California Cooperative Forest Management Plan
(2023)

For the Jones Bar FireWise Community

Blue oak (Quercus douglasii) acorn planting site, post Pleasant Fire (2022), facing the South Yuba River

Plan preparer: Erin Andrew, M.S., Sierra Streams Institute
Funding provided by: California Wildlife Conservation Board

Purpose of this Plan

This Multi-Agency Cooperative Forest Management Plan was developed for use in California by the California Department of Forestry and Fire Protection (CAL FIRE), the United States Forest Service (USFS) and Natural Resources Conservation Service (NRCS) using information from a national joint Forest Stewardship, American Tree Farm System (ATFS), NRCS Planning Process and the California Forest Improvement Act.

This management plan template meets management plan requirements for grant agreements and other provisions available through CAL FIRE, USFS, NRCS, and the ATFS. Signature Pages are provided to document acceptance of this management plan in meeting those requirements. Signatures are only required for that entity providing funding as requested by the landowner.

This management plan is a tool for and belongs to the landowner. This forest management plan outlines the conditions and capability of property resources, documents the landowner's objectives and decisions and identifies potential resource improvement projects. It is meant to be a flexible and educational document that considers a planning horizon of at least five years but may include objectives that require a much longer time frame.

Acknowledgements

Thank you to Forestry Technicians Annie Baker and Gary Wells for field data collection and processing. Kevin Whitlock, RPF and Dr. Jeff Lauder provided keen insight for the development of this Plan. Funding was provided by the California Wildlife Conservation Board (WCB).

Contents

Certifications

Note to the landowner: This Forest Management Plan is provided as a guide to help you accomplish the objectives that you have for your forest. This Forest Management Plan will guide you in achieving the benefits of managing your forest and forest-related resources. With this Forest Management Plan, you are eligible to participate in the CAL FIRE's California Forest Improvement Program (CFIP), US Forest Service's Forest Stewardship Program (FSP), the American Forest Foundation's American Tree Farm System (ATFS) and the Natural Resources Conservation Service (NRCS) programs. This plan will need to be reviewed and approved by representatives for each of the programs that are providing funding.

Landowner Certification

"I have reviewed this plan and approve its content."

Name (print or type):

Signature:

Date:

Mailing Address:

Phone number:

E-mail:

USFS Forest Stewardship Program Certification

Plan Preparer

"I certify that this Forest Management Plan meets the requirements of the federal Forest Stewardship Program."

Plan Preparer Name (print or type):

Signature:

Date:

Stewardship Forester

"I certify that this Forest Management Plan meets the requirements of the federal Forest Stewardship Program."

Stewardship Forester Name (print or type): Signature:

Date:

Forest Stewardship Tracking Number:

NRCS Cost Share Program Certification

Technical Service Provider

"I certify that this Forest Management Plan meets the requirements of the USDA-NRCS Programs and/or the Quality Criteria for forest activity plans in Section III of the USDA NRCS Field Office Technical Guide."

Technical Service Provider Name (print or type):

Signature:

Date:

Registered Professional Forester #:

District Conservationist

"I certify that this Forest Management Plan meets the requirements of the USDA-NRCS Programs and/or the Quality Criteria for forest activity plans in Section III of the USDA NRCS Field Office Technical Guide."

District Conservationist Name (print or type):

Signature:

Date:

ATFS Program Certification

"I certify that this Forest Management Plan meets the requirements of the American Forest Foundation's American Tree Farm System."

ATFS Inspecting Forester (print or type): Signature:

Date:

Inspector Number:

Certified Tree Farm Number (e.g. CA 1234):

Date of ATFS Certification:

CFIP Certification

Plan Preparing Registered Professional Forester

"I certify that I, or my supervised designee, personally inspected this California Forest Improvement Program (CFIP) plan area, and that the plan fully complies with the CFIP and Professional Foresters Law, and meets Federal Forest Stewardship Management Plan Standards. I further certify that this plan is based upon the best available site and landowner information, and if followed, will not be detrimental to the productivity of the natural resources associated with this property."

Name (print or type): Kevin Whitlock
Signature: Kevin Whitlock
Date: Digitally signed by Kevin Whitlock Date: 2023.05.15 17:30:48 -07'00'
Registered Professional Forester #: 2436
Organization or Company: Under the Trees, Inc.
Mailing Address: P.O. Box 363, Nevada City, CA 95959
Phone Number: 530-559-0901

CAL FIRE Unit

"I certify that I, or my supervised designee, personally inspected this California Forest Improvement Program (CFIP) plan area, and that the plan fully complies with the CFIP and Professional Foresters Law, and meets Federal Forest Stewardship Management Plan Standards."
Forestry Assistance Specialist Name (print or type):
Signature:
Date:
Unit & Mailing Address:

CAL FIRE State or Region CFIP Coordinator

"I certify that the plan fully complies with the CFIP and Professional Foresters Law, and meets Federal Forest Stewardship Management Plan Standards."
CFIP Coordinator Name (print or type): Signature:
Date:
Registered Professional Forester #:

Landowner Information

Landowner(s) Name:
Mailing Address:
Phone Number:
E-mail:

Landowners' Representative

Landowners' Representative Name: Kevin Whitlock, RPF
Representative's Registered Professional Forester # (if applicable):2436
Mailing Address: P.O. Box 363, Nevada City, CA 95959
Phone Number: 530-559-0901
E-mail: underthetrees@att.net

Management Plan History

There is not an existing Management Plan for this FireWise Community.

Property Facts

Public Land Survey System (PLSS) Description:

- The S ¼ and a portion of the S ½ of section 31 T17N R8E, MDB&M
- A portion of the SW ¼ of Section 32, T17N R8E, MDB&M
- A portion of the E ½, and a portion of the NW ¼ of Section 01, T16N R7E, MDB&M
- Section 06, T16N R8E, MDB&M
- A portion of Section 05, T16N R8E, MDB&M
- Portions of the W ½ of Section 04, T16N R8E, MDB&M
- The NE ¼ of Section 07, T16N R8E, MDB&M
- Section 08, T16N R8E, MDB&M
- The NW ¼ , a portion of the SW ¼, and a portion of the E ½ of Section 09, T16N R8E, MDB&M
- A portion of Section 17, T16N R8E, MDB&M

For assessor parcel numbers, see Appendix 6.

Nearest City or Town: Nevada City, California

County: Nevada

GPS Coordinates of community center: 39.2726083, -121.1123280

Tract and Farm Number (if applicable): N/A

Total Ownership Acreage: 3020

Total Forested Acreage: 2425 (includes Camp Woolman property) of 297 parcels

Does the Landowner reside on the property? Yes or No: Yes

The terrain of the FireWise community land is slightly hilly overall, with flat portions particularly to the south along Jones Bar road. The steepest sections of the area are on the north border, facing the Jones Ravine. Elevation ranges from 1700 to 2500 feet.

Describe the overall slope of the property by percent of land in each of the following categories:

- Flat (grade less than 5%): 35 percent
- Gentle (grade 6% to 35%): 50 percent
- Steep (grade greater than 35%): 15 percent

Road System

100 % of the properties are accessible by roads. Because the parcel sizes vary from 1 to 48 acres, access from roads vary, but roads and private driveways offer some property access. The total length of improved road for the entire FireWise Community is 15.45 miles, and length of unimproved road is 3.7 miles.

Watershed Information

According to the State Water Resources Control Board, the FireWise Community boundaries exist within three distinct watersheds. The Rush Creek watershed covers the eastern half of the community (#5517310001); the Little Shady Creek watershed covers the western half of the community (#5517310002); and the Slate Creek watershed covers a slim southeastern section (#5517200103).

Property History

The Jones Bar FireWise Community (JBFWC) has experienced several wildfires in recent history. The 36,343-acre 49er Fire (1988) burned the north and western halves of the community land, evidenced by fire scars on some existing trees. Dense whiteleaf manzanita (*Arctostaphylos viscida*) shrubs formed in some areas along with natural tree regeneration, and Scotch broom quickly filled in other gaps produced by the fire.

The 705-acre Jones Fire just occurred in August 2020, burning a strip through the FireWise Community from the Yuba River drainage up canyon, through the western end of Camp Woolman, ending at Newtown Road. Standing dead oak and pine remain on some parcels, with oak sprouts and grasses as the primary regeneration.

In regard to past management, these parcels strongly vary. Some landowners have been actively removing shrubs, brush, and trees by themselves and/or with hired contractors at regular intervals, others have applied treatments some time ago and have yet to manage again, and a few have been unable to treat very much at all. Mature tree die-off has occurred on a couple of properties, necessitating removal of large Douglas-fir and ponderosa pine. The majority of properties appear to adhere to CAL-FIREs defensible space guidelines directly around infrastructure.

Landowners have been awarded EQIP grants through the NRCS over the years. Three have been awarded recently (2022), with several applicants. This is the most common grant type pursued by the landowners, with one reporting a CFIP award through CAL FIRE.

Property Infrastructure

Structures

Most of the landowners have homes on their properties. Improvements vary, from the installation of new home additions, pipes, wells, and outbuildings.

Roads

Roads for the FireWise Community are a mixture of paved, gravel, and dirt roads. Road Associations and other such agreements exist for most of the landowners, who take responsibility for road maintenance. Use for these roads are year-round, as many landowners live on their properties permanently. Routine inspection of the road quality and roadsides for excess vegetation is encouraged.

Three main stream crossings exist over Owl Creek; two on Owl Creek Road and one on Pau Hana Way. The culverts appear adequately sized, and are able to withstand 100-year storm events.

Road clearing has occurred by some landowners, particularly from blowdown from recent winter storms.

Weed control along roads may be up to the private landowners, and possibly within the control of Road Associations. Scotch broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus armeniacus*) and yellow starthistle (*Centaurea solstitialis*) have been observed from these roadsides.

Weed control along roads can include chemical or mechanical means. Weeds often inhabit roadsides due to their open, sunny nature; some have tolerance for degraded soils, or poor soil quality, and are thus able to establish along roads.

See the Invasive Species and Pests section for more information on weed control.

Electrical Improvements

A major transmission line runs northwest – southeast over highway 49, through Monte Vista Drive and Newtown Roads. PG & E have been on the private parcels over the years, clearing material that could interfere with the lines in the event of a storm or fire.

Some landowners do have solar panels on their properties.

Water Improvements

The status of domestic water sources and presence of holding tanks and stock ponds varies among landowners. A few landowners have mentioned making improvements for water access by installing holding tanks with signs for CAL FIRE use in the event of a wildfire; others have installed roof sprinklers on their homes, and a waterline for new infrastructure water access.

Forest Resource

The properties vary in their forest densities due to differences in management frequency, intensity and past fire impact, but overall the stands are characterized by dense, small-diameter hardwoods with some mixed conifer, many of which are "legacy" trees — large, older trees that survived logging and fire. Based on conversations with multiple landowners, management has been primarily targeted toward clearing for defensible space from wildfire, including mastication, hand thinning and pruning. Logging large dead Douglas-fir was also reported, and removal of dead material after the Jones Fire. Multiple landowners have used prescribed fire in the past to clear fuels and improve forest health and diversity.

Regeneration is overall adequate, with oak as the dominant tree type, which sprout vigorously on many parcels. The ponderosa and grey pine regeneration is low overall. Manzanita shrubs form monocultures in some areas, and Scotch Broom occupies many parcels.

Rocks and hillslopes tend to reduce availability of soils for forests. Hillslopes can be eroded more easily than flat terrain and hold less soils, and rocks can inhibit germination. Dense ground leaf litter can also inhibit germination and represents nutrients "locked up" that could otherwise be integrated into the soil if burned or decomposed.

Primary tree species

California black oak (*Quercus kelloggii*) has a range extending from western Oregon south to northern Baja California. It grows in foothills and lower mountains at 200 – 8,000 feet. It hybridizes readily with interior live oak (Quercus wislizeni), called "Oracle oak". Rather than existing in black oak stands, it is most common in mixed-conifer and ponderosa pine forests as an associated species. Trees can get up to 80 feet in height, and 4 feet in diameter, though that is becoming less common. Oak are excellent wildlife trees, supporting insect, rodent, bird and small mammal life cycles—and this tree is no exception. The wood is used for making furniture, cabinets, flooring, high-grade lumber, and for fuelwood.

Interior live oak (*Quercus wislizeni*) has both tree and shrub forms. It lives in California south to northern Baja California, and grows from 1,000 – 6,200 feet. They typically occupy dry, shallower soils, in valleys, canyons, and foothills. Interior live oak grow in oak woodlands, chaparral, and oak-mixed conifer habitats. Grey pine and poison-oak are common associates. Primary wood products use is as firewood. Leaves are evergreen. Sprouts readily after fire, browsing, cutting, or other disturbances.

Canyon live oak (*Quercus chrysolepis*) takes a tree or shrub form. It is also known as "golden cup oak" due to its fuzzy yellow acorn cap. These trees are native to Oregon, California, Nevada, Arizona and Mexico, growing at 300 – 9,000 feet on shallow soils, canyon walls, cliffs, and rocky outcrops west of the Sierra Nevada. Young leaves tend to be spiny, which acts as a deterrence for herbivory, but leaves may also have smooth margins. It is used for firewood.

Blue oak (*Quercus douglasii*) is so named due to the blue tinge that leaves may have, which may become deciduous in the drier months. It is endemic to California, occurring in the Coast Range and

the foothills of the Sierra Nevada. Blue oak forms woodlands, and commonly exists with grey pine and interior live oak. Nonnative annual grasses are associated species, displacing the historically native bunchgrasses. They grow at low elevations (below 3,900 feet), and are extremely drought tolerant. Native Americans used the acorns (as with other oak species) to grind and make meal.

Pacific madrone *(Arbutus menziesii*) is a distinctive medium-sized tree, with thin, peeling bark that is orange-red in color when young, and may appear grey-brown when mature. Leaves are dark green, shiny and thick, and may have fine serrations. This tree is often multi-stemmed, as it reproduces mainly by sprouting. In the *Ericaceae* family, it produces small, white, urn-shaped flowers. While insect damage to these trees is minor, fire easily kills these trees down to the root collar, initiating sprouting.

Ponderosa pine (*Pinus ponderosa*) exists in the western United States into southern Canada and Mexico, growing up to 10,000 feet elevation. They are attractive trees, with long trunks with brown-reddish plates developing as they age. The p. ponderosa var. ponderosa variety (in California) is three-needled. These trees are very fire resistant due to their thick bark and self-pruning tendency. Many animals benefit from their seeds, especially mice, chipmunks, squirrels and birds. These trees are susceptible to bark beetles; although many are native, bark beetles can have devastating consequences in stressed trees. Tree stress is much more common in today's fire-suppressed, drought-susceptible, overstocked stands.

Gray pine (*Pinus sabiniana*) are distinctive trees, with their narrow, often leaning trunks with sparse crowns. Like the ponderosa, they self-prune, and are dependent on fire to prepare the seed bed for germination. These trees are scattered, and commonly associated with oak understory, with dry, rocky soils and grasses, but can develop along with ponderosa pine. Gray pine is endemic to California, and grows at 100 – 6,000 feet. Native Americans ate the seeds, which are high in fat and protein.

Douglas-fir (*Pseudotsuga menziesii*) is a wide-ranging tree in its native range occurring from Canada to Mexico, and east to Colorado. P. menziesii is considered the "coastal variety", and P. glauca as the "Rocky Mountain variety". They tolerate a variety of site conditions but thrive along creeks and streams. Their distinctive cones are up to 4 inches in length, with warm-brown to straw coloring, and 3-pointed bracts that are likened to mouse posteriors. The Sierra Nevada is the southern limit of p. menziesii's range, and it grows up to 7,500 feet, with moisture as its limiting factor. Bigcone Douglas-fir (p. macrocarpa) has cones up to 6 inches in length, and occurs in southern California. Douglas-fir has high lumber value.

Incense-cedar (*Calocedrus decurrens*) is not a true cedar from the Pinaceae family but is in the cypress (Cupressaceae) family. They are shade-tolerant, slow-growing trees that develop large, irregular crowns that may almost reach the ground. Mature trees may have upright branches (candelabra shape), with fluted base. These trees are more susceptible to fire and have proliferated in forests with fire's absence. They occur at 2,000-6,000 feet often in mixed-conifer or hardwood-mixed conifer stands in the Sierra Nevada. Their range is from northern Oregon to Baja California. These trees are used to make wooden pencils.

For a detailed discussion of individual forest stands please see the Vegetation Unit Descriptions section of this plan.

Access and Security

The properties have been surveyed in the past when the land was divided for sale, and for more recent sales and to resolve land boundary disputes. Some parcels have clear marked boundaries, including fence lines or rebar, whereas other properties do not have clear, marked boundaries (or only a couple of corners are identified).

Aside from development of trails for personal use within the bounds of a single parcel, there are no major trails that run through multiple properties. However, access to the South Yuba River State Park Independence Trail is granted through Jones Bar Road in the north of the community, heading towards the Yuba River. The park has been burned and is unmaintained in some areas, so caution is encouraged.

There have been concerns about property trespass amongst the community, and some landowners have high fences and gates for security. Concern has been expressed over encampments (and their potential for illegal fire) on State Park and BLM land adjacent to private parcels. **See the *Access and Security* section under *Future Property Conditions* for tips.**

Recreation & Aesthetics

Many people call their parcels on the JBFWC their permanent residence. Landowners may enjoy their properties as they see fit—gardening, relaxing in a cool shady spot in a hardwood stand, or admiring the view of the beautiful Yuba River canyon, for example.

Many of the properties are visually attractive, and it is clear that landowners in the Jones Bar Community care for their land. Some properties offer stunning vistas, and others have calming ephemeral creeks, private trails, hillslopes, and a pleasing forest component.

Soils

A soil "series" are a classification level developed by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and consist of groupings based on similar soil characteristics (soil chemistry, physical properties, formation). Erosion hazard potential and productivity values were provided (as available) by the Tahoe National Forest Soil Survey (USFS, 2002) and the Nevada County Soil Survey (1975). ***Table 1 details the proportion of these soils on the property.*** The following soils occur on the JBFWC:

Aiken series support ponderosa pine, Douglas-fir, incense-cedar, white fir, black oak, and madrone. These soils exist on broad ridges and sideslopes of 2 to 70 percent. Aiken is very deep, well drained soils formed from weathered volcanic rock. Elevations are from 1,200 to 5,000 feet. Runoff is slow to rapid, with moderately slow permeability.

Alluvial soils are fertile, formed by deposition from water flow. These soils are highly permeable, and consist of silt, sand, clay, gravel and organic matter.

Boomer series support ponderosa pine, Douglas-fir, California black oak, incense-cedar, sugar pine, manzanita (*Arctostaphylos spp.*), toyon (*Heteromeles arbutifolia*), poison-oak (*Toxicodendron diversilobum*, buckbrush (*Ceanothus cuneatus*) and grasses (*Poaceae*). These soils exist on foothills and mountains (and at their transitions), with slopes of 2 to 75 percent. Boomer is well drained soil, with slow to very rapid runoff, and permeability is moderately slow. Elevations are from 500 to 5,000 feet. Soils formed from material weathered from metavolcanic and igneous rocks. *Erosion hazard potential is moderate to high*. Projected bole volume growth is greater than 225 ft^3/acre/year for ponderosa pine, and 165 to 225/acre/year for Douglas-fir.

Chaix series support ponderosa pine, sugar pine, incense-cedar, black oak, bear clover and manzanita. These soils are on mountains with slopes of 5 to 75 percent. Chaix is moderately deep, excessively drained soil that formed from igneous rock (mainly granite or granodiorite). Elevations are from 1,200 to 6,500 feet. Runoff is slow to rapid, with moderately rapid permeability. *Erosion hazard potential is slight to moderate.* Projected bole volume growth is 82 ft^3/acre/year.

Dubakella series support open conifer stands, with buckbrush, grasses and forbs. These soils exist on mountains, with slopes of 5 to 75 percent. Soils formed from serpentine or serpentinitic bedrock, and are at elevations of 2,200 – 4,100 feet. Has a tendency to be stoney, with rock outcrops. Dubakella soils are well drained, with medium to very high runoff, and slow permeability. *Erosion hazard potential is moderate to high*. Projected bole volume growth is 50 to 85 ft^3/acre/year for ponderosa pine.

Hoda series support ponderosa pine, Douglas-fir, black or canyon live oak, manzanita, madrone, ceanothus, bear clover, and annual grasses and forbs. These soils exist on mountains with slopes of 2 to 75 percent, at 2,000 to 4,000 feet. Hoda is well drained soil, with slow to rapid runoff, and moderately slow permeability. They developed from material weathered from acid igneous rocks and granodiorite. *Erosion hazard potential is moderate to high*. Projected bole volume growth is greater than 225 ft^3/acre/year for ponderosa pine and 165 to 225 ft^3/acre/year for white fir.

Josephine series support Douglas-fir, ponderosa pine, madrone, California black oak, incense-cedar and sugar pine. This is an extensive series, ranging up to the Kamath mountains of southern Oregon to northern California, Sierra Nevada Range. These soils exist on mountains, with slopes of 2 to 75 percent. Elevations are up to 5,500 feet in California. They formed from altered sedimentary and extrusive igneous rocks. Josephine is well drained soil, with moderately slow permeability. *Erosion hazard potential is moderate to very high.*

Loam is a fertile soil, containing sand, silt, and clay.

Mariposa series support Douglas-fir, white fir, ponderosa pine, sugar pine, California black oak, whiteleaf manzanita and poison-oak. Suitable for some grazing. These soils exist on mountains, with slopes of 2 to 75 percent. They formed from weathered metasedimentary rocks. Elevation ranges include 1,550 – 4,700 feet. Mariposa soils are well-drained with moderately high permeability. *Erosion hazard potential is moderate to very high.* Projected bole volume growth is 120 to 165 ft^3/acre/year for ponderosa pine and 85 to 120 ft^3/acre/year for Douglas-fir.

Maymen series support open chaparral with chamise, manzanita, ceanothus, and small oaks and other scattered small trees. These soils exist on mountains, with slopes of 5 to 100 percent. Soils are shallow, and formed from shale, schist, greenstone, sandstone and conglomerate. Elevations are

from 400 to 4,250 feet. Maymen soils are excessively drained with high to very high runoff, and moderate to moderately rapid permeability. *Erosion hazard potential is moderate to high.*

Placer diggings are areas along natural drainage ways that have been placer mined or areas along those drainageways where natural deposits and sorting of gravelly, cobbly, or stony materials has taken place.

Secca series support manzanita, sparse grey pine, some ponderosa pine, ceanothus, blue oak, grasses and forbs. Has limited grazing opportunity. There soils exist on gentle to steep mountainous terrain between 1,700 and 3,000 feet. Soils are moderately well-drained, with slow to rapid runoff. Permeability is slow. *Erosion hazard potential is slight to high.*

Sites series support coniferous forest and associated hardwoods (e.g. ponderosa pine, Douglas-fir, California black oak). These soils exist on mountains, with slopes of 2 to 75 percent at elevations of 1,650 – 3,900 feet. Soils formed from metabasic and metasedimentary rocks. Soils are well-drained, with low to moderately low permeability. *Erosion hazard potential is moderate to high*. Projected bole volume growth is greater than 225 ft^3 /acre/year for Douglas-fir, 165 to 225 ft^3/acre/year for ponderosa pine.

Removal of forest products incorrectly, road building in unsuitable areas, and poorly located skid trails can dramatically increase water erosion. It is highly advisable that an RPF or Civil Engineer be consulted before any future road building is undertaken on properties.

Table 1. Soil types on the JBFWC properties, according to the Natural Resources Conservation service (NRCS). This includes the Woolman Campus and the BLM Segments off of Owl Creek Road and Jones Bar Road.

Soil Type	NRCS Soil Symbol	Acres	Percentage of Land
Aiken cobbly loam, 2-30 percent slopes	AgD	4.9	0.2
Alluvial land, loamy	Am	15.5	0.5
Alluvial land, clayey	Ao	20.8	0.7
Boomer, hard bedrock-rock outcrop complex, 5-30 percent slopes	BrD	269.8	9.0
Boomer, hard bedrock- rock outcrop complex, 15-60 percent slopes	BrE	187.7	6.5
Chaix very stony loam, thick solum variant, 5-15 percent slopes	ClC	146.8	5.0
Chaix very stony loam, thick solum variant, 30-50 percent slopes	ClD	283.3	9.6
Chaix very stony loam, thick solum variant, 30-50 percent slopes	ClE	90.1	3.3
Hoda sandy loam, 15-50 percent slopes	HnE	13.3	0.7

Josephine loam, 9-15 percent slopes	JoC	15.1	0.5
Josephine loam, 15-30 percent slopes	JoD	30.0	1.0
Josephine loam, 30-50 percent slopes	JoE	27.5	0.9
Josephine-Mariposa complex, 15-50 percent slopes, eroded	JrE2	306.8	10.3
Mariposa-Josephine complex, 50-75 percent slopes, eroded	JrF2	37.6	1.3
Maymen-Mariposa complex, 2-50 percent slopes, eroded	MmE2	9.0	0.1
Placer diggings	Pr	42.3	1.4
Rock outcrop-Dubakella complex, 5-50 percent slopes	RrE	193.7	6.3
Secca-Rock outcrop complex, 2-50 percent slopes	ScE	1021.8	25.3
Sites silt loam, 2-9 percent slopes, N low montane	SlB	6.6	0.2
Sites silt loam, 9-15 percent slopes, N low montane	SlC	28.1	1.0
Sites silt loam, 15-30 percent slopes, N low montane	SlD	120.1	4.1
Sites very stony loam, 2-15 percent slopes	SmC	96.8	2.6
Sites very stony loam, 15-50 percent slopes	SmE	26288	9.1
Water	W	7.2	0.2
Total:		**3019.7**	**100%**

Streams, Wetlands and Ponds

The “Illinois Ravine” stream is a Class I watercourse, flowing north out of Woolman outdoor school and draining into the section of Rush Creek that parallels Highway 49. Gold mine tailing mounds are evident along the banks, which are 3-6’ across and 18” to the stream bottom. Rocks and gravel line the bed, up to 1’ in width. It flows 2188 linear feet over a gradient over 10%.

Owl Creek is a Class II watercourse, with channel widths to 3’, and depth up to 1’. In winter storm events, the water depth has reached at least 5’. It originates near the intersection of Newtown Road and Woolman lane and courses northwest, pooling into a large pond on a parcel and flows out to Starvation Bar, draining into the South Yuba River. The gradient is slight, at less than 5%, although it becomes much steeper (>30%) as it exists the JBFWC towards the river. Himalayan blackberry is abundant along Owl Creek, and trees provide shade in many sections. A second Class II watercourse flows from the north of Yuba Crest Drive along Jones Bar Road within the Jones Bar Ravine, and out to the South Yuba River.

Several Class III ephemeral drainages flow to the South Yuba River, and to Rush Creek off of the Woolman Property (east of Jones Bar Road). Some of these drainages originate from Owl Creek, and others occur directly from rainwater. These drainages vary in their gradients, but go up to 15%, with shallow channels.
The Newtown and Lester Canals are Class IV watercourses, with the Newtown Canal running east to west along Newtown road, and Lester Canal running north off of the Newtown Canal.

Some landowners have ponds on their property, supporting a variety of wildlife and providing aesthetic value. Wetlands have not been delineated as defined by the Army Corps of Engineers.

Wildlife

Fish and Aquatic Species

Though not reported observations, aquatic-dwelling or riparian organisms that are special status species have *potential* to occur here. They include the western pond turtle (*Emys marmorata*), foothill yellow-legged frog (*Rana boylii*) and brownish-beaked rush (*Rhynchospora capitellata*)***. See Tables 2 and 3 for more details on these species.***

Owl Creek is perennial and drains into the South Yuba River at Starvation Bar, northwest of the JBFWC. In springtime, California newt (*Taricha torosa*) and bullfrogs (*Lithobates spp.*) have been observed. This creek has not been reported as a fish-supporting creek, but it may be appropriate fish habitat when water levels are high enough.

Riparian vegetation including alder (*Alnus sp.*) and willow (*Salix spp.*) exist along owl creek, intermixed with Himalayan blackberry.

Nevada Irrigation District (NID) ditches run through a few of the southern parcels, which are known to occasionally have fish in them.

Upland Wildlife

A wide variety of animals are known to be present in the area, including numerous bird species, mice (*Peromyscus spp.*), black bear (*Ursus americanus*), black-tailed Jackrabbit (*Lepus californica*), mule deer (*Odocoileus hemionus californicus*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and rattlesnakes (*Crotalus spp.*).

Multiple habitat types exist here, despite fragmentation from development. In this rural landscape, many of the landowners have vegetated land with brush and understory cover for wildlife.

Dusky-footed woodrat (*Neotoma fuscipes*) dens have been spotted on multiple parcels. Some standing dead ponderosa pine and Douglas-fir trees have been observed on properties, serving as snag habitat for insects and woodpeckers. Oak is the dominant tree type on these parcels, and their acorns are consumed by many species. Insects and wasps in particular use oak for reproduction. Riparian areas along Owl Creek provide water to support greater plant diversity and aquatic organisms, as do ponds developed on properties.

Threatened or Endangered Species

The California Department of Fish and Wildlife Natural Diversity Data Base (CNDDB) is a source for identifying special status flora and fauna in the state. Spatially, the extent of the search using the RareFind tool within CNDDB constituted four quads (French Corral, Nevada City, Rough and Ready, and Grass Valley), which meets the requirements of identifying special status species three miles from the site. *Table 2 details the species that may exist on the property, and Table 3 explains the California Rare Plant Rank system.*

A special-status species known to be present on the JBFWC is Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae*), which has been identified on a private parcel close to Jones Bar Rd. This California endemic is listed as 4.2 by the California Native Plant Society, meaning that it has limited distribution in California. *It is not listed Federally or with the State of California, however*. This plant is often found near roads, in chaparral, woodlands, and lower montane coniferous forest. Foothill yellow-legged frog has been identified on State Park land to the north of the JBFCW.

The RPF presiding over ground-disturbing activities should be notified to consult with Cal Fire and the Department of Fish and Wildlife so that a suitable buffer can be established if needed. This applies to other species listed below in *Table 2*, if spotted.

C. biloba ssp.brandegeeae. Calflora, 2020

Table 2. Status of plants and wildlife that could occur on the JBFWC properties

Wildlife Type	Scientific Name	Common Name	Federal Status	State Status	CDFW Status	CA Rare Plant Rank
Animals - Amphibians	*Rana boylii pop. 3*	foothill yellow-legged frog - north Sierra DPS	None	Threatened	-	-
Animals - Birds	*Aquila chrysaetos*	golden eagle	None	None	FP ; WL	-
Animals - Birds	*Strix nebulosa*	great gray owl	None	Endangered	-	-
Animals - Birds	*Strix occidentalis occidentalis*	California Spotted Owl	None	None	SSC	-

Animals - Birds	*Haliaeetus leucocephalus*	bald eagle	Delisted	Endangered	FP	-
Animals - Birds	*Laterallus jamaicensis coturniculus*	California black rail	None	Threatened	FP	-
Animals - Birds	*Ardea herodias*	great blue heron	None	None	-	-
Animals - Insects	*Bombus occidentalis*	western bumble bee	None	None	-	-
Animals - Insects	*Desmocerus californicus dimorphus*	valley elderberry longhorn beetle	Threatened	None	-	-
Animals - Mollusks	*Margaritifera falcata*	western pearlshell	None	None	-	-
Animals - Reptiles	*Emys marmorata*	western pond turtle	None	None	SSC	-
Animals - Reptiles	*Phrynosoma blainvillii*	coast horned lizard	None	None	SSC	-
Plants - Bryophytes	*Mielichhoferia elongata*	elongate copper moss	None	None	-	4.3
Plants - Vascular	*Allium sanbornii var. sanbornii*	Sanborn's onion	None	None	-	4.2
Plants - Vascular	*Carex xerophila*	chaparral sedge	None	None	-	1B.2
Plants - Vascular	*Rhynchospora capitellata*	brownish beaked-rush	None	None	-	2B.2
Plants - Vascular	*Fritillaria eastwoodiae*	Butte County fritillary	None	None	-	3.2
Plants - Vascular	*Lilium humboldtii ssp. humboldtii*	Humboldt lily	None	None	-	4.2
Plants - Vascular	*Lewisia cantelovii*	Cantelow's lewisia	None	None	-	1B.2
Plants - Vascular	*Clarkia biloba ssp. brandegeeae*	Brandegee's clarkia	None	None	-	4.2
Plants - Vascular	*Cypripedium fasciculatum*	clustered lady's-slipper	None	None	-	4.2
Plants - Vascular	*Brodiaea sierrae*	Sierra foothills brodiaea	None	None	-	4.3
Plants - Vascular	*Viburnum ellipticum*	oval-leaved viburnum	None	None	-	2B.3
Plants - Vascular	*Lathyrus sulphureus var. argillaceus*	dubious pea	None	None	-	3
Plants - Vascular	*Clarkia mildrediae ssp.*	golden-anthered	None	None	-	4.2

	lutescens	clarkia				
Plants - Vascular	*Eriogonum tripodum*	tripod buckwheat	None	None	-	4.2
Plants - Vascular	*Calystegia stebbinsii*	Stebbins ' morning-glory	Endangered	Endangered	-	1B.1
Plants - Vascular	*Azolla microphylla*	Mexican mosquito fern	None	None	-	4.2

CDFW= California Department of Fish and Wildlife Status; this status applies to animals only. For CDFW species that do not have a designated status, they are pending status evaluations. If assigned a status, there are the following descriptors: FP (fully protected, for rare species that face possible extinction), SSC (Species of Special Concern: for vertebrates with declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction), and WL (Watch List: Previously designated SSC, but no longer merit that status, need for clarification of status). CA Rare Plant Rank: this status applies to plants only. This was originally developed by the California Native Plant Society (CNPS) to categorize and define rarity in CA flora.

Table 3. California Rare Plant Ranking descriptions

CA Rare Plant Rank	**Description**
1A	Plants presumed extinct in California and rare/extinct elsewhere
1B.1	Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California
1B.2	Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California
1B.3	Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California
2A	Plants presumed extirpated in California, but more common elsewhere
2B.1	Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California
2B.2	Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California
2B.3	Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California
3.1	Plants about which we need more information; seriously threatened in California
3.2	Plants about which we need more information; fairly threatened in California
3.3	Plants about which we need more information; not very threatened in California
4.1	Plants of limited distribution; seriously threatened in California
4.2	Plants of limited distribution; fairly threatened in California
4.3	Plants of limited distribution; not very threatened in California

Invasive Species and Pests

Several noxious weeds have been observed on the parcels within the JBFWC.

Himalayan blackberry (*Rubus armeniacus*) is native to Armenia and Northern Iran and is a sprawling shrub with thorns that outcompetes native vegetation due to the thickets they form. Blackberry occurs on edges and open areas on the property, and along the riparian zones.

Scotch broom (*Cytisus scoparius*) is from northern Africa and parts of Europe, introduced as an ornamental and erosion control. It grows in sunny sites, and spreads rapidly on roadsides and borders of forests. It has a seedbank that can remain dormant for up to 80 years. It also is quite flammable, increasing wildfire risk. Scotch broom exists throughout the forests, particularly in gaps and forest edges.

Yellow starthistle (*Centaurea solstitialis*) is native to Eurasia, occurring on open hills, grasslands, roadsides and fields, and is a major rangeland weed.

Tree-of-heaven (*Ailanthus altissima*) is a tree native to China and Taiwan, brought over for landscaping. It is a distinctive tree, with compound leaves and up to 40 leaflets per leaf, reaching heights up to 80'. Anecdotally, when the twigs are crushed, they may have a peanut butter-like odor. They can take over large areas when established.

Current eradication measures vary depending on the landowner. Efforts towards Scotch broom removal are most commonly reported, with pulling and cutting the preferred methods.

Air Resources

Landowners have treated unwanted vegetation over the years through composting, green waste pickup, hand cutting, chipping, and masticating-- either by hired staff, assistance from volunteers, or hired contractors. Burning of piles has been reported more often than use of prescribed fire, but both have occurred on properties in the community.

See the Future Property Conditions: Air Resources Section for more information.

Objectives

There are 297 parcels within the JBFWC, with many landowners, which collectively have varying goals for their properties; however, after discussion with at least fifty landowners during site visits and public shareouts, themes have been distilled to the following goals:

1. *Improving defensible space from wildfire is the most reported objective from the landowners.*
2. *Promote healthy, productive forests while improving wildlife habitat.*
3. *Protection of high-value trees on their property from becoming diseased or dying. There are individual trees or small groups of trees that they would like to retain for years to come*.

Creating defensible space according to CAL FIRE guidelines has been ongoing for many landowners, and several have had consultations with the NRCS and CAL FIRE for evaluative purposes. Specifically, clearing more vegetation along roads, or routes of ingress and egress for the community has been mentioned as a goal, to give personnel and residents space and time for swift travel in the event of a wildfire.

Landowners have referred to the presence of invasive species (notably Scotch broom, yellow starthistle, tree-of-heaven, and Himalayan blackberry) on their properties, recognizing that these species degrade the quality and health of their land, and so removal of these plants is a priority for them. Many JBFWC landowners understand that forest health, wildfire risk and wildlife habitat are interrelated, and have expressed concern about proposed fuels reduction work impacting native wildlife. Attracting more birds specifically was a mentioned objective on a site visit. Taking preventative measures can save money in the long-term from cleanup of mass mortality events and catastrophic wildfire. Some individuals have mentioned that they would like to use prescribed fire as a tool on their land as well.

Other individuals have expressed concern about trespass on their properties and wish to increase the sense of safety for their families and infrastructure. Not a forest management objective, per se, but unmaintained and seemingly unoccupied land may interest squatters.

A few landowners in the JBFWC have farms and/or livestock, varying in forested proportion from a few scattered trees to having dense edges surrounding crops and barns. Management objectives relative to these resources have not been expressed.

Family legacy and income from wood products were not discussed as objectives from private landowners, although it is understandable that maintenance of an aesthetically pleasing, healthy forest resilient to wildfire would please future generations and bode well for sales.

Constraints and Proposed Alternatives

The project as proposed in this Plan will produce the most desired outcome to meet the JBFWC objectives (above), maintaining high-quality timber stands, decreasing wildland fire potential, and improving the health of forestland for the watersheds and wildlife.

The following is an explanation of options that the landowner has (in no order of importance) regarding forest management:

1. The landowner may continue with the management practices recommended in this Forest Management Plan, which align with their objectives.
2. Some land use alternatives to current use and landowner objectives include expanding farming acreage, adding more trails for recreation and managing the remaining timber resources for potential harvesting.
3. Opting to not pursue this project is an option for the landowner, but there are risks involved. Wildfire will occur in the future on the forestland of the project area, and with the same or increased contiguous, dense fuel loading, fire has the potential to carry quickly and at high severity. Non-native invasive species will continue to reduce biodiversity on the land, inhibiting growth of native trees, shrubs and understory species, ultimately reducing habitat and carbon sequestration potential. Hands-on educational opportunities within our community on the benefits of prescribed fire and other fuels treatments and stewardship learning with children would be missed.
4. The timing of the proposed project in this Plan can be delayed, but with potential risk (see above paragraph), particularly in regard to wildfire outbreak potential.
5. Another option is for the landowner to sell the property; however, this is not feasible as the landowners are not willing sellers at this time.

Economic Sustainability

Some of the properties generate income from educational events and small farms. Should the landowners request a cost benefit analysis for the property, the confidential analysis will include timber management and carbon sequestration as income streams.

Smaller-scale planning such as with periodic Timber Harvest Plan driven harvests can also provide increased economic benefit over individualized project planning. This Forest Management Plan also provides for an assessment of resources and presentation of management opportunities.

Timber Yield Tax is required when landowners harvest their trees, or timber. It is based on values of local market transactions. For more information, consult the California Department of Tax and Fee Administration at https://www.cdtfa.ca.gov/taxes-and-fees/timber-tax.htm.

After a wildfire, a portion of the forest stand loss on your property can be claimed on your federal income tax statement. Seeking tax advice from an agent is encouraged.

Roads

For the reduction of soil erosion on roads, ensure that the roads are well constructed, and on ridgetops rather than slopes where possible. Ensuring that drainage structures have been properly sized and installed is important to prevent water erosion from the wet season. Checking culverts annually and clearing debris as needed before the rains is a good preventive measure. Properly constructed water bars are effective at limiting erosion. Rocking the road with 1 ½" gravel is an improvement to limit erosion and dust.

Noxious weeds often develop in disturbed areas, such as roadsides. On and off-road vehicles (OHVs) can transport the seeds from roads to other areas. Targeting weeds on and along roadsides is a relatively manageable process opposed to trekking through the backcountry and is encouraged to limit spread as soon as they are identified. Washing of vehicle tires and undercarriages, particularly with OHVs and land-altering machinery prior to any construction or fuel treatment activities is a best management practice.

It is highly advisable that a Forest or Civil Engineer be consulted before any future road building is undertaken on the properties.

Trail construction and maintenance should follow the same guidelines as for roads, except that high use trails will be built with a maximum slope of 6%. Mulching of trails with fir needles, forest litter, or some other suitable material will help reduce erosion.

Rolling dips or water bars should be maintained on all traveled roads within properties. They should also be installed on older roads and trails, which have evidence of erosion occurring. Water breaks should not exceed the following standards (based on a moderate Erosion Hazard Rating):

- <11% Gradient – 200'
- 11-25% Gradient – 150'
- 26-50% Gradient – 100'
- >50% Gradient – 75'

Water breaks should be located to allow water to be discharged into some form of vegetative cover, rocks or other non-erodible material and should be constructed to provide for unrestricted discharge at the lowest end of the water break so that water will be discharged and spread in such a manner that erosion will be minimized.

Water breaks should be cut diagonally a minimum of six inches into the firm roadbed or skid trail and should have a continuous firm embankment of at least six inches in height at the lower edge of the water break cut.

Avoid using roads during wet periods if such use would likely damage the road drainage features. Consider gates, barricades, or signs to limit use of roads during the winter period (Nov. 15th - April 15th) or other wet periods.

Culvert & Ditches

Culverts and ditches must be kept free of debris and obstructions. Ditches on newly constructed and/or graded roads may require frequent cleaning and checking after each major storm until re-vegetation has occurred. While clearing ditches, follow these guidelines:

• Leave grass in the ditch unless it has filled with sediment and is no longer functioning.

• Avoid undercutting the road shoulders and banks.

• Check culverts for blockage by debris.

• Do not leave a berm on the side of the road; berms will channel water down the road.

Existing Road Practices

Identify and prioritize mitigation measures for existing roads that cause resource or watershed impacts. Mitigation measures may include any of the following:

a) Relocating road segments that adversely impact soil or water resources.

b) Reconstructing road segments to modify, improve, or restore road drainage.

c) Improving roads with deferred maintenance needs to current standards.

d) Improving stream crossings to accommodate bedload and debris and provide for aquatic habitat and passage.

e) Hardening road surfaces (that is, running surface or inside ditches) to prevent the generation of fine-grained surface material and/or armor portions of the road prism subject to concentrated runoff.

f) Putting roads in storage, while maintaining hydrologic and geomorphic functionality of drainage features.

g) Closing roads seasonally to protect water resources.

h) Restoring surface and subsurface hydrologic properties by removing roads from sensitive environments including riparian areas and meadows. May include relocation or decommissioning.

i) Permanently closing roads that cause significant adverse impacts to soil or water resources.

j) Decommissioning or converting unnecessary roads to other uses, such as trails. Assess risk of impact to water quality by decommissioning, placing road in storage, or converting to other use, and various treatments for each option.

k) The road system should be inspected prior to the summer season; problem areas should be identified and corrected.

l) Maintain road surfaces to dissipate intercepted water in a uniform manner along the road by out-sloping with rolling dips, in-sloping with drains, or crowning with drains. Where feasible and consistent with protecting public safety, utilize out-sloping and rolling the grade (rolling

dips) as the primary drainage technique.

m) Adjust surface drainage structures to minimize hydrologic connectivity by:

a. Discharging road runoff to areas of high infiltration and high surface roughness.

b. Armoring drainage facility outlet as energy dissipater and to prevent gully initiation.

n) Clean ditches and drainage structure inlets only as often as needed to keep them functioning. Prevent unnecessary or excessive vegetation disturbance and removal on features such as swales, ditches, shoulders, and cut and fill slopes.

o) Minimize diversion potential by installing diversion prevention dips that can accommodate overtopping runoff.

a. Place diversion prevention dips downslope of crossing, rather than directly over the crossing fill, and in a location that minimizes fill loss in the event of overtopping.

b. Armor diversion prevention dips when the expected volume of fill loss is significant.

p) Maintain road surface drainage by removing berms, unless specifically designated otherwise.

q) Install and preserve markers to identify and protect drainage structures that can be damaged during maintenance activities (that is, culverts, subdrains, and so forth).

r) When grading roads or cleaning drainage structure inlets and ditches, avoid undercutting the toe of the cut slope.

s) Grade road surfaces in accordance with road management objectives and assigned maintenance level. Grade only as needed to maintain a stable running surface and adequate surface drainage.

t) Accompany grading of hydrologically connected road surfaces and inside ditches with erosion and sediment control installation.

u) Enforce pre-haul maintenance, maintenance during haul, and post haul maintenance (putting the road back in storage). Require the commercial operator to leave roads in a satisfactory
condition when project is completed.

v) Restrict or prohibit road use during periods when such use would likely damage the roadway surface or road drainage features.

Fire Protection

Wildfire in our area is typically human-caused. Developing defensible space around our homes and applying appropriate forest management practices can limit or shape the impact that wildfire has.

Understory thinning and burning

There are also forested areas where the crowns of the overstory trees are touching and/or intermingled. If understory ladder fuels were to carry fire into the canopies of these trees, under the right circumstances a crown fire would result. Such fires are difficult to control and could move rapidly through dense canopies, pushed by the winds that are common during the summer. Most crown fires require surface fires to maintain the heat necessary to advance. If understory vegetation is adequately thinned or burned with a controlled, low-intensity flame, the likelihood of a crown fire developing or advancing will be reduced.

Management practices:

- All dead and dying vegetation should also be removed from the thinning zones.
- Undesirable plant species should be removed from the thinning zones due to their susceptibility to wildland fire.
- All burning shall be in compliance with CAL FIRE and the Northern Sierra Air Management District laws and regulations. ***See the Air Resources section for more information.***

Fuel modification along roads and trails

In addition to providing travel routes, roads and trails can act as firebreaks for certain types of fire providing control points for fire suppression. But roads and trails are also a common location for fire ignitions. Fuel modification along roads and trails can reduce the availability of fuels for such ignitions as well as slow the rate of spread and reduce fire intensity once fuels are ignited. This increases the time before fires build up enough energy to become difficult to control and increases the effective response time for fire control resources. Working with neighbors to accomplish vegetation management along roads can be an excellent way to pool resources and efficiently complete the work.

Management practices:

- Remove and treat limbs, residual slash, windfalls, live roadside brush, and small trees within, or obtruding into, the designated brushing limits (minimum 10 feet along the shoulder on both sides of the road).

Pile Burning Requirements

- Only dry, natural vegetative material such as leaves, pine needles and tree trimmings may be burned.
- The burning of trash, painted wood or other debris is not allowed.
- Do NOT burn on windy days.
- Piles must be no larger than four (4) feet in diameter and in height. Vegetative slash be can added to the pile as it burns down. Small piles burn with less danger of scorching the crowns of the residual leave trees.

- Clear a 10-foot diameter down to bare soil around all piles.
- Have a shovel and a water source nearby.
- An adult is required to be in attendance of the fire(s) at all times.
- Cover piles with waterproof tarp /paper prior to winter
- Take all preventative measures to reduce/eliminate scorching of nearby green trees.
- Burn permits - Prior to burning the Landowner shall acquire all necessary burn permits. The Northern Sierra Air Quality Management District may also have permitting requirements, such as a smoke management plan prior to burning.

Forest Resource

The transition of forests over time is known as succession, and the species that regenerate after the fire or some other major disturbance event are known as "pioneer" species. The shrubs, grasses, forbs and stump sprouts are present as part of this natural succession process, as the stand begins the reinitiation phase.

Many landowners are concerned with the high density of their trees and are prioritizing tree *removal* rather than planting; however, circumstances may arise where planting is desirable. Waiting to see what comes up after invasive species removal or a disturbance such as fire is encouraged, but if you are not seeing much natural regeneration, then source seeds or seedlings with care. ***See the Climate Considerations and Carbon Sequestration section below for more information.***

Monitoring and addressing resource needs after planting is very important to ensure success. Thinning competing vegetation and irrigation are common practices that address the needs of plantings. On a large planting site both of these practices may not be feasible or cost effective, but pulling, cutting, or spraying encroaching vegetation with a targeted herbicide is encouraged. Herbicide use should be followed according to label instructions. Tree tubing or wire cages can be placed around the seedlings for protection from browsing.

Regenerating Rangeland Oaks in California is a great resource on oak planting from UCANR (2016): https://anrcatalog.ucanr.edu/pdf/21601e.pdf

Forest management in the form of thinning ladder fuels and reducing overall forest density will improve forest health and resilience to stressors. Currently, the stands are generally overstocked with small-diameter biomass; with maintenance, this ensures protection of the forest component, and therefore, habitat and biodiversity protection. Climate refugia sites developed on the project area will serve as habitat in predicted drought conditions and will retain microclimatic factors needed to sustain existing flora and fauna. ***See the Planned Management Activities section below for more information.***

Access and Security

The best way to prevent timber theft, vandalism, and trespass is to protect your property with the following simple steps: Mark forest boundaries. Most property boundaries in forests are obscure, giving timber thieves a good excuse for removing trees through unauthorized logging. Your forest boundaries should be clearly marked with a combination of ownership signs, paint marks, posted signs, flagging, and fencing, where appropriate. Posted signs should be placed conspicuously, without creating a visual nuisance.

Posting property marks a boundary and provides an added measure of protection through state law providing a landowner's right to prohibit trespassing for any purpose. Any signs you post must be properly placed and maintained. Signs must be at least 11 inches square, include the owner's name and address, and be placed not more than 660 feet apart.

At least one sign must be set on each side of the protected area and on each side of each corner. Ideally, extra signs are placed so that one is visible wherever the boundary is crossed. Landowners must replace illegible signs within a year. If forest property boundaries are made clear, the crime of timber theft is both more pronounced and easier to prosecute.

1. Know who the adjacent property owners are. Invite neighboring property owners to double check and agree to property line. If any areas are in question, hire a professional survey crew to set the property line. Mark the line with flagging or paint only after agreed upon or professional survey. Too often, adjacent property owners play boundary tag, removing, and posting boundary limits when the other is not around. This may actually encourage timber theft activities. Discuss boundary markers, your views toward hunters, and any plans either of you may have for cutting firewood and/or cutting timber. Trees on the property line belong to both landowners, whether or not the line is marked as a boundary. Accordingly, removal of a tree on or near a boundary line could be construed as theft. If differences with adjoining landowners cannot be resolved, agree to a “buffer” zone in which neither landowner will harvest without further discussion and/or establish a tree-by-tree agreement.

2. Patrol your property. Forest owners should make a habit of actively patrolling the boundaries of their forestland. If there is logging activity in the vicinity, the patrols should be increased.

3. Keep in touch with neighbors about activities on their properties. Let each other know when you may plan to have any outsiders working on your property.

4. Mow and trim the grass and brush along the roadways on your property, to demonstrate a presence. Neglected or "abandoned" properties may be more tempting to a timber thief.

5. Install a chain or gate across any roads entering your property. Such a deterrent will help keep honest people honest, and dishonest people out.

Recreation & Aesthetics

These properties on the JBFWC have much to offer in terms of aesthetics and recreation. However, noxious weeds do limit the potential for forest development and flowering understory plants, and can be unsightly. Monitoring and prompt removal will limit spread. Planting with a native grass and forb mix can add vegetative beauty.

Regular trail maintenance should continue on properties, to remove fallen limbs and debris.

Post-fire, standing dead trees, fallen limbs, and scorched bare earth can be unappealing for some. But fire is part of a natural process with our forests, and succession will occur. Removing standing dead trees and planting are measures that can be taken to visually "clean up" the forest and reduce future fuels.

Soils

As most of the organic nutrients of the soil are found in the surface leaf litter and in the top few inches of soil, disturbance to this zone should be kept at a minimum to ensure continued productivity of the soil. It is important to provide for replenishment of the nutrients in this zone, especially following removal of vegetation. This can be done by retaining a mixture of conifers and hardwoods as this enhances leaf litter decomposition and by allowing foliage and limbs of trees and shrubs that are cut to rot into the ground as these portions of the plants contain the majority of the nutrients in the plants.

The most obvious cause of soil degradation and consequent loss of soil productivity is from soil erosion. Soil erosion is a constantly occurring natural event which can be greatly aggravated by human disturbance. In mountainous areas road building, vegetation removal, and fire are the main causes of accelerated erosion. Whenever soil is exposed to rainfall impact and/or water is concentrated on bare soil, erosion will increase. For these reasons, it is best to maintain a continuous vegetative cover or at least minimize disturbance to the ground cover (leaf and twig cover).

In general, roads are known to be the main contributors of sediment to stream systems. Sediment is eroded primarily because of drainage structures which have been improperly sized, installed, constructed, and/or maintained. Drainage structure failures are more often caused by high rainfall from summer thunderstorms which overload or plug them than from winter rainfall. This can be alleviated to a degree by installing culverts of adequate size, installing trash racks on culverts, keeping culvert inlets free of debris, constructing waterbars and rolling dips of a sufficient depth so they will not fill up with sediment or debris, and keeping them cleaned out.

Another source of sediment is from rill or gully erosion from road surfaces. Gully erosion most often occurs because of improper sloping of roads which concentrates water on the road surface or in inboard ditches, inadequate water barring for the road gradient and soil type, inadequate maintenance of water-bars which allows water to broach them, and/or rutting of the road surface (and broaching of water bars) by driving on it when it is wet. Rill erosion occurs for the above reasons plus inadequate vegetation on cut banks and fill slopes.

Most of the above causes of erosion can be minimized through regular maintenance of roads. Drainage structures should be checked periodically during the summer but especially after severe thunderstorms. Before the winter rain period all drainage structures should be inspected, cleaned out, and repaired. Ideally these should be inspected periodically during the winter. It will soon be evident where the problem spots are and corrective measures can then be taken.

Soil disturbance from fuels management activities, including mastication, could result in the introduction and spread of noxious weeds into areas that are currently not infested, as well as the potential spread of existing infestations into new areas. Invasive weeds can increase fire hazards and have adverse effects on native plant communities and the wildlife that depend on them, and on the value of agricultural lands. The most aggressive exotic plants degrade natural areas because they can exclude native species, displace natural communities, promote faunal change, reduce biological diversity, disrupt ecosystem processes, alter fire frequencies, reduce recreational values, threaten endangered species, and fundamentally alter the unique character of California.

The tires or undercarriage of vehicles and equipment working in infested areas can inadvertently pick up and transport noxious weed seed and/or stolons. Erosion control measures such as use of contaminated straw bales and seed can also result in the inadvertent introduction of new invasive plants to the project area, which can in turn spread into adjacent undisturbed woodlands or adjacent agricultural lands or residences.

Forest landowners who wish to practice good stewardship on their lands need to assess the potential negative impact of their management activities on soil and water resources both on and off their property. Soil and water conservation is focused on the prevention of erosion and off-site movement of sediments, nutrients, and pesticides, the maintenance of normal water levels in wetlands, and the reduction of flood flows into estuaries.

It is necessary to monitor soil productivity to detect significant changes caused by management actions. Maintaining soil productivity also requires restoring or improving soils in areas where they have been degraded. Controlling soil erosion, compaction, and maintaining the nutrient balance during timber harvest, reforestation, and vegetative manipulation is vital to long-term soil productivity and protection of down-stream water quality. Practices include maintaining ground cover to reduce soil loss and limiting heavy equipment use on soils during wet weather.

If practices are not performed properly, they have the potential for significant topsoil and nutrient loss. This often results in reduced productivity and increased off-site water pollution. Additionally, the cumulative effects of drainage projects in a region often result in reduced water storage capacity and increased downstream flooding, as well as reduced fish/wildlife habitat and species diversity.

Soils are an important environmental variable in that they reflect many of the processes that shape the natural landscape. They are good indicators of the parent geologic formations beneath them and thus can aid in defining geologic strata. Soils are also the products of topography, hydrology, climate and flora, which allow them to be used as general environmental indicators.

To minimize soil compaction, rutting, and gullying with resultant sediment production and loss of soil productivity, tractor operations should be limited to periods when the soil moisture content is sufficiently low that excessive rutting or other soil damage does not occur.

Mechanical slash treatment involves the use of heavy equipment to clear an area of unwanted vegetation or planting obstructions. This may be as simple as masticating brush and small trees, or as major as completely clearing a site of undesirable trees and brush with a dozer. When mechanical treatment is necessary, consider these guidelines:

- Avoid removing the forest's litter layer as much as possible on slopes. This can be done by hand clearing, mastication, or using a raised dozer blade to move only woody material and avoid soil gouging. Do not expose more than 50% of the soil surface.
- Do not operate under wet soil conditions.
- Stabilize bare soil areas on cleared sites with a temporary cover crop.

Streams, Wetlands and Ponds

Forest management activities have the potential to affect the hydrologic, soil, and aquatic resources by causing soil disturbance, altering vegetative cover, and changing local drainage patterns. The effects of the proposed management activities are most closely related to the harvesting and reforestation techniques used. Ground-based mechanical systems have the highest potential impacts. Applying effective Best Management Practices (BMPs) are recommended in this case to reduce the magnitude of the effects to soil, water, and aquatic resources. In addition, management requirements were developed to avoid sensitive watershed areas or minimize soil/water/aquatic concerns. The primary concern to water quality is the impairment of beneficial uses due to an increase of fine sediment caused by accelerated erosion from the proposed projects. In this case, the risk of direct effects to forest soils, water quality, and aquatic species is expected to be low in the projects proposed because project design minimizes activities that might otherwise have an impact to these resources.

Best *Management Practices (BMPs) to be used:*

Effectiveness of the BMPs in mitigating direct and indirect effects is largely related to proper implementation and the magnitude of climatic events the first several seasons after project completion. There is a risk that heavy precipitation or rain or accumulations of snow could overwhelm erosion control structures and render them ineffective. The increased sediment delivery to channels would occur only during rare events and for short periods of time where overland flow from disturbed areas occurs. BMPs have been selected below using specific information regarding soil, slope, geology, and climate conditions typically found in the project area.

To ensure recognition and protection of areas related to water-quality protection, delineate on a project area map or a project map any of the following: 1. Location of stream courses and riparian zones to be protected, including the width of the protection zone required for each stream. 2. Wetlands (meadows, lakes, springs, and so forth) to be protected. 3. Boundaries of harvest units. 4.

Specified roads. 5. Roads where log hauling is prohibited, or restricted. 6. Structural improvement. 7. Area of different skidding and/or yarding method application. 8. Sources of rock for road work, riprapping, and borrow materials. 9. Water sources that are available for purchasers' use. 10. Other features that are required by contract provisions. 11. Site preparation/fuel treatment. The watercourses throughout the JBFWC are classified as Class I, II III and IV. To protect the quality of water in these creeks care needs to be taken to prevent sediment and debris from entering them. A buffer of undisturbed vegetation, leaf litter, and soil needs to be maintained on either side of the creeks to act as a sediment filter strip and to protect stream banks from erosion.

- Class I buffers should be a minimum of 75 feet wide on slopes up to 30%, 100 feet wide on 30- 50% slopes, and 150 feet wide on slopes greater than 50%.
- Class II buffers should be a minimum of 50 feet wide on slopes up to 30%, 75 feet wide on 30-50% slopes, and 100 feet wide on slopes greater than 50%.
- Class III buffers should be a minimum of 25 feet wide on slopes up to 30%, 50 feet wide on slopes greater than 30%.
- ***Class IV buffers should be determined from on-site inspection by an RPF. Nevada Irrigation District (NID) should be contacted for vegetation management along class IV watercourses.***

Management activities proposed in vicinity of a watercourse will require appropriate buffering and protection measures per the California Forest Practice rules. These are based on the size, seasonality, habitat, and other conditions of the watercourses The buffer zone include Equipment Limitation Zones (ELZ) where heavy machinery may only be operated under very specific provisions, or Watercourse and Lake Protection Zones (WLPZ), where only hand-work may be done.

In general, conservation practices for riparian habitat and wetlands include promoting the growth of native vegetation and refraining from the use of vehicles or other equipment in the area. Even wetland areas or fens can be damaged by foot traffic and should be kept to a minimum. Road crossings should be inspected on a regular basis especially after large storm events (once they dry out); appropriate steps should be taken to repair or maintain their function as costs for repair can quickly escalate and more damage can happen downstream, especially with increase sedimentation from a washed-out road.

Use of heavy equipment for release and follow-up operations shall be restricted as follows:

a) No operations on excessively wet or saturated soil conditions as defined in the California Forest Practice Rules;

b) No equipment shall be used within 50’ of any stream or lake transition line without approval from a responsible agency. Streams and watercourses shall be flagged prior to the start of operations; and

c) No equipment shall cross watercourses except Class III watercourses that are entirely dry at the time of operations without an approved CDF&W Lake & Stream Alteration

agreement.

Hand cutting within 50' of a watercourse shall follow the following guidelines:

a) Watercourse protection measures for shade canopy retention and soil stability shall be followed as described in the Forest Practice Rules;

b) All riparian vegetation found along streams and lakes, and within marshes, wet meadows, and other wet areas shall be retained and protected;

c) Other vegetation shall be left as necessary to maintain stream temperatures;

d) All snags within the stream and lake protection zone and all live trees and snags with visible evidence of use as nesting and roosting by rare, threatened, or endangered bird species shall be left undisturbed; and

e) All areas below the stream and lake transition line of watercourses shall be kept free of slash and debris. Accidental deposits shall be immediately removed, consistent with the requirements found in the Forest Practice Rules.

Wildlife

Managed forests promote biodiversity. Thinning ladder fuels and reducing overall forest density will not only improve forest health and resilience to stressors but develop habitat for wildlife. With maintenance, this ensures protection of the forest component, and therefore, habitat and biodiversity protection. Additional measures that can be taken to improve habitat include:

- *Incorporate brush piles*. Brush piles offer perches for birds and cover for small animals. Brush piles should have the largest materials at the bottom, with the smallest-diameter brush at the top. Piles that are close to water are appealing to wildlife, and in openings where there is otherwise not much forest cover.
- *Retain snags.* "Snags" are trees that are dead or dying. Snags are excellent for wildlife, as they offer cavities for nesting, limbs for perching, and numerous insects. "choice" snags are trees that have cavities, loose bark, limbs, and signs of insect presence (holes, sawdust-like frass, galleries under bark). Different sizes and types of snags are a good idea. Leaving 9-12 snags/acre with a preference for at least 18" diameter trees greater than 20' in height is a good rule of thumb.
- *Put up nest boxes.* Nest boxes encourage nest sites for wildlife where they may otherwise not be present.
- *Exclude livestock from riparian areas*. Using fencing to prevent browsing and trampling of soils and streams can restore vegetation, which provides cover and food for wildlife. Streams with shaded water are cooler and reduce evaporation which benefits aquatic species.

- *Promote habitat connectivity.* Habitat connectivity refers to two or more areas of undeveloped habitat that are connected to each other in an otherwise isolated area. These areas are also referred to as "wildlife corridors". These strips or patches of connectivity can attract wildlife and enable them to travel or dwell with a sense of safety.
- *Add water sources where feasible and protect pools.* Incorporating bird baths or above/in-ground holding ponds are activities that support wildlife needs. Allow water to naturally pool and protect those pools from vehicles and heavy recreational use. This limits erosion, maintains water quality, and serves as a source for drinking, dwelling or breeding- even if they are temporary.
- *Plant grasses, forbs, and trees.* Herbaceous cover benefits many animals, including when the cover is in forest openings. Snakes, raptors, turkey, sparrows and foxes are some of the many animals that use these openings for hunting, feeding, and cover (Brittingham, 2016). Planting native bunchgrass is also a great idea. For example, deergrass (*Muhlenbergia rigens*) is easy to grow, and does well in almost any soil (California Native Plant Society, n.d.). Native trees offer seed sources and cover that animals in the foothills are adapted to, and fruit trees attract numerous animals, including deer and bear (Brittingham, 2016).

Invasive Species and Pests

Tree diseases are common, varied, and often occur concomitantly. Diseases may be caused by biotic pathogens, including fungi. The mistletoe plant is a defoliator of trees (commonly oak), and insects can cause injury and potentially death. Drought, wind, smog, frost, flooding, high temperatures, fire and lightning cause tree damage, and the stress from these events can prompt attack by bark beetles.

Bark beetles

Many bark beetles are native species, fulfilling ecological roles- thinning forests, facilitating decomposition, and serving as a food source for wildlife. However, dense stands coupled with drought can snowball into extensive bark beetle outbreaks. Generally, trees that are more spaced out are not competing as much for water and sunlight and are less stressed. Forest thinning, tree watering, and removing dead trees around your property are preemptive management tools that can limit bark beetle outbreak severity and the range of the beetles. There are hundreds of species of bark beetles found in the conifer forests of the West particular to different tree parts, from cones to tiny branches to the main stems of their hosts (US Forest Service CA Forest Insect and Disease Training Manual, 2015).

Common beetles in forests of the Sierra Nevada include the pine engraver beetle (*Ips pini*), mountain pine beetle (*Dendroctonus ponderosae*, red turpentine beetle (*Dendroctonus valens*), and Douglas-fir beetle (*Dendroctonus pseudotsuae*). If it is suspected that trees are impacted by beetles (pitch tubes, small holes through the bark, or boring dust and/or frass), a Registered Professional Forester (RPF) or the Nevada County Department of Agriculture can be consulted for

further assistance. ***For more information, see the attached factsheet from the US Forest Service in this binder.***

Bark beetle infestation is evident on ponderosa pine trees on the property, but not at a large scale. Unfortunately, not much can be done when infestation is in progress or has occurred, but preventive measures are addressed via the thinning practices recommended in this Plan.

Invasive plants

Monitoring for aggressive noxious weeds is necessary for action to occur as soon as they are spotted. Weed prevention also includes washing equipment and vehicles before entering the property (particularly if returning from areas where weeds were identified) and after use. ***To address invasive plant species identified on the JBFWC, see Table 4.***

There are many methods of weed control, and the following are common:

- *Mechanical control* is generally the physical action of pulling, cutting or burning the plants.
- *Chemical control* is the killing or injury of plants through application of herbicides or other chemicals. Some chemicals are available for public use at garden stores or nurseries, whereas others have restricted uses and should only be applied by a certified applicator.
- *Controlled grazing* (commonly via goats, sheep and cattle)
- *Biological control* (the application of naturally-occurring host-specific insects, mites of pathogens (CAL IPC, 2023)).
- *Competitive planting* (seeding and planting native plants before, during or after invasion)
- *Physical barriers* (tarps, mulch to suppress growth)

For more weed removal options, consult the California Invasive Plant Council's Weed Control User Tool: https://weedcut.ipm.ucanr.edu/#gsc.tab=0

Table 4. Guidelines for treatment of invasive plant species on the properties

Species	Proposed Initial Treatment Options	Follow-up Treatment Options
Yellow star-thistle (*Centaurea solstitialis*)	Aminopyralid, Triclopyr, or Clopyalid, select or directed spray. Goat herbivory is an alternative.	Maintain the chemical treatment options; dig out widely scatted plants after infestation is greatly reduced, before flowering occurs
Scotch broom (*Cytisus scoparius*)	Hand pull in winter or spring and/or cut at the base in the months of May-October. Treat cut stumps with Triclopyr.	Maintain the chemical treatment options or continue pulling plants.

Tree-of-heaven (*Ailanthus altissima*)	Hand pull seedlings. For saplings and small trees, a weed wrench can be used, but it is key that the entire root gets removed. Triclopyr, or Aminopyralid + Tricloypr, may be applied foliarly or to the stem.	Continue hand pulling and chemical treatments as needed.
Himalayan blackberry (*Rubus armeniacus*)	Hand pull in spring or late fall, when soil is moist. May apply Triclopyr or Glyphosate.	Re-treat when new, sprouting leaves are fully expanded.

Air Resources

According to the California Air Resources Board (2022), particulate matter (PM) at 2.5 microns or less can be inhaled into the deepest parts of the lung, as they are very small. Smoke from wildfires are mostly of this sized particle, and can aggravate existing health problems and increase the risk of heart attack or stroke. Carbon monoxide is also produced from wildfires, and in highest concentrations with smoldering material.

Residential landscape debris burning of vegetation is allowed during certain times of the year. Debris burning is limited to dry, woody, natural vegetation that can be burned within the permissible burn day and with limited smoke production.

The Air Quality Management District issues burn permits for the purpose of regulating particulate matter release. All burning must be in compliance with Cal Fire and the Northern Sierra Air Management District (Nevada County) laws and regulations in order to mitigate as many negative impacts on air quality as possible. Consult CAL FIRE for the current burn day status AND the Northern Sierra Air Management District (Nevada County).

- Cal Fire Burn Permits: https://burnpermit.fire.ca.gov/current-burn-status/
- Northern Sierra Air Management District: https://myairdistrict.com/index.php/burning-info/burn-day-status/

Check to see if burn permits are required. The burning must occur on the property where the vegetation grew.

Alternatives to burning biomass include cutting up and scattering the material by hand or using mechanical means to chip or masticate it. This is not actually removing the materials from the site, but rather reconfiguring it. Composting, if on a small scale, is a feasible option. Waste Management of Nevada County has a greenwaste pickup program. They can be contacted at:(530) 274-3090

The Nevada County Fire Safe Council has a chipping and shredding program. You can submit a request at https://clienthub.getjobber.com/client_hubs/0ea7b196-f50e-4e4b-9a3a-f2f6486280f3/public/work_request/new?source=social_media

Climate Considerations and Carbon Sequestration

Thinning to increase carbon storage

Thinning of ladder fuels and smaller trees has been shown to lead to a net carbon gain due to decreased competition for larger trees (which are known to accumulate more carbon per growth year than smaller trees) and reduced likelihood of catastrophic wildfire that fully consumes and volatilizes all carbon back into the atmosphere (Hurteau et al., 2011; Hurteau and North, 2010). Thinning throughout the project area may have a similar effect, particularly if follow-up treatments are done over the years. There is a carbon cost to implementation, however, including emissions from heavy equipment and from burning of any fuels that are not chipped or removed in some other way. There are many carbon calculators on the internet that can help give landowners a sense for carbon impact. This tool is from the US Forest Service, the CarbonPlus Calculator: *http://www.itreetools.org/forestcarboncalculator/*

Reforestation with climate-smart species

Planting trees can add carbon storage potential to the property. Areas where large patches of invasive species are removed can be planted with native species. Sourcing plants grown with seed locally or within one's seed zone has been a standard recommendation, to give the plants adapted to your area a better chance of success. Our seed zone is 525, as depicted in this Seed Zone Map: https://forestrychallenge.org/wp-content/uploads/TREE-SEED-ZONE-MAP.pdf

However, there are additional considerations for the success of your plantings based on projected drought and drier conditions with climate change:

1. Planting using seeds adapted to drier, hotter conditions originating from lower elevation may have greater success in respect to climate change (Young et al. 2020, North et al. 2018), *and*:
2. Having different seed sources for a given species will promote genetic variation, which may benefit your future trees and forest to be more resilient to stressors.

Additional research supports planting not in the traditional rows, or "pines in lines", format when we traditionally think about plantations, but rather, in clumps with openings between them, emulating historic patterns and reducing potential fire severity (Larson and Churchill 2012, North et al. 2018).

In sum, different seed sources from further south or downslope could be a climate-smart choice. Variation is key. As always, forestry professionals are available to discuss these kinds of questions. They can also recommend species to plant that are appropriate for your soils, elevation, topography, and projected climate conditions.

You may be eligible for financial assistance with procuring seedlings and planting labor through the nonprofit One Tree Planted at https://onetreeplanted.org/.

Family Legacy

Conservation easements are voluntary agreements with a nonprofit, land trust or government agency determining what activities can and cannot be performed on a landowner's property for conservation purposes, into perpetuity.

Finding a local land trust organization could be a next step for those wishing to explore this option further to see what the details and requirements are.

Forest Legacy Program

A conservation program called the California Forest Legacy Program helps to protect and manage, for future generations, environmentally important forest areas that are threatened by conversion to non-forest uses. The program may only purchase a conservation easement from a landowner that is willing to sell their development rights for their forested property. Another program is the Federal Forest Legacy Program, which has the same overall objectives but differs based on the source of funding, property requirements, and application timeline.

Livestock

Some landowners do have livestock on their properties. Part of the responsibility of owning animals is to ensure that they do not cause environmental degradation (e.g., contribute significantly to erosion, denude landscapes, and contaminate water bodies). Consult the NRCS Conservation Practice Standards page, where you can look up a specific activity regarding farming and livestock and find best management practices: https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-standard

Forest Stands

Forest stands were delineated using aerial photos, topography, and forest type. Seven stands and six different stand types were identified on the JBFWC. The ponderosa pine stand had few representative landowners allowing access for data collection, therefore it does not have species proportions and associated stocking data. Aspect varies quite a bit for these stands, as the terrain is hilly. ***For detailed soil descriptions, see the preceding soil section and Table 1. See Table 5 and Figure 6 for 2022 stocking information.***

Data was collected in the summer of 2022 using a modified Forest Inventory and Analysis (FIA) protocol developed by the US Forest Service, using variable-radius plots. The Forest Vegetation Simulator (FVS) is a US Forest Service software that calculates stand-level data and can simulate different forest management scenarios. FVS was used to determine tree species ratios per stand and stocking levels.

The **Grey Pine Stand** consists of 136 acres of grey pine forest with 64% grey pine, 18% blue oak, and 17% interior live oak with buckbrush (*Ceanothus cuneatus*) and Western redbud (*Cercis occidentalis*) in the understory. The projected growth rate is 411 board feet/acre/year. Site information suggests Site Class II (Dunning, 1942). Tree regeneration was nonexistent in some areas, whereas blue oak and interior live oak was abundant in the understory in others.

This stand is located in the northern portion of the JBFWC, and is visually quite different from other stands. It is on rocky terrain with shallow soils, and high proportions of grey pine. Jones Bar Road runs north-south through this stand and continues onto State Park land. Slope is an average of 15 percent, up to 1900 feet in elevation. Soil types include Secca-Rock outcrop complex, Chaix very stony loam, Boomer hard bedrock-rock outcrop complex and rock outcrop-Dubakella complex.

The **Oak Woodland Stand** consists of 452 acres of oak dominant forest, with 35% canyon live oak, 26% blue oak, 24% interior live oak, 6% black oak, 4% grey pine, 2% Douglas-fir and 2% incense-cedar. The projected growth rate is 180 board feet/acre/year. Site information suggests Site Class IV (Dunning, 1942). Manzanita and tall grasses have been reported in the understory.

This stand is located within and just west of the 2020 Jones Fire footprint, from the northern edge of the JBFWC abutting State Park land, with a grey pine stand dividing it. Oak woodland exists west of Tasha Road and abuts the southwest and southern perimeter of the Woolman property. Slope is an average of 15 percent, with elevation up to 2300 feet. Soils include Boomer hard bedrock-rock outcrop complex, Chaix very stony loam, Mariposa-Josephine complex, Secca-Rock outcrop complex, Placer diggings, Rock outcrop-Dubakella complex, Sites very stony loam, and Sites silt loam.

The **Conifer-Hardwood Stand 1** consists of 134 acres of conifer-hardwood forest, with 35% ponderosa pine, 21% black oak, 17% canyon interior oak, 8% madrone, 7% grey pine, 6% blue oak and 6% interior live oak. Scotch broom, manzanita, poison oak (*Toxicodendron diversilobum*), and abundant grasses are in the understory. The projected growth rate is 374 board feet/acre/year. Site information suggests Site Class III (Dunning, 1942).

This stand is located along the northwest boundary of the JBFWC, with State Park land adjacent to the west and BLM land bordering to the north. This stand is quite steep as it approaches these borders, with the Owl Creek drainage running through the State Park land and joining the South Yuba River to the north. Slopes average 17 percent, but reach up to 65 percent along the park border. Elevation is up to 1950 feet. Soils consist of Sites very stony loam and Boomer hard bedrock-rock outcrop complex.

The **Conifer-Hardwood Stand 2** consists of 362 acres of conifer-hardwood forest, with 41% ponderosa pine, 20% incense cedar, 15% black oak, 11 percent blue oak, 8 percent canyon live oak, 3% interior live oak, 1 percent other hardwoods and 1 percent madrone. The understory has Scotch broom and some dense manzanita patches. Shade-tolerant incense-cedar has high levels of regeneration here. Leaf litter is substantial in some areas. The projected growth rate is 207 board feet/acre/year. Site information suggests Site Class III (Dunning, 1942).

This stand is located from the center of the JBFWC, just north of Owl Creek Road, continuing south and west of Jones Bar Road to the border of the community, stopping at Newtown Road. This stand includes Owl Creek flowing east to west. Slope averages 8.5 percent, with elevation reaching 2250 feet. Soils are diverse, with Sites very stony loam, Secca-Rock outcrop complex, Josephine loam, Sites silt loam, alluvial, and Maymen-Mariposa complex.

The **Post-Pleasant Fire Stand** consists of 32 acres of burned forestland located to the northwest in the JBFWC. This 48-acre fire occurred in August of 2022 from a car fire that burned upslope. BLM land abuts the stand to the west, and State Parks land borders it to the north. Ponderosa pine forest and black oak woodland existed previously but has burned, leaving many standing dead trees. Although the fire was mixed-severity, many of the trees in the footprint did not survive—this was a relatively young stand. Blue oak acorns were planted on a private parcel as an experimental design with the intention of developing a forest capable of withstanding drier conditions in the future. Slopes average 22 percent and are as steep as 60 percent. Soils are Mariposa-Josephine complex, Boomer, hard bedrock-Rock outcrop complex, and Sites very stony loam.

The **Hardwood-Conifer Stand** consists of 1009 acres of hardwood-conifer forest, with a diverse assemblage: 36% black oak, 30% ponderosa pine, 10% canyon live oak, 7% interior live oak, 3% Douglas-fir, 3% incense-cedar, 3% madrone, 3 % blue oak, 3 % grey pine, 2 % other hardwoods, 0.5% bigleaf maple and <0.5 percent other softwoods. Mature, dead ponderosa pine and Douglas-fir have been identified on a few of the properties. The understory consists of toyon, poison oak, honeysuckle (*Lonicera sp.*), Himalayan blackberry, yellow starthistle, ferns and grasses. Coyote brush (*Baccharis pilularis*) and coffeeberry (*Frangula californica*) can also be found here. The projected growth rate is 324 board feet/acre. Site information suggests Site Class III.

This is the most common stand type on the JBFWC. It is located throughout the JBFWC, from the northernmost point and the northwest section to the north-central section, abutting Woolman to the west and east. Slopes are averaged to 11 percent, but it exceeds 30 percent, particularly where it abuts State Parks land. Elevation reaches 2590 feet in the far eastern portion of the JBFWC. Soils consist of Josephine-Mariposa complex, Sites very stony loam, Mariposa-Josephine complex, Josephine loam, Sites silt loam, Secca-Rock outcrop complex, Maymen-Mariposa complex, alluvial,

Hoda sandy loam, Boomer hard bedrock-rock outcrop complex, rock outcrop-Dubakella complex, Sites very stony loam, Aiken cobbly loam, Chaix very sandy loam, and Placer diggings.

The **Ponderosa Pine Stand** is a 135-acre ponderosa pine forest, consisting of 45% conifer and 15% hardwoods. Trees range from 12" to 24" in DBH (diameter at breast height), in moderately dense stands with 40 to 50% crown cover. Slopes average 14 percent, but approach 70 percent in some areas. This stand is located in the northwest and the northeast of the JBFWC. Large manzanita patches can be found to the northeast. Elevation reaches 2100 feet. Soils consist of Secca-Rock outcrop complex, Sites very stony loam, Chaix very stony loam, and Boomer hard bedrock-rock outcrop complex.

Table 5. 2022 stand stocking information for the JBFWC. IC= incense-cedar, PP= ponderosa pine, GP= gray pine, IO= interior live oak, CY= canyon live oak, BL= blue oak, BO= black oak, DF= Douglas-fir, MA= madrone, OH= other hardwoods, OS= other softwoods. Slopes were derived from GIS slope analysis and averaging inventory plots. QMD= quadratic mean diameter, or average tree diameter; basal area= tree volume in square feet. Data are unavailable for rows with dashes.

Stand	Acres	% Slope	Species	Basal Area (ft^2)	Gross Bf/Ac	Stems/acre	QMD
Grey Pine	136	16	GP, BL, IO	70	6298	1132	3.4
Oak Woodland	452	15	DF, IC, GP, CY, BL, BO, IO	99	6298	2633	2.6
Conifer-Hardwood (1)	134	17	CY, BO, PP, OS, MA, GP, BL, IO	97	4490	1469	3.5
Conifer-Hardwood (2)	362	8.5	IC, PP, CY, BL, BO, IO, MA, OH	131	14227	8252	1.7
Post-Pleasant Fire	32	22	BO, PP, MA	--	--	--	--
Hardwood-Conifer	1009	11	DF, IC, PP, GP, CY, BL, BO, IO, MA, BM, OS, OH	111	9029	4389	2.2
Ponderosa Pine	135	14	PP	--	--	--	--

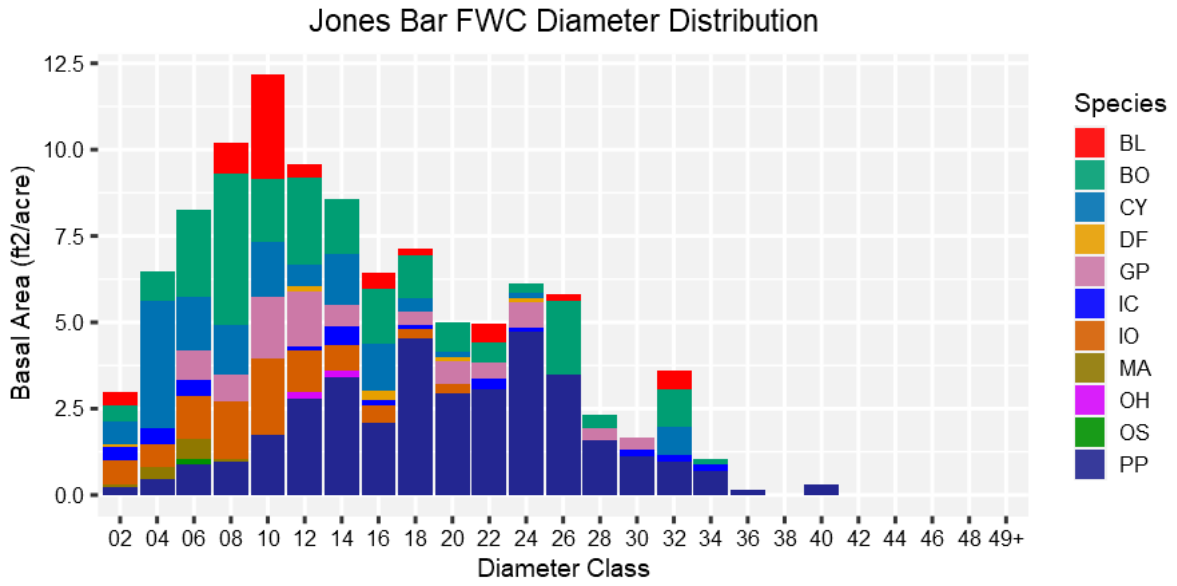


Figure 6. Distribution of species at JBFWC based on 2-inch diameter classes. IC= incense-cedar, PP= ponderosa pine, GP= gray pine, IO= interior live oak, CY= canyon live oak, BL= blue oak, BO= black oak, DF= Douglas-fir, MA= madrone, OH= other hardwoods, OS= other softwoods.

Basal Area (BA) is the area of a cross-section of a tree at 4.5 feet above the ground, and can be summed per species by diameter groupings, or classes to highlight trends in the forest structure. For all of the stands inventoried, BA is highest in the 10" diameter range with a mix of species, with the highest BA of blue oak for the property. Although ponderosa pine is one of the biggest BA contributors of any individual species after the 12" diameter class as it tends to develop larger than oak species, it does not contribute much in the 2-8" classes, indicating that it is not regenerating at the rates it once did.

Thorough fuels reduction should occur close to homes on the JBFWC. Pruning of limbs and complete removal of trees and ladder fuels that are near infrastructure will reduce the potential for loss during a wildfire. Maintaining defensible space around infrastructure is required by law (Public Resources Code 4291). Consult the CAL FIRE defensible space guidelines for full information: https://www.fire.ca.gov/dspace . ***Routine thinning of dead/dying trees and ladder fuels, and pruning of limbs along the roads*** is strongly encouraged, as cleared roadsides may help slow fire spread or reduce potential for road blockages, giving personnel and landowners precious time for ingress/egress in the event of a wildfire.

Living with fire in the foothills, defensible space inspection and vegetation maintenance should be routine. ***It is encouraged that the landowners of JBFWC have forest management plans for their parcels.*** These plans can be as comprehensive as desired, from having an annual schedule for vegetation and defensible spacing monitoring with follow-up activities to a detailed written plan. The more detailed the plan, the more aware the landowner may be of their forestland and property needs.

Managing for "clumpiness" (or breaking up of forest cover, with clumps of trees separated by variable-sized gaps) has been linked to both increased forest resilience to fire and increased habitat quality for wildlife (Larson and Churchill, 2012; Fertel et al. 2022). A guiding principle towards development of these gaps and clumps is the natural range of variation (NRV), or forest structure pre-colonization in the western United States (USDA Forest Service, 2019). The spatial structure of fire-frequent forests visited by low and moderate – intensity fires consist of three elements: openings, widely-spaced single trees, and tree clumps. Thinning here will incorporate this approach into management for landscape-scale forest heterogeneity. A combination of hand-thinning and mastication should be utilized to comply with forest practice rules and circumvent rocky soils.

Zones of relatively high water availability on the proposed thinning sites will be unthinned, and serve as the groups of trees needed to achieve spatial variation. These will also be "climate refugia" sites, offering habitat for wildlife. These areas refer to zones of high relative water availability, which could be critical for drought-stressed sites now and under future climate change conditions (Mclaughlin et al. 2017).

For planting in areas with need for reforestation, drought-resistant native species with seeds sourced from lower elevations could populate the property with trees more resilient to climate change effects (Young et al. 2020, North et al. 2018). Encourage a mix of species where feasible. ***After planting and removal of non-native species, monitoring is necessary.*** Competing vegetation may need to be eliminated or encouraged depending on the species. Planting seedlings or sowing a native grass and forb mix may prevent re-sprout of noxious weeds including Scotch broom and blackberry.

Increasing the use of prescribed fire is recommended for this community. Low-intensity, controlled fire reduces fuels, controls species composition (e.g. blackberry and broom), opens growing space for a greater diversity of native flowering species, and improves the health of residual trees. Some landowners have previously applied fire on their own parcels – and with the help of neighbors. ***Working with neighbors is an excellent way to accomplish prescribed burning.*** A burn plan and having the proper permits are necessary for implementation. ***See the Air Resources section above.***

Planned Management Activities

Virtual and in-person training resources are available to guide the public. ***See the additional professional resource section below.***

Table 6. Recommended practices for the JBFWC

Date	Recommended Practice(s) Description	Location	Desired Future Conditions
2023-2026	Tree pruning and vegetation removal close to infrastructure; Removal of dead, dying and standing dead trees remaining after the Jones and Pleasant Fires. Retain high-quality snags for wildlife.	All parcels	Improved safety for people and infrastructure; Reduction of forest fuels that may carry high severity wildfire; An aesthetically pleasing forest component recovering after wildfire
2023-2026	Masticate and hand-thin ladder fuels up to 6" DBH using a heterogeneous approach, leaving clumps, gaps, and individual trees.	All parcels	Spatially heterogeneous forestland with reduced ladder fuels; Approached NRV
2023-2033	Plant native species using more drought-tolerant seed sources from lower elevation when possible. Monitor routinely to care for plantings and regeneration as-needed.	Post-Pleasant Fire Stand and all parcels as applicable	Increased carbon storage capacity with a climate-forward approach; Enhanced wildlife habitat
2023-2033	Ensure that roadside thinning occurs regularly. Lost Ranch Way requires attention.	All roads	Reduced likelihood of hazard trees falling; Improved ingress/egress
2023-2033	Develop burn plans and apply prescribed fire; Explore community learning opportunities with the Yuba Bear Burn Cooperative to accomplish this.	All willing participating parcels	Reduced wildfire risk; Improved forest health and diversity of native grasses and forbs
2023-2033	Monitor for new noxious weeds on the property annually. Clean vehicles and equipment to avoid transporting seeds.	All parcels	Maintain native grass and forb cover in forest understory

2023-2033	Monitor the property annually to ensure defensible space guidelines from CAL FIRE are upheld.	All parcels required by law (*Public Resources Code 4291*)	Reduce risk of structural damage
2023-2033	Routine vegetation maintenance plans developed and implemented by each landowner.	All willing participating parcels	Maintained forest health and wildfire resilience long-term
2023-2033	Consult the Resource Toolkit for Land Management in Western Nevada County (available online and in print at Woolman School). Forest measurement tools are available at Woolman as well.	All private landowners encouraged to seek as a resource	Landowners are informed stewards of their properties

Required Permits and Monitoring

A burn permit from the Northern Sierra Air Quality Management District (NSAQMD) is required for any burn over 1 acre. Additional information on the specific fees and conditions of permitting is available by calling the NSAQMD at 530.274.9360 and requesting 'the outdoor burning specialist'. Rules and conditions are complex, and changeable, and calls to the AQMD in advance of a planned burn day are highly suggested to get clear and current information. Placer County RCD may offer financial assistance to cover part of the smoke permit or smoke management plan. You do not have to live in Placer County to be eligible.

Although monitoring is generally a useful tool after project implementation, if grant funds are awarded from the Wildlife Conservation Board (WCB) for the implementation of these recommendations, monitoring is required. A Landowner Access Agreement will be developed and signed by Woolman and Sierra Streams Institute (SSI), the grant applicant. This agreement essentially requires the landowner to uphold the outcome that has been met on the property, and to not drastically change the property to undo the goals of this project. SSI and the landowner will acknowledge that if the parcels are selected for monitoring by WCB and are not found to have upheld a degree of forest maintenance, SSI would be held financially responsible to WCB. The landowner would have an obligation to inform the new landowner of the Access Agreement if the home is sold.

If funds are not awarded, monitoring is still highly encouraged. Monitoring can inform the landowner on the effectiveness of treatments and if follow-up if warranted. Monitoring can vary from informal, with general observations, to more thorough (e.g., the development of a complete research report).

Monitoring is expected after vegetation management work is complete if the WCB funds are used to implement the recommendations.

Forest management activities including conservation practices may impact special environmental and/or cultural values such as threatened or endangered species and archaeological sites. Landowners need to know their locations and what they can do to protect them. Environmental and cultural reviews by regulatory agencies are required when a ground practice is proposed, and a permit and/or government assistance becomes part of the project.

The Title 14 CCR § 1038 10% Dead, Dying or Diseased Trees Fuelwood or Split Products or Removal of Slash & Woody Debris not Located Within a WLPZ Exemption document is an option for the JBFWC, as well as the 1038 Forest Fire Prevention Exemption document. An RPF would need to be the signatory on these forms, as required by the Lead Agency, CAL FIRE. This exemption is valid for one year and would need to be renewed annually from the date signed by CAL FIRE. Each property would need one completed form.

Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which public agencies exercise only ministerial authority. Therefore, the State Clearinghouse would not need the documentation.

Additional CEQA/NEPA Notification for Ground Practices

Any future ground practice to implement this plan using public entity reimbursement funds requires a signed CAL FIRE CFIP Environmental Checklist, to comply with CEQA, or an NRCS CPA-52 Checklist, to comply with NEPA. The checklist must be filled out by an RPF or Certified Planner.

Along with this checklist a process of "discovery" or survey for unknown values along with a discussion of possible mitigations is required. The site specific environmental/cultural documentation will need to be completed with the schedule of activities, project map and project specifications.

As part of the above process, project notification must be provided to the following Agencies:

- County Planner
- CA Department of Fish and Wildlife
- Regional Water Quality Control Board
- If the project adjoins public land (for example, the US Forest Service, US Fish and Wildlife Service, BLM, National, State, or local parks, etc.) notify that agency
- If the project adjoins a State Highway, notify CALTRANS
- If the project is in the Coastal Zone, notify the Coastal Commission
- If the project will cause ground-disturbance, notification must also be provided to:
- Native American Heritage Commission
- Tribal contacts

Professional Assistance

Contacts

CAL FIRE Forestry Assistance Specialist (FAS)
David Ahmadi - david.ahmadi@fire.ca.gov (El Dorado, Nevada, Placer, Sacramento, Sierra, Sutter, Tahoe Basin, Yuba Counties)

Nevada County Resource Conservation District - https://www.ncrcd.org/
Phone: (530) 272-3417, ext. 5529 or 5530
Monday-Friday 7:30am-4pm
113 Presley Way, Suite 1, Grass Valley, CA 95945

Placer County Resource Conservation District - https://placerrcd.org/
Phone: 530-390-6680
Email: info@placerrcd.org
Mailing Address: 11641 Blocker Dr. #120, Auburn, CA 95603

University of California Division of Agriculture and Natural Resources - https://ucanr.edu/

UC Cooperative Extension Forest Advisors
Ricky Satomi (Sutter, Yuba, Butte, Nevada Counties)
Phone: (530) 822-6213
Email: rpsatomi@ucanr.edu

Rob York (Statewide), Kristen Shive (Statewide)
(530) 333-4475
Email: ryork@berkeley.edu
Email: kshive@berkeley.edu

UC Cooperative Extension Placer and Nevada Counties - https://ceplacer.ucanr.edu/
Phone: (530) 273-4563, Email: cenevada@ucdavis.edu
Tuesday and Thursday, 8am-12pm and 12:30pm-4:30pm
255 South Auburn Street (Veterans Memorial Hall), Grass Valley, CA 95945

Toolkit
Sierra Streams Institute (SSI) has completed a Resource Toolkit available in print (in a binder at Wooman Campus) and on their website for private landowners of western Nevada County, which includes forest health information, factsheets, contractors, and grant information (listed below). You may request information about this at info@sierrastreamsinstitute.org or check Sierrastreamsinstitute.org to see the Toolkit posted.

Yuba Bear Burn Cooperative
Working with Nevada County's Prescribed Burn Association, Yuba Bear Burn Cooperative (YBBC) is a great resource to learn about prescribed fire and to gather volunteers to apply fire. To sign up on their listserv, go to https://calpba.org/yuba-bear-burn-cooperative. YBBC planning resources are also available: https://calpba.org/rx-burn-planning.

Professional Assistance

Grants

The following grants may be available and are worth exploring for implementation:

1. Environmental Quality Incentives Program (EQIP)

This USDA-run program applies to landowners (or renters) who manage land for agriculture or non-industrial private forest land.

- Minimum acreage: no
- Cost share: yes*
- Prescribed burning covered: yes

Factsheet: https://www.nrcs.usda.gov/sites/default/files/2022-06/EQIP-Factsheet%20%282%29.pdf
Local NRCS contacts: Evan Smith, Forester at Evan.t.smith@usda.gov
Valerie Bullard, Soil Conservationist at valerie.bullard@usda.gov.
*Landowners must often pay up front, then will get reimbursed after the work is done. To apply, reach out to the local NRCS office and let them know you are interested. You will work with them to determine your eligibility.

2. California Forest Improvement Program (CFIP)

This program aims to improve forest resources, including animal habitat, and soil and water quality. Cost share is to hire a Registered Professional Forester to write a Forest Management Plan, and to oversee reforestation, stand improvement, and conservation practices/habitat improvement.

- Minimum acreage: 20 to 5,000 acres
- Cost share: yes*
- Prescribed burning covered: no

CFIP user guide: https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/what-we-do/grants/california-forest-improvement-program/cfip-user-s-guide-october-2022.pdf?rev=e1f107c9d70040c280c629450dd343d9&hash=23010DAD8EBC63E950BD962FA9160063
Local contact: David Ahmadi, Forestry Assistance Specialist at David.Ahmadi@fire.ca.gov.
Located at 143 B Spring Street, Grass Valley, CA 95945
*Funds get reimbursed after the work is completed. CFIP provides reimbursement at 75% or 90% cost share rates. Before filling out an application, consult with the Forestry Assistant Specialist, currently David Ahmadi (above).

3. Community Wildfire Defense Grant

This USDA Forest Service grant helps at-risk local communities and Tribes plan and reduce the risk against wildfire. Prioritizes at-risk communities in an area identified as having high or very high wildfire hazard potential, are low-income, and/or have been impacted by a severe disaster. *For more information:* https://www.fs.usda.gov/managing-land/fire/grants.

4. Partners for Fish and Wildlife Program
This U.S. Fish and Wildlife Service program aims to restore habitats on working landscapes (e.g. forests, farms, ranches). This could involve improving water resources, planting native species, or oak woodland restoration. Their conservation priorities are wet meadows, streams and riparian habitats.

- Minimum acreage: No
- Cost share: 1:1 match, either cash and/or in-kind services
- Prescribed burning covered: In some instances; check with contact

Website: https://www.fws.gov/program/partners-fish-and-wildlife
Local contact: Matt Hamman at matt_hamman@fws.gov. (530) 889-2301.
Located at 11641 Blocker Drive, Suite 110, Auburn, CA 95603

5. California Vegetation Management Program (VMP)
This CAL FIRE program aims to reduce fuel loading to prevent catastrophic wildfire in California, with prescribed fire as a focus. The project area must be on State Responsibility Lands: SRA viewer.

- Cost share: yes

Note that as of early 2023, this funding is not being offered. However, check their website for future opportunities. Search "Cal Vegetation Management Program".

6. Emergency Forest Restoration Program (EFRP)
This USDA-run program helps landowners of private forestland restore forest health that has been damaged by natural disasters. Drought or insect infestation do not apply. Debris removal, planting, fire lanes, fencing, wildlife enhancement are examples of work scopes.

- Minimum acreage: no
- Cost share: yes, up to 75% of the cost to implement practices can be provided.
- Prescribed burning covered: check with contact

Local contact: NRCS Grass Valley at (530) 798-5527. Grass Valley Service Center
Located at 113 Presley Way Ste 1, Grass Valley, CA 95945.
Factsheet: https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/emergency_forest_restoration_program-fact_sheet.pdf

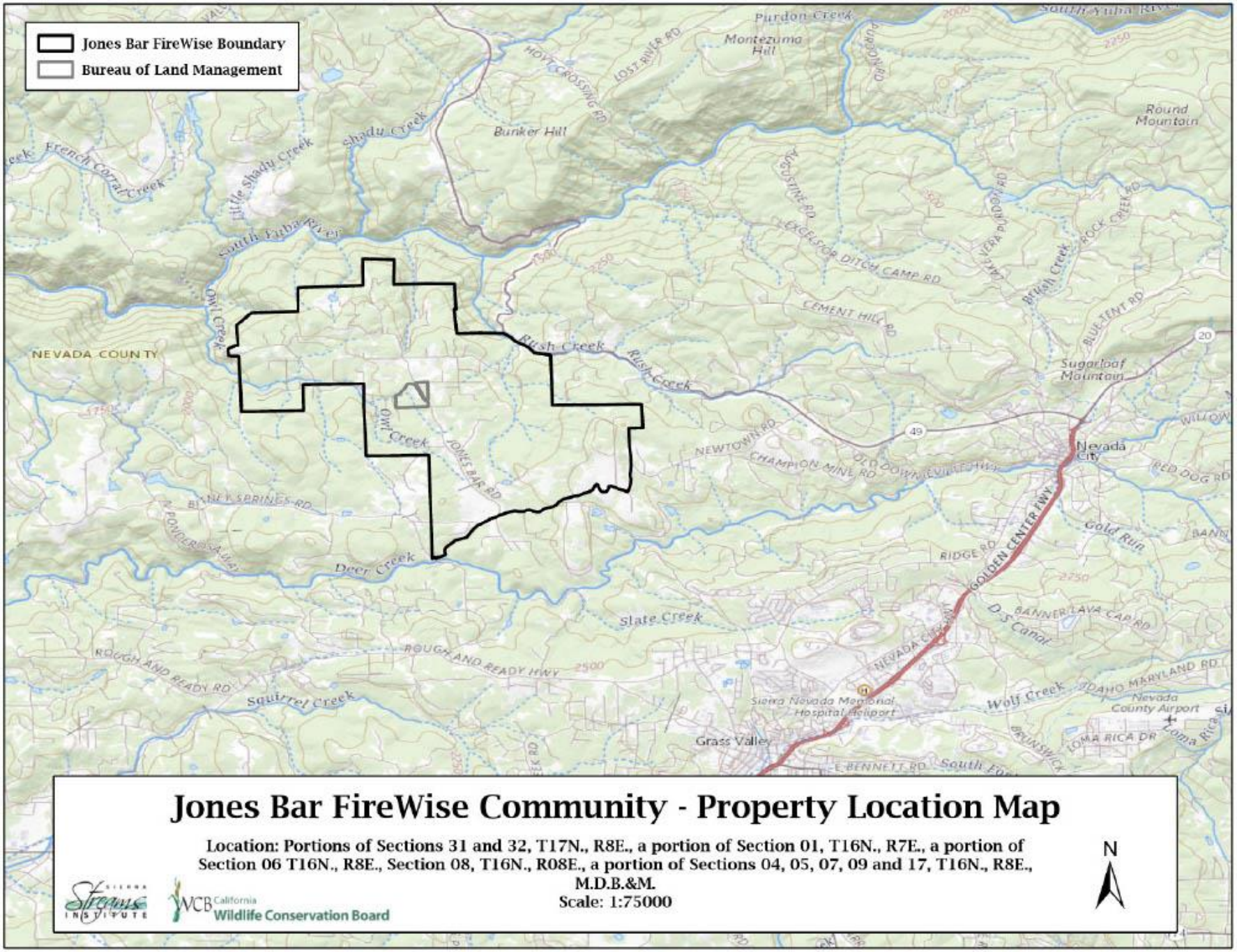
7. California Fire Safe Council Grants
This grant program emphasizes fire risk reduction activities by landowners and residents in at-risk communities to restore and maintain resilient landscapes and create fire-adapted communities. Individual landowners cannot apply—must have a legal fiscal sponsor. Check the website for current grant opportunities.

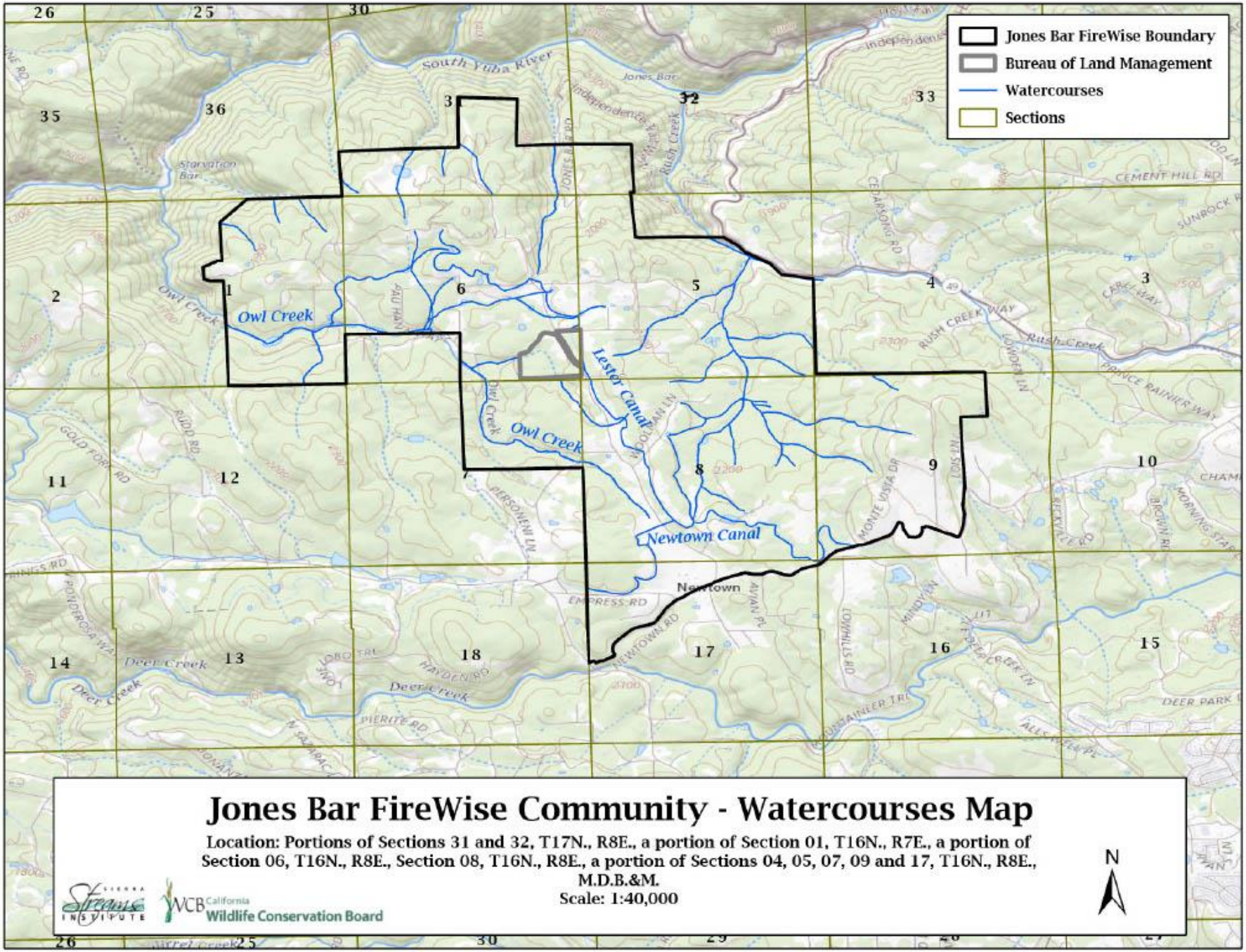
- Minimum acreage: may vary
- Cost share: 50/50 match required; cash, good, or in-kind services.
- Prescribed burning covered: yes

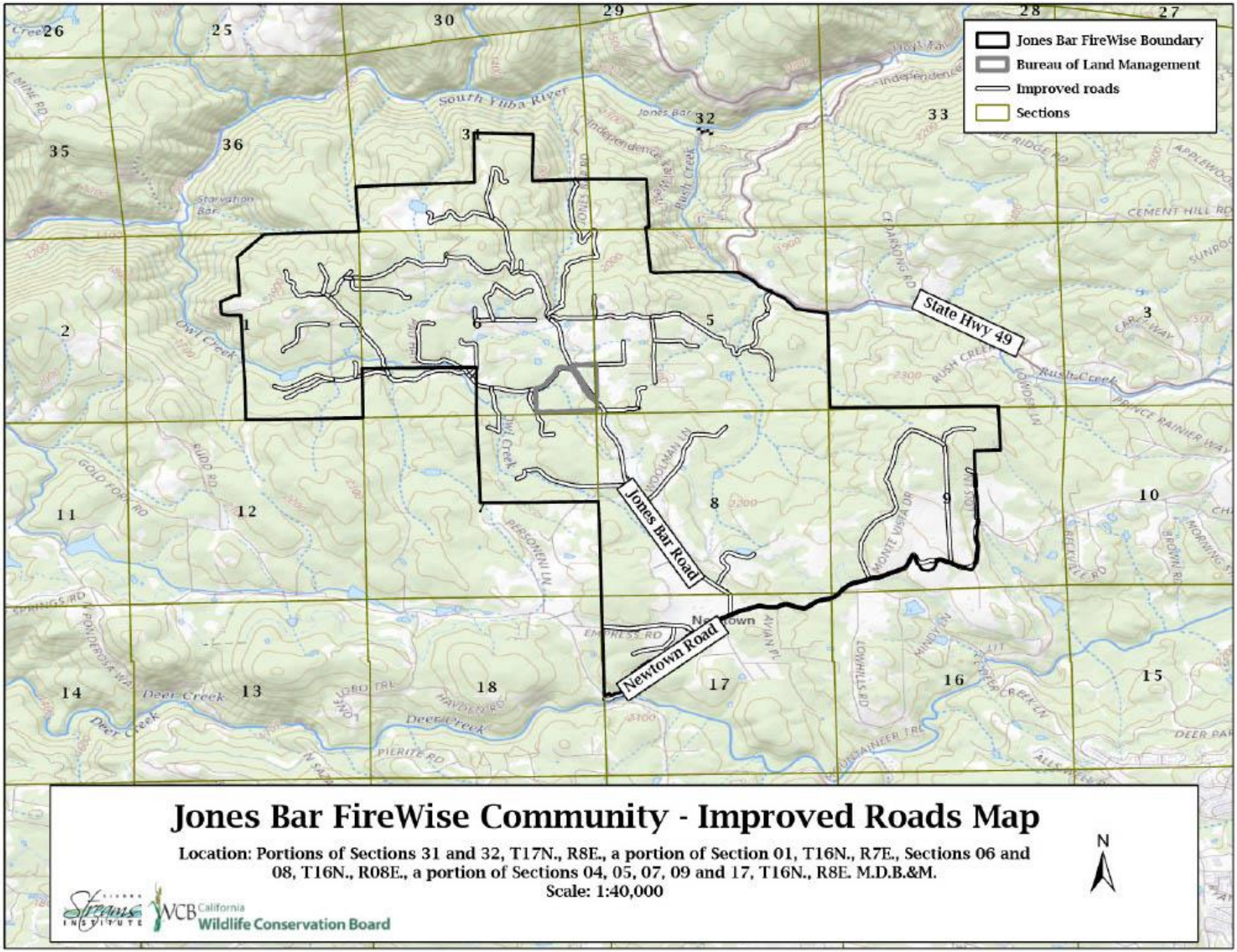
Website: https://cafiresafecouncil.org/grants-and-funding/apply-for-a-grant/.
Contact: https://cafiresafecouncil.org/contact/

Other Potential Grant Source
Nevada County Office of Emergency Services may offer FireWise Community grants on occasion. Check their website for information: https://nevadacountyca.gov/3595/Firewise-Community-Grants.

Maps


Jones Bar FireWise Boundary
Bureau of Land Management
Purdon Creek
Montezuma Hill
Bunker Hill
Round Mountain
Shady Creek
Little Shady Creek
French Corral Creek
South Yuba River
Owl Creek
NEVADA COUNTY
Rush Creek
Cement Hill Rd
Excelsior Ditch Camp Rd
Brush Creek
Rock Creek Rd
Blue Tent Rd
Sugarloaf Mountain
Nevada City
Newtown Rd
Champion Mine Rd
Jones Bar Rd
Deer Creek
Slate Creek
Gold Run
Ridge Rd
Golden Center Fwy
Banner Lava Cap Rd
D-S Canal
Rough and Ready Hwy
Rough and Ready Rd
Squirrel Creek
Sierra Nevada Memorial Hospital Heliport
Wolf Creek
Idaho Maryland Rd
Nevada County Airport
Loma Rica
Grass Valley
E Bennett Rd
Jones Bar FireWise Community - Property Location Map
Location: Portions of Sections 31 and 32, T17N., R8E., a portion of Section 01, T16N., R7E., a portion of Section 06 T16N., R8E., Section 08, T16N., R08E., a portion of Sections 04, 05, 07, 09 and 17, T16N., R8E., M.D.B.&M.
Scale: 1:75000
N
Sierra Streams Institute
WCB California Wildlife Conservation Board


Jones Bar FireWise Boundary
Bureau of Land Management
Watercourses
Sections
Owl Creek
Lester Canal
Newtown Canal
South Yuba River
Deer Creek
Rush Creek
Newtown
Jones Bar
Starvation Bar
Jones Bar FireWise Community - Watercourses Map
Location: Portions of Sections 31 and 32, T17N., R8E., a portion of Section 01, T16N., R7E., a portion of Section 06, T16N., R8E., Section 08, T16N., R8E., a portion of Sections 04, 05, 07, 09 and 17, T16N., R8E., M.D.B.&M.
Scale: 1:40,000
Sierra Streams Institute
WCB California Wildlife Conservation Board
N



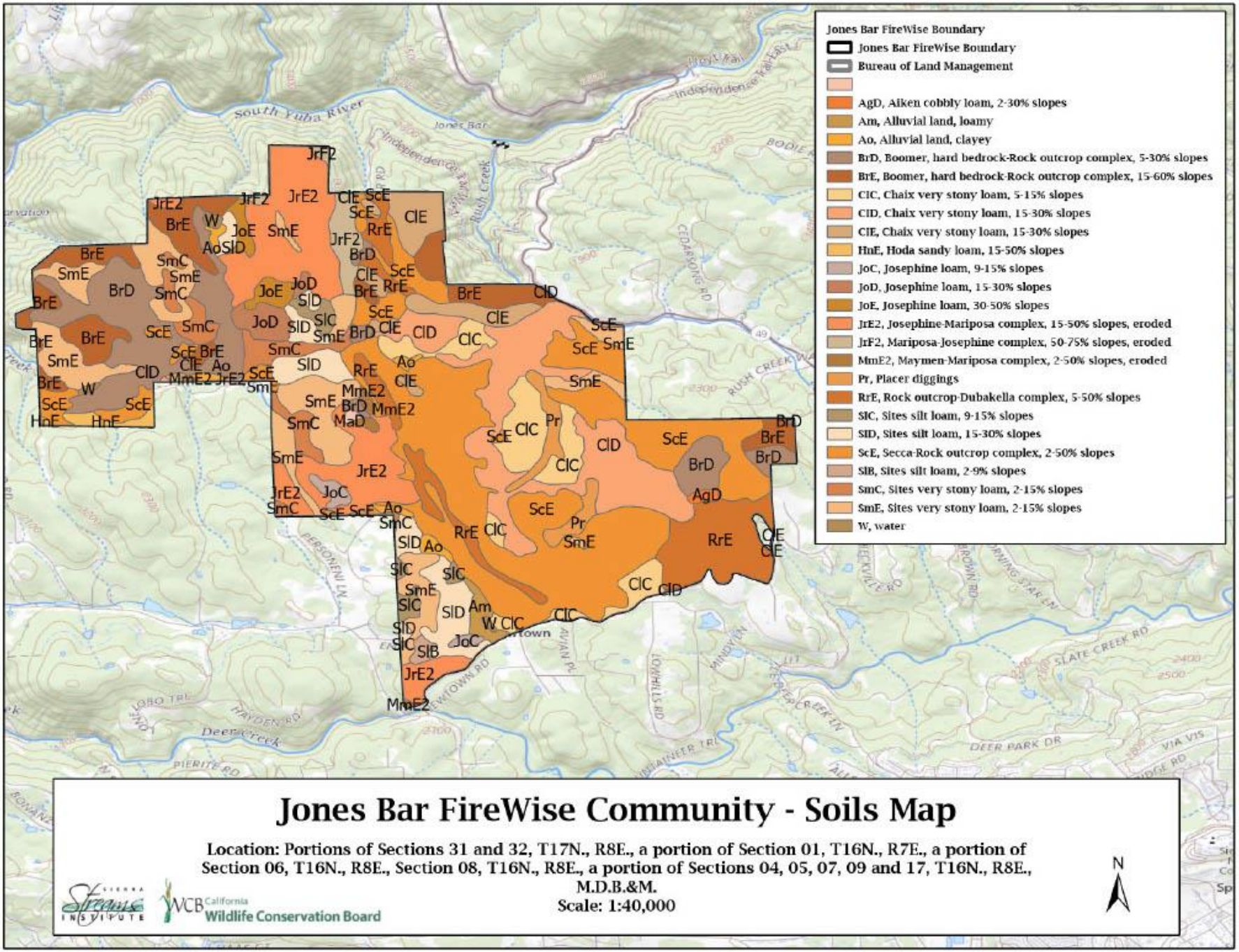
Jones Bar FireWise Community - Improved Roads Map

Location: Portions of Sections 31 and 32, T17N., R8E., a portion of Section 01, T16N., R7E., Sections 06 and 08, T16N., R08E., a portion of Sections 04, 05, 07, 09 and 17, T16N., R8E. M.D.B.&M.

Scale: 1:40,000

Sierra Streams Institute

WCB California Wildlife Conservation Board



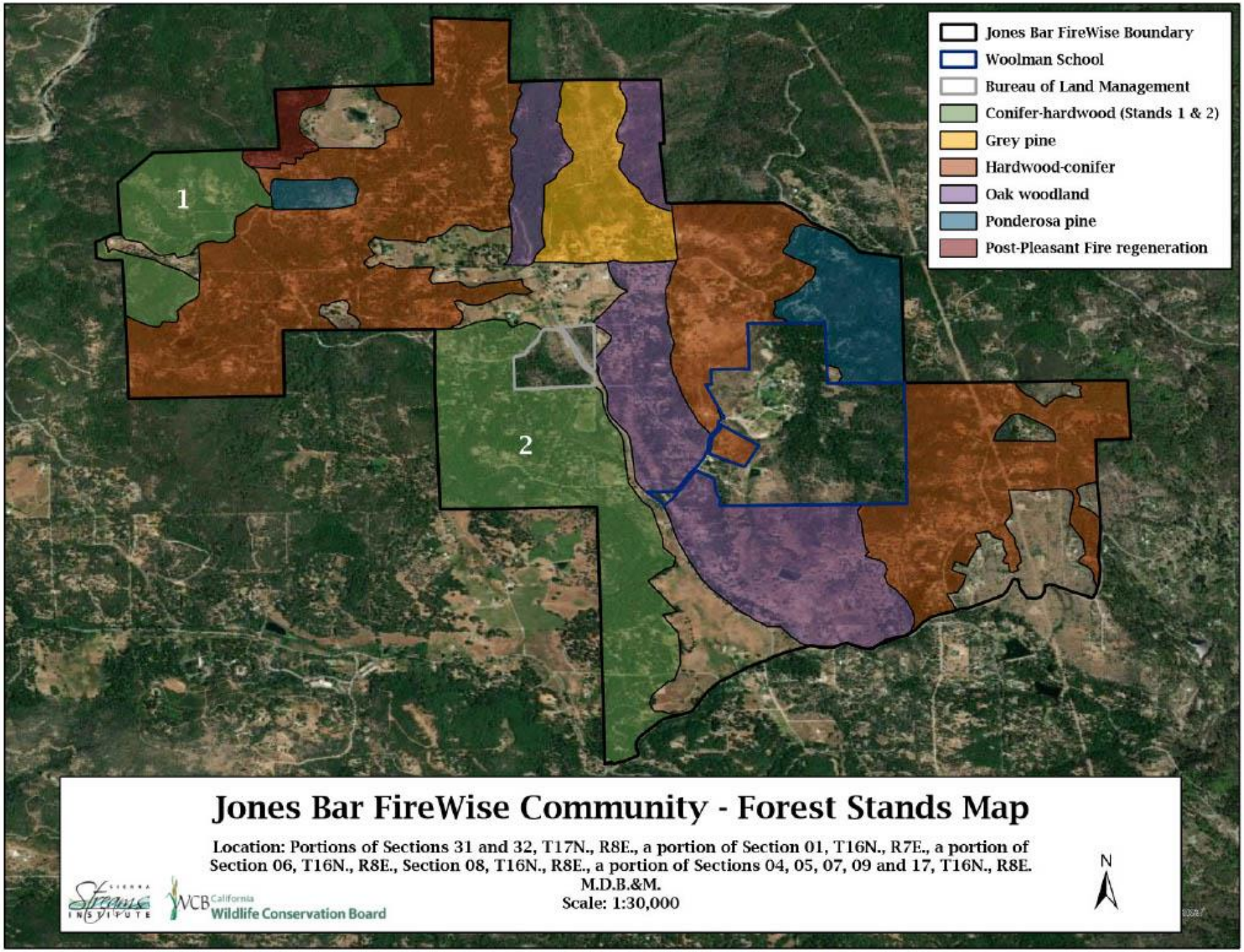
Jones Bar FireWise Community - Soils Map

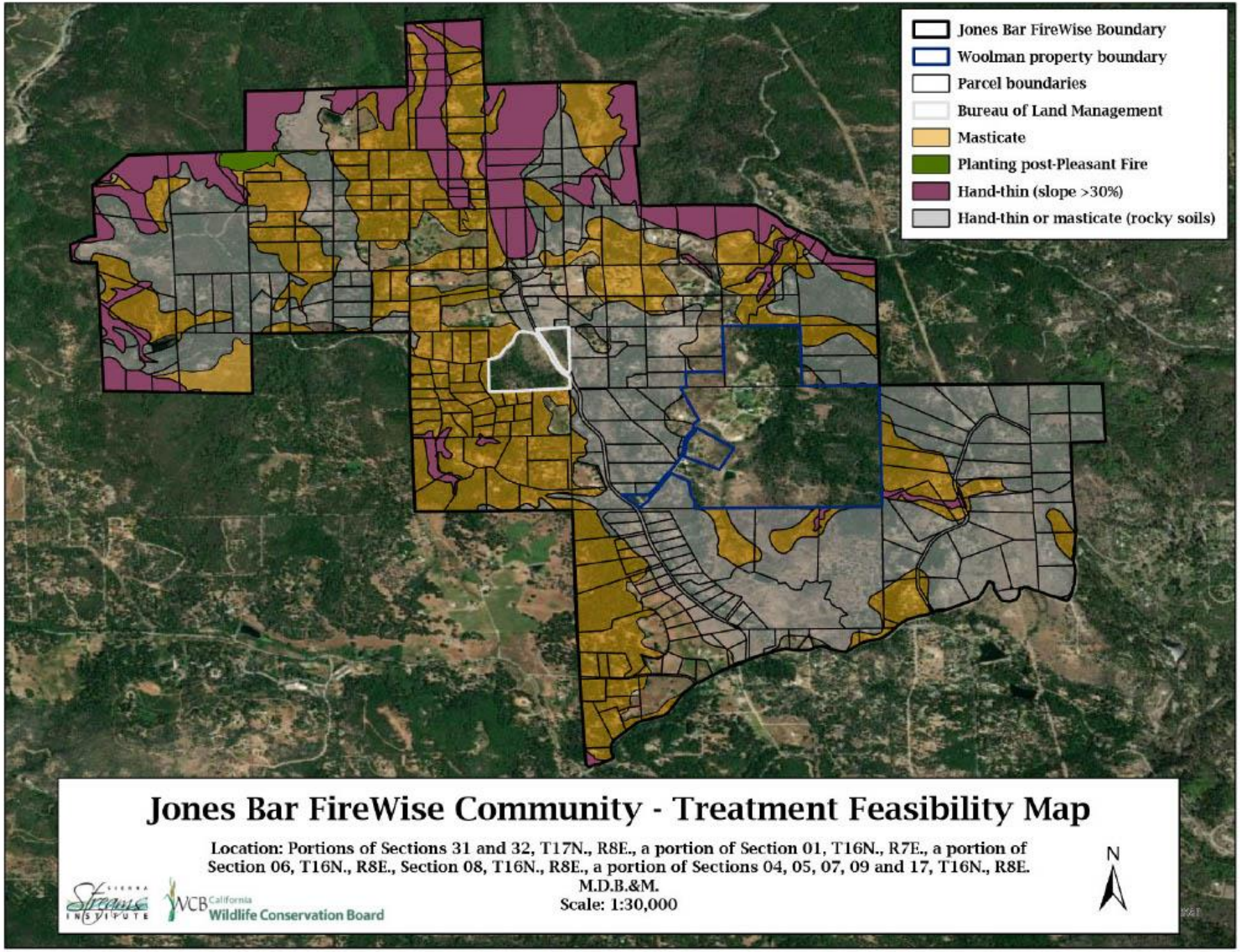
Location: Portions of Sections 31 and 32, T17N., R8E., a portion of Section 01, T16N., R7E., a portion of Section 06, T16N., R8E., Section 08, T16N., R8E., a portion of Sections 04, 05, 07, 09 and 17, T16N., R8E., M.D.B.&M.

Scale: 1:40,000

Sierra Streams Institute

WCB California Wildlife Conservation Board


Jones Bar FireWise Boundary
Woolman School
Bureau of Land Management
Conifer-hardwood (Stands 1 & 2)
Grey pine
Hardwood-conifer
Oak woodland
Ponderosa pine
Post-Pleasant Fire regeneration
1
2
Jones Bar FireWise Community - Forest Stands Map
Location: Portions of Sections 31 and 32, T17N., R8E., a portion of Section 01, T16N., R7E., a portion of Section 06, T16N., R8E., Section 08, T16N., R8E., a portion of Sections 04, 05, 07, 09 and 17, T16N., R8E. M.D.B.&M.
Scale: 1:30,000
Sierra Streams Institute
WCB California Wildlife Conservation Board
N


Jones Bar FireWise Boundary
Woolman property boundary
Parcel boundaries
Bureau of Land Management
Masticate
Planting post-Pleasant Fire
Hand-thin (slope >30%)
Hand-thin or masticate (rocky soils)
Jones Bar FireWise Community - Treatment Feasibility Map
Location: Portions of Sections 31 and 32, T17N., R8E., a portion of Section 01, T16N., R7E., a portion of Section 06, T16N., R8E., Section 08, T16N., R8E., a portion of Sections 04, 05, 07, 09 and 17, T16N., R8E. M.D.B.&M.
Scale: 1:30,000
N
Sierra Streams Institute
WCB California Wildlife Conservation Board

Appendix 1: Standards and Specifications

NRCS Standards are in the NRCS Field Office Technical Guide (FOTG) at: https://efotg.sc.egov.usda.gov/#/

CFIP Standards are in the CFIP User's Guide, posted on the right-hand side of the CAL FIRE CFIP webpage at: https://www.fire.ca.gov/what-we-do/grants/california-forest-improvement

Appendix 2: Taxes and Land Use

Property Tax

The properties do not fall under any specific property tax program.

Income Tax

Timber harvest and other revenue generating activates generally produce a federal and state income tax liability. Tax credits may be available for some management activities.

Estate Tax

Good estate planning can help to lessen tax liability when passing land to heirs. Landowners should seek good planning and tax advice.

Record Keeping

Good record keeping can help landowners manage their assets, increase their revenues, and minimize their tax liability. The landowner is responsible for maintaining a copy of this Management Plan.

Land Use

The zoning and land use classifications from the County land use plan is not applicable for these properties.

Appendix 3 – Past Plans and Updates

No former Forest Management Plan exists for the JBFWC.

Appendix 4 – Supporting Data

Grey Pine Stand inventory results for 2022

Species	Stems/acre	BA ft²/acre	Bf/acre	QMD (in.)
GP	232.4	65.2	6298.1	3.4
BL	600.0	0.2	0.0	
IO	300.0	4.2	0.0	
Total	1132.4	69.5	6298.1	
Std Dev.			3785.6	
95% CL			274.4 - 12321.9	

Oak Woodland Stand inventory results for 2022

Species	Stems/acre	BA ft²/acre	Bf/acre	QMD (in.)
DF	42.9	0.3	0.0	2.6
IC	85.7	0.0	0.0	
GP	44.1	2.9	251.9	
CY	1355.0	36.4	1521.7	
BL	178.6	28.6	1118.2	
BO	88.8	2.9	251.4	
IO	837.9	28.1	443.9	
Total	2633.0	99.2	3587.2	
Std Dev.			4352.3	
95% CL			60.4 – 137.9	

Conifer-Hardwood Stand 1inventory results for 2022

Species	Stems/acre	BA ft²/acre	Bf/acre	QMD (in.)
PP	140.8	36.0	2698.8	3.5
GP	11.9	8.0	354.7	
CY	283.8	22.0	0.0	
BL	93.2	2.3	108.7	
BO	416.0	18.1	1327.6	
IO	190.2	2.1	0.0	
MA	303.3	8.1	0.0	
OS	30.0	0.0	0.0	
Total	1469.4	96.6	4489.8	
Std Dev.			5573.3	
95% CL			501.9 – 8477.8	

Conifer-Hardwood Stand 2 inventory results for 2022

Species	Stems/acre	BA ft²/acre	Bf/acre	QMD (in.)
IC	3820.4	18.1	1138.3	1.7
PP	583.8	71.6	10602.3	
CY	1589.5	6.6	238.3	
BL	1213.5	13.3	845.1	
BO	634.0	18.8	1267.0	
IO	321.4	0.1	0.0	
MA	85.7	0.0	0.0	
OH	3.3	2.9	135.9	
Total	8251.7	131.4	14227.0	
Std Dev.			8602.6	
95% CL			9258.7 – 19195.2	

Hardwood-Conifer Stand inventory results for 2022

Species	Stems/acre	BA ft²/acre	Bf/acre	QMD (in.)
DF	34.2	2.3	215.9	2.2
IC	16.5	2.2	187.4	
PP	233.7	39.5	5404.6	
GP	14.0	3.5	127.1	
CY	444.2	15.3	965.4	
BL	59.8	1.1	50.1	
BO	2264.4	38.3	1824.2	
IO	936.3	6.4	254.3	
MA	284.8	2.3	0.0	
BM	19.6	0.0	0.0	
OS	2.7	0.4	0.0	
OH	78.3	0.0	0.0	
Total	4388.5	111.3	9028.9	
Std Dev.			9684.1	
95% CL			6152.5-11905.4	

IC= incense-cedar, PP= ponderosa pine, GP= grey pine, IO= interior live oak, CY= canyon live oak, BL = blue oak, BO= black oak, DF= Douglas-fir, MA= madrone, OS= other softwoods, OH= other hardwoods, BM= bigleaf maple. QMD= quadratic mean diameter, a measure of central tendency for stand diameter. The ponderosa pine stand does not have stocking information listed due to limited survey access on parcels, and the Post-Pleasant Fire stand consists of burned vegetation and excludes stocking information.

Appendix 5 – Archaeology Statement

The purpose of the Cultural Resources section is the identification and, to the extent possible, preservation of archaeological and historical resources on the Property.

An archaeological records check MUST BE conducted by Northeast Information Center (NEIC) prior to any on-site activities utilizing public funding.

Archaeology is confidential. A confidential archaeological records search was conducted for the entire property. The report is on file with the landowner (Northeast Center of California Historical Resources Information System (I.C. File # NEV-23-13).

Appendix 6 – Assessor Parcel Numbers

004-400-049
004-081-056
004-400-044
004-081-054
004-081-057
004-081-059
004-081-059
004-400-010
004-400-030
004-400-006
004-081-058
004-400-012
004-400-025
004-081-052
004-400-045
004-081-055
004-081-053
004-400-031
004-400-005
004-570-041
004-480-020
004-570-029
004-490-035
004-470-021
004-450-020
004-400-038
004-400-049
004-470-068
004-460-046
004-090-015
004-570-022
004-460-041
030-200-009
004-470-041
032-540-011
004-490-025
004-460-031
030-200-029
004-570-021
004-470-029
004-100-021
004-081-056
004-090-017
004-450-006
030-170-006
030-170-006
004-490-033
004-470-050
032-540-001
004-470-047
004-450-016
004-400-023
004-460-035
052-090-063
004-090-008
004-460-009
004-490-023
052-090-064
004-460-018
004-470-013
004-400-040
004-081-046
004-460-004
004-460-004
004-480-024
004-111-015
004-470-012
004-081-043
004-450-009
004-090-007
004-081-009
004-400-047
004-400-042
004-480-019
004-460-045
004-100-015
004-470-064
004-570-016
004-490-037
004-490-037
030-200-012
032-540-010
004-400-044
004-400-032
004-450-015
004-081-054
004-111-005
004-460-044
004-490-024
004-400-027
004-111-006
004-460-003
004-460-060
004-460-024
004-400-026
004-470-063
004-400-016
004-090-012
004-490-022
004-490-040
052-090-010
032-540-002
004-490-036
004-490-036
004-430-046
004-450-018
004-081-027
004-570-024
004-460-021
004-470-036
004-570-023
004-111-014
004-100-014
004-460-061
004-460-032
004-470-008
004-470-008
004-470-066
004-100-011
004-100-019
004-460-027
004-400-021
004-470-054
004-570-040
004-081-042
004-460-020
004-400-036
004-480-028
004-081-044
004-460-051
052-090-055
052-090-059
004-570-045
004-111-001
004-450-003

Appendix 6 – Assessor Parcel Numbers

004-090-018
004-450-019
004-470-057
004-570-036
004-490-032
004-100-018
004-460-025
032-540-008
004-400-041
004-081-040
004-460-011
030-200-005
004-400-014
004-081-049
004-570-008
004-490-029
004-490-029
004-400-003
004-470-048
004-081-057
004-081-059
004-081-059
004-490-030
004-111-004
004-570-025
004-090-016
004-090-016
004-460-038
004-460-037
030-200-010
004-081-048
004-470-023
004-570-032
052-090-043
004-480-029
004-470-071
004-470-053
004-470-069
004-460-017
004-460-017
032-540-014
052-090-058
004-450-005
004-450-005
004-400-010
052-090-056
004-090-010
004-400-030
004-570-031
004-570-020
004-450-007
004-400-006
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Appendix 6 – Assessor Parcel Numbers

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004-090-009
004-470-019
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004-100-013
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004-470-009
004-570-039

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