CDFW), 2003. Marbled Murrelet Survey Protocol Guidelines, California Department of Fish and Game, to be used in conjunction with the Pacific Seabird Group Survey Protocol. 3 April 2003. California Department of Fish and Wildlife

CDFW, 2004a. Marbled Murrelet Consultation for the Iris Timber Harvesting Plan 1-03-185 SON, Gualala Redwoods Inc., South Fork Gualala River, Sonoma County. 2004 February 19. Prepared by Stacy Martinelli.

CDFW, 2004b. Pre-Harvest Inspection Report for the Iris Timber Harvesting Plan, 1-03-185 SON, South Gualala River Watershed, Sonoma County. 2004 February 13. Prepared by Stacy Martinelli.

CDFW, 2005. Review of Marbled Murrelet Survey Results and Post-Survey Consultation for the Iris Timber Harvesting Plan 1-03-185 SON, Gualala Redwoods, Inc., South Fork Gualala River, Sonoma County. 2005 August 31. Prepared by Stacy Martinelli.

Evans Mack, D., William P. Ritchie, S. Kim Nelson, Elena Kuo-Harrison, Peter Harrison, and Thomas E. Hamer. 2003. Methods for surveying marbled murrelets in forests, a revised protocol for land management and research. Marbled Murrelet Technical Committee, Pacific Seabird Group, 89 pp. Pacific Seabird Group unpublished document available at http://www.pacificseabirdgroup.org.

Marzluff, J.M. and E. Neatherlin. 2006. Corvid response to human settlements and campgrounds: Causes, consequences, and challenges for conservation. Biological conservation 130: 301-314.

McShane, C., T. Hamer, H. Carter, G. Swartzman, V. Friesen, D. Ainley, R. Tressler, K.Nelson, A. Burger, L. Spear, T. Mohagen, R. Martin, L. Henkel, K. Prindle, C. Strong, and J. Keany. 2004. Evaluation report for the 5-year status review of the marbled murrelet in Washington, Oregon, and California. Unpublished report. EDAW, Inc. Seattle, Washington. Prepared for the U. S. Fish and Wildlife Service, Region 1. Portland, Oregon.

Ralph, C.J., G.L. Hunt, Jr., M.G. Raphael, and J.F. Piatt. Technical Editors. 1995. Ecology and Conservation of the Marbled Murrelet. U.S. Forest Service, Gen. Tech. Rep. PSW-GTR-152, Pacific Southwest Research Station, Albany, California.

U.S. Fish and Wildlife Service. 1997. Recovery Plan for the Marbled Murrelet (*Brachyramphus marmoratus*) in Washington, Oregon, and California. Portland, OR. 203 pp.

Additional Information

In Response to Public Comments-

4416.7 ADDED 9/12/15

Gualala Redwood Timber's Response to Public Concerns about the Dogwood Timber Harvest Plan

Gualala Redwood Timber (GRT) is aware of the heightened public concern about logging in the flood plain. Below are our responses to the most commonly expressed concerns. Supporting reports and photos are available.

- Intensity of harvest on the Dogwood timber harvest plan (THP)
  - **This proposed harvest will accelerate the development of old growth forest characteristics. After harvest, the Dogwood area will be a dense healthy forest.**
  - No trees will be harvested in the first thirty feet from the top of the river bank.
  - The thirteen largest trees per acre will be left in the flood plain as well as many other large trees. By comparison, there are fifteen old growth trees greater than 40" in diameter per acre in Armstrong Redwoods State Park (USDA Forest Service Gen. Tech. Rep. PSW-GTR-194. 2007).
  - 80% canopy cover will be retained in the Inner Zone A nearest the river. This zone is usually extends 150' inland from the river bank.
  - The Dogwood THP harvest will be a very light thinning of the understory trees. About 17% of the conifer basal area will be harvested leaving about 370 square feet of basal area per acre in conifers and hardwoods.
  - All of the trees marked for harvest were tallied. An average of 12.5 trees per acre were marked in the plan area.
- Harvest history - **This is not an "unprecedented" harvest.**
  - The Dogwood area has been thinned two or three times in the last forty years. Twenty-seven previous THPs have overlapped with portions of the Dogwood THP.
  - The Kestrel THP is similar to Dogwood and was the first test of the new flood plain rules.
    - The Kestrel THP is on the flood plain along the west side of the South Fork of the Gualala River across from the Dogwood THP.
    - Kestrel was approved in 2012 and logged in 2014-15.
    - Kestrel's harvest prescription and mitigations are similar to Dogwood's.
    - The post-harvest stand was inspected and approved by the agencies.
    - Post-harvest, Kestrel is a beautiful mature second growth forest developing old-growth forest characteristics.
  - The stand bordering the Gualala Point Campground was last harvested in 1990. It was intentionally left out of the Dogwood THP.
- Visual impact and the effect on recreational users. **The Dogwood logging will not be noticeable from the river or the campgrounds.**
  - The areas logged in 2014-15 on the Kestrel THP are not noticeable from the river.
  - The Gualala River Watershed Council's (GRWC) annual picnic was held on a river bar across from a logged unit of the Kestrel THP. I am not aware that anyone noticed.

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revised 4/8/16

- GRT owns most of the river banks from the Regional Park to the Annapolis Road. GRT has allowed public use from the Green Bridge to the mouth of the river (3.5 Miles). Public access above the Green Bridge is not allowed.
- Flood plain impacts have not been properly vetted by state and federal agencies.
  - Serious discussions with state and federal agencies began in 2004 to address emerging concerns about forest management of the flood plains on GRT's property.
  - **There have been nine multi-agency office meetings and ten multi-agency field trips to discuss or review flood plain management. Twenty-four regulators from five agencies have taken part in these discussions.** A history of the flood plain review meetings and attendees is available.
  - On January 1, 2011, the Anadromous Salmond Protection rule revisions to the Forest Practice Rules went into effect. A separate rule section was adopted to address management in the flood prone areas. These rules were the result of over two years of intensive review by the Board of Forestry. It was a public process open to all. The Dogwood Timber Harvest Plan (THP) complies with these rules.
  - The Dogwood THP review includes;
    - Four state agencies;
      - Cal Fire
      - The California Department of Fish and Wildlife
      - The California Geological Survey
      - The North Coast Regional Water Quality Control Board
    - And six levels of review. Two levels are in Sacramento.
      - First Review
      - Preharvest field inspection
      - Second Review
      - Review of the 90 public comments and preparation of the Official Response
      - Legal review - Sacramento
      - Final pre-signature review - Sacramento

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  - The lack of comments by federal or state agencies on flood plain impacts does not mean these impacts weren't vetted. If an agency does not comment on a proposed THP it is usually because their concerns have been addressed.
  - The Apple THP received 74 public comments. Cal Fire reviewed every comment and prepared a 189 page "official response to significant environmental points raised".
- Water drafting from the Gualala River during drought conditions could impact water quality and quantity.
  - The 2010 O'Connor report, Hydrologic Assessment of Water Withdrawal for Dust Control Use, predicted that drafting at less than 25,000 gallons per day at less than 300 gallons per minute will not have a significant impact on aquatic life.
  - O'Connor reviewed the conclusion of his 2010 study in response to criticism from a Kamman Hydrology and Engineering, Inc. public comment. O'Connor concluded that "Various assumptions can be made in completing the baseflow estimates and

 revised 4/8/16

performing the groundwater modeling, and following the recommendations in the Kamman Hydrology letter we used more conservative estimates of baseflow and still found that pumping represents less than 1% of the total flow volume. Regardless of the assumptions used and the findings of the baseflow analysis and groundwater modeling, the monitoring data clearly shows that the impacts of pumping will be insignificant."

  - There were three supervised pump tests in 2015. There was no significant drop in the monitoring site pool depth (>0.01') or wetted width of the riffle crest during the tests.
  - On August 5th California Department of Fish and Wildlife and Cal Fire inspectors visited GRT's drafting sites and a CDFW (8-14-15) report concluded that, **"Pool gauge data from the water drafting log book indicates no decrease in water surface elevation during drafting events. Therefore, the instantaneous drafting rate and amounts have no demonstrated adverse effect on downstream habitat."**
  - GRT is required to monitor water level on a staff gage placed in a pool downstream from the drafting site before and after each filling of a water truck. No significant change in water level has been observed during drafting from off channel water holes. **In 2015 GRT used 208,000 gallons of water over eighty-five days for an average of 2,447 gallons per day. This is 0.05% of the estimated flow in August 2015.**
  - There is no low-flow drafting for domestic use downstream from GRT's permitted drafting sites.
- Impacts on the Regional Park's campground were not adequately considered.
  - Alternatives
    - Originally the stand adjacent to the park was part of the draft THP. Before submitting the plan we chose to remove it to reduce the impact on the park and to keep future options open.
  - Noise and visual impacts
    - The closest unit (Unit 1) is over 200' from the nearest campsite and is screened from the campground by trees. Unit 1 is a light selection cut. The impact of logging Unit 1 will be limited to about a week of noise in the distance.
    - All of the other THP units are out of sight and probably out of sound range of the campground. The next closest unit (Unit 2) is about a half of a mile northeast and behind a ridge.
    - Gualala Redwoods Inc. (GRI) logged near the campground many times over the years.
  - Traffic impacts
    - GRT has a deeded easement to use the Old Highway 1 South down to the campground. The log truck use of Old Highway 1 South from the Dogwood THP (about 30 loads) will be less than in a normal year (about 300 loads).
    - The campground is between GRT's haul road and Highway 1.
  - **Irony**
    - **Gualala Redwoods, Inc. gifted the campground parcel to Sonoma County Regional Parks in 1978.**

revised 4/8/16

- Wet areas (wetlands) Designations
    - The Forest Practice Rules definition of wet areas when compared with the wetlands definitions in Federal Regulations reveals no significant difference between the two. Inspection reports from the multi-disciplinary review team all indicated concurrence with GRT's mapping.
    - The wet areas (wetlands) on the Dogwood THP were delineated by Registered Professional Forester Art Haschak. Mr. Haschak has been writing THPs and identifying wet areas for over thirty years. Mr. Haschak has written 35 THPs on GRT property over sixteen years. Writing THPs requires working knowledge of and continuing education in many fields including botany, soils and hydrology. Each of the THPs written over the years has undergone review by multiple agency reviewers with many areas of expertise including hydrology, geology and botany. These reviews usually included a special focus on designated wet areas. This process has resulted in Mr. Haschak becoming an expert in identifying wet areas. Mr. Haschak wrote the Kestrel THP. Kestrel was a flood prone area THP with many wet areas (wetlands) that was approved in 2012 after intense multi-agency interdisciplinary review.
    - Because all the harvest trees on Dogwood were marked before the pre-harvest inspection, Mr. Haschak walked the entire plan area. We are confident that all of the wet areas (wetlands) were found, flagged for protection and mapped. This work was reviewed during the pre-harvest inspection.
    - In addition, GRT's Registered Professional Forester John Bennett has a particular interest, training and experience in botany. He provides advice to Mr. Haschak as needed. GRT commissioned a Rare Plant Assessment by botanist Clare Golic in 1997. The report included definitions of habitat types and what rare plants occur on the property. This was updated in 2001. In 1999, Ms. Golic conducted rare plant survey on the flood prone area of the west side of the South Fork of the Gualala River. This coincided with the area of the Kestrel THP. Mr. Bennett worked closely with Ms. Golic during her work to improve his knowledge of botany. Mr. Bennett has been conducting rare plant surveys on GRT's THPs for twenty years.
    - In October 2015, Mr. Bennett conducted a focused review of Mr. Haschak's wet area designations. He used accepted protocols for wetland plants, hydric soils and hydrology. Mr. Bennett walked flagged skid trails in eight Dogwood units and did not find any additional wet areas/wetlands.
- Baseline data and monitoring information helps GRT assess the impacts of forest management on the environment and identify restoration projects.
    - Biological
        - GRT has a series of forest inventories from the 1950s to 2014.
        - Forest growth and yield computer modeling is used to help GRT determine the amount and location of timber harvesting while protecting wildlife and aquatic resources. The most recent modeling, using 2014 data, confirms that forest growth far exceeds harvest.
        - Marbled murrelets surveys – We have never detected murrelets on the property

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441.11

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- In 1995 several stands along the river on GRI were surveyed
- Full protocol surveys were completed at the Green Bridge (2001/2002) and along the South Fork of the Gualala River adjacent to Dogwood (2004/2005 and 2013/2014).

▪ Northern spotted owls – Surveys since 1990
  - 298 permanent call stations with a total of 8,226 station night calls
  - 587 daytime walk-ins to determine nesting status
  - GRT's property is home to more spotted owls (22 pairs) than scientists believe should be here.

▪ Sensitive plants
  - Rare plant assessments were conducted by botanist Clare Golic in 1997, 1999 and 2001. She described habitat types and the rare plants that occur on the property. The 1999 survey focused on flood plain plants.
  - A history of rare plant surveys spread over the property since 1995. These surveys remind us of where plants have been found and they help us predict where sensitive plants are likely to be found.

▪ Aquatic - Working together with the Gualala River Watershed Council we have monitored the condition of the Gualala River watershed and surveyed for endangered species since 1998. <u>Quality Assurance Project Plan</u> (Morgan, 2002)
  - Forty permanent quantitative stream habitat and morphology monitoring reaches have been established since 1998.
    - o There have been 117 intensive data collection visits to the forty stations.
    - o There are seventeen monitoring reaches on GRT. One station on the South Fork of the Gualala River adjacent to the Dogwood and Kestrel THPs (217 GUA1) has been measured twelve times between 1998 and 2015.
  - 207 aquatic biological surveys have been conducted including;
    - o 34 Spawner surveys to assess spawning activity
    - o 147 Snorkel surveys to assess fish presence
    - o 26 macroinvertebrate surveys
  - There are 128 water temperature monitoring stations in the watershed. There have been 544 annual measurements at selected stations since 1994.

o Geology and hydrology
  - ▪ In 2000 Tim Best, CEG prepared a landslide inventory. We know where most of our historic and active landslides are located.
  - ▪ A property specific soil survey allows more accurate soil identification/ EHR analysis and mitigation development.
  - ▪ Matt O'Connor's reports provide baseline flow predictions. 2010 and 2015
  - ▪ There is a USGS stream flow gage on the South Fork of the Gualala River. Since 2007 it has recorded water flow and depth every fifteen minutes.

441.12 revised 4/8/16

- General
  - Periodic high resolution aerial photography beginning in 1947.
  - Gualala River Watershed Assessment Report (Klamt, 2003)
  - Gualala Estuary and Lower River Enhancement Plan: Results of 2002 and 2003 Physical and Biological Surveys (ECORP 2005)
- Information management
  - A geographic information system (GIS) in place since 1994 that allows the information we have to be mapped and queried.
  - Databases were developed in 1998 that allows GRT to store and query information. The database information is linked to the GIS for map making. Some of the data sets include;
    - 7,227 photos with metadata that can be queried
    - Management information on 3,521 road sites
    - Information on 1,116 silvicultural visits since 1990
- Cultural – Beginning in 1991 we have conducted archaeological surveys on all THPs. These surveys remind us where sites are and help us predict where sites might be.
- The THP requires pre-operation surveys for sensitive plants and spotted owls as an extra layer of protection.

- **The results of monitoring led GRI to partner with GRWC and state agencies to implement restoration projects. GRT plans to continue working with GRWC on these projects. In 2014 the GRWC was awarded the first annual watershed stewardship award by the North Coast Regional Water Quality Control Board for its work in monitoring and restoring the Gualala River watershed. The NCWQCB is hoping to use the GRWC/GRT partnership as a model to encourage monitoring and restoration in other watersheds**
  - **108 log truck loads (705 logs) have been placed in 15 streams on GRT property to improve fish habitat by creating pools and places for young fish to hide.**
  - **191 miles (55%) of GRT's roads have upgraded to reduce detrimental sediment delivery to streams.**
- The effect on water temperature of logging the flood plain.
  - A study, Stream Temperature Modeling of the Gualala River Using the Heat Source Model, was included in the THP. It concluded that, **"These results demonstrate that the harvest proposed by Gualala Redwoods for the South Fork Gualala River in accordance with the THP riparian prescriptions will result in no impact to water temperatures."**
  - It is unlikely that any tree capable of casting a shadow on the water will be removed.

GRT is a responsible company, providing wood products, good jobs and is an excellent steward of the forest. We are proud of what we do and our commitment to the community.

Henry Alden
Forest Manager
Gualala Redwood Timber, LLC
March 17, 2016

PART OF PLAN

446.13

revised 4/8/16

A History of Agency Consultations on Watershed and Flood Plain Issues in the Gualala

1. Extensive discussions resulted from the reviews of the Westside Flats, Cassidy, Lily and Iris Timber Harvest Plans between 1999 and 2004.
2. An ongoing discussion of watershed management has been facilitated by the North Coast Regional Water Quality Control Board (NCWCQB) in the context of developing a property wide Waste Discharge Requirement for Gualala Redwoods, Inc. (GRI). Many meetings and field trips have been held. All of the public trust agencies have been invited to participate. Below is a partial list of meetings, field trips and attendees.
    a. December 15, 2004 - NCRWQCB Santa Rosa
        i. Pete Cafferata – Cal Fire
        ii. Duane Shintaku – Cal Fire
        iii. Leslie Markham – Cal Fire
        iv. Jim Burke – NCWCQB
        v. Bob Klampt - NCRWQCB
        vi. Christine Wright-Shacklett - NCRWQCB
        vii. Henry Alden - GRI
        viii. Tom Spittler – California Geologic Survey (CGS)
    b. March 21, 2005 - NCRWQCB Santa Rosa
        i. Bill Snyder – Cal Fire
        ii. Duane Shintaku – Cal Fire
        iii. Leslie Markham – Cal Fire
        iv. Jim Burke - NCWCQB
        v. Christine Wright-Shacklett - NCRWQCB
        vi. Tom Spittler – California Geologic Survey (CGS)
        vii. Henry Alden - GRI
    c. July 20, 2005 - NCRWQCB Santa Rosa
        i. Bill Snyder – Cal Fire
        ii. Duane Shintaku – Cal Fire
        iii. Leslie Markham – Cal Fire
        iv. Jim Burke - NCWCQB
        v. Christine Wright-Shacklett - NCRWQCB
        vi. Tom Spittler – California Geologic Survey (CGS)
        vii. Henry Alden - GRI
    d. June 6 2006 - NCRWQCB Santa Rosa - multiple agencies
    e. July 14, 2006 – Ray Carlson and Associates
        i. Bob Klampt - NCRWQCB
        ii. Henry Alden - GRI
    f. December 4, 2007 - NCRWQCB Santa Rosa
        i. Pete Cafferata – Cal Fire
        ii. Duane Shintaku – Cal Fire
        iii. Leslie Markham – Cal Fire
        iv. Jim Burke – NCWCQB
        v. Bob Klampt - NCRWQCB
        vi. Christine Wright-Shacklett - NCRWQCB
        vii. Henry Alden - GRI
        viii. Tom Spittler – California Geologic Survey (CGS)
        ix. Jon Hendrix – California Department of Fish and Game (DFG)
        x. Dick Blum – National Marine Fisheries Service (NMFS)
        xi. Charlotte Ambrose – NMFS

441.14 ADDED 10/28/15

xii. Russ Strach - NMFS

g. April 14, 2008 – Field Trip GRI
    i. Pete Cafferata – Cal Fire
    ii. Ken Margiott – Cal Fire
    iii. Jim Burke – NCWCQB
    iv. Christine Wright-Shacklett - NCRWQCB
    v. Henry Alden - GRI
    vi. Tom Spittler – CGS
    vii. Jon Hendrix – DFG
    viii. Richard Fitzgerald - DFG
    ix. Charlotte Ambrose – NMFS
    x. Bill Stevens – NMFS
    xi. Heidi Dickerson – Congressman Thompson's office
    xii. Art Haschak – Registered Professional Forester (RPF)
    xiii. Kathleen Morgan - GRWC
h. July 22, 2008 – NCRWQCB Santa Rosa - Multiple Agencies
i. January 26, 2009 - Field Trip GRI - Multiple Agencies
j. April 8, 2010 - NCRWQCB Santa Rosa. DFG and WQ said they were ok with the approach.
    i. Jim Burke – NCWCQB
    ii. Henry Alden - GRI
    iii. Jon Hendrix – DFG
    iv. Richard Fitzgerald - DFG
k. July 23, 2010 NMFS Santa Rosa
    i. Bill Stevens – NMFS
    ii. Bill Hearn – NMFS
    iii. Dan Wilson - NMFS
    iv. Henry Alden - GRI
l. July 1, 2011 NMFS Santa Rosa
    i. Bill Hearn – NMFS
    ii. Dan Wilson - NMFS
    iii. Henry Alden - GRI
m. July 19, 2011 NMFS Field Trip
    i. Art Haschak – RPF
    ii. Henry Alden - GRI
    iii. Bill Stevens – NMFS
    iv. Dan Wilson – NMFS

3. January 1, 2011 – The **Anadromous Salmond Protection** rule revisions to the Forest Practice Rules went into effect. A separate rule section was adopted to address management in the flood prone areas. These rules were the result of over two years of intensive review at the Board of Forestry. It was a public process open to all. The Kestrel and Dogwood THPs comply with these rules.
4. September 21, 2011 - After all the above review and discussion, the Kestrel THP (1-11-087Son) was submitted.
    a. October 26, 2011 – Kestrel Pre-Harvest Inspection field trip
        i. Art Haschak – Registered Professional Forester (RPF)
        ii. John Bennett – Gualala Redwoods, Inc.
        iii. Henry Alden – Gualala Redwoods, Inc.
        iv. Jim Burke – North Coast Regional Water Quality Control Board
        v. Michael Huyette – California Geological Survey
        vi. Kim Sone – CAL FIRE
        vii. Kathleen Morgan - GRWC
        viii. Ken Margiott – CAL FIRE
        ix. Terris Kastner – Department of Fish and Game (DFG)

441.15

ADDED 10/28/15

x. Jon Hendrix – DFG
xi. Dan Wilson – NOAA Fisheries

b. October 29, 2014 - Field trip to inspect the logging and observe the falling of trees into the river on the Kestrel THP
    i. Dan Wilson - NMFS
    ii. Kathleen Morgan - GRWC
    iii. Henry Alden - GRI
c. November 6, 2014 - Field trip to inspect the logging and the status of the large trees on the Kestrel THP
    i. Dan Wilson - NMFS
    ii. Randi Adair - DFW
    iii. Jeanne Chenn - DFW
    iv. Julie Coombes - DFW
    v. Robynn Swan - DFW
    vi. Henry Alden - GRI
d. January 22, 2014 – Pre-consultation on Dogwood to review
    i. MAMU trees
    ii. Flood plain management history
    iii. Riparian management zones
    iv. Tree marking
    v. Canopy cover
    vi. Present
        1. Randi Adair - DFW
        2. Julie Coombes - DFW
        3. Robynn Swan - DFW
        4. Henry Alden - GRI
        5. Art Haschak - RPF
e. June 10, 2015 – Dogwood Pre-harvest inspection
    i. Jim Burke - NCRWQCB
    ii. Kim Sone- Cal Fire
    iii. Jeanne Chinn - DFW
    iv. Dave Longstreth - CGS
    v. Art Haschak - RPF
    vi. Henry Alden - GRI
    vii. John Bennett – GRI
f. July 8, 2015 – Cal Fire active logging inspection
    i. Kim Sone – Cal Fire
    ii. Jim Burke - NCWQCB
    iii. Art Haschak - RPF
    iv. John Bennett – GRT
    v. Henry Alden – GRT
g. August 5, 2015 - Compliance Inspection Report for Timber Harvesting Plan 1-10-081 SON "Juniper" and Lake and Streambed Alteration Agreement 1600-2011-0423-R3
    i. Randi Adair - DFW
    ii. Julie Coombes - DFW
    iii. Jim Bawcom – Cal Fire
    iv. Henry Alden – GRT
    v. John Bennett - GRT

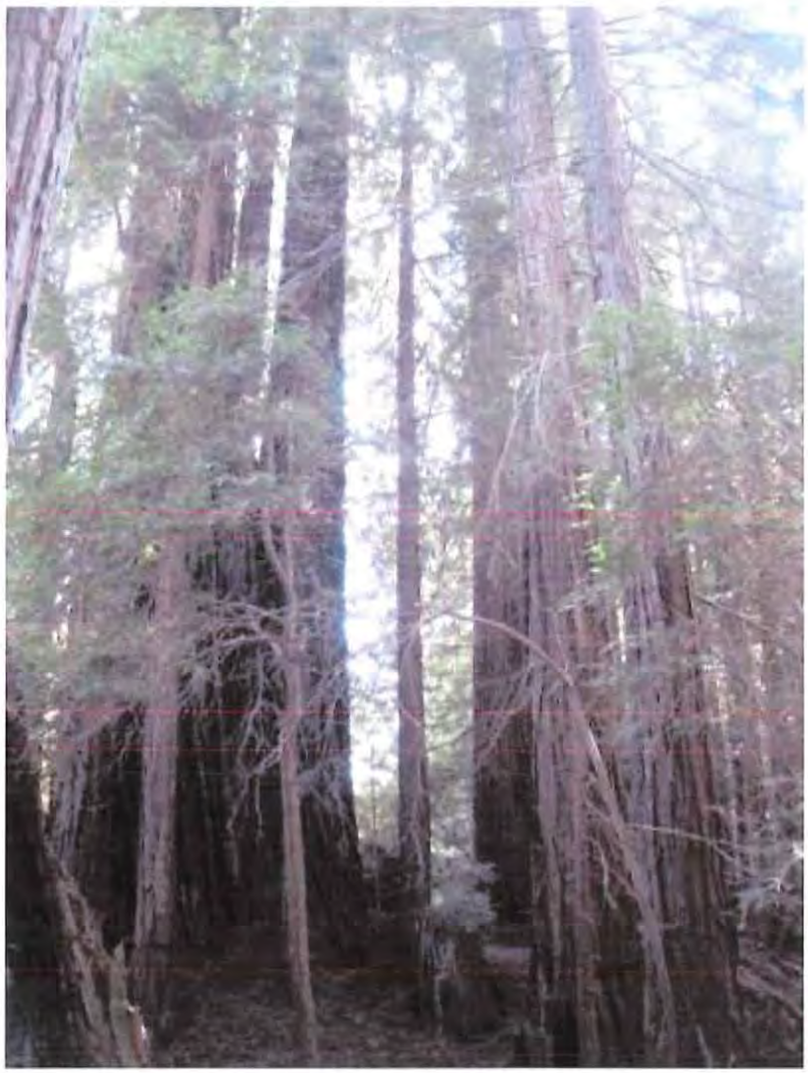
441.16

ADDED 10/28/15

The visual impact of flood plain logging along the South Fork of the Gualala River.

The Kestrel THP is very similar to the Dogwood THP. Both are light selection harvests in the flood plain along the South Fork of the Gualala River. Kestrel was approved in 2012 and logged in 2014 and 2015. The Dogwood THP is being reviewed by Cal Fire.

The first three photos are of the Kestrel THP area after harvest. It shows that behind the river bank screen of hardwoods are dense stands of large redwoods. The following pairs of photos were taken before and after logging the Kestrel THP. One side of the river in each photo is the logged Kestrel THP and the other is the proposed Dogwood THP. Can you tell which side?



This is the flood plain forest after harvesting on the Kestrel THP. These trees are visible in some of the following river level photos.

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08/25/15

441.17

ADDED 10/28/15

Photo 7333 5,200 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel
This is part of the Kestrel flood plain THP. It was harvest in 2015. The light selection harvest of smaller trees will accelerate the development of an old growth forest characteristics.

Photo 7334 5,200 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel
This is part of the Kestrel flood plain THP. It was harvest in 2015. One of the small stumps is visible in the middle of the picture.

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441.18 ADDED 10/28/15

Photo 3937 5,200 **' Up** SF Gualala **Dir** BotDn **Cr Station** 217 Gua1 **LWD Site** 0
07/20/07 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

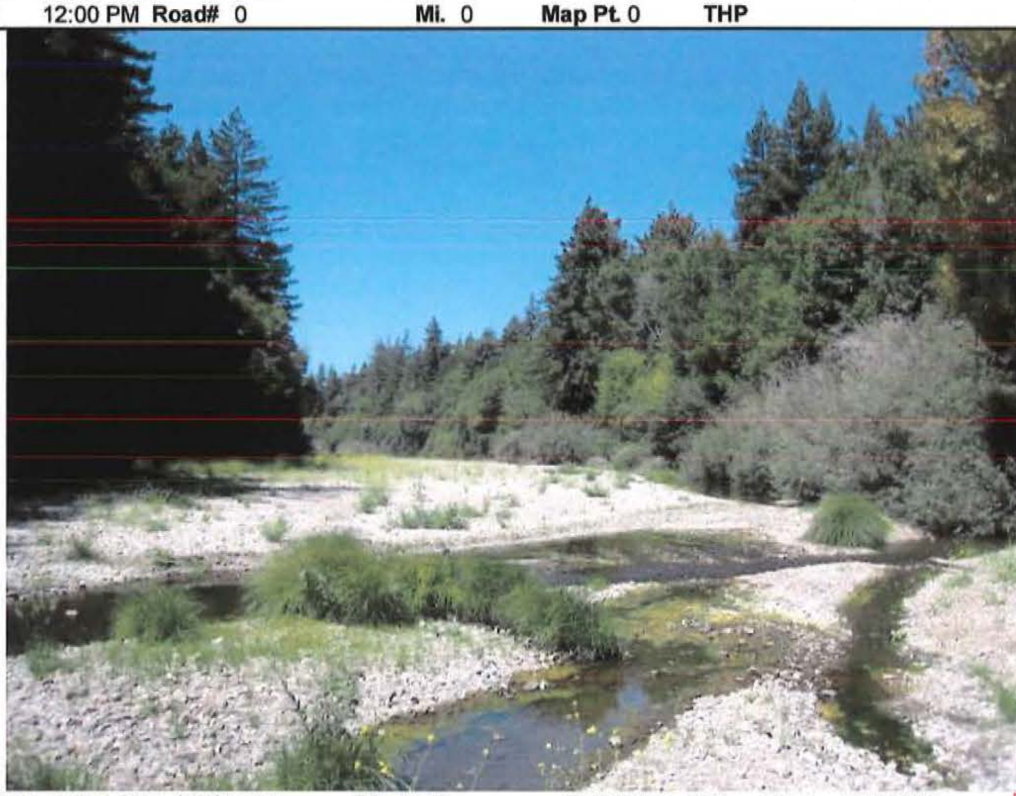

Photo 7325 5,200 **' Up** SF Gualala **Dir** BotDn **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

PART OF PLAN

441.19 ADDED 10/28/15

Photo 3938 5,200 **' Up** SF Gualala **Dir** BotUp **Cr Station** 217 Gua1 **LWD Site** 0
07/20/07 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

Photo 7326 5,200 **' Up** SF Gualala **Dir** BotUp **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

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441.20 ADDED 10/28/15

Photo 3702	5,200 **' Up** SF Gualala	**Dir** Cs1Dn	**Cr Station** 217	Gua1	**LWD Site**	0
11/02/06	12:00 PM **Road#** 0	**Mi.** 0	**Map Pt.** 0	**THP**		

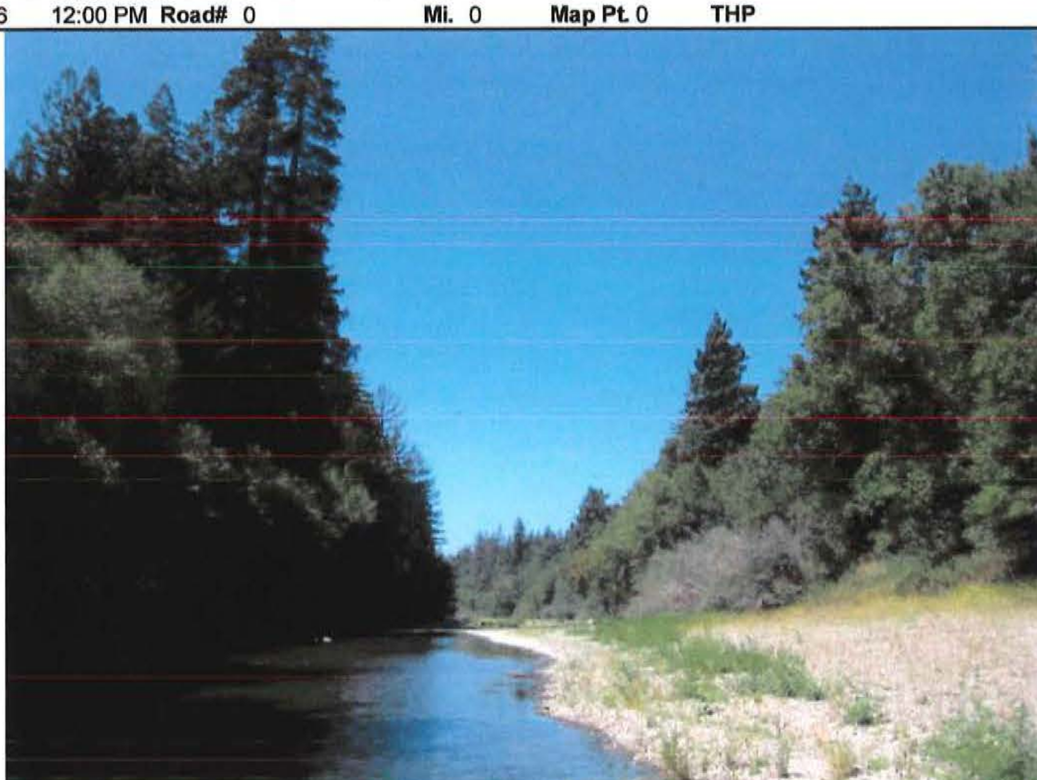

Photo 7328	5,200 **' Up** SF Gualala	**Dir** Cs1Dn	**Cr Station** 217	Gua1	**LWD Site**	0
08/24/15	12:00 PM **Road#** 0	**Mi.** 0	**Map Pt.** 0	**THP** Kestrel		

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441.21 ADDED 10/28/15

Photo 3703 5,200 **' Up** SF Gualala **Dir** Cs1Up **Cr Station** 217 Gua1 **LWD Site** 0
11/02/06 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

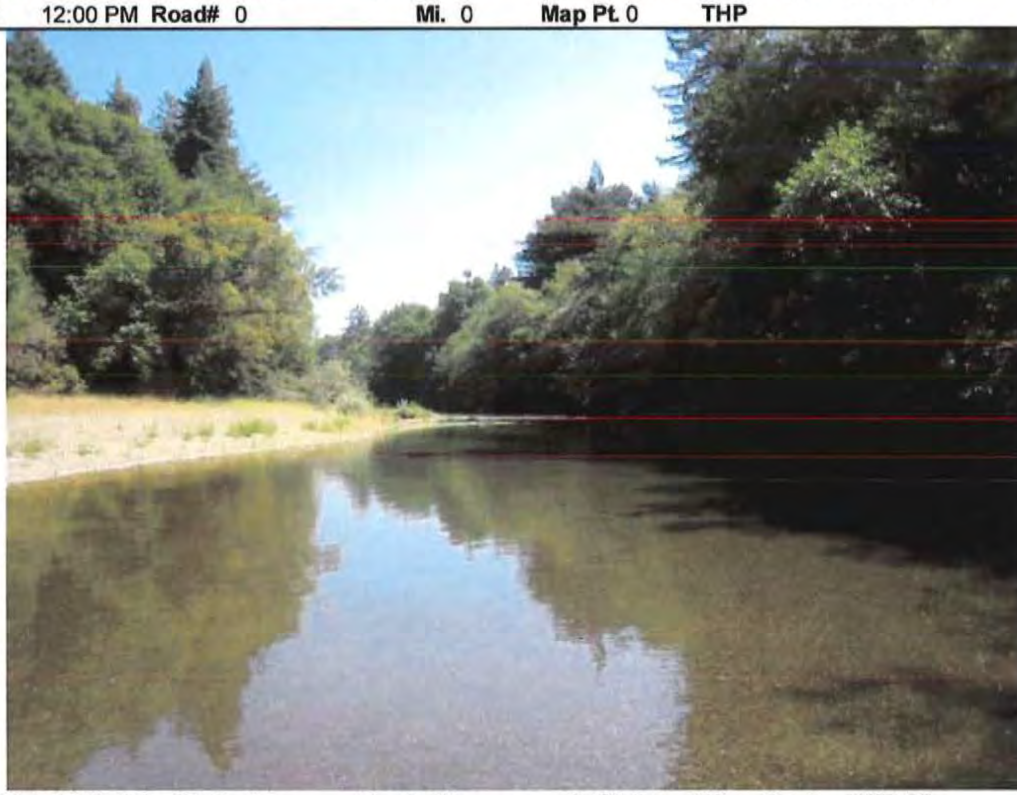

Photo 7327 5,200 **' Up** SF Gualala **Dir** Cs1Up **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

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441.22

ADDED 10/28/15

Photo 3942 5,200 **' Up** SF Gualala **Dir** Cs2Dn **Cr Station** 217 Gua1 **LWD Site** 0
07/20/07 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

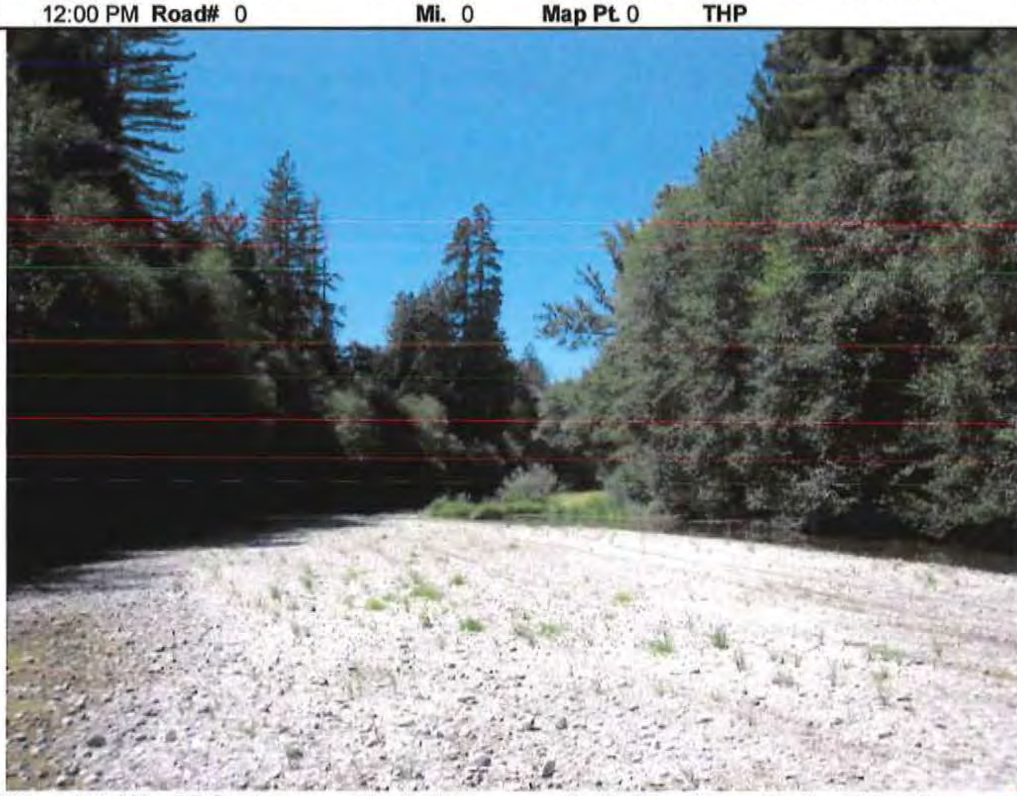

Photo 7330 5,200 **' Up** SF Gualala **Dir** Cs2Dn **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

PART OF PLAN

441.23 ADDED 10/28/15

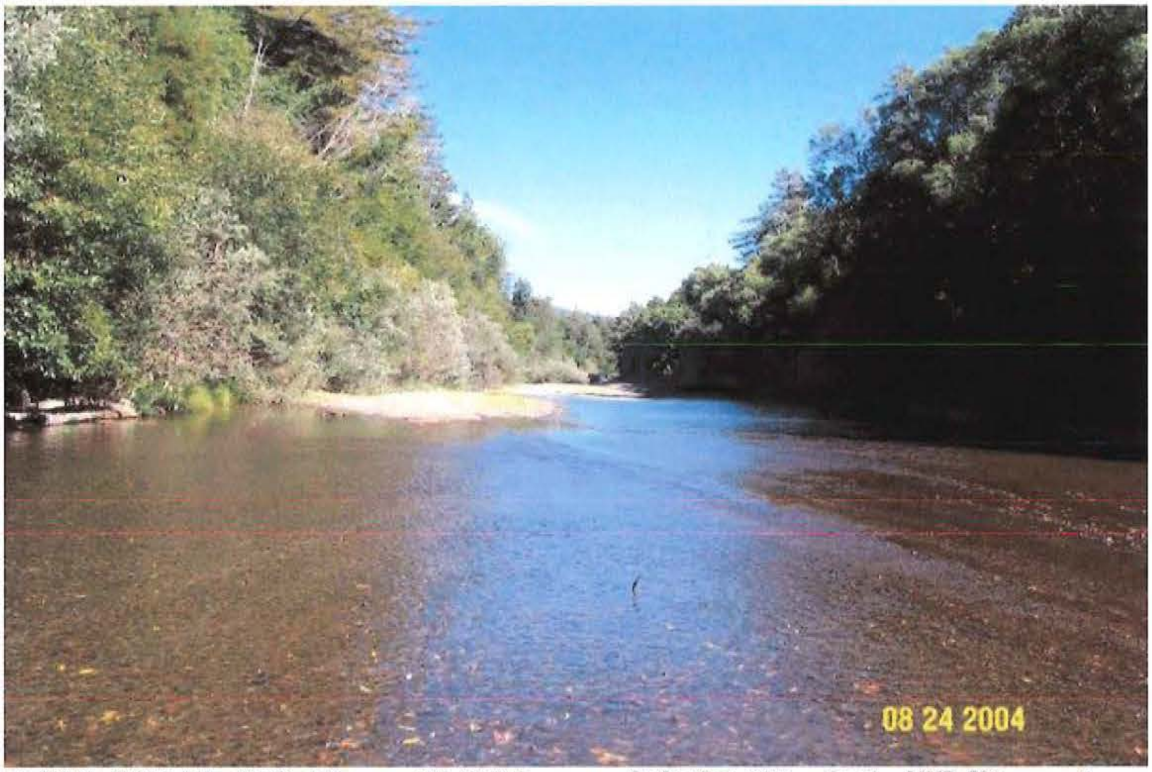

Photo 2222 5,200 **' Up** SF Gualala **Dir** Cs2Up **Cr Station** 217 Gua1 **LWD Site** 0
08/24/04 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

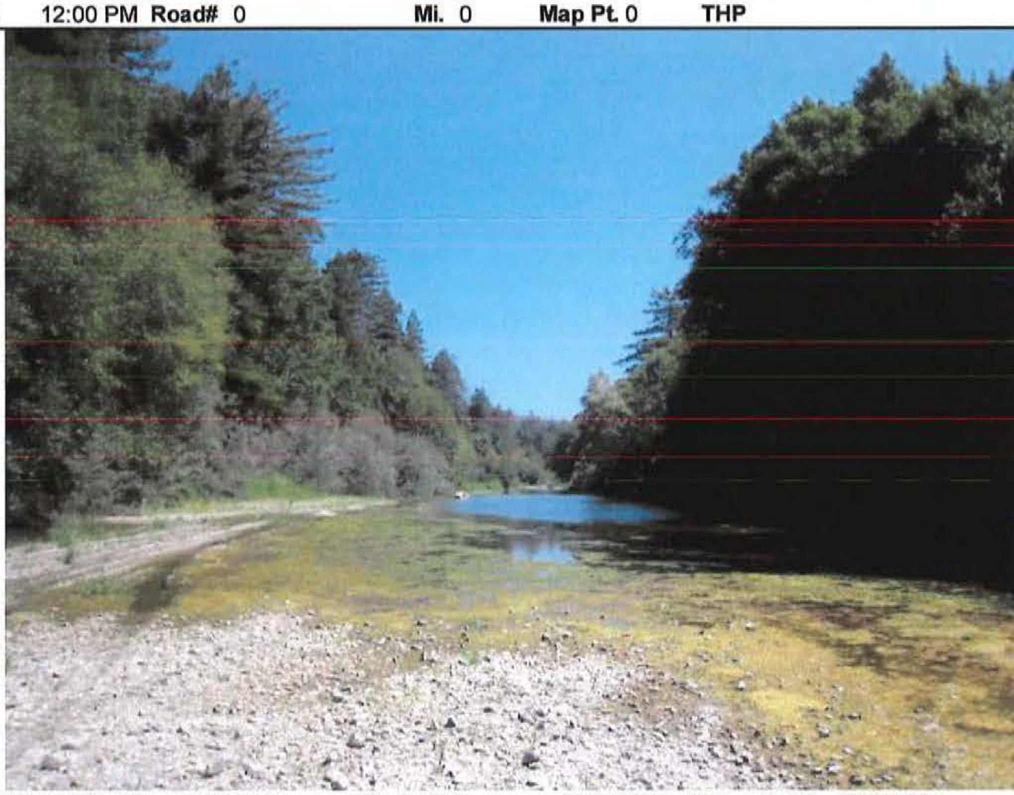

Photo 7329 5,200 **' Up** SF Gualala **Dir** Cs2Up **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

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441.24 ADDED 10/28/15

Photo 3706 5,200 **' Up** SF Gualala **Dir** Cs3Dn **Cr Station** 217 Gua1 **LWD Site** 0
11/02/06 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

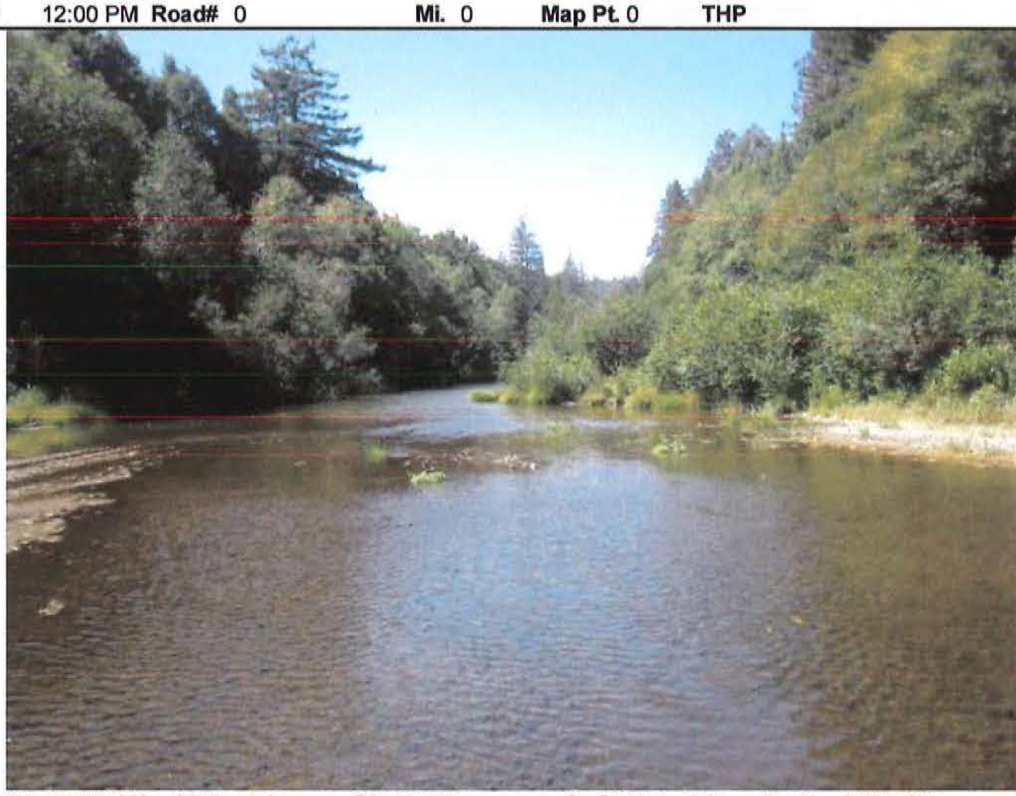

Photo 7332 5,200 **' Up** SF Gualala **Dir** Cs3Dn **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

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RESOURCE MANAGEMENT

PART OF PLAN

441.25

ADDED 10/28/15

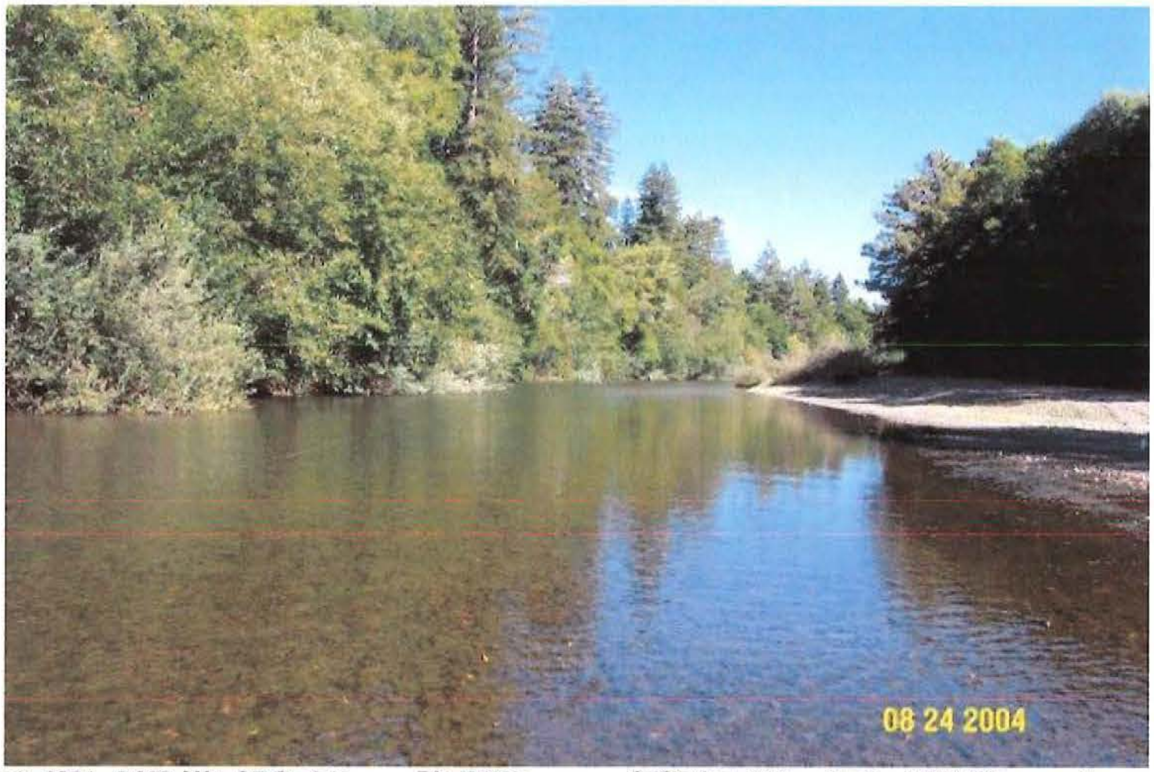

Photo 2224 5,200 **' Up** SF Gualala **Dir** Cs3Up **Cr Station** 217 Gua1 **LWD Site** 0
08/24/04 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**

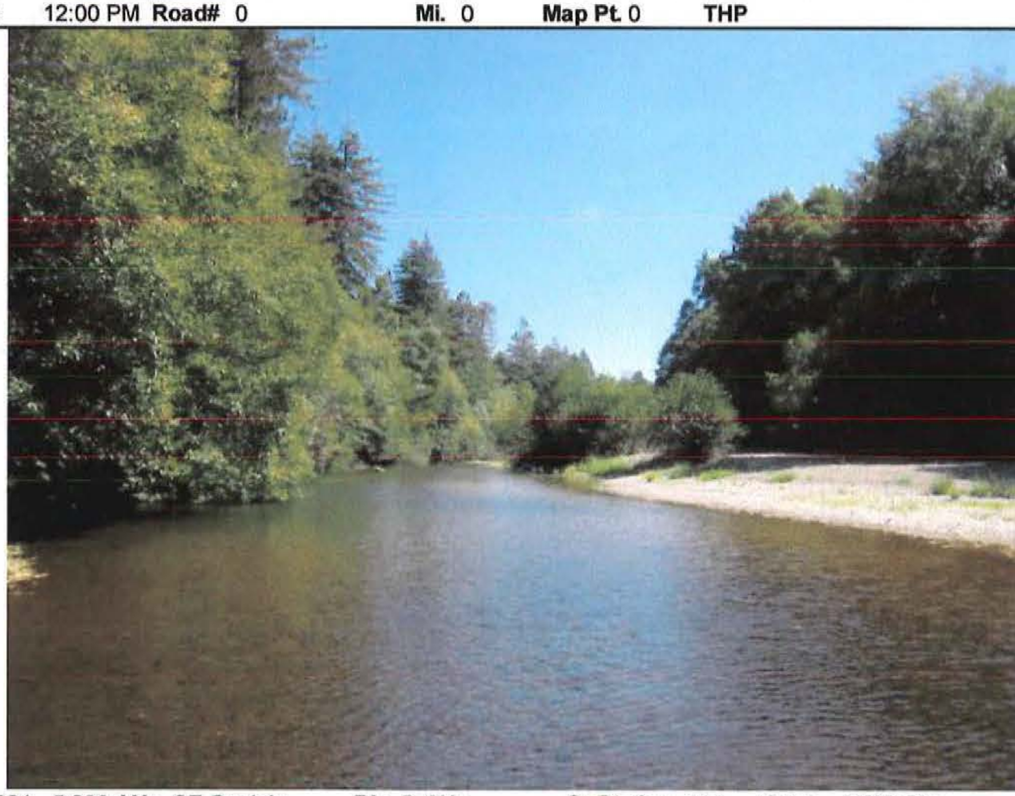

Photo 7331 5,200 **' Up** SF Gualala **Dir** Cs3Up **Cr Station** 217 Gua1 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

PART OF PLAN

441.26

ADDED 10/28/15

Photo 3537 8,730 **'Up** SF Gualala **Dir** 102 Down **Cr Station** 6 100 **LWD Site** 0
06/14/06 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**
Bar 100

Photo 7321 8,730 **'Up** SF Gualala **Dir** 102 Down **Cr Station** 6 100 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

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441.27 ADDED 10/28/15

Photo 3538 8,730 **' Up** SF Gualala **Dir** 102 Up **Cr Station** 6 100 **LWD Site** 0
06/14/06 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**
Bar 100

Photo 7322 8,730 **' Up** SF Gualala **Dir** 102 Up **Cr Station** 6 100 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

PART OF PLAN

441.28 ADDED 10/28/15

Photo 3535 8,730 **' Up** SF Gualala **Dir** 106 Down **Cr Station** 6 100 **LWD Site** 0
06/14/06 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**
Bar 100

Photo 7323 8,730 **' Up** SF Gualala **Dir** 106 Down **Cr Station** 6 100 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

PART OF PLAN

441.29 ADDED 10/28/15

Photo 3536 8,730 **' Up** SF Gualala **Dir** 106 Up **Cr Station** 6 100 **LWD Site** 0
06/14/06 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP**
Bar 100

Photo 7324 8,730 **' Up** SF Gualala **Dir** 106 Up **Cr Station** 6 100 **LWD Site** 0
08/24/15 12:00 PM **Road#** 0 **Mi.** 0 **Map Pt.** 0 **THP** Kestrel

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441.30 ADDED 10/28/15

September 28, 2015

TO: Henry Alden, Forest Manager
Gualala Redwood Timber, LLC

FROM:

Jeremy Kobor, MS, CFM

Matt O'Connor, PhD, CEG
O'Connor Environmental, Inc.

PROFESSIONAL GEOLOGIST
M.D. O'Connor
No. 2449
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

SUBJECT: Summary of 'Hydrologic Assessment of Water Withdrawal for Dust Control Use' Findings and Response to August 2015 Letter from Kamman Hydrology Concerning the Above-referenced Report

Overview

This memorandum briefly summarizes available monitoring data and the findings from the 'Hydrologic Assessment of Water Withdrawal for Dust Control Use' (Hydrologic Assessment) completed June 2010 by O'Connor Environmental Inc. (OEI). This memorandum also addresses concerns regarding the methods and conclusions of the OEI 2010 report raised by Kamman Hydrology & Engineering, Inc. in a letter dated August 6, 2015 to CAL FIRE Forest Practice Program Manager regarding THP 1-15-042 SON and THP 1-15-033 SON. The specific concerns that are addressed relate to the estimates of baseflow and the groundwater modeling assumptions used in the 2010 study.

Summary of Monitoring Data and June 2010 Hydrologic Assessment

The Hydrologic Assessment (OEI 2010) consisted of an analysis of discharges at tributary stream gauges to estimate baseflow conditions at the water drafting location near the confluence of the South and Wheatfield Forks of the Gualala River, and a groundwater modeling analysis of the alluvial aquifer response to water drafting operations. The report found that mean July through September discharges through the alluvium in the vicinity of the drafting location ranged from 8.4 to 14.9 cfs. Using these flow rates, it was determined that the water that is drafted for dust control represents less than 0.5% of the daily flux of water through the alluvium. The groundwater modeling analysis revealed that maximum decreases in water levels during pumping would be less than 0.1-ft and that water levels would recover to within 0.01-ft of starting water levels within one hour following pumping.

The baseflow analysis and groundwater flow modeling both indicate that the water drafting is highly unlikely to result in significant changes in pool water levels and associated effects to aquatic habitat in the Gualala River. Additional and perhaps even more compelling evidence that water drafting will not adversely affect water levels and habitat conditions is available in the form of

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monitoring data collected to track water level responses to pumping as required by permit conditions of California Department of Fish & Wildlife. Such data is available from four water drafting events in September 2012, August 2015 and September 2015. In each case, withdrawal of a total of 4,000 gallons occurred at a pumping rate of 160 to 300 gallons per minute. During the first test water was pumped directly from a pool in the river and water levels were monitored within the pool. During the most recent tests, water was pumped from an off-channel pit and water levels were monitored in a downstream pool and wetted widths were monitored at a downstream riffle crest.

The 2012 test found that the water level decreased by 0.02-ft during pumping and recovered back to the starting water within less than one hour following pumping. The 2015 tests found that the water level in the monitoring pool decreased by less than 0.01-ft and the wetted width at the downstream riffle crest did not change. These tests clearly demonstrate that pumping at the proposed rates and volumes does not significantly affect pool water levels or wetted widths at downstream riffle crests.

Results of Water Pump Tests in the Vicinity of Valley Crossing

Location	Date	Gallons	GPM	Drafting Location	Pool Gage Change (Ft.)	Riffle Crest Width Change
Valley Crossing	09/19/12	4,000	266	Instream Pool	-0.02	
Powerline Crossing	08/10/15	4,000	160	Off Channel Pool	0	0
Valley Crossing	09/02/15	4,000	300	Off Channel Pool	0	0
Valley Crossing	09/22/15	4,000	250	Off Channel Pool	> -0.01	0

Response to August 2015 Letter

Baseflow Estimates

The Kamman Hydrology letter (Letter) compiles gauging data from four USGS gauging stations in the watershed and presents estimates of mean monthly flows at the water drafting location. This exercise reveals that streamflows drop as low as zero in September of drier water years. This is consistent with observations in the vicinity of the drafting location and is clearly stated in the Introduction section of the Hydrologic Assessment (OEI 2010). The Letter points out that "the waning days of late summer, when flows are at their lowest and river pools become disconnected, represents the period of greatest potential pumping impacts to pool water levels and associated aquatic habitat". It is for precisely this reason that the Hydrologic Assessment assumes a condition of zero discharge and disconnected pools. The Letter incorrectly assumes that the baseflow estimates presented in the Hydrologic Assessment represent estimates of surface streamflow conditions at the drafting site. In actuality, the Hydrologic Assessment assumes that streamflow is zero and the baseflow estimates that are presented are intended to represent the volume of water moving through the alluvium as groundwater underflow which is responsible for maintaining water levels in the disconnected pools during times of zero surface flow.

The Hydrologic Assessment relies on gauging data from four small tributary watersheds without significant alluvial deposits where the gauges are expected to capture the total flux of water rather than using the USGS gauges where a significant portion of the total summer flow is expected to

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occur as underflow through streambed alluvial deposits. The Letter correctly points out that the "average flow rate for the July through September period is higher than a large percentage of the actual flow rates that occur during the latter portion of the summer period". In response to the concern that using the average summer flow rates does not represent a conservative baseflow assumption, we compiled the mean September flows from the four tributary gauges and followed the same approach of scaling by stream length and by drainage area to estimate the rate of groundwater underflow at the drafting location. This analysis revealed a range of mean September flows of 5.1 to 11.9 cfs compared to the summer average of 8.4 to 14.9 cfs. Even with these revised values, the water that is drafted for dust control represents less than 1% of the daily flux of water through the alluvium.

Groundwater Modeling Assumptions

The Letter argues that the use of constant head boundaries at the upstream and downstream ends of the model is unrealistic because the alluvial water table fluctuates by several feet throughout the summer months. The Letter states that "the elevated static water level likely maintains fully wetted pools before, during, and after pumping - hardly a rigorous assessment of potential impacts to aquatic habitat".

Any modeling analysis requires the modeler to define conditions at the model boundaries. In the absence of detailed water level data, representing the boundaries as constant heads with elevations equal to the river bed level is a realistic assumption for summer conditions when the water table would be expected to be near land surface but not high enough to maintain continuous flow throughout the reach. The choice of boundary conditions should not have a significant effect on the results of the modeling analysis provided that the boundaries are located a sufficient distance from the area of interest. The closest boundary is located more than 1,500-ft away from the water drafting location and the intervening area is represented by more than 40 computational grid cells. This distance is sufficient to avoid a situation where the model results in the vicinity of the drafting location would be affected by the choice of boundary conditions unless the water drafting resulted in significant decreases in water levels and the associated cone of depression was sufficiently large to extend to the model boundaries. This is clearly not the case as the model shows less than 0.1-ft of drawdown associated with the pumping.

The Letter argues that the uniform value of hydraulic conductivity (1,000 ft/day) used in the modeling analysis is unrealistically high and that the presence of significant percentages of silt and clay in the alluvium suggest that a lower value may be more appropriate. The Hydrologic Assessment also notes that fine grained material may line pools and restrict surface water/groundwater exchange. The hydraulic conductivity would be expected to vary significantly in both the lateral and vertical directions as a function of variations in sediment texture, however detailed data needed to characterize these variations are not available.

The Letter states that "actual water exchange through fine sediment accumulated in pools may be slow enough to permit the complete or near-complete dewatering of pools when pumped at the rates anticipated for water drafting". If hydraulic conductivities were sufficiently low, this hypothetical statement could be true, however the available monitoring data shows minimal drawdown during pumping and rapid recovery of water levels following pumping indicating that hydraulic conductivities are sufficiently high to prevent such a situation from occurring. The value

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of hydraulic conductivity assumed in the modeling analysis is a reasonable estimate for sand and gravel deposits, and the simulated minimal water table response to pumping agrees with the available monitoring data suggesting that the value is not unrealistic. Moreover, extensive field observations in the Gualala River over a period of years indicate that there are no deposits of fine sediment (silt and clay) extensive enough to effectively seal pools in the channel off from the adjacent extensive water table aquifer comprised of sand and gravel.

Summary

The Letter did not present any significant new data or analysis that would require reinterpretation of the findings of the June 2010 Hydrologic Assessment. Available data from four pump tests where the water level response to pumping was monitored clearly demonstrate that the pumping does not have a significant effect on water levels in the pool being pumped or in flow conditions downstream. The estimate of how the pumping volumes compare to the total volume of water moving through the alluvium during times of pool disconnection and the groundwater analysis presented in the Hydrologic Assessment provide additional evidence that the pumping will not have a significant impact. Various assumptions can be made in completing the baseflow estimates and performing the groundwater modeling, and following the recommendations in the Kamman Hydrology letter we used more conservative estimates of baseflow and still found that pumping represents less than 1% of the total flow volume. Regardless of the assumptions used and the findings of the baseflow analysis and groundwater modeling, the monitoring data clearly shows that the impacts of pumping will be insignificant.

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Water Drafting Impacts on the South Fork of the Gualala River

Location	Drainage Area Acres	Total Flow Cubic Feet Per Second*	Total Flow Gallons per Day*	Drafted Percent of Total Maximum**	Drafted Percent of Total Actual***
Valley Crossing	102,409	8.4	5,370,624	**0.47%**	**0.043%**
Pepperwood Creek	157,415	12.9	8,255,298	**0.30%**	**0.028%**
Mouth of the Gualala	214,386	17.6	11,243,022	**0.22%**	**0.021%**

* Low flow estimate from O'Conner report (drainage area method)
** The maximum allowed under the permit is 25,000 gallons per day
*** The actual amount drafted between July 29th and August 3rd 2015 was 2,333 Gallons per day

441.35 ADDED 10/28/15

State of California
Department of Fish and Wildlife

Flex your Power

Memorandum

Date: August 14, 2015

To: Ms. Leslie Markham, Forest Practice Manager
North Coast Region Office
California Department of Forestry and Fire Protection
135 Ridgway Avenue
Santa Rosa, CA 95401
SantaRosaReviewTeam@fire.ca.gov

Original signed by

From: Mr. Scott Wilson, Regional Manager
California Department of Fish and Wildlife-Bay Delta Region, 7329 Silverado Trail, Napa, CA 94558

Subject: California Department of Fish and Wildlife Compliance Inspection Report for Timber Harvesting Plan 1-10-081 SON "Juniper" and Lake and Streambed Alteration Agreement 1600-2011-0423-R3

On August 5, 2015, California Department of Fish and Wildlife (CDFW) staff conducted a compliance inspection for the Juniper Timber Harvesting Plan (THP) (1-10-081 SON) and Lake and Streambed Alteration Agreement (LSAA) 1600-2011-0423-R3. In attendance for CDFW were Randi Adair, Senior Environmental Scientist (Supervisory), and Julie Coombes, Environmental Scientist. Jim Bawcom attended on behalf of the California Department of Forestry and Fire Protection (CAL FIRE), and Registered Professional Foresters (RPFs) Henry Alden and John Bennett attended on behalf of Gualala Redwoods Timber, LLC. The inspection was conducted in response to a public complaint received by CAL FIRE on August 3, 2015 regarding compliance with Forest Practice Rules (FPR) 923.7(l)(3), which pertains to water drafting in watersheds with anadromous fisheries.

Please note that the conclusions of this report apply only to the short-term water drafting operations conducted by Gualala Redwood Timber, LLC on the South Fork Gualala River at the sites indicated in Figure 1. The conclusions of this report do not apply to larger or more sustained diversions on other reaches or forks of the river, particularly diversions involving higher instantaneous diversion rates. This report should not be used to justify or explain additional future diversions.

Scope of Inspection

CDFW staff reviewed several related plans and LSAAs prior to the inspection:

- 1600-2008-0096-R3 (LSAA for THP 1-07-155 SON "Willow")
- 1600-2014-0012-R3 (LSAA for THP 1-11-087 SON "Kestrel")
- 1600-2011-0423-R3 and THP 1-10-081 SON "Juniper"
- Notification for 1600-2015-0155-R3 (LSAA for THP 1-15-042 SON "Dogwood", not yet finalized)

CDFW staff also reviewed stream gauge discharge data for July 4 to August 4, 2015 from U.S. Geological Survey (USGS) gauge station #11467510, which is located approximately 0.5 miles north of the confluence of the Wheatfield and South Forks of the Gualala River. At the

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inspection, the RPFs provided 2015 log data for water drafting operations as well as a 2010 hydrology study prepared by O'Connor Environmental, Inc. to assess the impacts of Gualala Redwoods Timber, LLC's proposed water drafting activities on anadromous fisheries. These documents were reviewed upon return to the office.

Figure 1 shows the active and potential water drafting sites that were inspected, based on GPS points taken in the field. Figures 2 through 11 show conditions that were present at each of these sites on the date of our inspection. Only two water drafting sites are currently in use, Sites B and F. Site B is an excavated pool located in the floodplain of the South Fork Gualala River, over 100 feet from the wetted channel. Site F is a pool excavated in the gravel bar, downstream of the USGS gauge.

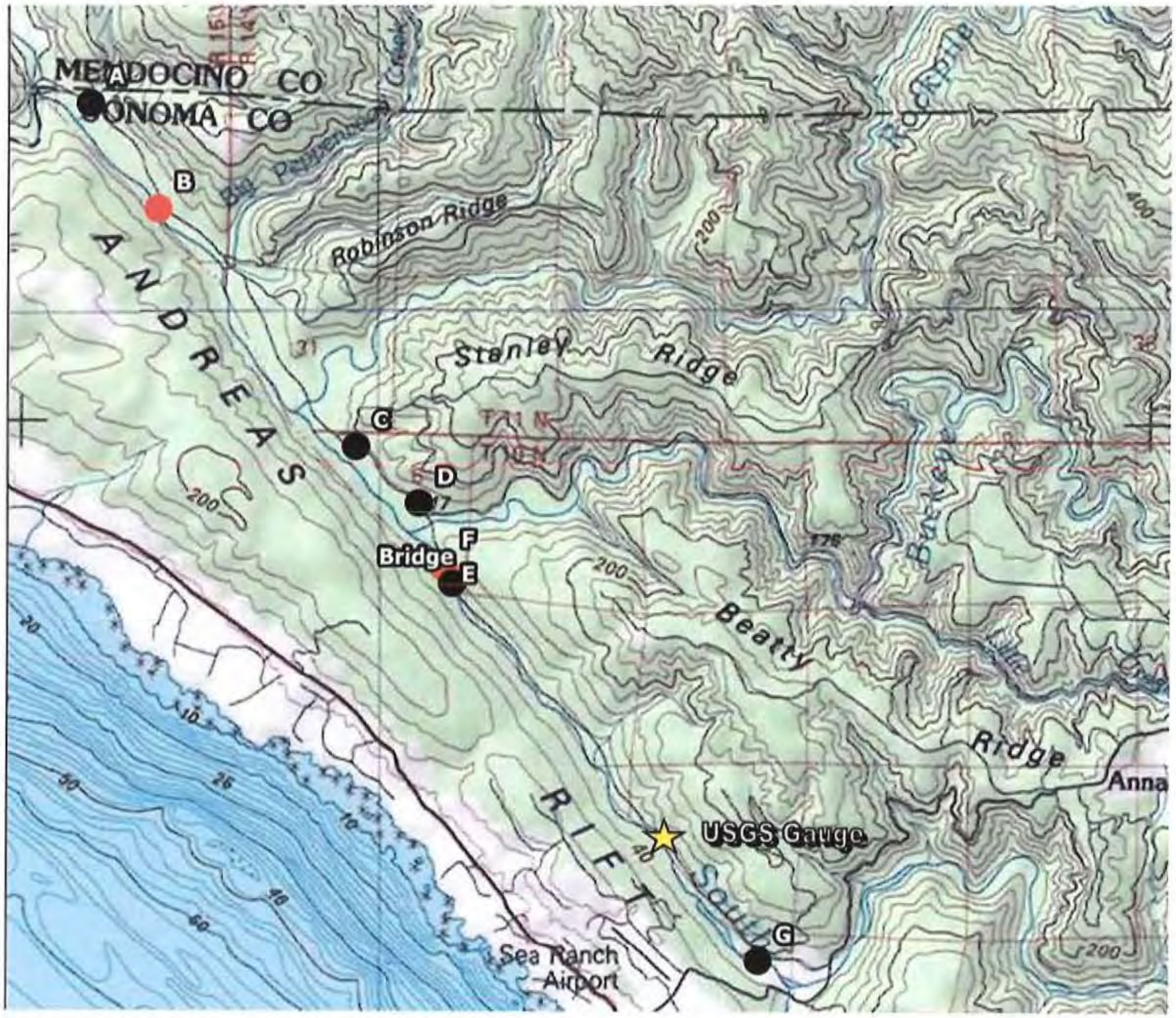

Figure 1. Active and Inactive Water Drafting Sites Inspected
(Red dots indicate active drafting sites)

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Figure 2. Site A, Potential Gravel Bar Drafting Location, Inactive, No Excavation

Figure 3. Site B, Off-stream Drafting Pool, Active

Figure 4. Site C, Potential Gravel Bar Drafting Location, Inactive, No Excavation

Figure 5. Site D, Off-stream Drafting Pool, Inactive

Figure 6. Site E, Off-stream Drafting Pool, Inactive

Figure 7. Site F, Gravel Bar Drafting Location, Active, Excavated Pool

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Figure 8. Site F, Close Up of Fish Screen

Figure 9. Site F, Staff Gauge in Observation Pool

Figure 10. Site G, Potential Gravel Bar Drafting Location, Inactive, No Excavation

Figure 11. Site G, Dewatered Riffles at Wheatfield Confluence

Findings

One of the standard requirements specified by FPR 923.7(l)(3) is that Class I (fish bearing) streams provide bypass flows of 2 cubic feet per second. However, the FPR also state that any of the requirements of 923.7(l)(3) may be waived if CDFW modifies the requirement(s) in an LSAA. For several reasons, described below, the generic bypass flow requirement does not fit real hydrological conditions on the South Fork Gualala River. Therefore, CDFW's LSAA for the Juniper THP uses other, more appropriate monitoring metrics in place of bypass flow.

The bypass flows specified in the FPR are intended in part to provide passage across "critical riffles" for young fish, allowing fish to move between pools to seek food, escape predators, and avoid adverse changes in water quality (e.g. depleted oxygen, warming temperatures) during the summer months. However, dewatering of certain reaches appears to be a baseline summer flow condition in some reaches of the South Fork Gualala River, particularly near its confluence with the Wheatfield Fork. This is due, in part, to channel substrate dynamics. Every year, there is a large deposition of cobble, gravel and sand at the confluence of these two forks, which results in aggradation of materials above the summer water surface elevation (Figures 10 and 11). There are few known diversions on the South Fork (California State Water Resources

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Control Board 2015), and the dewatering of riffles on this fork appears to be typical of baseline summer flows. In 2008, CDFW observed dewatering firsthand while conducting critical riffle studies on the South Fork, and multiple-year data across a range of water years provided by O'Conner (2010) also supports the finding that dewatering in some reaches occurs naturally, even in average precipitation years. During the inspection, CDFW staff did not observe dewatering of critical riffles downstream of Site F, the only active gravel bar water drafting site.

The bypass flow requirement of the FPR is also based on the need to provide influxes of cooler water to resting pools, as temperatures above a certain threshold can be lethal to salmonids. There is substantial subsurface flow on the South Fork Gualala, as evidenced by the high water table in water drafting pools located over 100 feet from the main channel (Figures 3, 5, and 6). The subsurface flow, or "baseflow", moves nutrients through the hyperheic zone and mixes cooler subsurface water with warmer surface flow. O'Conner Environmental, Inc. (2010) found that baseflow on the South Fork was between 8.4 and 14.9 cfs from July to September from 2005 to 2010. The maximum amount of water authorized to be withdrawn as a result of water drafting represents approximately 0.5 percent of total flow (including surface flow and baseflow).[1] Water drafting at levels specified in the LSAA is not expected to have a significant effect, therefore, on surface water temperature.

Because bypass flow is an inadequate measurement of potential impacts on the South Fork Gualala due to channel characteristics and hydrology, CDFW specified an alternate approach in the Juniper LSAA to monitor the effects of water drafting. Measure 2.13 requires the permittee to install a permanent gauge in an observation pool downstream of the drafting site. As the water truck operator pulls water out of the drafting pool, s/he is required to observe the level of the gauge and stop drafting immediately if the water surface elevation begins to fall below a certain threshold. Gualala Redwoods Timber, LLC had a gauge installed as required (Figure 9), and water drafting logs (Appendix A) indicated that the water truck operator followed appropriate monitoring protocol. No change between starting and ending water surface elevations is noted on the log.

Measures 2.12.7 and 2.12.8 require the permittee to screen the pump intake so that fish and amphibians are not pulled into the pump itself. CDFW observed that the diversions were screened as required (Figure 8).

CDFW was not able to observe active drafting operations during our inspection and were therefore unable to verify that Gualala Redwoods Timber, LLC is complying with instantaneous drafting rates of 300 gallons per minute (Measure 2.12.4). We suggest that in the future water truck operators complete the filling time on the water drafting log to document compliance with this measure. In addition, under the LSAA the RPF is required to monitor drafting operations at least once per month during drafting (Measure 2.13.4). In the future, the RPF should sign the log on dates of observation to indicate compliance with this measure.

Gualala Redwoods Timber, LLC was not able to provide photos of the pump test completed at the beginning of the season as required by Measure 2.14. The pump test is a standard compliance measure used for water drafting projects to determine a safe threshold for the instantaneous drafting rate to avoid dewatering stream reaches below the diversion point. The pump test determines a relationship between decreases in water surface elevation, as

[1] Maximum daily use under the LSAA is limited to 25,000 gallons. At 8.4 cfs, estimated baseflows are approximately 5,370,624 gallons/day. Assuming surface flow is zero (most conservative scenario), 25,000 gallons/5,370,624 gallons = 0.5%.

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measured on the water gauge in the monitoring pool, and decreases in the wetted channel width downstream. Because the hydrology of each stream is different, the pump test is necessary to develop site-specific impact metrics. However, the hydrologic assessment prepared by O'Conner Environmental provides detailed documentation of a 2010 pump test, and documentation provided by Gualala Redwoods Timber, LLC provides further evidence of pump testing from 2012 at Site G (the site at which impacts were expected to be most noticeable). This documentation is adequate to satisfy the LSAA requirement. Pool gauge data from the water drafting log book indicates no decrease in water surface elevation during drafting events. Therefore, the instantaneous drafting rate and amounts have no demonstrated adverse effect on downstream habitat.

Please direct questions or correspondence regarding this memorandum to Ms. Randi Adair, Senior Environmental Scientist (Supervisory), at (707) 944-5596.

cc: Henry Alden, RPF, Gualala Redwood Timber – halden@deltapac.com
John Bennett, RPF, Gualala Redwood Timber – jbennett@pacificstates.com
Jim Bawcom, CAL FIRE – james.bawcom@fire.ca.gov
Dan Wilson, NOAA – dan.wilson@noaa.gov

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CDFW, 2008. Lake and Streambed Alteration Agreement 1600-2008-0096-R3 (for THP 1-07-155 SON "Willow").

CDFW, 2014. Lake and Streambed Alteration Agreement 1600-2014-0012-R3 (for THP 1-11-087 SON "Kestrel").

CDFW, 2011. Lake and Streambed Alteration Agreement 1600-2011-0423-R3 (for THP 1-10-081 SON "Juniper").

California State Water Resources Control Board, 2015. Electronic Water Rights Information Management System (eWRIMS), accessed August 10, 2015 at: http://waterrightsmaps.waterboards.ca.gov/ewrims/gisapp.aspx.

Gualala Redwoods Timber, LLC (formerly Gualala Redwoods, Inc.), 2010. Timber Harvest Plan 1-10-081 SON "Juniper". Approved by California Department of Forestry and Fire Protection on January 26, 2011.

Gualala Redwoods Timber, LLC, 2015. Notification of Lake and Streambed Alteration 1600-2015-0155-R3 for THP 1-15-042 SON "Dogwood", under review by CDFW.

O'Connor Environmental, Inc., 2010. Hydrologic Assessment of Water Withdrawal for Dust Control Use. Prepared by Matthew O'Connor, PhD, CEG, and Jeremy Kobor, MS, RG for Gualala Redwoods, Inc. for South Fork Gualala River.

Personal communication with Brenda Blinn, Senior Environmental Scientist, August 4, 2015 regarding flow studies for THP 1-07-155 SON Willow/LSAA 1600-2008-0098-R3.

USGS, 2015. Stream discharge data for Gauge #11467510 (north of confluence of South Fork and Wheatfield Fork Gualala River), July 4, 2015 to August 4, 2015.

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Appendix A. Water Drafting Log for Site G

Drafting Log	Drafting Site: Bridge		Tank Size: 4000		
Date	Starting Time	Filling Time*	Starting Elev.	Ending Elevation	Cleaned Filter?
6 29 15	925		2.09	2.09	
6 29 15	10 25		2.09	2.09	
6 30 15	900		2.09	2.09	
6 30 15	11 45		2.09	2.09	
7 9 15	9:10 am		2.09	2.09	
7 9 15	10:05 am		2.09	2.09	
7-21-15	6:50 am		2.0	2.0	
7-21-15	9:30 pm		2.0	2.0	
7-21-15	10:20 pm		2.0	2.0	
7-23-15	6:30 pm		2.0	2.0	
7-23-15	7:00 pm		2.0	2.0	
7-23-15	7:35	pm	2.0	2.0	
7-27-15	6:53	am	2.0	2.0	
7-27-15	7:32	am	2.0	2.0	
7 29 15	1:25	pm	1.9	1.9	
7 29 15	3:20	pm	1.9	1.9	
7-30-15	10:55	am	1.9	1.9	
7-30-15	12:28	pm	1.9	1.9	
7 31 15	10 30	am	1.9	1.9	
8-3-15	11:45	am	1.9	1.9	
8-3-15	12:30	pm	1.9	1.9	

*3 minutes per 1,000 gallons

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Gualala Redwood Timber, LLC
Powerline Crossing pump test
As per 1600-2011-0423-R3

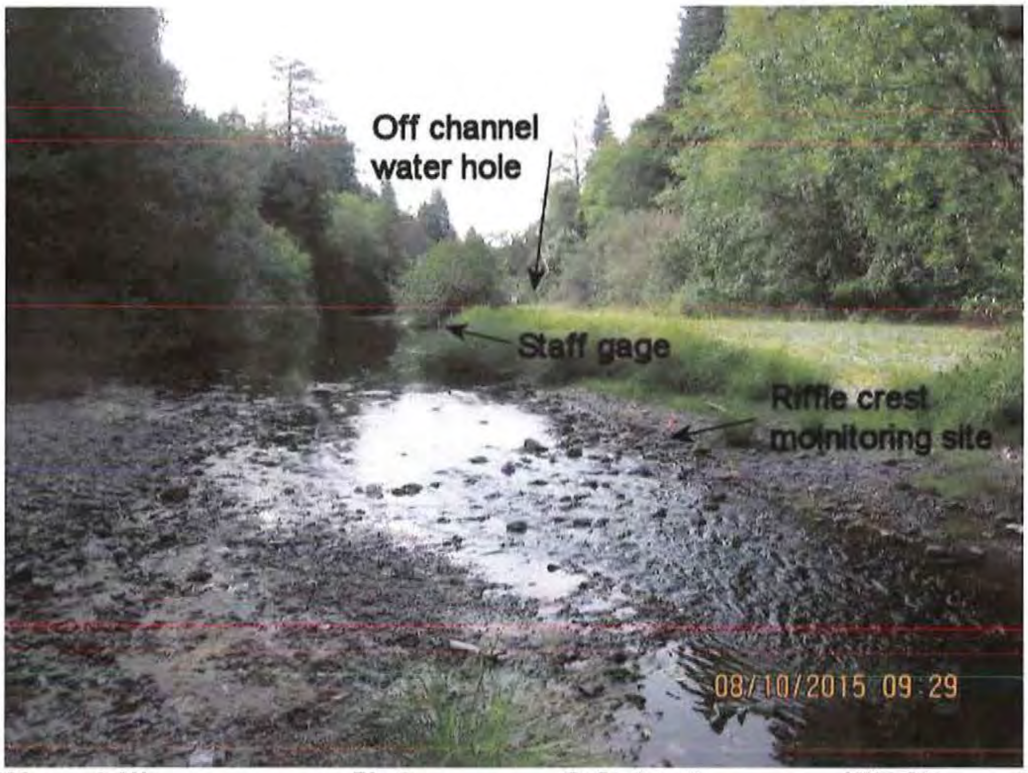

Photo 7286 0 **' Up** **Dir** 0 **Cr Station** 0 **LWD Site** 0
08/10/15 9:29 AM **Road#** 40.1961 **Mi.** 0.1 **Map Pt.** 2156 **THP** Maintenance
This is a photo of the pool and riffle that made up the monitoring site. We began the pump test at 10:29 am. RPFs John Bennett and Henry Alden conducted the pump test. The flow at the USGS gage 11467510 near The Sea Ranch was 0.65 CFS at the time of the test. The watershed at this point is about 105,000 acres.

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Photo 7299 0 **' Up** **Dir** 0 **Cr Station** 0 **LWD Site** 0
08/10/15 10:42 AM **Road#** 40.1961 **Mi.** 0.1 **Map Pt.** 2156 **THP** Maintenance
This is the off channel water hole that we draft from. It is about 50' from the wetted channel of the South Fork of the Gualala River. It is at the Power Line Crossing just up stream from the confluence of Buckeye Creek. It is a 4,000 gallon that was filled at a rate of 160 gallons per minute.

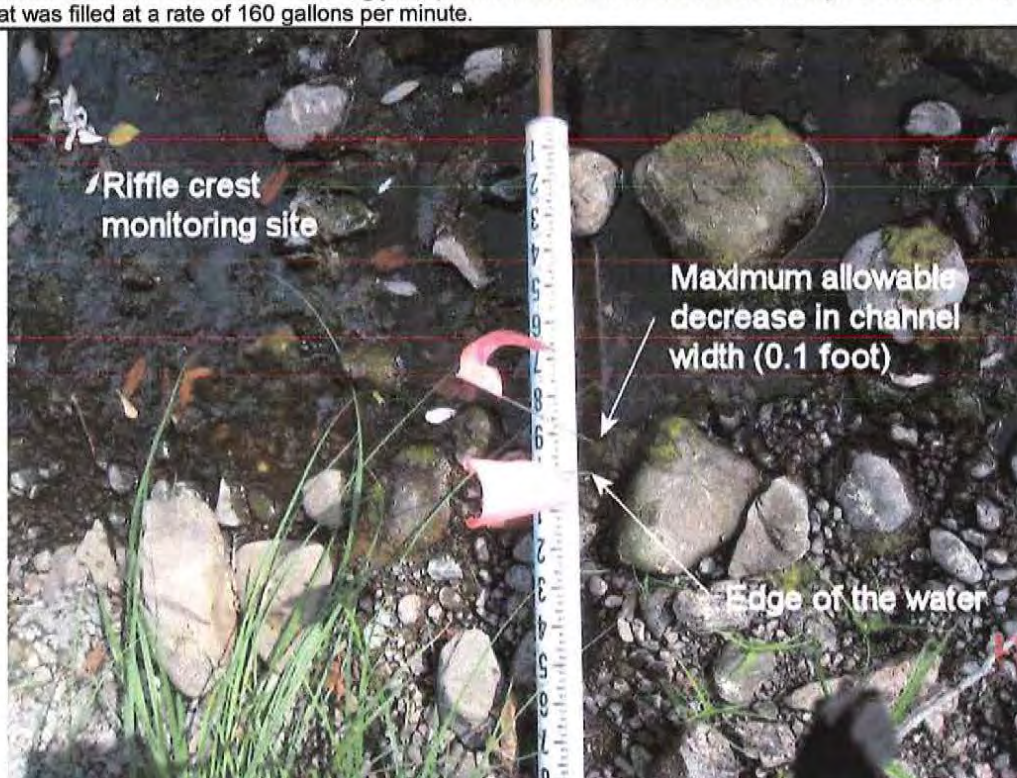

Photo 7287 0 **' Up** **Dir** Crest **Cr Station** 0 **LWD Site** 0
08/10/15 9:46 AM **Road#** 40.1961 **Mi.** 0.1 **Map Pt.** 2156 **THP** Maintenance
This is the riffle crest monitoring site before drafting begins. GRT is only allowd to decrease the width of the channel by 0.1'.

Photo 7318 0 **' Up** **Dir** Crest **Cr Station** 0 **LWD Site** 0
08/10/15 10:55 AM **Road#** 40.1961 **Mi.** 0.1 **Map Pt.** 2156 **THP** Maintenance
This is the riffle site at the end of drafting. There was no change

Photo 7288 0 **' Up** **Dir** Pool **Cr Station** 0 **LWD Site** 0
08/10/15 9:49 AM **Road#** 40.1961 **Mi.** 0.1 **Map Pt.** 2156 **THP** Maintenance
This is the staff gage in the pool downstream from the drafting site. The water level was 1.1' before during and after the test.

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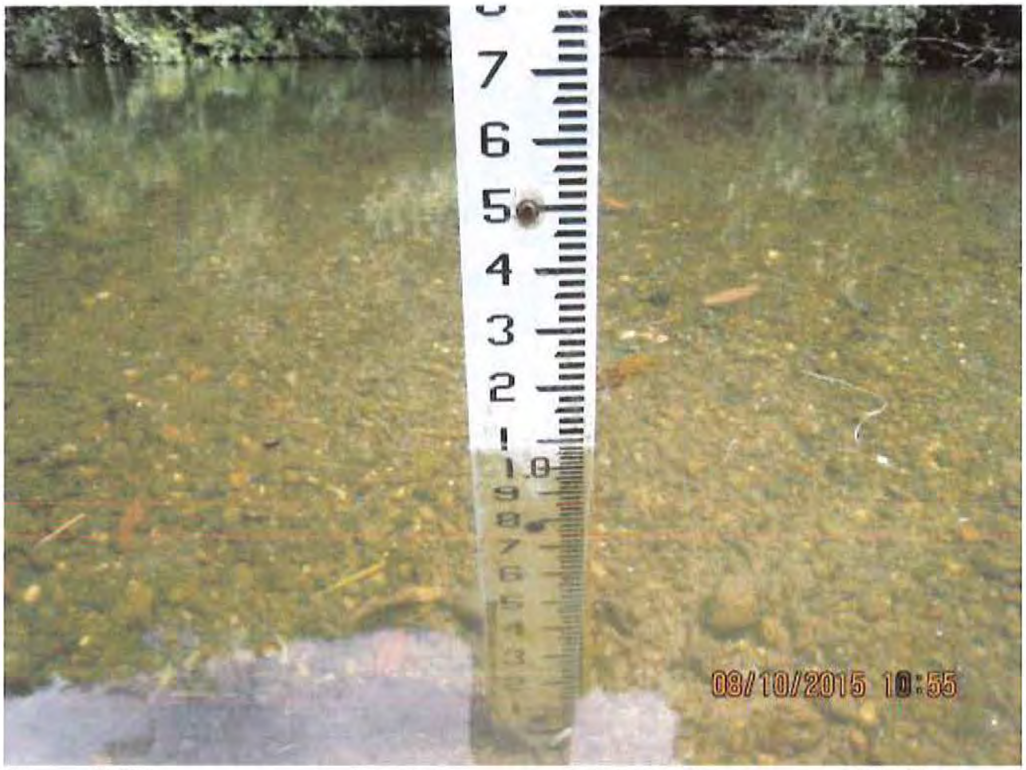

Photo 7305 0 **' Up** **Dir** Pool **Cr Station** 0 **LWD Site** 0
08/10/15 10:55 AM **Road#** 40.1961 **Mi.** 0.1 **Map Pt.** 2156 **THP** Maintenance
This is the pool gage when the water truck stopped pumping. There was no change.

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Gualala Redwood Timber, LLC. - Gravel Mining
Valley Crossing Pump Test

After discussions with Tim Dodson of DFW, we agreed to implement the drafting conditions from GRT's Juniper THP permit from DFW (1600.2011-0423-R3) into the 2015 Gravel Annual Plan. These conditons require a pump test to assure that pumping does not reduce the wetted width of the monitoring site riffle crest by more tha 0.10'. These photos document the start of operations test on September 2, 2015. We filled the 4,000 gallon water truck at a rate of 300 gallons per minute. There was no detectable change in the water depth on the staff gage or in the wetted width of the riffle crest at the monitoring site.

Photo 7358 1 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
08/31/15 12:00 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Tyler is standing where the off channel water hole will be.

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Photo 7359 2 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 12:59 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry

The off channel water hole has been dug and Bed Rock is preparing for the pump test. This is a 4,000 gallon water truck that filled at a rate of 300 gallons per minute.

Photo 7360 3 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 12:55 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry

This is the monitoring pool. The staff gage is to the left and the water truck in the background is next to the off channel water hole.

RPF Henry Alden supervised the pump test. The flow at the USGS gage 11467510 near The Sea Ranch was 1.8 CFS at the time of the test. The watershed at this point is about 104,000 acres.

441.48 ADDED 10/28/15

Photo 7361 4 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 12:54 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
This is the monitoring pool looking downstream.

Photo 7367 36,202 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 12:41 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
This is the riffle crest monitoring site at the downstream end ot the monitoring pool. The gage and off channel water hole are about 600' up stream. The red wire flag in the center foreground marks the edge of the water at the riffle crest.

441.49 ADDED 10/28/15

Photo 7368 36,204 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 12:36 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
The wire flag marks the edge of the water at the riffle crest of the monitoring site. This is before the start of the pump test. The 2015 annual plan does not allow pumping to reduce the width here by more the 0.10'.

Photo 7369 36,206 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 3:13 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
This is three minutes after the end of the pump test. There was no change in the width of the wetted channel at the monitoring site riffle crest.

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441.50 ADDED 10/28/15

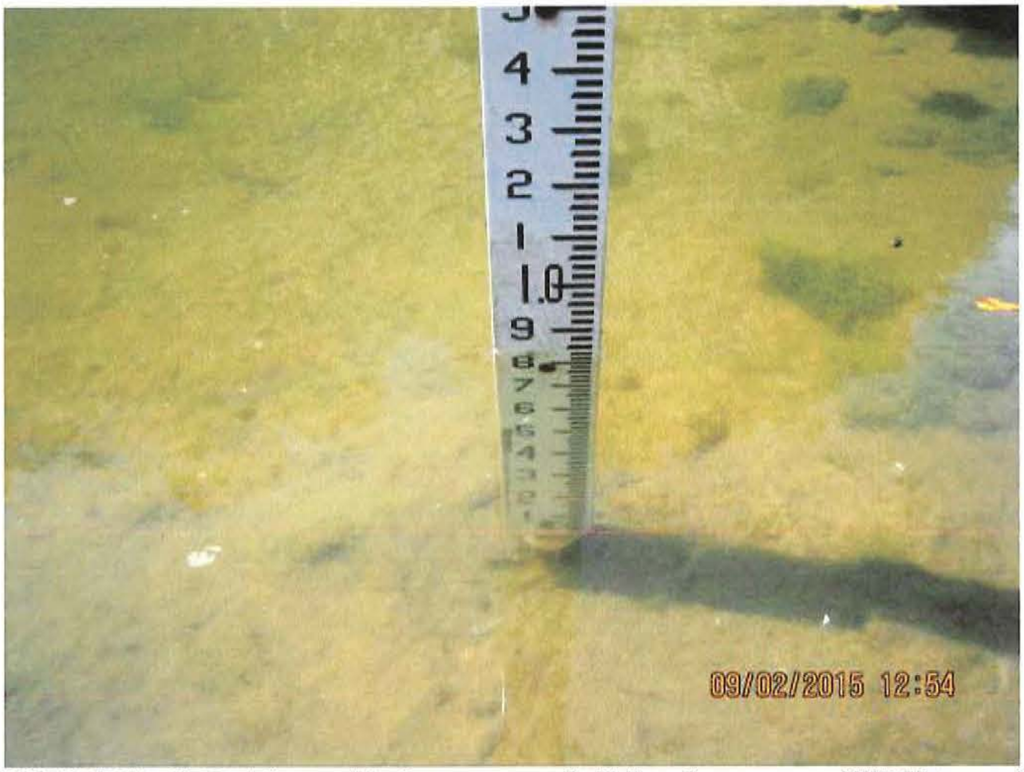

Photo 7362 36,550 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 12:54 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Before the pump test started, the water was at the 0.85' mark.

Photo 7363 36,551 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 2:58 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Pumping started at 2:56 pm. The water height is still 0.85'.

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441.51 ADDED 10/28/15

Photo 7364 36,553 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 3:05 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Still 0.85'.

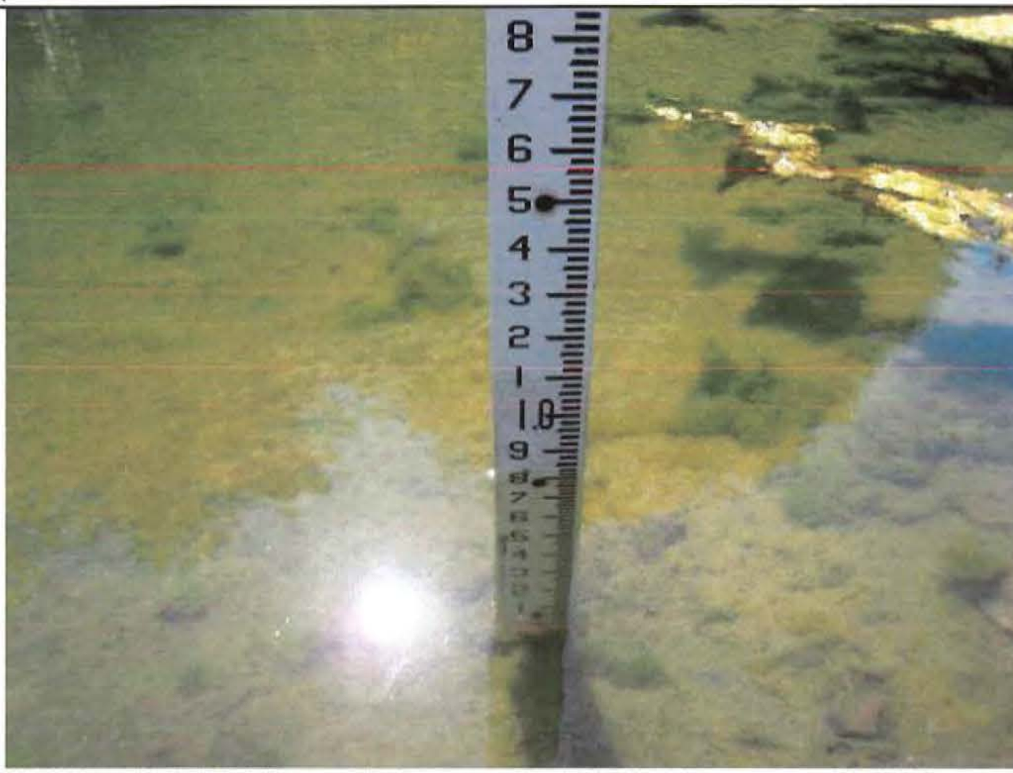

Photo 7365 36,555 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 3:10 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Pumping ended at 3:10 pm and the water height is still 0.85'.

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441.52 ADDED 10/28/15

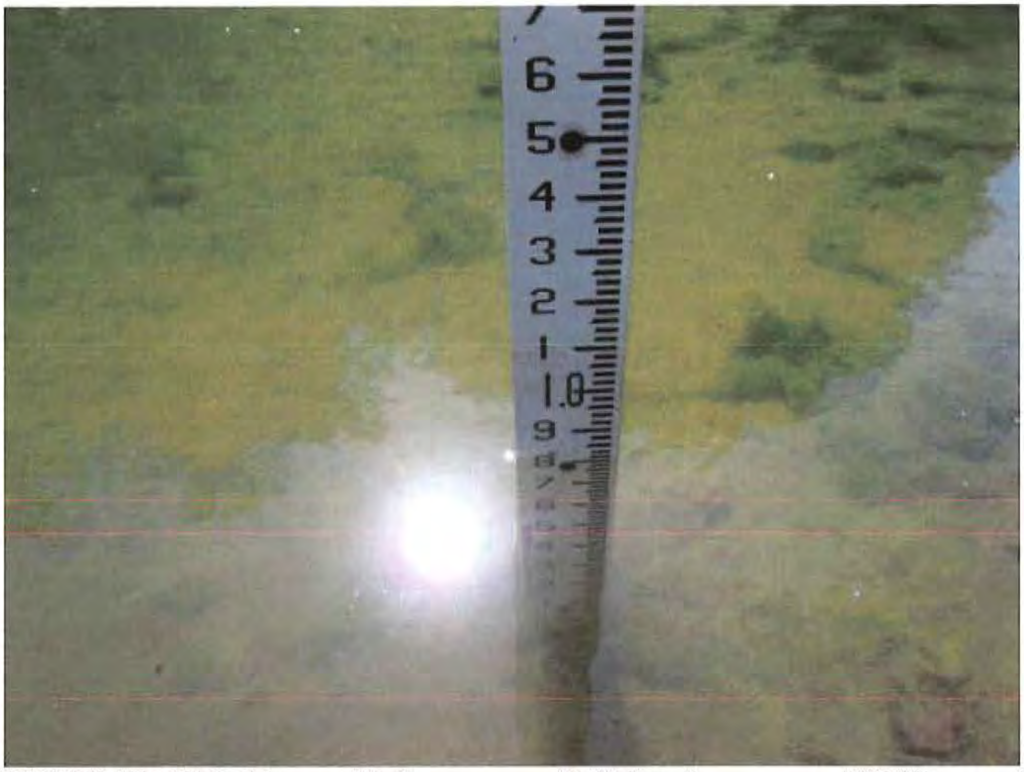

Photo 7366 36,557 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/02/15 3:19 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Nine minutes after the end of pumping, the water hight in the pool is still 0.85".

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441.53 ADDED 10/28/15

Valley Crossing Water Drafting Pump Test
September 22, 2015

After discussions with CDFW, we agreed to implement the drafting conditions from GRT's Juniper THP permit from DFW (1600.2011-0423-R3) into the 2015 Gravel Annual Plan. These conditons require a pump test to assure that pumping does not reduce the wetted width of the monitoring site riffle crest by more than 0.10'. These photos document the start of operations test on September 22, 2015. We filled the 4,000 gallon water truck at a rate of 250 gallons per minute. There was no detectable change in the water depth on the staff gage or in the wetted width of the riffle crest at the monitoring site.

Photo 7409 0 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/22/15 11:31 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
This is the off channel drafting hole. The 4,000 gallon water truck was filled in sixteen minutes. That equals a pumping rate of 250 gallons per minute.

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ADDED 10/28/15

Photo 7414 0 **' Up** SF Gualala **Dir** 0 **Cr Station** 0 **LWD Site** 0
09/22/15 12:00 PM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
The South Fork of the Gualala River is dry sixty feet upstream from the monitoring pool.

Photo 7405 0 **' Up** SF Gualala **Dir** Crest **Cr Station** 0 **LWD Site** 0
09/22/15 11:17 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry

This is the riffle crest monitoring site. It is the downstream end of the monitoring pool. It is about 900 feet downstream from the monitoring gage and the off channel drafting hole. The red wire flag is visible in the NE part of the SW section of the photo.

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Photo 7406 0 **' Up** SF Gualala **Dir** Crest **Cr Station** 0 **LWD Site** 0
09/22/15 11:18 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
This was taken befoe drafting started.

Photo 7412 0 **' Up** SF Gualala **Dir** Crest **Cr Station** 0 **LWD Site** 0
09/22/15 11:53 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
After the end of pumping the width of the riffle crest has not changed.

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441.56 ADDED 10/28/15

Photo 7407 0 **' Up** SF Gualala **Dir** Pool **Cr Station** 0 **LWD Site** 0
09/22/15 11:23 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
This is the monitoring pool. The gage is in the middle of the picture. The riffle crest of this pool is about 900 feet downstream. The water truck is next to the off channel drafting hole.The gage is about 180 feet down stream of the drafting hole.

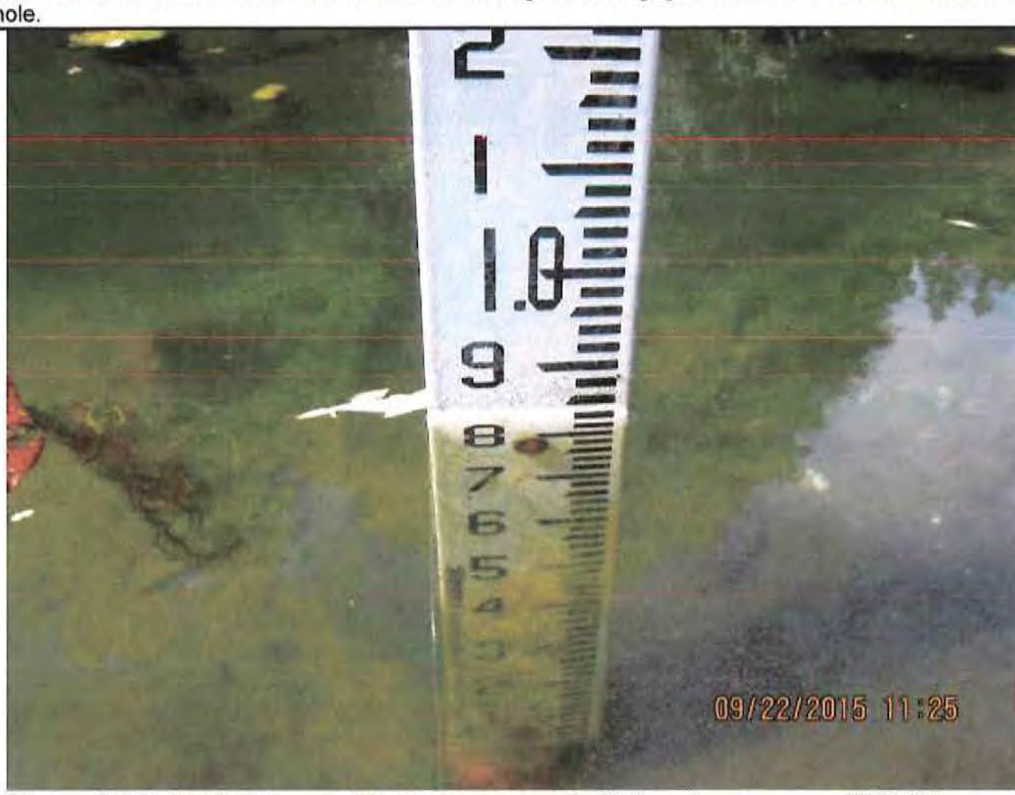

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Photo 7408 0 **' Up** SF Gualala **Dir** Pool **Cr Station** 0 **LWD Site** 0
09/22/15 11:25 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Before drafting started the water level is at the 0.84' mark.

441.57 ADDED 10/28/15

Photo 7410	0 **' Up** SF Gualala	**Dir** Pool	**Cr Station** 0		**LWD Site**	0
09/22/15	11:39 AM **Road#** 40.09	**Mi.** 0.25	**Map Pt.** 2061	**THP** Huckleberry		

After seven minutes of pumping the gage is still at 0.84'.

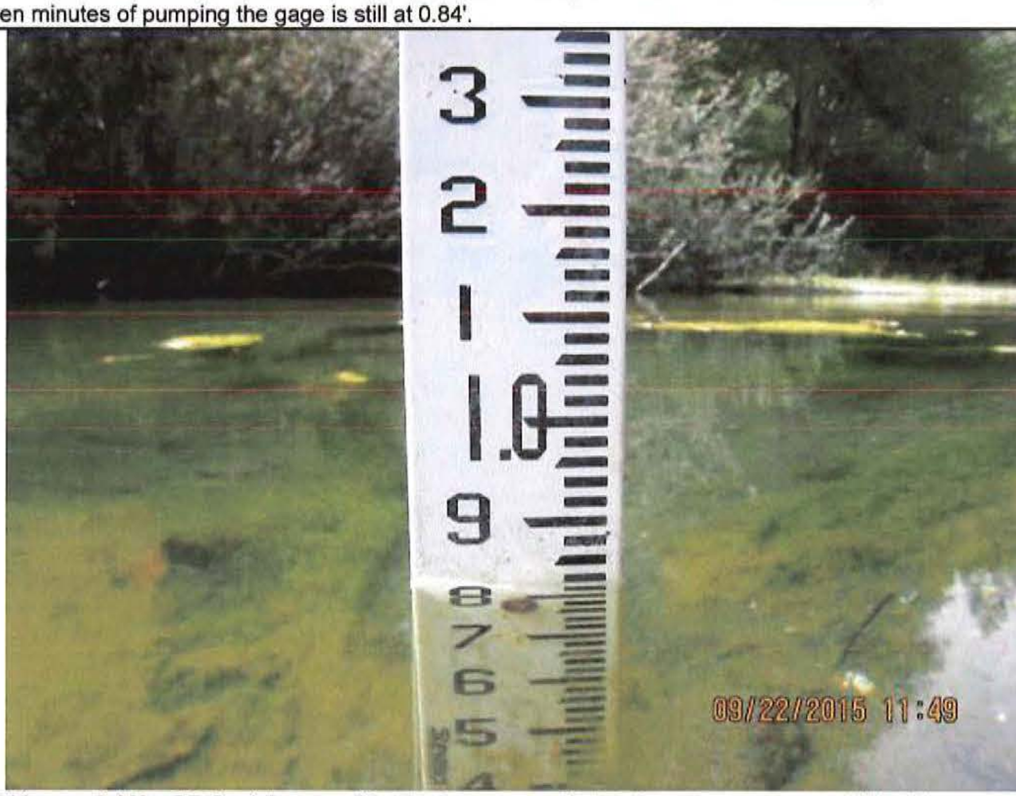

Photo 7411	0 **' Up** SF Gualala	**Dir** Pool	**Cr Station** 0		**LWD Site**	0
09/22/15	11:49 AM **Road#** 40.09	**Mi.** 0.25	**Map Pt.** 2061	**THP** Huckleberry		

After sixteen minutes of pumping the gage is still at 0.84'.

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441.58 ADDED 10/28/15

Photo 7413 0 **' Up** SF Gualala **Dir** Pool **Cr Station** 0 **LWD Site** 0
09/22/15 11:59 AM **Road#** 40.09 **Mi.** 0.25 **Map Pt.** 2061 **THP** Huckleberry
Ten minutes after the end of pumping the gage is still at 0.84'.

441.59

ADDED 10/28/15

Gualala Redwood Timber, LLC
P.O. Box 197
Gualala, CA 95445

SAN FRANCISCO CA 940
12 AUG 2015 PM 5 L

Sonoma County
2555 Mendocino Ave
Santa Rosa CA

NIXIE 957 SE 1009 0008/22/15

RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD

BC: 95445019797 *1540-02474-12-45

95445019735

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ADDED 10/28/15

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RECORDING REQUESTED BY

Recorded At Request Of
I I & T CO
at 30 min. past 10 AM.

APR 24 1978

OFFICIAL RECORDS
SONOMA COUNTY CALIF.
Bernice Hildebrand
Recorder

AND WHEN RECORDED MAIL TO

Name County Counsel
County Adminstration Center
Street Address 2555 Mendocino Ave.
City & State Santa Rosa CA 95401

MAIL TAX STATEMENTS TO

Name
Street Address sameas above
City & State

S 98194

SPACE ABOVE THIS LINE FOR RECORDER'S USE

TO 1923 CA (12-74)

Individual Grant Deed

THIS FORM FURNISHED BY TICOR TITLE INSURERS

A. P. N. 122-030-12, 13

The undersigned grantor(s) declare(s):
Documentary transfer tax is $ no tax due
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
(XX) Unincorporated area: ( ) City of ______, and

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

AS A GIFT GUALALA REDWOODS, a partnership

hereby GRANT(S) to

COUNTY OF SONOMA, a political subdivision

the following described real property in the unincorporated area of the
County of Sonoma, State of California:

SEE EXHIBIT "A" ATTACHED HEREWITH AND MADE A PART HEREOF

Dated April 19, 1978

GUALALA REDWOODS, A Partnership
BY: S.E. Fogelberg
BY:

STATE OF XXXXXXX } SS.
COUNTY OF ______
On ______ before me, the undersigned, a Notary Public in and for said State, personally appeared ______ known to me to be the person___whose name___ subscribed to the within instrument and acknowledged that___executed the same.
WITNESS my hand and official seal.

Signature ______

(This area for official notarial seal)

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Title Order No. ______ Escrow or Loan No. SR-114448-MLB

MAIL TAX STATEMENTS AS DIRECTED ABOVE

441.61

ADDED 10/28/15

Wet Areas (Wetlands)

Below is a discussion of the wet areas (wetlands) issues as they pertain to THP 1-15-042-SON (Dogwood) as well as another THP, 1-15-033-SON (Apple).

A public comment letter was received by Cal Fire from Peter Baye, on July 10, 2015. The letter contains errors, omissions, and numerous mischaracterizations. These misleading elements have caused some confusion. This discussion is an attempt to clarify the relevant facts. The letter begins by questioning the analysis in the THP with the misleading presumptions outlined below:

> *""Dogwood" and "Apple" THPs provide no survey data, methodology, or maps of jurisdictional wetlands (under either federal or any state definition), or wetland habitat under any objective classification system. The "Dogwood" THP provides only map information about "wet areas", which are classifications under Forest Practice Relies of only perennially saturated wetlands (seeps or near-surface emergent groundwater), and do not account for the more 'widespread seasonal floodplain wetlands that are saturated or flooded only during portions of the winter-spring rainfall season. The THPs, however, do describe "flood prone" poorly drained topography and elevation gradients within the THP area (particularly "Dogwood") that are hydrogeomorphically conducive to wetlands, and indicate a high potential for them..."*

We can see here that the letter acknowledges that flood prone areas are identified in the plan, as well as wet areas. First, it is incorrect to state that wetlands are "perennial" as defined in the Forest Practice Rules (FPR):

> ***"Meadows and Wet Areas** means those areas which are moist on the surface throughout **most of the year** and/or support aquatic vegetation, grasses and forbs as their principal vegetative cover"*

Areas that exhibit poorly drained soils and redoximorphic features are commonly identified as wet areas, regardless of water presence. Further, the FPR define flood prone areas:

> ***"Flood Prone Area** means an area contiguous to a watercourse channel zone that is periodically flooded by overbank flow. Indicators of flood prone areas may include diverse fluvial landforms, such as overflow side channels or oxbow lakes, hydric vegetation, and deposits of fine-grained sediment between duff layers or on the bark of hardwoods and conifers."*

Now compare the above two FPR definitions with the Federal Regulatory definitions of wetlands. The CE (Federal Register 1982) and the EPA (Federal Register 1980) jointly define wetlands as:

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> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.*

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And the United States Army Corps of Engineers (USACOE) Western Wetlands Manual (2010) which has the following definition:

> *Hydrophytic vegetation is present when the plant community is dominated by species that require or can tolerate prolonged inundation or soil saturation during the growing season. Hydrophytic vegetation in the Western Mountains, Valleys, and Coast Region is identified by using the indicators described in this chapter. (page 17)*

A fair reading of the Forest Practice Rules definitions (taken together) compared with the wetlands definitions in Federal Regulations reveals no significant difference between the two. In fact, one could argue that "Flood Prone" covers a far larger area, of which wetlands are a subset. The Baye letter acknowledges the area was mapped, and furthermore inspection reports from the multi-disciplinary review team all indicated concurrence with that mapping.

The FPR definition and implementation of wet area mapping and protection is an accepted and understood procedure. To require adoption of poorly understood federal "guidelines" would cause confusion. And since it is likely that resulting wetland designations and protections would be the same it is difficult to understand what benefit there would be in making the change. Since the rational for requiring federal guidelines for wetland designation would be applicable to all THPs in the state, it might be perceived as underground regulation.

In addition the implementation of federal wetland designations has recently been called into question by a federal appeals court case as reported in a recent news item;

> *"A federal appeals court Friday blocked an Obama administration rule that attempts to clarify which small streams, wetlands and other waterways the government can shield from pollution and development.*
>
> *In a 2-1 ruling, a panel of the 6th U.S. Circuit Court of Appeals in Cincinnati put the regulations on hold nationwide until the court decides whether it has jurisdiction to consider lawsuits against them. More than half the states have filed legal challenges, continuing a debate over federal water protection that two Supreme Court cases and extensive rulemaking over the past 14 years have failed to resolve.*
>
> *The Environmental Protection Agency and the U.S. Army Corps of Engineers issued their latest regulations in May, drawing fierce criticism from landowner groups and conservative lawmakers who described them as costly, confusing and a power grab."*

In light of the confusion at the federal level it seems reasonable to rely on the established FPR definition of wet areas (wetlands).

The wet areas (wetlands) on the Dogwood and Apple THPs were delineated by Registered Professional Forester Art Haschak. Mr. Haschak has been writing THPs and identifying wet areas for over thirty years. Mr. Haschak has written 35 THPs on GRT property over sixteen years. Writing THPs requires working knowledge of and continuing education in many fields including botany. Each of the THPs written over the years has undergone review by multiple agency reviewers with many areas of expertise including hydrology, geology and botany. These reviews usual included a special focus on designated wet areas. This process has resulted in Mr. Haschak

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becoming an expert in identifying wet areas. Mr. Haschak wrote the Kestrel THP. Kestrel was a flood prone area THP with many wet areas (wetlands) that was approved in 2012 after intense multi-agency interdisciplinary review.

Because all the harvest trees on Dogwood were marked before the pre-harvest inspection, Mr. Haschak walked the entire plan area. We are confident that all of the wet areas (wetlands) were found, flagged for protection and mapped. This work was reviewed during the pre-harvest inspection.

In addition, GRT's Registered Professional Forester John Bennett has a particular interest, training and experience in botany. He provides advice to Mr. Haschak as needed. GRT commissioned a Rare Plant Assessment by botanist Clare Golec in 1997. The report included definitions of habitat types and what rare plants occur on the property. This was updated in 2001. In 1999, Ms. Golec conducted rare plant survey on the flood prone area of the west side of the South Fork of the Gualala River. This coincided with the area of the Kestrel THP. Mr. Bennett worked closely with Ms. Golec during her work to improve his knowledge of botany. Mr. Bennett has been conducting rare plant surveys on GRT's THPs for twenty years.

The USACOE's publishes a Western Mountains, Valleys and Coast - 2014 Regional Wetland Plant List. The list has 3,002 western wetland plants but it does not include coast redwood (Sequoia sempervirens) as a wetland plant (page 43).

Senegalia greggii	(Gray) Britt. & Rose	FACU	Long-Flower Catclaw
Senna hirsuta	(L.) Irwin & Barneby	FACU	Woolly Wild Sensitive-Plant
Senna obtusifolia	(L.) Irwin & Barneby	FACU	Coffeeweed
Sesbania herbacea	(P. Mil.) McVaugh	FACW	Peatree
Sesbania punicea	(Cav.) Benth.	FACW	Purple River-Hemp
Sesuvium verrucosum	Raf.	FACW	Verrucose Sea-Purslane

Both federal and state definitions of wetland species pivot on *hydrophytic vegetation* (USACOE) or *aquatic vegetation* (FPR) being the dominant (USACOE) or "principal vegetative cover" (FPR). Since redwood is not a wetland species and since the vast majority of the flood prone areas in the Dogwood THP are dominated by redwoods, the logical conclusion is that one would not expect to find many wetlands in the Dogwood THP area.

GRT has strong supporting evidence that redwoods are not a wetland species. GRT has about ten acres in the flood plain of the Little North Fork of the Gualala where some event decades ago raised the water table in the flood prone area. It was dominated by redwoods. After the water table rose, most of the redwoods died.

Mr. Baye's letter then declares that the Dogwood THP is potentially subject to the Clean Water Act (CWA) Section 404:

> *"Because of the unique floodplain setting of the Dogwood THP, it is exceptionally important to include at least a reconnaissance-level preliminary survey of wetlands that are potentially subject to Section 404 of the Clean Water Act. This is needed in the unusual circumstances of a THP with 320 acres of timber harvest proposed in a floodplain that is subject to the Anadromous Salmonid Protection rules and other Forest Practice Act rules regulating impacts to wetlands, for which only limited exemptions from the Clean Water Act Section 404(f) are applicable to normal forestry activities*

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(exempting regulation of fill discharges that do not convert wetlands to non-wetlands). Specifically, if fill discharges associated with any timber harvest operations have the effect of converting a federal jurisdictional wetland area to a non-wetland due to fill discharges, the 404(f) "recapture" provisions of the Clean Water Act apply, such that discharges would require a Section 404 permit from the U.S. Army Corps of Engineers. This may occur if skid roads or crossings or other fill discharges encroach in wetlands that are not accurately identified or mapped."

The above is a misleading argument for several reasons. Here are the pertinent CWA sections:

> ***Except as specified in paragraphs (a) and (b)*** *of this section, any discharge of dredged or fill material that may result from any of the activities described in paragraph (c) of this section is not prohibited by or otherwise subject to regulation under this part.*
>
> ***(a)*** *If any discharge of dredged or fill material resulting from the activities listed in paragraph (c) of this section* ***contains any toxic pollutant*** *listed under section 307 of the Act, such discharge shall be subject to any applicable toxic effluent standard or prohibition, and shall require a section 404 permit.*
>
> ***(b)*** *Any discharge of dredged or fill material into waters of the United States incidental to any of the activities identified in paragraph (c) of this section must have a permit if it is part of an activity* ***whose purpose is to convert an area*** *of the waters of the United States into a use to which it was not previously subject, where the flow or circulation of waters of the United States may be impaired or the reach of such waters reduced. Where the proposed discharge will result in significant discernable alterations to flow or circulation, the presumption is that flow or circulation may be impaired by such*

The above two paragraphs clearly state that all exempt activities are exempt unless the material in question **contains toxic material** or that the **purpose was to convert**. Neither is true in this case, and the exemption is not "limited". The exemption itself says:

> ***(c)*** *The following activities are exempt from section 404 permit requirements, except as specified in paragraphs (a) and (b) of this section:*
>
> ***(1)***
>
> ***(i)*** *Normal farming,* ***silviculture*** *and ranching activities such as plowing, seeding, cultivating, minor drainage, and* ***harvesting*** *for the production of food, fiber, and* ***forest products****, or upland soil and water conservation practices, as defined in paragraph (d)*
>
> ***(6)*** *Construction or maintenance of farm roads,* ***forest roads****, or temporary roads for moving mining equipment, where such roads are constructed and maintained in accordance with best management practices (BMPs)*

Clearly, the project is exempt in any fair reading of Section 404.

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It has been suggested that utilization of USACOE "guidelines" be used for wetlands. It should be noted that these "guidelines" are not regulation, and are not enforceable standards. The manual also states:

> *This manual is limited in scope to wetlands that are a subset of "waters of the United States" and thus subject to Section 404.*

It would seem inappropriate to apply these non-enforceable standards to areas that are not subject to 404.

The areas required to be mapped were delineated, and were agreed to by the review agencies. NCRWQCB's review stated:

> *"During the PHI, the Review Team evaluated the harvest mark and the no-harvest core zone. The RPF explained that GRI used a more conservative definition of the WTL to determine this transition area, as well as a more conservative definition of the active channel. The RPF measured the WTL from the break in slope. Therefore, the no-cut core zone was measured at the break in slope out to 30 feet."*

This is acknowledgement that protection measures exceed those required by the rules.

> *"Additionally, the WLPZ road and landings appear to have been used in previous timber harvests without serious impacts to soil and water resources. As verified during the field inspection, the explanation and justification addressed in the THP and the protection measures stated in the plan appear adequate."*

This is acknowledgement that previous (and similar) operations have had no significant impact.

> *In evaluating the potential impacts of the proposed harvest plan, I believe the plan has adequately addressed the following objectives:*
>
> *• prevent or minimize sediment discharges;*
>
> *• minimize disturbance on the flood prone areas;*
>
> *• retain adequate riparian canopy to preserve existing shade on watercourses and maintain micro climates;*
>
> *• manage the riparian stand to maintain or improve existing conditions to promote large wood recruitment potential.*

This is acknowledgement that the plan as proposed will meet all standards in the FPRs.

> *When considered with the light harvest mark observed on the PHI, the requirements for post-harvest retention of overstory canopy, basal area and large trees, and minimal use of heavy equipment on flood prone areas, I believe the plan will comply with applicable water quality standards and therefore will be eligible for coverage under either the General WDR or Categorical Waiver.*

This is acknowledgement that the plan as proposed meets Water Quality standards.

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All of the skid trails in the flood prone area have been flagged by the RPF and heavy equipment is required to stay on those trails. As required in the FPR, the skid trails were located to avoid wet areas and protect "hydrologic function". So even if a wet area was not mapped, the location of the skid trail would almost certainly protect it.

As for Beneficial uses, although it is correct that wetlands are a beneficial use, **they are not a beneficial use for the Gualala:**

TABLE 2-1: BENEFICIAL USES OF WATERS OF THE NORTH COAST REGION

HU/HA/ HSA	HYDROLOGIC UNIT/AREA/ SUBUNIT/DRAINAGE FEATURE	BENEFICIAL USES																										
		MUN	AGR	IND	PRO	GWR	FRSH	NAV	POW	REC1	REC2	COMM	WARM	COLD	ASBS	SAL	WILD	RARE	MAR	MIGR	SPWN	SHELL	EST	AQUA	CUL	FLD	WET	WQE
113.70	Garcia River Hydrologic Area	E	E	E	P		E	E	P	E	E	E		E			E	E		E	E		E	P				
113.80	Gualala River Hydrologic Area																											
113.81	North Fork Gualala Hydrologic Subarea	E	E	E	P	E	E	E	P	E	E	E		E			E	E		E	E			E				
113.82	Rockpile Creek Hydrologic Subarea	E	E	E	P	E		E	P	E	E	E	E	E			E	E		E	E		E	P				
113.83	Buckeye Creek Hydrologic Subarea	E	E	E	P	E		E	P	E	E	E	E	E			E	E		E	E			P				
113.84	Wheatfield Fork Hydrologic Subarea	E	E	E	P	E		E	P	E	E	E	E	E			E	E		E	E			P				
113.85	Gualala Hydrologic Subarea	E	E	E	P	E	E	E	P	E	E	E	E	E			E	E		E	E			P				
113.90	Russian Gulch Hydrologic Area	E	E	E	P	E				E	E	P		E		E	E			E	E			E				
114.00	**Russian River Hydrologic Unit**																											
114.10	Lower Russian River Hydrologic Area																											
114.11	Guerneville Hydrologic Subarea	E	E	E	P	E	E	E	P	E	E	E	E	E			E	E		E	E	P	E	P				
114.12	Austin Creek Hydrologic Subarea	E	E	E	P	E		E	P	E	E	E	E	E			E	E		E	E			P				
114.20	Middle Russian River Hydrologic Area																											
114.21	Laguna Hydrologic Subarea	P	E	E	P	E	E	E	E	E	E	E	E	E			E	E		E	E	P		P				
114.22	Santa Rosa Hydrologic Subarea	E	E	E	P	E		E	P	E	E	E	E	E			E	E		E	E	P		P				
114.23	Mark West Hydrologic Subarea	E	E	E	P	E	E	E	P	E	E	E	E	E			E	E		E	E	P		P				
114.24	Warm Springs Hydrologic Subarea	E	E	E	P	E	E	E	E	E	E	E	E	E			E	E		E	E			E				
114.25	Geyserville Hydrologic Subarea	E	E	E	P	E	E	E	P	E	E	E	E	E			E	E		E	E	P		P				
114.26	Sulphur Creek Hydrologic Subarea	E	E	E	P	E		E	P	E	E	E	E	E			E	E		E	E			P				

441.67 ADDED 10/28/15

Dogwood THP Wet Area – Wetland Designation Review

Background

The Forest Practice Rules definition of wet areas compared with the wetlands definitions in Federal Regulations reveals no significant difference between the two. In this discussion the state designation of wet area will be used but with the understanding it would also meet the definition of a federally designated wetland.

The wet areas on the Dogwood and Apple THPs were delineated by Registered Professional Forester Art Haschak. Mr. Haschak has been writing THPs and identifying wet areas for over thirty years. Mr. Haschak has written 35 THPs on GRT property over sixteen years. Writing THPs requires working knowledge of and continuing education in many fields including botany, soil science and hydrology. Each of the THPs written over the years has undergone review by multiple agency reviewers with many areas of expertise including hydrology, geology and botany. These reviews usually included a special focus on designated wet areas. This process has resulted in Mr. Haschak becoming an expert in identifying wet areas. Mr. Haschak wrote the Kestrel THP. Kestrel was a flood prone area THP with many wet areas. Kestrel was approved in 2012 after intense multi-agency interdisciplinary review and logged in 2014 and 2015.

Because all the harvest trees on Dogwood were marked before the pre-harvest inspection, Mr. Haschak walked the entire plan area. GRT is confident that all of the wet areas were found, flagged for protection and mapped. This work was reviewed during the pre-harvest inspection. Inspection reports from the multi-disciplinary review team all indicated concurrence with that mapping.

In addition, GRT's Registered Professional Forester John Bennett has a particular interest, training and experience in botany. He provides advice to Mr. Haschak as needed. GRT commissioned a Rare Plant Assessment by botanist Clare Golec in 1997. The report included definitions of habitat types and what rare plants occur on the property. This was updated in 2001. In 1999, Ms. Golec conducted rare plant survey on the flood prone area of the west side of the South Fork of the Gualala River. This coincided with the area of the Kestrel THP. Mr. Bennett worked closely with Ms. Golec during her work to improve his knowledge of botany. Mr. Bennett has been conducting rare plant surveys on GRT's THPs for twenty years.

Focused review of wet area – wetland designations

At the request of Mr. James Burke with the North Coast Regional Water Quality Control Board, Mr. Bennett conducted a focused review of Mr. Haschak's wet area designations on October 22, 23 and 26, 2015. Mr. Bennett used accepted protocols for wetland plants, hydric soils and hydrology. The publications and reports below were considered in preparation for the field review of the wet area designations

441.68 ADDED 10/28/15

Procedures

Mr. Bennett reviewed the state and federal definition of wet area. He then conducted a field review of the Dogwood plan looking for the combination of wetland plants, hydric soils and wetland hydrology that are required to designate a wet area.

In consultation with Mr. Burke, GRT identified units on the Dogwood plan with the highest likelihood of having unidentified wet areas. Mr. Bennett then walked all of the skid trails in units 2, 3, 6, 7, 14 and 22. And skid trails in parts of units 5 and 21.

Mr. Bennett first visited a mapped wet area in unit 2, dug a soil pit and observed obvious signs of wetland soils. He then established a control pit on well drained location on the flood plain. The soil profiles were different.

Mr. Bennett used a 14" planting shovel to inspect dozens of soil profiles in possible wet areas. All of the soil profiles were similar to the well-drained control soil profile.

Some of the indicator wetland plants were found outside mapped wet areas. However, the hydric soil and hydrologic conditions required to designate a wet area were not present.

Mr. Bennett did not find any unmapped wet areas in the units inspected.

Operational protections

During the pre-operations meeting with the LTO, the RPF will explain the characteristics of wet areas, the location of mapped wet areas and the importance of protecting them. The RPF will also explain the importance of not operating heavy equipment on saturated soils.

Reference documents

- California Forest Practice Rules – California Board of Forestry (2015)
- Wetlands Delineation Manual - Wetlands Research Program Technical Report Y-87-1, Corps of Engineers - Environmental Laboratory (1987)
- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (2010)
- Delineation of Potential Jurisdictional Wetlands under Section 404 of the Clean Water Act & California Coastal Act - Maslach Bill (2012)
- Ecological Integrity Assessment and Performance Measures for Wetland Mitigations, Faber Langendoen et al. (2006)
- Technical Memorandum No. 2: Wetland Definition, San Francisco Estuary Institute (2009)
- Gualala Redwoods Inc. Rare Plant Assessment – Clare Golec, Botanist (1997 and updated in 2001)
- Westside Flats THP Rare Plant Survey – Clare Golec, Botanist (1999)
- Western Montains, Valleys and Coast - Regional Wetland Plant List – Corps of Engineers – Lichvar et al. (2014)

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- Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010 United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils
- West Mendocino County Soil Survey; Soil Conservation Service (1987)
- http://calphotos.berkeley.edu/

Wet area plants

- Campanula californica (Swamp Harebell) C. Golic, P. Baye, Rare
- Carex obnupta (Slough Sedge) C. Golic, P. Baye
- Equisetum spp. (Horsetail) P. Baye
- Ledum glandulosum (Labrador Tea) C. Golic
- Lilium maritimum (Coast Lily) C. Golic, P. Baye, Rare
- Oenanthe sarmentosa (Water Parsley) P. Baye
- Piperia candida (White Rein Orchid) P. Baye, Rare
- Rhododendron occidentale (Western Azalea) C. Golic
- Salix spp. (Willow) P. Baye
- Scirpus microcarpus (Small-flowered Bulrush) P. Baye
- Veratrum fimbriatum (Fringed False-hellebore) J. Bennett
- Woodwardia fimbriata (Giant Chain Fern) P. Baye

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