Gene Conservation collections of Alaska Yellow Cedar (*Callitropsis nootkatensis*) from sites in the southernmost locations of its range in the Klamath region of California (Klamath NF) and Oregon (Rogue River-Siskiyou National Forest) at risk from Climate Change, and fires.

A Report

Submitted by CBI, October 15, 2018

Conservation Biology Institute

Funded by: The Rogue River-Siskiyou National Forest, USFS

CBI team: Gladwin Joseph, Justin Brice

Collaborators: Arnaldo Ferreira (*USFS Region 5*), and Richard Cronn (*PNW Research Station*)
Clint Emerson and Stuart Osbrack (*Rogue River-Siskiyou National Forest*) and
Erin Lonergan (*Klamath National Forest*)

Contents

Background

Alaska Yellow Cedar *(Callitropsis nootkatensis* (D. Don) D.P. Little 2004; syn *Xanthocyparis nootkatensis* (D. Don) Farjon et Harder 2002) has an extensive range from Alaska to Northern California (Fig. 1). It is declining in the northern part of its range due to a combination of factors associated with climate change (Hennon et al. 2016; Krapek and Buma 2015), and is a rare species in the southern part of its range in California and Southern Oregon (Evens and Kaufmann 2017). These southern populations are relics that occur in isolated stands in sub-alpine zones in cool wet sites at higher elevation > 5000 ft (Fig 2). The species is under review for listing as a threatened or endangered species (ECOS 2017).

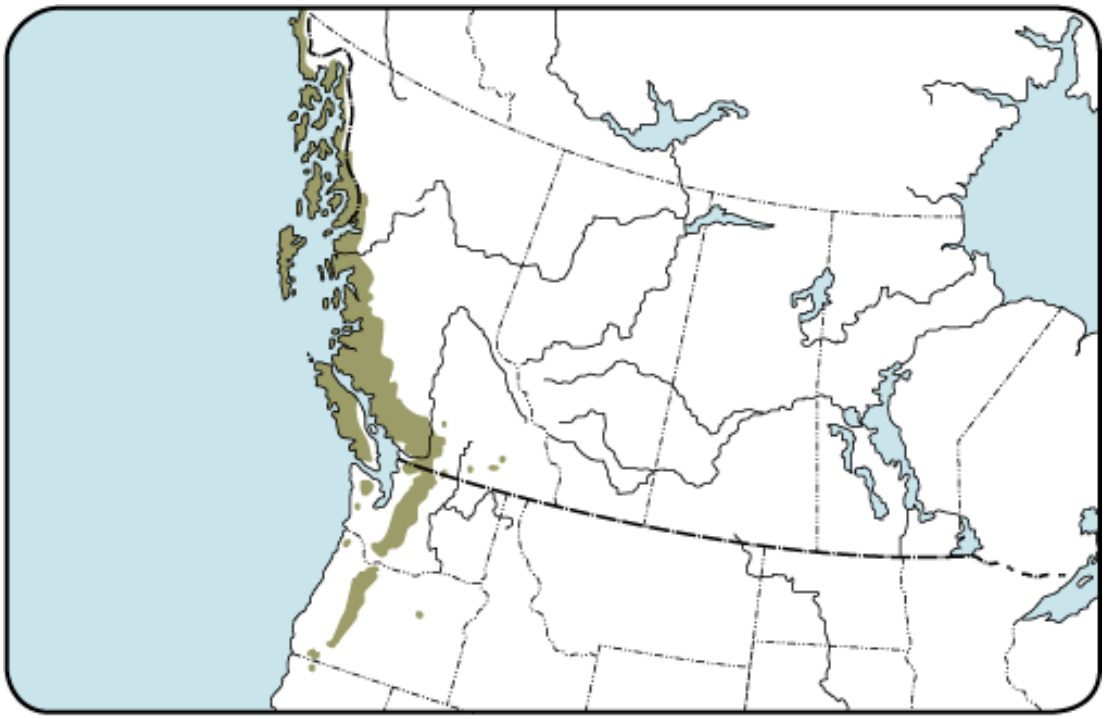


Fig 1. Range map for Alaska yellow cedar. (Source: http://tidcf.nrcan.gc.ca/en/trees/factsheet/376)

Concerted conservation efforts are needed to develop and implement conservation and reforestation strategies, in order to manage forest tree species for sustainability in the future. Because of logistics and access, collections from high elevation stands in the Southern range have not been successful. Currently there are no AYC accessions from the Klamath region in the R5 seedbank or in Fort Collins, CO at the USDA ARS NCGRP. There has been one collection from an undisclosed location on BLM land from Oregon. In addition to seed collections, shoot tips with current-year needles will be also collected from each seed tree, dried in silica gel, and stored for later genetic/genomics analysis. This collection will be used as the basis for a proposal to examine range-wide genetic variation in yellow-cedar, and to compare variation in these peripheral populations to more contiguous populations in the BC Coast Range and SE Alaska.

Objectives

1. Collect mature AYC cones from sites across its southern range in Oregon and California and facilitate the deposition of seeds in the National Seed Lab in Georgia.

2. Collect current-year needle tissue for genetic analysis.

3. Measure the DBH of trees, tag and geo-reference them and make general observations on the health of these stands.

Methods

We collected cones from 6 sites, 4 in the SRR NF and 2 in the KNF. Cones were collected from 3-6 trees in each site. Shoot tips with current-year needles were collected from 10 trees from each site. The DBH was measured for all 10 trees. Cone bearing trees were tagged. In some cases, 1-2 branches had to be cut to get sufficient cones. Only a few trees had cones in each site. Some of the cones on tall trees were beyond our reach. The trees in each site yielded 15-200 mature cones or more. Cones were collected in September. See table 1 for exact dates of collection from each site.

Location, elevation, DBH and photos of trees

The following are the location of trees from the 6 sites. the map can be accessed from the Data Basin gallery (Please note you need to be registered on Data Basin to access these maps). We have also included some photographs of representative trees from each site and general habitat characteristics of these sites. In appendix 1 we provide the GPS location of each tree, its elevation and DBH. We summarize the DBH of trees and the elevational gradient of their locations in two figures below.

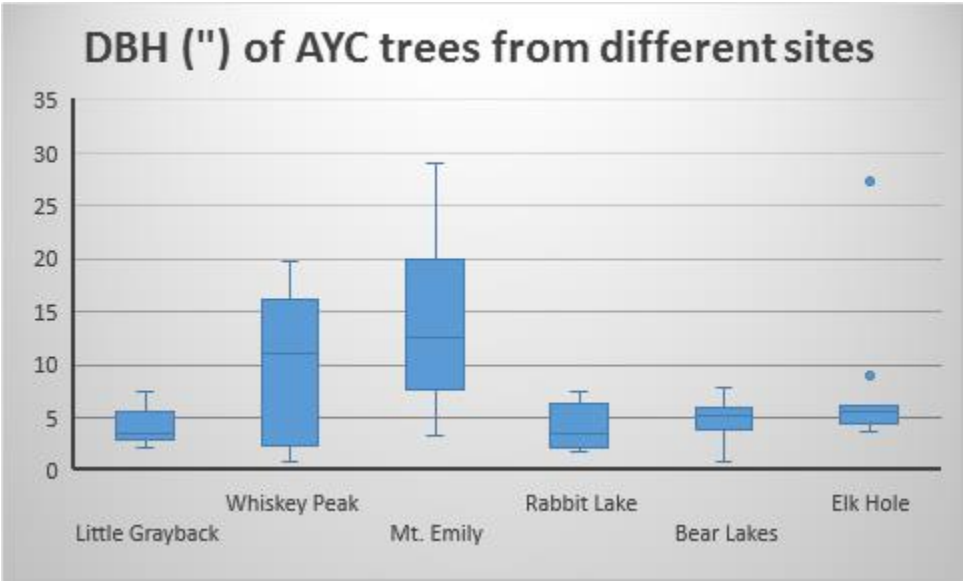


Figure 2. The DBH of trees that cones were collected from varied within and between sites. The largest tree was from Elk hole. Cones were accessible from a large boulder underneath the tree. In most cases, the larger DBH tree had cones beyond the reach of the pole saw.

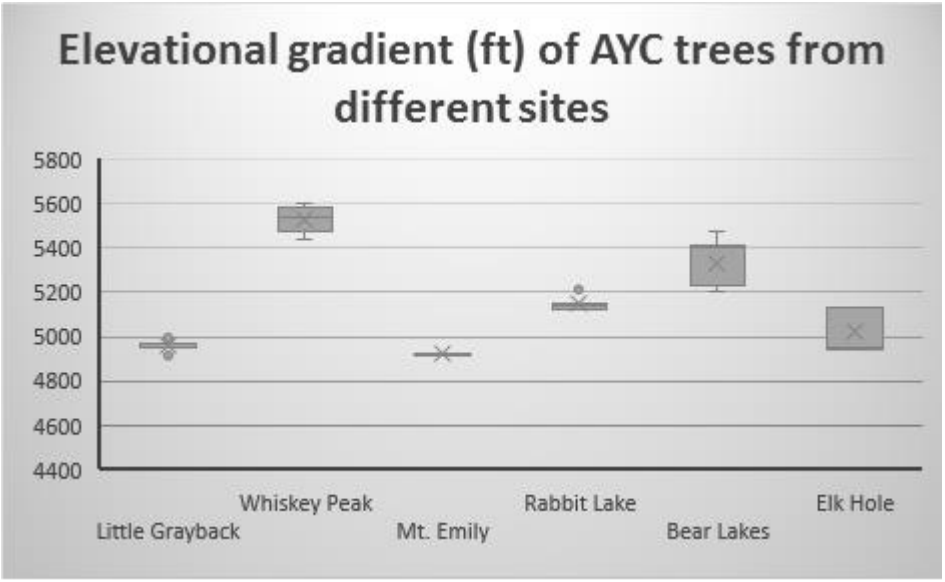


Figure 3. The elevational gradient of AYC trees ranged from aprox. 4800-5600 ft across the sites.

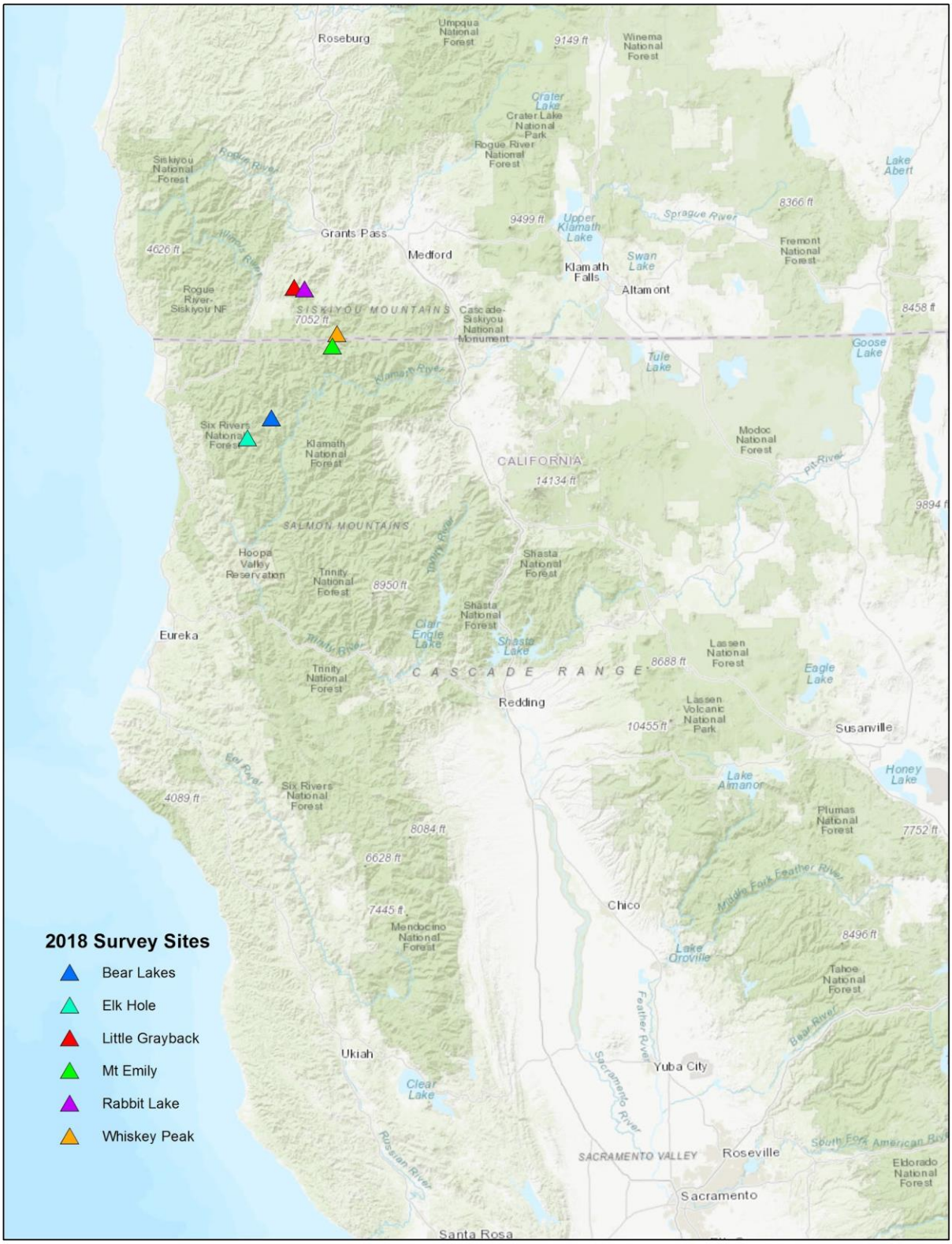


Fig 4: Sampled populations, 2018 (https://databasin.org/maps/682ed0321fd8445a83dc18aa4e859c57)

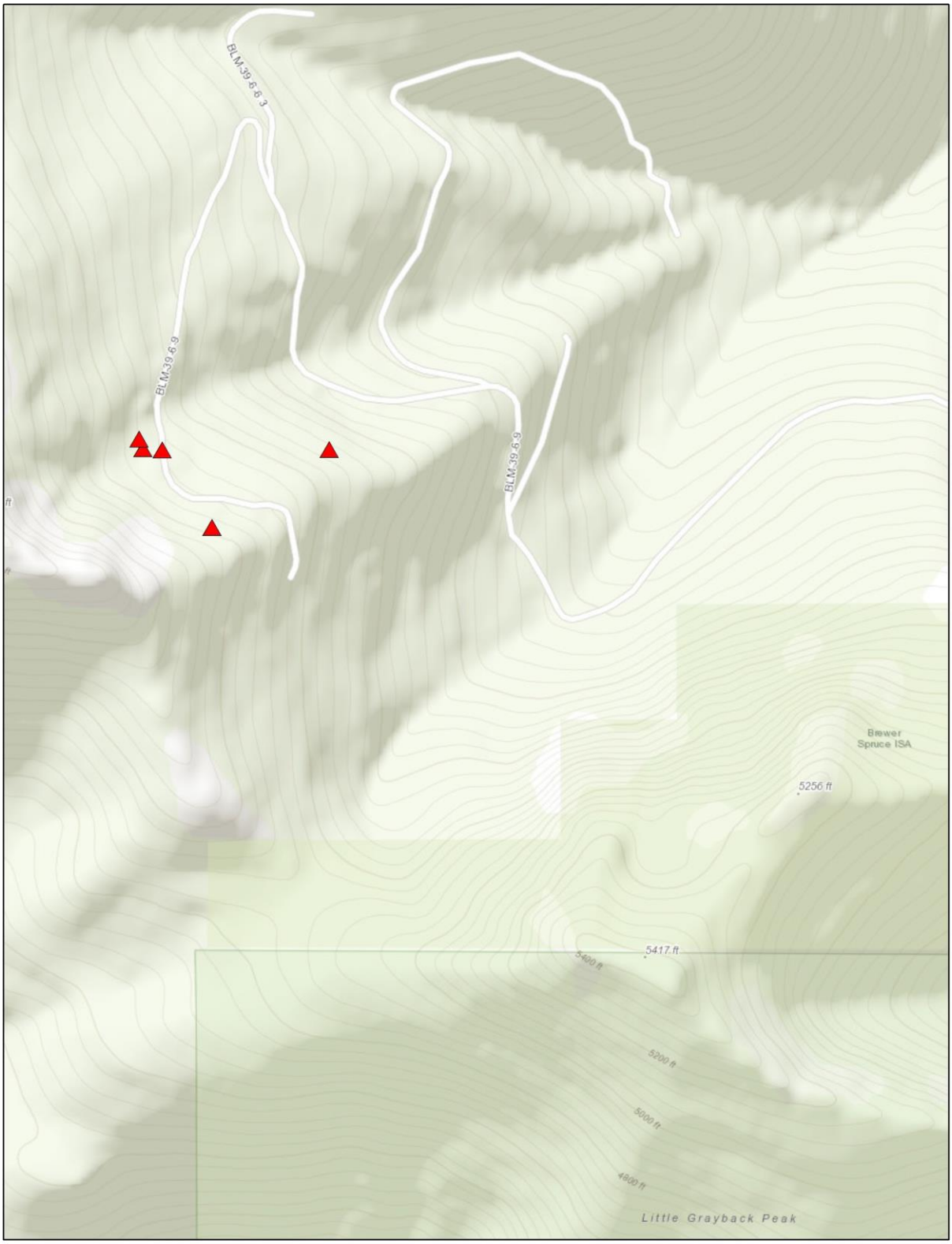
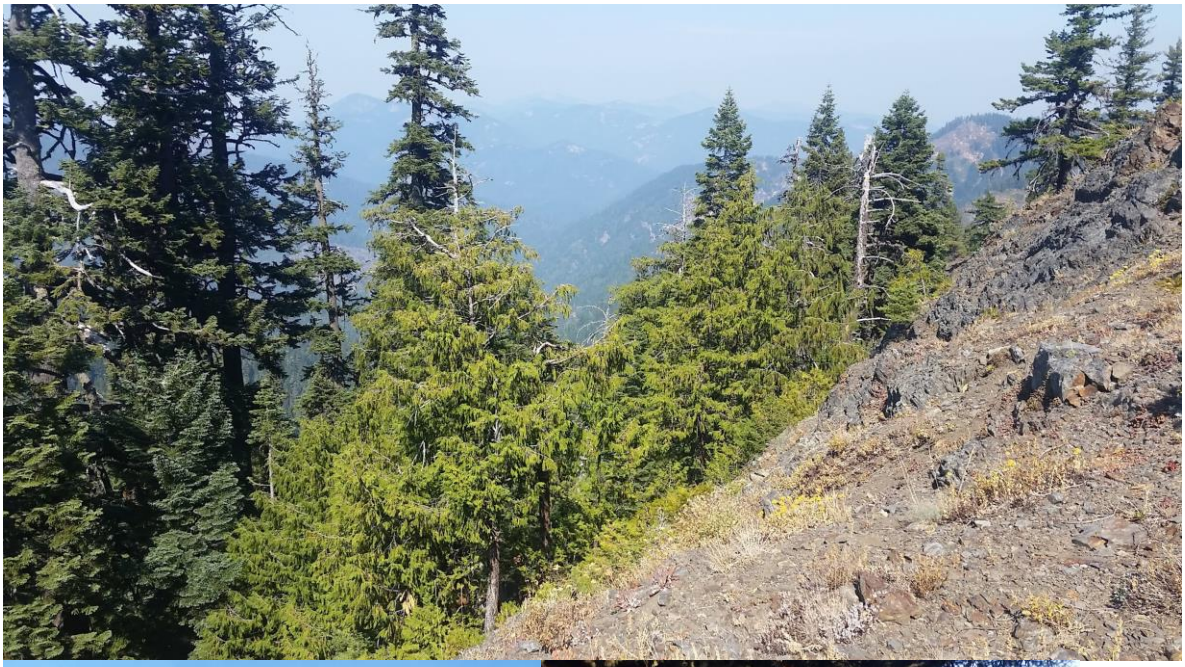


Fig 5. Location of trees at Little Grayback (Site-1)
(https://databasin.org/datasets/c83d805119cf41a4a53e8db769a6034a)

Photo examples from Little Grayback (Site-1):

Fig 6. Location of trees at Whiskey Peak (Site-2)
(https://databasin.org/datasets/056fc30528674296a1c5a7dc526e55e1)

Photo examples from Whiskey Peak (Site-2):



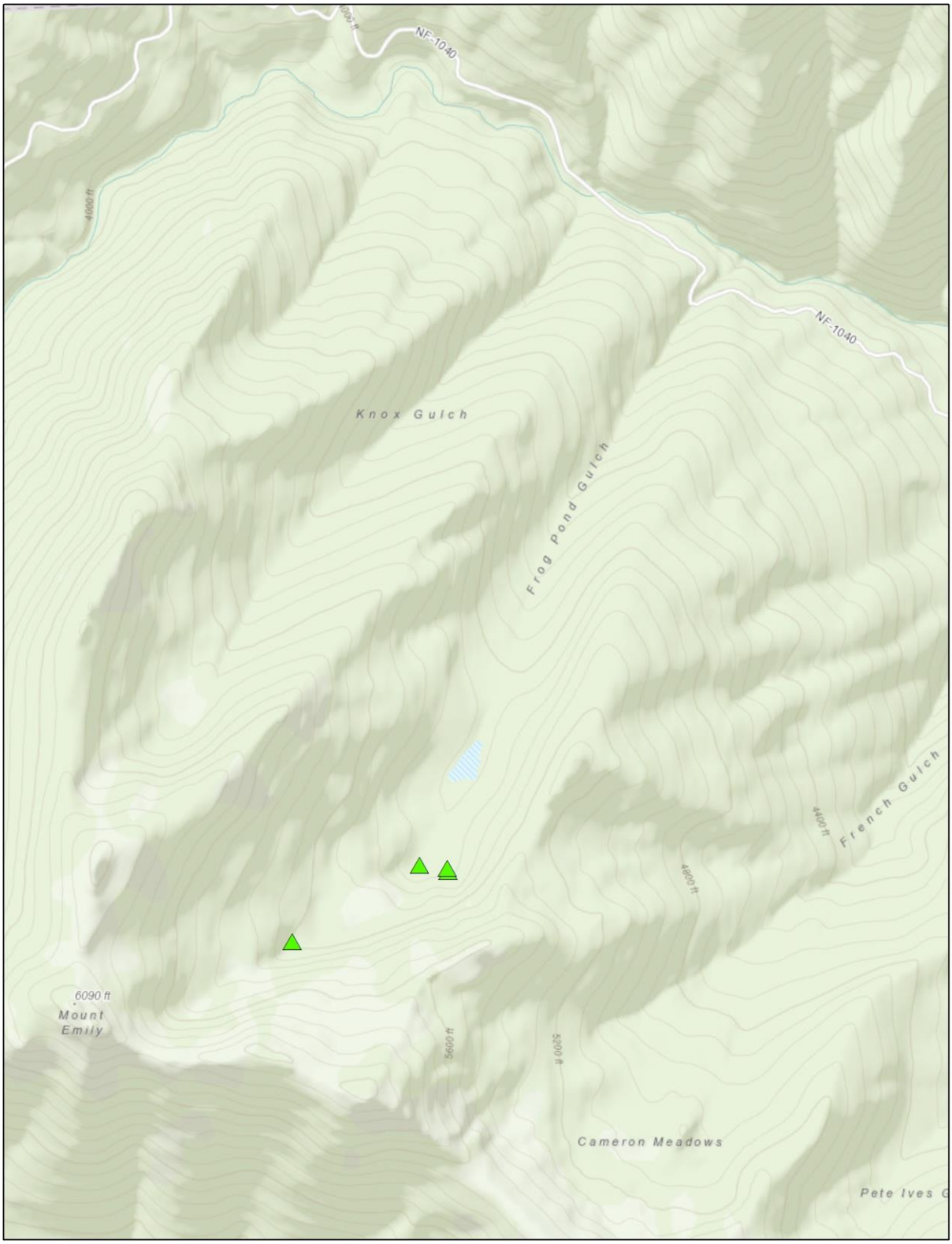
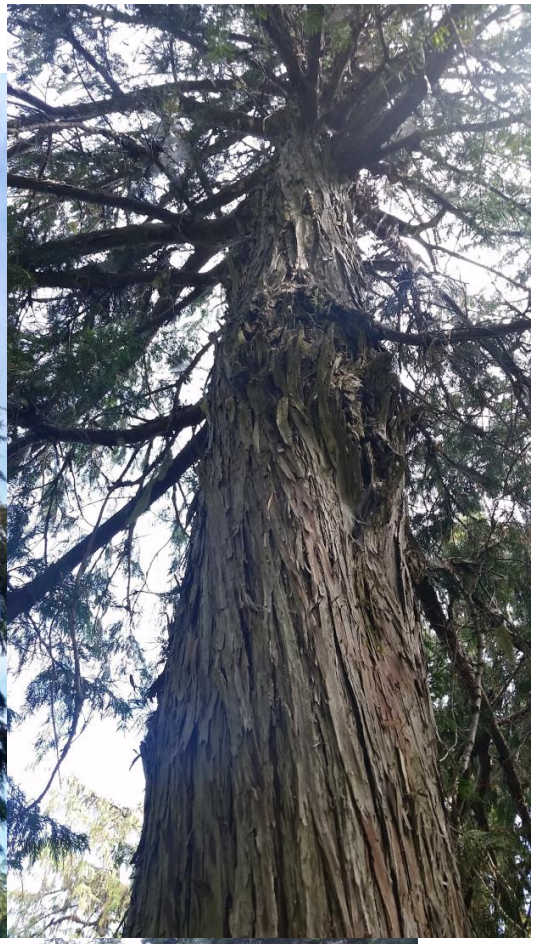
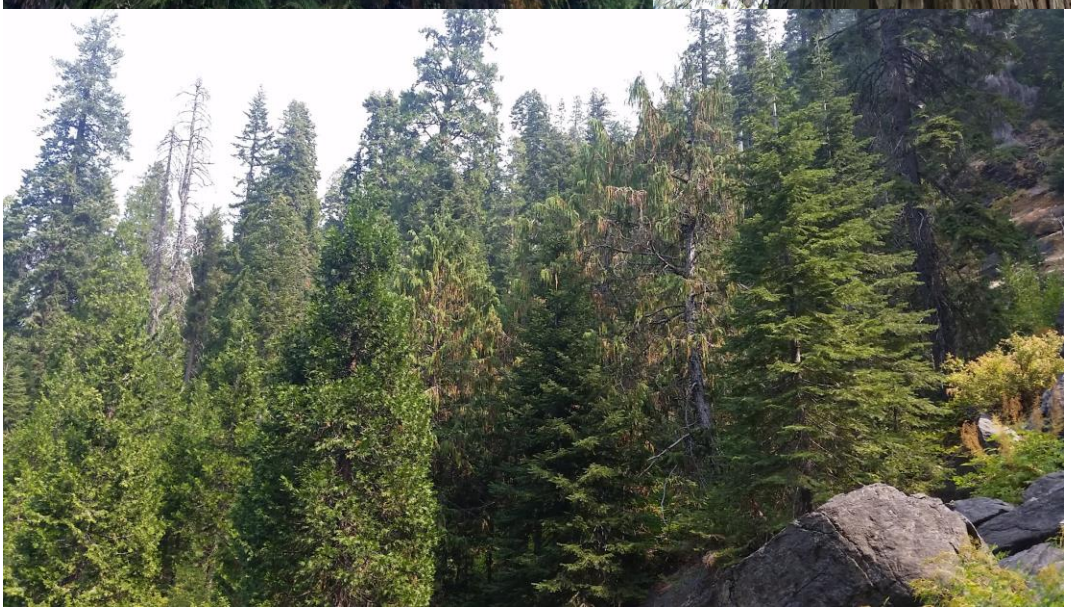


Fig 7. Location of trees at Mt Emily (Site-3)
(https://databasin.org/datasets/26c788843c5c4a0595ff8df31066c51e)

Photo examples from Mt Emily (Site-3):





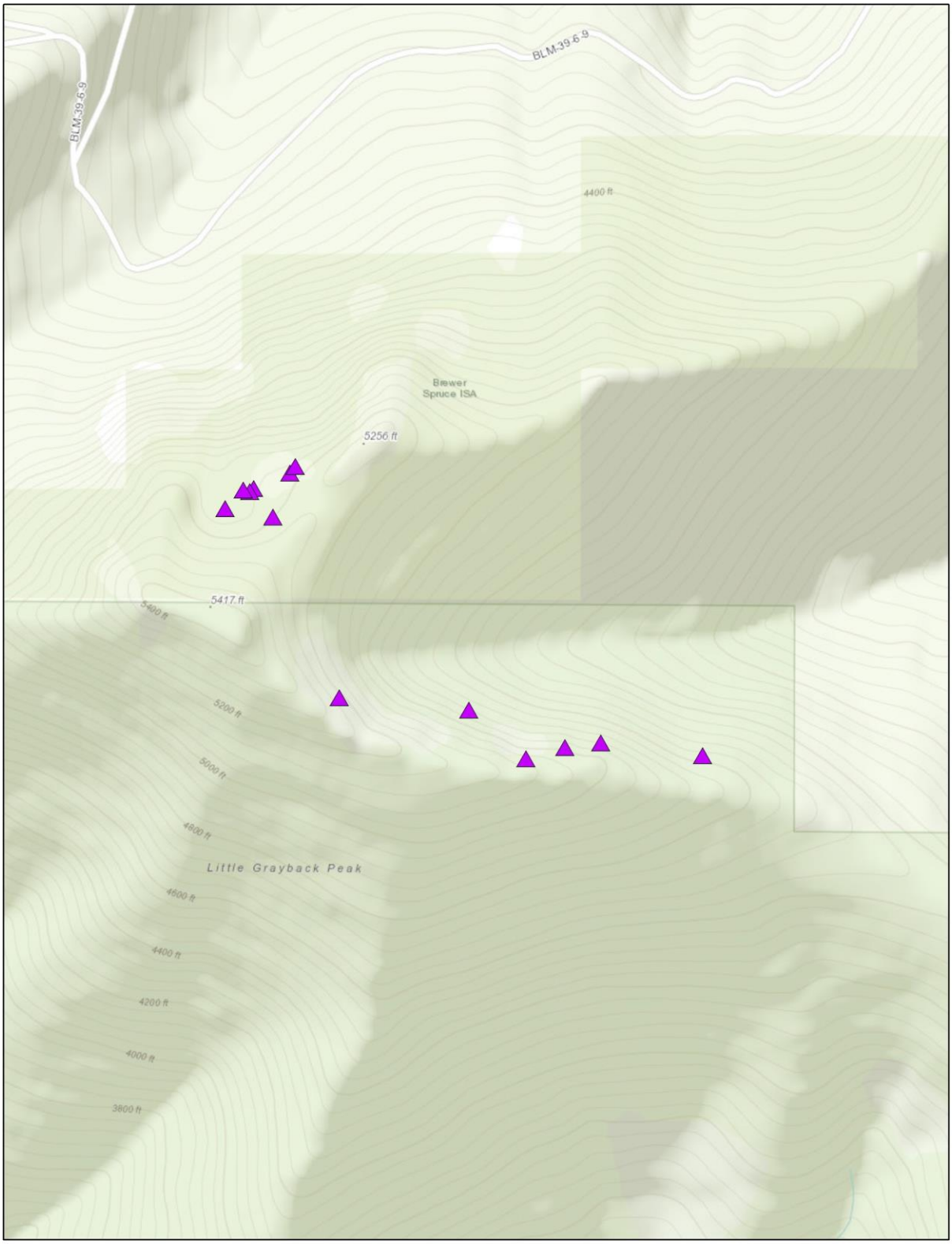
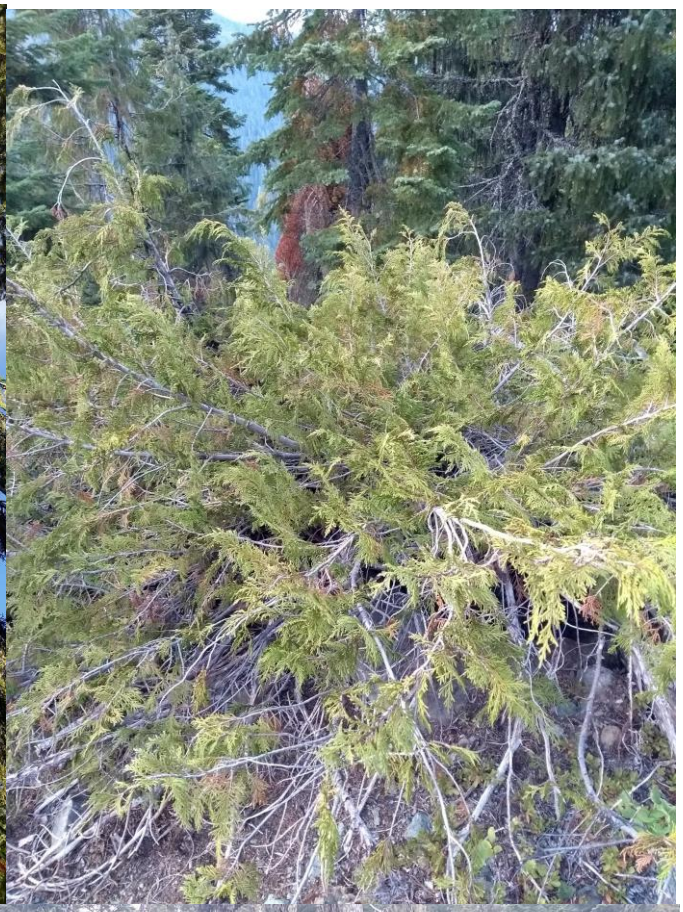


Fig 8. Location of trees at Rabbit Lake (Site-4)
(https://databasin.org/datasets/e6b0d0dbf2dc4725b63c750f2c9d0f31)

Photo examples from Rabbit Lake (Site-4):



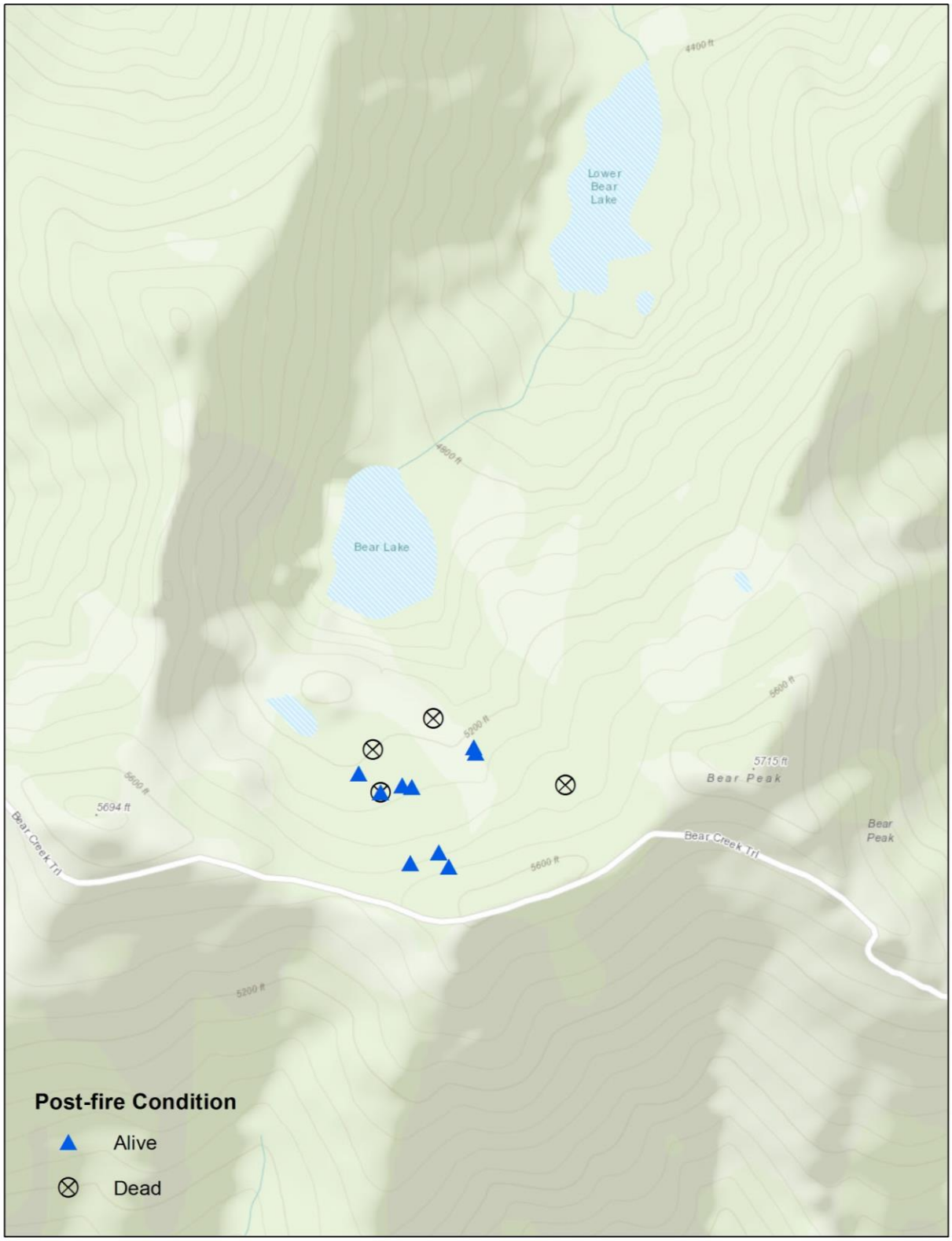
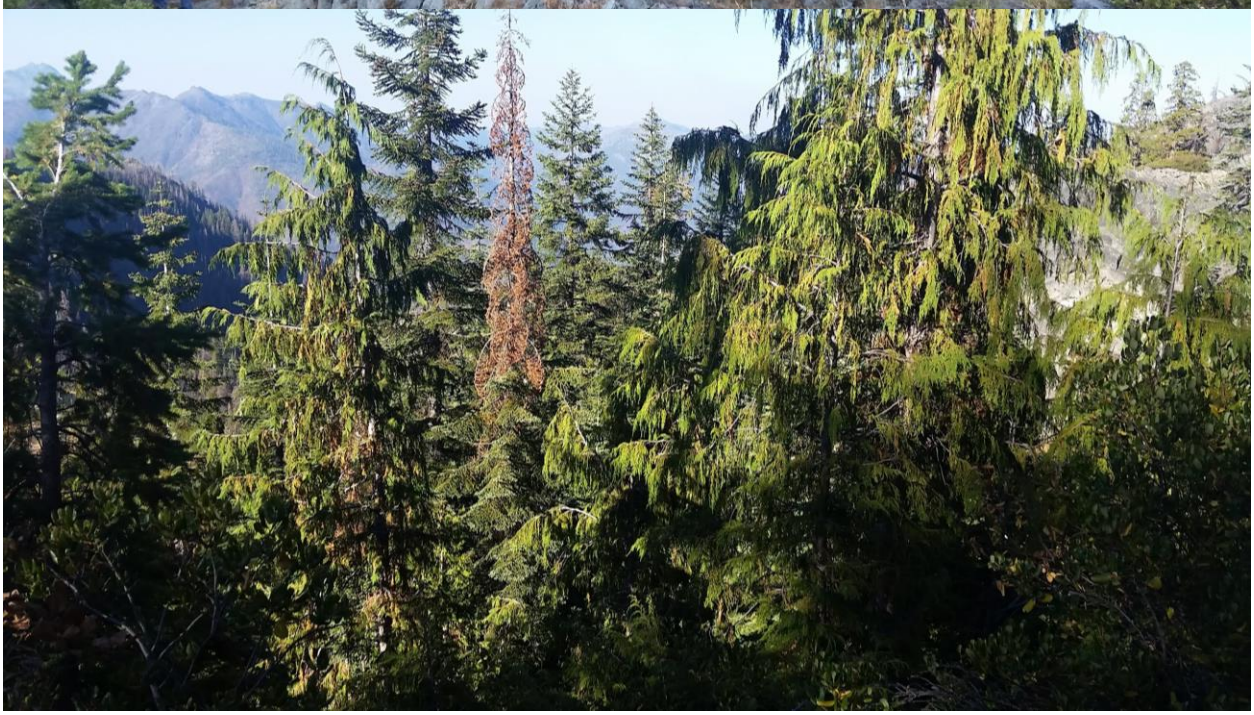


Fig 9. Location of trees at Bear Lakes (Site-5) (2017 Oak fire which was part of the Eclipse Complex) (https://databasin.org/datasets/6ff5e46c34014ddfbf00b3b721694636)

Photo examples from Bear Lakes (Site-5):



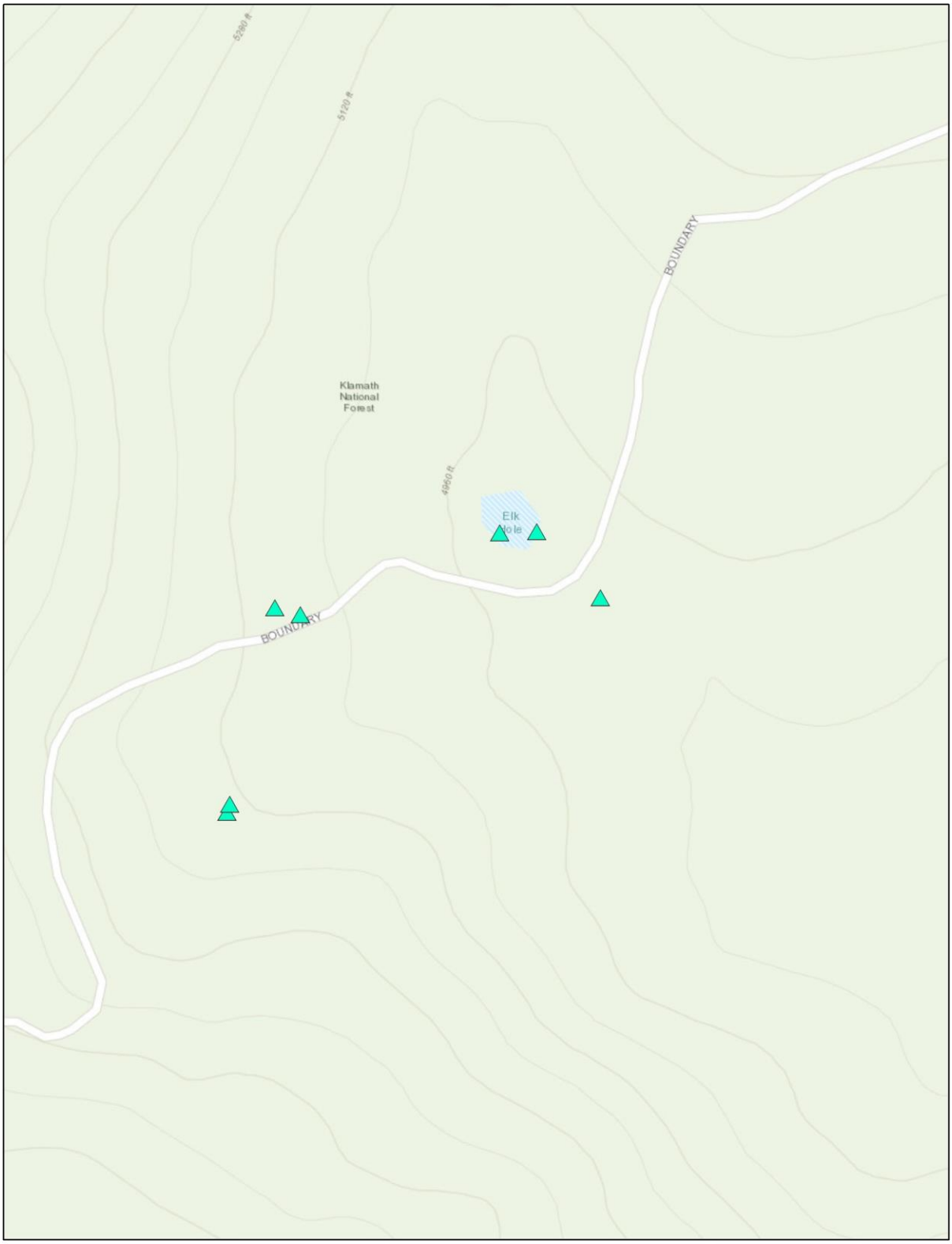


Fig 10. Location of trees at Elk Hole (Site-6)
(https://databasin.org/datasets/58a26e4151e8462c9a4f46d2c5fa81f7)

Photo examples from Elk Hole (Site-6):

Observations on Stand health

Trees were either growing in the gaps between boulders on rocky northern slopes, or in the boggy valley bottoms. Trees growing on the rocky outcrops tended to be smaller and had more of a shrubby appearance with multiple side stems. Trees on the valley bottom tended to be taller and had the largest diameters. In some sites, the bark of trees had some unknown black fungus or lichen (see figures below). These trees did not have the characteristic shaggy bark. However, in other sites we observed trees that had the typical shaggy bark. We are uncertain on what is causing this coloration of the bark.

Many healthy trees were killed in the Bear Lake stand from the Oak fire of 2017 (part of the Eclipse Complex). Some of the trees were large diameter trees. It would be important to monitor AYC regeneration in this stand in the years ahead.

Large healthy looking tree with nice shaggy bark (Mt Emily):

Example of black bark found at several sites (Whiskey Peak):

Close-up of black bark (Little Grayback):

Healthy stand (Elk Hole):

Fire killed stand (Bear Lakes):

Fire killed trees (Bear Lakes):

Small stand on rocky outcrop along Little Grayback trail to Rabbit Lake:

Mixed stand in marshy valley (Mt Emily):

Photos of cones and seeds

We tried to collect mature yellowing to brown cones. Sometimes, there were yellowish green cones that appeared to be less mature. However, the seeds inside were brown in color. Once the viability results come back from the National Seed lab it would be useful to correlate the % viability with the color of the cones. This will help identify the best stage of maturity for cone collection.of cones that are at the optimum stage of maturity with the highest level of seed viability.

Cones at different levels of maturity:

Mature cones:

Over ripe cones: These cones are perhaps what was left on the tree from the cone crop from 2017. Some of them had seeds in them, but uncertain about their viability.

Viable seeds: through a microscope (from the Bend Seed Extractory)

Recommendations for future work

- Develop a species distribution model for these southern populations. This would help identify areas that meet the conditions where these trees can be found and can help facilitate the discovery of new populations or identify areas where experimental recovery populations can be established.
- Common garden experiment to germinate seeds that were collected and determine if they may be disease resistant or more tolerant of extreme conditions.
- Utilize drone technology to survey the entire extent of these populations once we have a species distribution model completed. This would allow for us to visually survey areas along cliff faces, and remote slopes and cover more distance and area in a shorter amount of time.
- Collect bark samples to determine what is causing the black bark on some trees and not others. Determine whether this coloration has any impact on the growth and development of the trees.
- Take cores samples to determine age and rate of growth of trees across sites as part of long-term monitoring of these stands.
- Establish permanent monitor plots in each site and track stem density, species composition and regeneration, particularly in sites with fire damage.
- Conduct genetic analysis of stems in a clump to determine whether they are vegetatively layered from the same tree and are genetically identical or from seed.

References

CBI 2017: Updated Yellow cedar locations from various sources in California and Oregon. https://databasin.org/maps/ac6cfba881d24ea698a7dc33e7e09f8f

E-Flora BC Photo gallery. Photo gallery of AYC: http://linnet.geog.ubc.ca/ShowDBImage/Gallery.aspx?st=0&latinName=Xanthocyparis%20nootkatensis&gr=Xanthocyparis%20nootkatensis&nosyn=1&specrep=0

El-Kassaby, Y. A. et al. 1991. Reproductive-cycle plasticity in yellow-cedar. Canadian Journal of Forest Research 21: 1360-1364.

Environmental Conservation online system (ECOS) 2017. US Fish and Wildlife service. https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=9627

Evens, J, Kaufmann, M. 2017. Discovering California's rarest conifers. Flora Vol1. No.1

Harrington, Constance, A., tech. coord. 2010. A tale of two cedars – International symposium on western redcedar and yellow-cedar. Gen. Tech. Rep. PNW-GTR-828. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 177 p. https://www.fs.fed.us/pnw/olympia/silv/publications/opt/615_Harrington2010.pdf

Hennon, Paul E., et al. 2016. A climate adaptation strategy for conservation and management of Yellow-Cedar in Alask.a Gen. Tech. Rep. PNW-GTR-917. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 392 p. https://www.fs.fed.us/pnw/pubs/pnw_gtr917.pdf

http://conifersociety.org/conifers/conifer/cupressus/nootkatensis/

http://www.conifers.org/cu/Cupressus_nootkatensis.php

http://blog.conifercountry.com/2017/07/yellow-cedar-siskiyous/

Krapek J, Buma B. 2015. Yellow-cedar: climate change and natural history at odds. Frontiers in Ecology and Environment. 13(5)

Appendix – 1 Location, elevation, DBH for all trees sampled for cones and/or needle tissue during the 2018 collection year

Site	Tree #	Tag#	Date	Lat/Long (WGS84)1	Elevation (ft)	DBH (inches)	Tissue/cone	Notes
1	1	-	090518	42.207074 ° N 123.466733 ° W	4949	3.9,1.5, 3.1	T,C	Clump, black lichen on bark (BLB)
	2	-	090518	42.207053 ° N 123.466324 ° W	4918	6.1	T,C	Single tree next to large boulder (BLB)
	3	-	090518	42.207133 ° N 123.466836 ° W	4955	7.5	T,C	Wind thrown this year (BLB)
	4	-	090518	42.207133 ° N 123.466836 ° W	4955	5.2	T	BLB
	5	-	090518	42.207133 ° N 123.466836 ° W	4955	3.2	T	BLB
	6	-	090518	42.207133 ° N 123.466836 ° W	4955	2.2	T	BLB
	7	-	090518	42.207133 ° N 123.466836 ° W	4955	3.5	T	BLB
	8	-	090518	42.207133 ° N 123.466836 ° W	4955	5.0	T	BLB
	9	-	090518	42.205834 ° N 123.465257 ° W	4993	1.9, 4.2, 3.5	T,C	Shaggy bark (SB)
	10	-	090518	42.205834 ° N 123.465257 ° W	4993	-	T,C	Cones mixed from various trees
2	1	-	090618	42.025115 ° N 123.236793 ° W	5598	8.0	TC	BLB
	2	-	090618	42.025058 ° N 123.237243 ° W	5601	16.2	T,C	BLB
	3	-	090618	42.025564 ° N 123.237371 ° W	5537	1.5	T	BLB, Aprox location of tree
	4	-	090618	42.025564 ° N	5537	15.0	T	BLB, Aprox location of tree

				123.237371 ° W				
	5	-	090618	42.025564 ° N 123.237371 ° W	5537	2.0	T	BLB, Aprox location of tree
	6	-	090618	42.025564 ° N 123.237371 ° W	5537	3.7	T	BLB, Aprox location of tree
	7	-	090618	42.025564 ° N 123.237371 ° W	5537	0.9	T	BLB, Aprox location of tree
	8	-	090618	42.025564 ° N 123.237371 ° W	5537	14.0	T,C	BLB
	9	-	090618	42.025733 ° N 123.23686 ° W	5452	19.75	T	BLB, Aprox. Locatiomn of tree
	10	-	090618	42.025733 ° N 123.23686 ° W	5452	17.3	T,C	BLB, Cones were probably set this year so not mature.
	11	-	090618	42.025998 ° N 123.237405 ° W	5443	16.25	T,C	BLB
	12	-	090618	42.025567 ° N 123.23807 ° W	5596	7.5	T,C	BLB, On shallow soil on steep rocky slope, very mature cones
3	1	-	090718	41.976471 ° N 123.263254 ° W	4919	29.0	T,C	SB
	2	-	090718	41.976471 ° N 123.263254 ° W	4919	22.0	T	SB, Aprox. locations
	3	-	090718	41.976471 ° N 123.263254 ° W	4919	12.3	T	SB, Aprox. locations
	4	-	090718	41.976389 ° N 123.262152 ° W	4924	13.0	T,C	SB
	5	-	090718	41.976389 ° N 123.262152 ° W	4924	5.1	T	SB, Aprox. locations
	6	-	090718	41.976389 ° N 123.262152 ° W	4924	3.3	T	SB, Aprox. locations
	7	-	090718	41.976389 ° N	4924	9.8	T	SB, Aprox. locations

				123.262152 ° W				
	8	-	090718	41.976389 ° N 123.262152 ° W	4924	8.4	T	SB, Aprox. locations
	9	-	090718	41.976389 ° N 123.262152 ° W	4924	15.7	T	SB, Aprox. locations
	10	-	090718	41.976389 ° N 123.262152 ° W	4924	19.2	T	SB, Aprox. locations
4	1	6309-1	091718	42.200505 ° N 123.454673 ° W	5216	7.0	T,C	SB
	2	6507-1	091718	42.200953 ° N 123.455087 ° W	5142	3.9	T,C	BLB
	3	-	091718	42.200953 ° N 123.455087 ° W	5142	1.8, 2.2	T,C	BLB
	4	6459-1	091718	42.200905 ° N 123.455168 ° W	5139	7.4	T,C	SB
	5	-	091718	42.200928 ° N 123.455312 ° W	5127	2.8	T,C	BLB, cones from several stems. The needles were taken from the stem with the dia = 2.8”
	6	-	091718	42.200928 ° N 123.455312 ° W	5127	2.2	T	BLB, Aprox. locations
	7	-	091718	42.200928 ° N 123.455312 ° W	5127	1.8	T	BLB, Aprox. locations
	8	-	091718	42.201201 ° N 123.454321 ° W	5153	-	T	Tissue from several stems from clump
	9	-	091718	42.201306 ° N 123.454201 ° W	5144	5.6	T	BLB
	10	-	091718	42.201306 ° N 123.454201 ° W	5144	3.5	T	BLB, Aprox. location
5	1	6455-2	091818	41.689775 ° N	5411	4.7	T,C	SB

				123.583871 ° W				
	2	6410-1	091818	41.689775 ° N 123.583871 ° W	5411	-	T	SB
	3		091818	41.689728 ° N 123.583054 ° W	5474	5.7	T,C	SB
	4		091818	41.689951 ° N 123.58327 ° W	5404	5.5	T	SB
	5		091818	41.689951 ° N 123.58327 ° W	5404	5	T	SB
	6		091818	41.689951 ° N 123.58327 ° W	5404	5.3	T	Aprox. Location
	7	6480-1	091818	41.690985 ° N 123.583849 ° W	5259	7.8	T,C	SB
	8		091818	41.690893 ° N 123.58451 ° W	5248	6.5	T	BLB
	9		091818	41.691191 ° N 123.584971 ° W	5206	0.8	T	BLB
	10		091818	41.691191 ° N 123.584971 ° W	5206	4.2	T	BLB
	11		091818	41.691531 ° N 123.582505 ° W	5232	2.5	T,C	SB
6	1		091918	41.610407 ° N 123.709385 ° W	5131	5.6	T	SB
	2		091918	41.610407 ° N 123.709385 ° W	5131	3.6	T	SB
	3		091918	41.610407 ° N 123.709385 ° W	5131	5.5	T	SB, Aprox. location
	4		091918	41.610439 ° N 123.70937 ° W	5127	4.5	T,C	SB

	5		091918	41.61152 ° N 123.70796 ° W	4950	8.9	T,C	SB, Aprox. location
	6	6346-2	091918	41.61152 ° N 123.70796 ° W	4950	27.4	T,C	SB
	7	6319-4	091918	41.61152 ° N 123.70796 ° W	4950	5.4	T,C	SB
	8		091918	41.611268 ° N 123.707428 ° W	4940	6.2	T	SB, Aprox. location
	9		091918	41.611268 ° N 123.707428 ° W	4940	3.8	T	SB
	10		091918	41.611268 ° N 123.707428 ° W	4940	6.2	T	SB
	11		091918	41.611217 ° N 123.709142 ° W	5089	4.8	T,C	SB

1 GPS accuracy was between +/- 15-150 ft

Appendix – 2 Gallery dedicated to Alaska Yellow Cedar

DATA BASIN

Alaska Yellow Cedar (Callitropsis nootkatensis)

Created by Conservation Biology Institute

About

This gallery is a collection of all of the Alaska Yellow Cedar (*Callitropsis nootkatensis*) related datasets currently found in Data Basin as of September 14th, 2018.

Conservation Biology Institute is currently performing site visits to some of the most southern populations to collect cones and tissue samples. Description of the project can be found here. New datasets will be uploaded related to this project.

Tags: chamaecyparis nootkatensis, alaska yellow cedar, tree, ayc, alaska yellow-cedar, forest, cedar, yellow cedar

This gallery is visible to everyone

Gallery contains: 3 Folders, 17 Datasets, 5 Maps

Appendix - 3 Forms for seed submission to National Seed Lab

Little Grayback Site-1

Submit by Email | Print Form

United States Department of Agriculture — Forest Service — National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/05/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: Little Greyback, Josephine County, Oregon (site 1)
Scientific Name: Callitropsis nootkatensis — Common Name: Alaska yellow cedar
State: OR — County: Josephine — Seed Zone: 78 — GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 42.207133 (decimal degree format) longitude -123.466836 elevation 1510 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft
Region 6 — National Forest: Rogue River- Siskiyou — District: Wild Rivers
Township — Range — Section
Compartment — Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 600 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☐ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols
Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W
Frequent species growing in association (list max of 5): Port Orford Cedar and Douglas Fir
Directions to the site: Located near the end of BLM-39-6-9. Access would be best by OHV. We drove most of the way and walked the rest up the road. Accessed coming in from Grants Pass, Oregon. Link to point data: https://databasin.org/datasets/c83d805119cf41a4a53e8db769a6034a

Whiskey Peak Site-2

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/06/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: Whiskey Peak, Jackson County, Oregon (site 2)
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: OR | County: Jackson | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 42.025564424 (decimal degree format) | longitude -123.23737109 | elevation 1688 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft
Region: 6 | National Forest: Rogue River- Siskiyou | District: Siskiyou Mountains
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 390 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☐ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols

Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade

Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): This particular stand was Alaska yellow cedar dominant.

Directions to the site: Accessed from Upper Applegate Rd to NF-1040 to NF-1035. Located east of Whiskey Peak by about a mile along NF-1035. The population is north of the road over the ridge. At the top of the ridge the population is in clear view below. Link to point data: https://databasin.org/datasets/056fc30528674296a1c5a7dc526e55e1

Mount Emily Site-3

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/07/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: Mount Emily, Siskiyou County, California (site 3)
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: CA | County: Siskiyou | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 41.976471208 (decimal degree format) | longitude -123.263253591 | elevation 1499 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft

Region: 6 | National Forest: Rogue River- Siskiyou | District: Siskiyou Mountains
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 150 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☒ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols
Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): Incense cedar, fir

Directions to the site: Located in the Red Butte wilderness. The site was accessed from NF-1040 via the Frog Pond Trailhead. Link to point data: https://databasin.org/datasets/26c788843c5c4a0595ff8df31066c51e

Rabbit Lake Site-4 (1 of 3)

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/17/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: RL-1, Rabbit Lake, Josephine County, Oregon (site 4)
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: OR | County: Josephine | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 42.200505035 (decimal degree format) | longitude -123.454673104 | elevation 1590 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft

Region: 6 | National Forest: Rogue River- Siskiyou | District: Wild Rivers
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 200 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☐ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols

Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade

Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): Douglas Fir, Brewer's spruce, fir sp.

Directions to the site: Accessed from Cave Junction on Hwy 46 to Little Grayback Rd/NF-4609. Took the trail to Rabbit Lake. Population is located at the lake. Other populations were documented along the trail. Link to point data: https://databasin.org/datasets/e6b0d0dbf2dc4725b63c750f2c9d0f31

Rabbit Lake Site-4 (2 of 3)

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/17/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: RL-2, Rabbit Lake, Josephine County, Oregon (site 4)
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: OR | County: Josephine | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 42.200905365 (decimal degree format) | longitude -123.455168217 | elevation 1566 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft

Region: 6 | National Forest: Rogue River- Siskiyou | District: Wild Rivers
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 200 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☐ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols

Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): Douglas Fir, Brewer's spruce, fir sp.

Directions to the site: Accessed from Cave Junction on Hwy 46 to Little Grayback Rd/NF-4609. Took the trail to Rabbit Lake. Population is located at the lake. Other populations were documented along the trail. Link to point data: https://databasin.org/datasets/e6b0d0dbf2dc4725b63c750f2c9d0f31

Rabbit Lake Site-4 (3 of 3)

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/17/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: RL-3, Rabbit Lake, Josephine County, Oregon (site 4)
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: OR | County: Josephine | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 42.200953054 (decimal degree format) longitude -123.455086682 elevation 1567 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft
Region: 6 | National Forest: Rogue River- Siskiyou | District: Wild Rivers
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 200 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☐ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols
Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): Douglas Fir, Brewer's spruce, fir sp.

Directions to the site: Accessed from Cave Junction on Hwy 46 to Little Grayback Rd/NF-4609. Took the trail to Rabbit Lake. Population is located at the lake. Other populations were documented along the trail. Link to point data: https://databasin.org/datasets/e6b0d0dbf2dc4725b63c750f2c9d0f31

Bear Lake Site-5

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/18/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: Bear Lake, Siskiyou County, California (site 5)
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: CA | County: Siskiyou | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude (decimal degree format) 41.689775305 | longitude -123.583870904 | elevation 1649 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft

Region: 5 | National Forest: Six Rivers | District: Gasquet
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 800 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☐ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols
Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): Fir sp, Douglas fir, and willow

Directions to the site: Accessed from NF-15N19 and Elbow Springs trail head. Link to point data: https://databasin.org/datasets/6ff5e46c34014ddfbf00b3b721694636

Elk Hole Site-6 (1 of 3)

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/19/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: EH-1, Elk Hole, Siskiyou County, California
Scientific Name: Callitropsis nootkatensis | Common Name: Alaska yellow cedar
State: CA | County: Siskiyou | Seed Zone: 78 | GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 41.611520362 (decimal degree format) longitude -123.707959673 elevation 1509 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft
Region: 5 | National Forest: Six Rivers | District: Gasquet
Township | Range | Section
Compartment | Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 600 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☒ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols

Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): The AYC were not mixed with other species but other species in the area included firs and a few Port Orford cedars.

Directions to the site: Accessed from Orleans using NF 15 to 14N03 to access the Elk Hole trail head in Elk Valley. Link to Elk Hole point data: https://databasin.org/datasets/58a26e4151e8462c9a4f46d2c5fa81f7

Elk Hole Site-6 (2 of 3)

Submit by Email | Print Form

United States Department of Agriculture — Forest Service — National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection: 09/19/2018
Collector's Name: Justin Brice and Gladwin Joseph
ID Number: EH-2, Elk Hole, Siskiyou County, California
Scientific Name: Callitropsis nootkatensis — Common Name: Alaska yellow cedar
State: CA — County: Siskiyou — Seed Zone: 78 — GRIN/PLANTS Code(specify): CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 41.611520362 (decimal degree format) longitude -123.707959673 elevation 1509 meters
(accuracy of gps estimate +/= ft.) 15 to 150ft
Region: 5 — National Forest: Six Rivers — District: Gasquet
Township — Range — Section
Compartment — Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet: Within 600 ft

Habitat/Site Description:

Soil: ☒ Rocky ☐ Gravel ☐ Sand ☒ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols
Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): The AYC were not mixed with other species but other species in the area included firs and a few Port Orford cedars.

Directions to the site: Accessed from Orleans using NF 15 to 14N03 to access the Elk Hole trail head in Elk Valley. Link to Elk Hole point data: https://databasin.org/datasets/58a26e4151e8462c9a4f46d2c5fa81f7

Elk Hole Site-6 (3 of 3)

Submit by Email | Print Form

United States Department of Agriculture | Forest Service | National Seed Laboratory, 5675 Riggins Mill Road, Dry Branch, GA 31020

Seed Collection Form

Seed Lot Identification (for FSNSL use only)
Collector's ID #
FSNSL Number

Date of Collection 09/19/2018
Collector's Name Justin Brice and Gladwin Joseph
ID Number EH-3, Elk Hole, Siskiyou County, California
Scientific Name Callitropsis nootkatensis
Common Name Alaska yellow cedar
State CA
County Siskiyou
Seed Zone 78
GRIN/PLANTS Code(specify) CANO9

Location where the seeds were collected. If using GPS, other information is optional.

GPS Coordinates: latitude 41.611520362 longitude -123.707959673 elevation 1509 meters
(decimal degree format)
(accuracy of gps estimate +/= ft.) 15 to 150ft
Region 5
National Forest Six Rivers
District Gasquet
Township
Range
Section
Compartment
Stand

Collection Site Description:

Collection source (check one): ☒ wild stand ☐ plantation ☐ seed production area ☐ seed orchard/field
Number of plants available for collection on this site: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Number of plants collected from: ☐ 1 ☒ 2 to 20 ☐ 21 to 50 ☐ 51 +
Distance between collected plants in feet Within 600 ft

Habitat/Site Description:

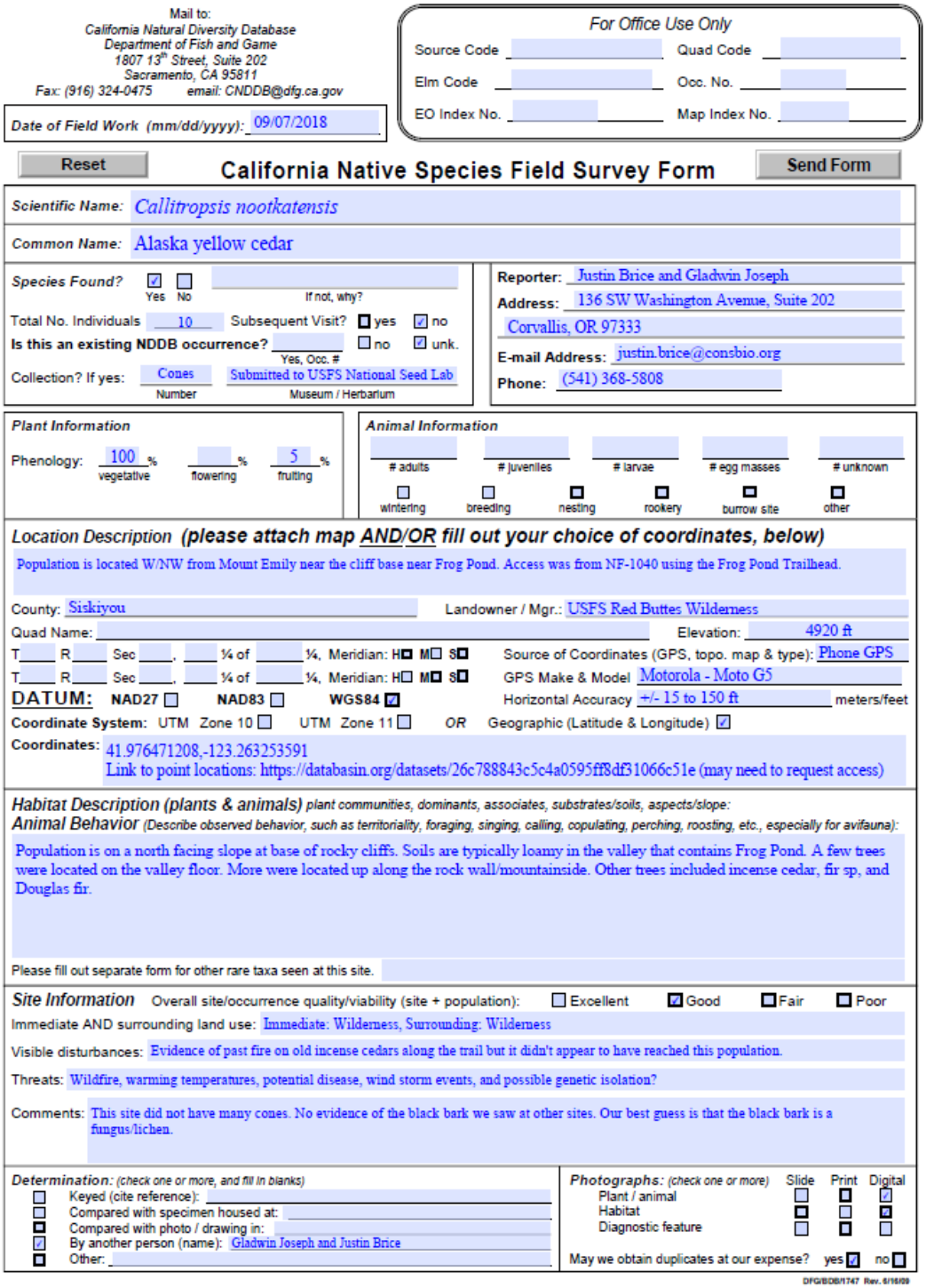
Soil: ☒ Rocky ☐ Gravel ☐ Sand ☒ Loam ☐ Clay
Soil series name: Unsure but the Dominant Order from SSURGO is Inceptisols
Site type: ☒ upland ☐ wetland ☐ aquatic **Light:** ☐ full sun ☒ partial shade ☒ full shade
Aspect: ☒ N ☐ S ☐ E ☐ W

Frequent species growing in association (list max of 5): The AYC were not mixed with other species but other species in the area included firs and a few Port Orford cedars.

Directions to the site: Accessed from Orleans using NF 15 to 14N03 to access the Elk Hole trail head in Elk Valley. Link to Elk Hole point data: https://databasin.org/datasets/58a26e4151e8462c9a4f46d2c5fa81f7

Appendix – 4 CNDDB forms for the California Department of Fish and Wildlife

Mount Emily (Site-3)



Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code | Quad Code
Elm Code | Occ. No.
EO Index No. | Map Index No.

Date of Field Work (mm/dd/yyyy): 09/07/2018

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: Callitropsis nootkatensis

Common Name: Alaska yellow cedar

Species Found? ☑ Yes ☐ No

Total No. Individuals 10 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? ☐ no ☑ unk.

Collection? If yes: Cones (Number) Submitted to USFS National Seed Lab (Museum / Herbarium)

Reporter: Justin Brice and Gladwin Joseph

Address: 136 SW Washington Avenue, Suite 202
Corvallis, OR 97333

E-mail Address: justin.brice@consbio.org

Phone: (541) 368-5808

Plant Information

Phenology: 100 % vegetative | % flowering | 5 % fruiting

Animal Information

adults | # juveniles | # larvae | # egg masses | # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

Population is located W/NW from Mount Emily near the cliff base near Frog Pond. Access was from NF-1040 using the Frog Pond Trailhead.

County: Siskiyou Landowner / Mgr.: USFS Red Buttes Wilderness

Quad Name: Elevation: 4920 ft

T___ R___ Sec ___, ___ ¼ of ___ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): Phone GPS

T___ R___ Sec ___, ___ ¼ of ___ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Motorola - Moto G5

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy +/- 15 to 150 ft meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ OR Geographic (Latitude & Longitude) ☑

Coordinates: 41.976471208,-123.263253591
Link to point locations: https://databasin.org/datasets/26c788843c5c4a0595ff8df31066c51e (may need to request access)

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:
Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Population is on a north facing slope at base of rocky cliffs. Soils are typically loamy in the valley that contains Frog Pond. A few trees were located on the valley floor. More were located up along the rock wall/mountainside. Other trees included incense cedar, fir sp, and Douglas fir.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Immediate: Wilderness, Surrounding: Wilderness

Visible disturbances: Evidence of past fire on old incense cedars along the trail but it didn't appear to have reached this population.

Threats: Wildfire, warming temperatures, potential disease, wind storm events, and possible genetic isolation?

Comments: This site did not have many cones. No evidence of the black bark we saw at other sites. Our best guess is that the black bark is a fungus/lichen.

Determination: (check one or more, and fill in blanks)
☐ Keyed (cite reference):
☐ Compared with specimen housed at:
☐ Compared with photo / drawing in:
☑ By another person (name): Gladwin Joseph and Justin Brice
☐ Other:

Photographs: (check one or more) Slide Print Digital
Plant / animal ☐ ☐ ☑
Habitat ☐ ☐ ☑
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 6/16/09

Bear Lake Site-5

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code ____ Quad Code ____
Elm Code ____ Occ. No. ____
EO Index No. ____ Map Index No. ____

Date of Field Work (mm/dd/yyyy): 09/18/2018

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Callitropsis nootkatensis*

Common Name: Alaska yellow cedar

Species Found? ☑ Yes ☐ No — If not, why?

Total No. Individuals >20 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? ____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: Cones (Number) Submitted to USFS National Seed Lab (Museum / Herbarium)

Reporter: Justin Brice and Gladwin Joseph
Address: 136 SW Washington Avenue, Suite 202
Corvallis, OR 97333
E-mail Address: justin.brice@consbio.org
Phone: (541) 368-5808

Plant Information

Phenology: 100 % vegetative ____ % flowering 40 % fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Access was from NF-15N19 using the Elbow Springs trailhead.

County: Siskiyou Landowner / Mgr.: USFS Six Rivers NF

Quad Name: ____ Elevation: 5400 ft

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐

Source of Coordinates (GPS, topo. map & type): Phone GPS

GPS Make & Model Motorola - Moto G5

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑

Horizontal Accuracy +/- 15 to 150 ft meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: 41.689950771,-123.583269927
Link to point locations: https://databasin.org/datasets/6ff5e46c34014ddfbf00b3b721694636 (may need to request access)

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

Population is on a north facing slope north of Bear Creek trail. Other trees included fir sp, Douglas fir and willow. Some ayc were located along drainages where they were able to survive the 2017 Oak fire. Other trees were along a dry lake bed (upper bear lake?) amongst the willow.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Immediate AND surrounding land use: Immediate: Siskiyou Wilderness, Surrounding: Forest

Visible disturbances: The 2017 Oak fire (part of the Eclipse Complex) had killed many AYC.

Threats: Wildfire, warming temperatures, potential disease, wind storm events, and possible genetic isolation?

Comments: This site suffered from the 2017 Oak fire (part of the Eclipse Complex). No evidence of the black bark we saw at other sites in Oregon. Our best guess is that the black bark is a fungus/lichen.

Determination: *(check one or more, and fill in blanks)*
- ☐ Keyed (cite reference): ____
- ☐ Compared with specimen housed at: ____
- ☐ Compared with photo / drawing in: ____
- ☑ By another person (name): Gladwin Joseph and Justin Brice
- ☐ Other: ____

Photographs: *(check one or more)* Slide Print Digital
- Plant / animal ☐ ☐ ☑
- Habitat ☐ ☐ ☐
- Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 6/15/09

Elk Hole Site-6

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811
Fax: (916) 324-0475 email: CNDDB@dfg.ca.gov

For Office Use Only
Source Code ____ Quad Code ____
Elm Code ____ Occ. No. ____
EO Index No. ____ Map Index No. ____

Date of Field Work (mm/dd/yyyy): 09/19/2018

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Callitropsis nootkatensis*

Common Name: Alaska yellow cedar

Species Found? ☑ Yes ☐ No — If not, why?

Total No. Individuals >20 Subsequent Visit? ☐ yes ☑ no

Is this an existing NDDB occurrence? ____ Yes, Occ. # ☐ no ☑ unk.

Collection? If yes: Cones (Number) Submitted to USFS National Seed Lab (Museum / Herbarium)

Reporter: Justin Brice and Gladwin Joseph
Address: 136 SW Washington Avenue, Suite 202
Corvallis, OR 97333
E-mail Address: justin.brice@consbio.org
Phone: (541) 368-5808

Plant Information

Phenology: 100 % vegetative ____ % flowering 15 % fruiting

Animal Information

adults ____ # juveniles ____ # larvae ____ # egg masses ____ # unknown ____

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

Accessed from Orleans using NF 15 to 14N03 to access the Elk Hole trail head in Elk Valley.

County: Siskiyou Landowner / Mgr.: USFS Six Rivers NF

Quad Name: ____ Elevation: 5000 ft

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): Phone GPS

T____ R____ Sec ____, ____ ¼ of ____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Motorola - Moto G5

DATUM: NAD27 ☐ NAD83 ☐ WGS84 ☑ Horizontal Accuracy +/- 15 to 150 ft meters/feet

Coordinate System: UTM Zone 10 ☐ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☑

Coordinates: 41.611520362,-123.707959673
Link to point locations: https://databasin.org/datasets/58a26e4151e8462c9a4f46d2c5fa81f7 (may need to request access)

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

There are at least 3 different areas where we found AYC. There were two up on a very steep slope on our way down the ridge to the water. These are likely only a few individuals that have many branches that created their own "stand". The population by the waters edge looked very healthy. Nice stands with large trees. These trees were in very loamy/marshy soils.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Immediate AND surrounding land use: Immediate: Siskiyou Wilderness, Surrounding: Siskiyou Wilderness

Visible disturbances: None

Threats: Wildfire, warming temperatures, potential disease, wind storm events, and possible genetic isolation?

Comments: There are at least 3 different areas where we found AYC. The largest of which is right next to the pond's edge. Here there is a massive AYC 27.4 DBH. No evidence of the black bark we saw at other sites in Oregon. Our best guess is that the black bark is a fungus/lichen.

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): ____
☐ Compared with specimen housed at: ____
☐ Compared with photo / drawing in: ____
☑ By another person (name): Gladwin Joseph and Justin Brice
☐ Other: ____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☑
Habitat ☐ ☐ ☑
Diagnostic feature ☐ ☐ ☐

May we obtain duplicates at our expense? yes ☑ no ☐

DFG/BDB/1747 Rev. 6/16/09

Appendix – 5 Instructions for seed submission

Germplasm Conservation Sent to the National Seed Laboratory

How should information pertaining to the collection be submitted? With input from Regional Geneticist, the NSL has developed an Excel spreadsheet, an Access database and pdf forms (electronic or hardcopy) for collection information. Any of these methods can be used to submit collection information.

How much seed should I send? Please try to collect a minimum of 500 seed for shipment to the USDA ARS National Center of Genetic Resources Preservation (NCGRP) in Fort Collins, CO. If 500 see are not available for collection, please collect as much as possible. The NCGRP can accept up to 3,000 seed. If you are able to collect more than 3,000, additional seed will be stored at the FSNSL.

How should collections be packaged? Collect seed in paper bags. Write the collection ID number on the bag. Fold, close and seal the bag with tape so seed will not be lost during shipment. Stored seed should be packaged in zip lock plastic bags with the collection identification information written on the bag. Collection ID is a unique combination of numbers and letters assigned by the Collector to each seed collection. This ID will also be used in GRIN along with the FSNS number.

How should collections be sent to the NSL? Pack bags and seed collection forms in a box and ship via Federal Express Monday through Thursday to the FSNSL at 5675 Riggins Mill Road, Dry Branch, GA 31020.