

Plant Species Evaluation Form

Lobaria oregana (Tuck.) Müll. Arg.

OREGON LUNG LICHEN

Family: Lobariaceae
(CNPS 2018)

PLANTS Symbol: LOOR60
(USDA 2018)

Calif. Endemic: No
(CNPS 2018)

Synonyms/Other Names: *Sticta oregana* Tuck. (MycoBank 2018).

Identification Issues: Fairly distinctive and recognizable given its dusty and grey-green thallus body. Look-alikes include *Lobaria howellii*, *L. linita*, *L. pulmonaria*, *L. scrobiculata*, *Peltigera* spp., and *Pseudocyphellaria rainierensis* (Derr et al. 2002). See Derr et al. 2002 for a diagnosis of *L. oregana* and how it is distinguished from potential look-alikes.

Taxonomy:

Description: Large, pale yellow green, with green algae; lobes are usually 1-3 cm across; the margins are typically thick and decorated with small lobules that may appear like isidia, with some also appearing on the surface; thallus surface appears like a network of small ridges; lower surface is tomentose and pale in color; cephalodia appear like small warts on the lower surface (Brodo et al. 2001). See Jordan (1973) for an exhaustive description of the chemical, reproductive, and vegetative characters associated with *Lobaria oregana*.

Status:

Note: Federally recognized Endangered, Threatened, Proposed, or Candidate species under the Endangered Species Act are omitted as they do not meet the definition of a Species of Conservation Concern (FSH 1909.12 § 12.52).

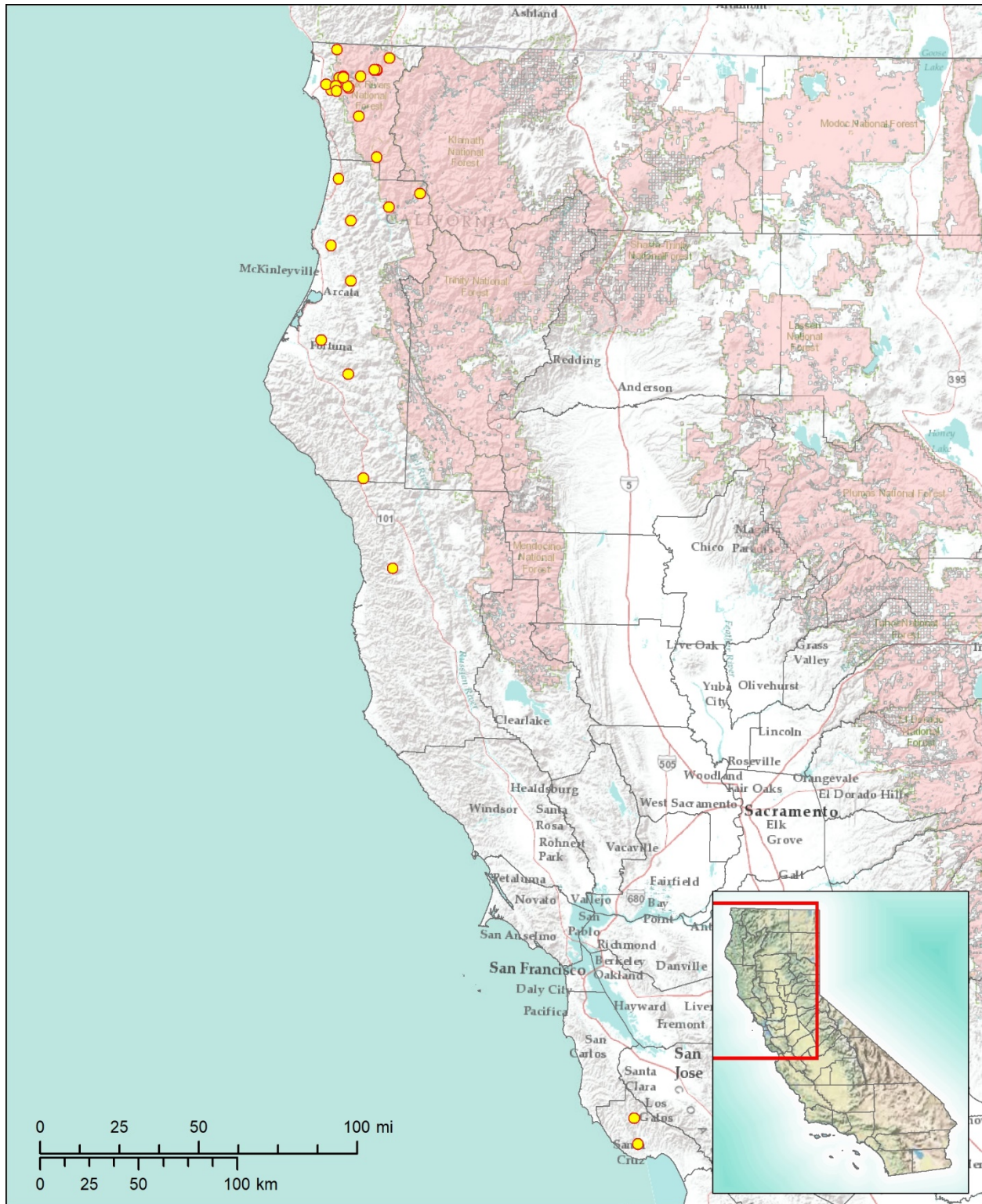
State Listing	G-rank	S-rank	CRPR	R5 FSS	NFP SM	CA BLM
CA: Not listed NV: Not listed OR: Not listed	G5	CA: Not listed NV: Not listed OR: Not listed	Not ranked	Sensitive	Category A	Sensitive
SWAP: Not listed	NNHP: Not listed	NNPS: Not listed	ORBIC: Not listed	OCS: Not listed	IUCN: Not listed	

Expanded abbreviations and citations: State Listing=California Endangered Species Act Listing (CDFW 2018b), Nevada Division of Forestry Fully Protected Plant Species (NAC 527) (NDF 2012), Oregon Department of Agriculture Listed Plants (ODA 2014); G-rank=Global Conservation Status (CDFW 2018a; NatureServe 2018); S-rank=Subnational (state or province-level) Conservation Status (CDFW 2018a; NatureServe 2018; NNHP 2017; ORBIC 2016); CRPR=California Rare Plant Rank (CNPS 2018); R5 FSS=USDA Forest Service Region 5 Regional Forester Sensitive Plant Species List (USDA 2013); NFP SM=Forest Service and Bureau of Land Management Northwest Forest Plan Survey and Manage Species (USDA 2001); CA BLM=California Bureau of Land Management Designated Sensitive Species (BLM 2010); SWAP=California State Wildlife Action Plan Status (CDFW 2015); NNHP=Nevada Natural Heritage Program Status (NNHP 2017); NNPS=Nevada Native Plant Society Status (NNHP 2017); ORBIC=Oregon Biological Information Center Status (ORBIC 2016); OCS=Oregon Conservation Strategy Species (ODFW 2016); IUCN=International Union for Conservation of Nature Red List Status (IUCN 2017).

Distribution: Western North America, from northern California to Alaska. Occurrences are found west of the Cascade Range in the United States. In British Columbia and southern Alaska, occurrences are restricted to coastal islands and mainland regions of coastal influence. Scattered occurrences are documented across central Alaska (GBIF 2018). Occurrences in California are restricted to coastal counties in northern and central California. Most occurrences (17/27; ~63%) are located in Del Norte County. Several occurrences (6/27; ~22%) are documented in Humboldt County. A single occurrence is located in Mendocino County. Santa Cruz County supports the two southernmost and disjunct occurrences of *L. oregana*. A substantial percentage

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(12/27; ~44%) of all California occurrences are found on NFS lands within Six Rivers NF (CNALH 2018).



Sources: *Distribution:* CNALH 2018. *Layers:* USDA Forest Service, Pacific Southwest National Forests: CPAD 2016. California counties: CDF 2009. *Basemaps:* California inset map: © 2013 National Geographic Society, i-cubed (Esri 2017a). Main map: Esri, DeLorme, USGS, NPS (Esri 2012) and Esri, USGS, NOAA (Esri 2017b).

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Locations within California:

Record numbers indicate sites that contain an individual, population, or groups of populations located within ¼ mile of each other, per the California Natural Diversity Database (CNDDDB 2017) definition of Element Occurrences (EOs) in California. Official EO numbers for plants in California are determined solely by the CNDDDB and are included within the Reference (Source) column for CNDDDB data. Duplicate records from the same site are given the same record number and included in red. The Population Info column includes total number of individuals and total number and size of populations/sub-populations when provided. Elevations provided in meters from source have been converted to feet. If not provided in original source, Land Manager information was obtained using the California Protected Areas Database (CPAD 2016) and Quad information was obtained using 24K Quads, SDE Feature Class (CDFG 2013). All other information is directly from the Reference (Source) unless additional citation is given.

Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
1	Forest Ecology Research Plot. Transect: NA; FERP offset from origin:. FERP tag#: University of California, Santa Cruz	Santa Cruz		UCSC (CNALH 2018)	30-Sep-2005				
2	about 1 mile northeast of Boulder, San Lorenzo Canyon home of Mrs. H. C. Austin	Santa Cruz		BRIT (CNALH 2018)	17-Jul-1949				
3	UC Angelo Reserve, Fox Creek area near Wilderness Lodge.	Mendocino	SHERWOOD PEAK	USU (CNALH 2018)	13-Mar-2000				
4	N. California Hwy, Richardson Grove.			US (CNALH 2018)	9-Jun-1946				
5	Fortuna Grizzly Creek State Park	Humboldt		UC (CNALH 2018)	14-Jun-1961				
5	Fortuna Grizzly Creek State Park.	Humboldt		US (CNALH 2018)	14-Jun-1961				
6	Arcata Bureau of Land Management	Humboldt	MCWHINNEY CREEK	UC (CNALH 2018)	10-Nov-2002			Headwaters Forest ER	
7	along side highway 299, 5 miles past Blue lake Turnoff	Humboldt		COLO (CNALH 2018)	17-Jul-1971				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
8	Six Rivers National Forest, Gasquet Ranger District, above Spur Creek. Partially Shaded Riparian Valley	Del Norte	CRANNELL	UC (CNALH 2018)	9-Apr-2002				
9	Bald Hills Road, Redwood National Park	Humboldt		UC (CNALH 2018)	9-May-1986				
10	Six Rivers National Forest, Orleans. Ranger District, along stream feeding Fish Lake	Humboldt		UC (CNALH 2018)	15-Aug-2002			Six Rivers NF	
11	[Six Rivers National Forest, Orleans [Ranger District, Blue Creek, ~1 mile upstream from district building	Del Norte		UC (CNALH 2018)	12-Aug-2002				
12	Prairie Creek Redwood State Park; Brown Creek Area, 9 miles S of Klamath	Humboldt	FERN CANYON	TLE (CNALH 2018)	27-Mar-1970			Prairie Creek Redwoods SP	
12	Prairie Creek Redwood State Park; Brown Creek Area, 9 miles S of Klamath	Humboldt	FERN CANYON	TLE (CNALH 2018)	27-Mar-1970			Prairie Creek Redwoods SP	
12	Prairie Creek Redwood State Park, Brown Creek Area, 9 miles S of Klamath	Humboldt		ID (CNALH 2018)	27-Mar-1970				
12	Prairie Creek Redwood State Park, Brown Creek Area, 9 miles S of Klamath	Humboldt		ID (CNALH 2018)	27-Mar-1970				
13	Six Rivers National Forest, Orleans Ranger District, Nickowitz Peak	Del Norte	BLUE CREEK MTN.	UC (CNALH 2018)	16-Nov-2001			Six Rivers NF	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
13	Six Rivers National Forest, Orleans District.	Del Norte		UC (CNALH 2018)	31-Aug-2001			Six Rivers NF	
14	Six Rivers National Forest, Smith River Natural Resource Area, Big Flat Campground.	Del Norte	CANT HOOK MTN.	UC (CNALH 2018)	22-Aug-2002			Six Rivers NF	
15	Six Rivers National Forest, Gasquet Ranger District, Sheep Pen Creek	Del Norte		UC (CNALH 2018)	21-Aug-2002			Six Rivers NF	
16	In Stout Grove of Jedidiah Smith Redwood Park	Del Norte	HIOUCHI	TLE (CNALH 2018)	20-Oct-1968			Jedediah Smith Redwoods SP	
17	Six Rivers National Forest, Craig's Creek	Del Norte	GASQUET	UC (CNALH 2018)	4-Mar-2004			Six Rivers NF	
18		Del Norte	GASQUET	OSC (CNALH 2018)	25-Aug-2000			Six Rivers NF	
18		Del Norte	GASQUET	OSC (CNALH 2018)	25-Aug-2000			Six Rivers NF	
18		Del Norte	GASQUET	OSC (CNALH 2018)	25-Aug-2000			Six Rivers NF	
19	Six Rivers National Forest, Gasquet Ranger District, Myrtle Creek, near falls	Del Norte		UC (CNALH 2018)	29-Aug-2002			Six Rivers NF	
20	Jedebiah Smith State Park: along Smith River	Del Norte		BRY (CNALH 2018)	2-Jan-1988				
20	Jedediah Smith Redwoods State Park, Crescent City			ID (CNALH 2018)	19-Oct-1965				

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
20	At Jedediah Smith Redwood State Park, along the Smith River trail at the campground.	Del Norte		MOR (CNALH 2018)	20-Jun-1987				
21	hwy 199, N of Patrick's Creek, W of Gasket	Del Norte		ASU (CNALH 2018)	16-Aug-1975				
22	Gasquet Mountain Road about 1/2 mile from intersection with US route 199, 2.5 miles west of Gasquet, Six Rivers National Forest.	Del Norte	HIOUCHI	LSU (CNALH 2018)	16-Aug-1976			Six Rivers NF	
22	Six Rivers National Forest, Smith River Natural Resource Area, Sand Camp River Access area.	Del Norte		UC (CNALH 2018)	3-Apr-2002			Six Rivers NF	
23	Gasquet, E of; Six Rivers National Forest	Del Norte		MIN (CNALH 2018)	16-Aug-1975				
23	On Hwy 199, Rustic Campground, big leaf maple-Lithocarpus forest.	Del Norte		US (CNALH 2018)	22-Jul-1980				
24	Six Rivers National Forest, Smith River. Natural Resource Area, Hwy 199, Dollar Bend	Del Norte	SHELLY CREEK RIDGE	UC (CNALH 2018)	27-Aug-2002			Six Rivers NF	
24	collected along hwy 199, north of Patrick's Creek	Del Norte		ASU (CNALH 2018)	16-Apr-1975				
24	Six Rivers National Forest, Gasquet Ranger District, south side of Highway 199, 0.25 mile north of dollar bend	Del Norte		UC (CNALH 2018)	22-Aug-2002			Six Rivers NF	

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Rec. #	Locality	County	Quad	Reference (Source)	Date Last Observed	Population Info	Threats	Land Manager	Elev. (ft.)
25	Six Rivers National Forest, Smith River Natural Resource Area, Near confluence of Middle fork and Siskiyou fork of Smith River	Del Norte	SHELLY CREEK RIDGE	UC (CNALH 2018)	28-Aug-2002			Six Rivers NF	
25	At bridge over Siskiyou Fork at junction with Smith River, about 9 miles east of Gasquet, Six Rivers National Forest.	Del Norte	SHELLY CREEK RIDGE	LSU (CNALH 2018)	16-Aug-1975			Six Rivers NF	
25	Hwy 199 and Siskiyou Fork Rd.	Del Norte	SHELLY CREEK RIDGE	CHSC (CNALH 2018)	16-Aug-1975			Six Rivers NF	
25	bridge over Siskiyou Fork at jet with Smith River, ca. 9 mi E of Gasquet	Del Norte		SBBG (CNALH 2018)	16-Aug-1975				
26	Six Rivers National Forest, Smith River District	Del Norte	BROKEN RIB MTN.	UC (CNALH 2018)	9-Aug-2001			Six Rivers NF	
27	Six Rivers National Forest, Gasquet Ranger District, Rowdy Creek	Del Norte	HIGH DIVIDE	UC (CNALH 2018)	18-Sep-2002			Six Rivers NF	

Distribution on National Forest System (NFS) Lands:

(Please see Reference column of Locations table above for references pertaining to Record Numbers indicated on NFS lands.)

National Forest System (NFS) lands	Record #s (from Locations table above)	CNDDDB EOs	Non-CNDDDB Records	Recent (seen in past 20 yrs.)	Historic (not seen in past 20 yrs.)	Most Recent Obs.	EOs/ Recs. (5 mile buffer)	Total Records on NFS lands
Angeles:	-	-	-	-	-	-	-	0
Cleveland:	-	-	-	-	-	-	-	0
Eldorado:	-	-	-	-	-	-	-	0
Inyo:	-	-	-	-	-	-	-	0
Klamath:	-	-	-	-	-	-	-	0
Lake Tahoe Basin MU:	-	-	-	-	-	-	-	0
Lassen:	-	-	-	-	-	-	-	0
Los Padres:	-	-	-	-	-	-	-	0
Mendocino:	-	-	-	-	-	-	-	0
Modoc:	-	-	-	-	-	-	-	0
Plumas:	-	-	-	-	-	-	-	0
San Bernardino:	-	-	-	-	-	-	-	0
Sequoia:	-	-	-	-	-	-	-	0
Shasta-Trinity:	-	-	-	-	-	-	-	0
Sierra:	-	-	-	-	-	-	-	0
Six Rivers:	10, 13, 14, 15, 17, 18, 19, 22, 24, 25, 26, 27	-	12	11	1	4-Mar-2004	6	12
Stanislaus:	-	-	-	-	-	-	-	0
Tahoe:	-	-	-	-	-	-	-	0
Totals:	N/A	0	12	11	1	N/A	6	12

Demographic and Population Trends: Total number of occurrences for this taxon were estimated using GIS tools and methods described by Green and Sims (2018). Population count and size estimate data are lacking for the 27 occurrences within California. Many occurrences (11/27; ~41%) are historic and have not been documented in the last twenty years (CNALH 2018). This lichen is abundant in the Cascade Range of Oregon and southern Washington.

Life History: Reproduction is mostly asexual. Sexual reproduction and spore formation occur on apothecia. Apothecia are lecanorine with reddish-brown disks. Disks may be parasitized by a non-lichenized fungus, making apothecia sometimes appear black (Derr et al. 2002). This lichen is a noteworthy contributor of nitrogen to old-growth forest ecosystems in the Pacific Northwest. *Lobaria oregana* has been measured to fix nitrogen at a rate of up to 16.5kg/ha/year (Peterson and Ikeda 2017). *Lobaria oregana* is a cyanolichen that supports both green algae and nitrogen fixing cyanobacteria (Derr et al. 2002).

Diversity: *Lobaria oregana* is one of 11 species in the genus *Lobaria* (Jordan 1973).

Habitat: Occurrences in northern California are associated with cool and moist conditions in old-growth forests, typically in regions of coastal influence and upland areas in coastal counties. This lichen is found in old-growth redwood forests, old Port Orford cedar stands, and moist sites associated with tan oak and Douglas-fir. Sites with tan-oak and Douglas-fir may have a bigleaf maple influence. Range wide, *L. oregana* usually occurs on conifers and less frequently on hardwoods such as alder, Oregon ash, or shrubs (Peterson and Ikeda 2017).

Habitat Status or Trend: Habitat in California preferred by *L. oregana* was heavily logged throughout much of the twentieth century. Heavy timber harvesting was minimized in this region during the early 1990's in response to planning and changes associated with the listing of the northern spotted owl (Barbour et al. 2007). Areas of old-growth Douglas-fir and redwood are high priority habitat for lichens (Peterson and Ikeda 2017).

Capacity for the Species to Disperse: Vegetative propagules of *L. oregana* are relatively large and not amenable to long distance dispersal (Peterson and Ikeda 2017).

Threats: Fragmentation of old-growth forest that is preferred by *L. oregana* poses a threat. This lichen is less abundant in younger forests. *Lobaria oregana* is also sensitive to pollution and poor air quality (Derr et al. 2002; NatureServe 2018).

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Formatting: Form is set up as 508 compliant. Please use the “styles” if further formatting is necessary.

Purpose: This is to maintain the best available science on a species that could be used by the Forest Service in a variety of functions. Specifically, there would be additional steps and evaluations to determine whether or not this species would be considered a Species of Conservation Concern under the 2012 Planning Rule or a Sensitive Species under the 1982 Planning Rule.

Additional Considerations at the Forest Level: Habitat amount and juxtaposition of both the species and habitat locations.