Babu Vineyard Block C
Conservation Area Analysis
3300 White Sulphur Springs Road
St. Helena, Napa County, CA 94574
APN 027-010-033

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Prepared for
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INTRODUCTION

This conservation area analysis was conducted in support of a new vineyard block (Block C) within a 67.80-acre parcel located at 3300 White Sulphur Springs Road in the hills west of the City of St. Helena, on the west side of Napa Valley, in the rural area of Napa County, California (Figure 1). Situated west of the Napa River and HWY 128/29, south of Bothe-Napa Valley State Park and north of San Pablo Bay, the proposed conservation area is located east and adjacent to Block C and west of an existing 20-acre conservation easement that runs along the east and south side of the parcel above Sulphur Creek (Figures 1 and 2). Surrounding land uses consist of mainly forested open space lands, ranches and vineyards.

Block C occupies former mixed forest which was burned in the Glass Fire; the area within Block C and other portions of the property were cleared of dead (burned trees) per a CALFIRE emergency salvage permit. The owner proposes to develop 0.42 gross vineyard acres with 0.24 acres being new planted area. Existing roadways service the proposed vineyard development block.

Review of the proposed vineyard project Erosion Control Plan (File # P21-00312) submitted to County of Napa Planning, Building & Environmental Services (PBES) indicated that the project would require canopy cover retention consistent with the Vegetation Removal Mitigation provisions of NCC Section 18.108.020(D)(1). Dr. O'Connor's consultation with PBES suggested a mitigation ratio of 2:1 would be appropriate because the removed forest canopy documented by LACO surveyors was primarily Douglas-fir (21 stems) and madrone (14 stems) with 6 live oak and 2 "tan" oak (apparently mis-identified). The proposed mitigation area of 0.84 acres evaluated here is to be added to the existing conservation easement on the property.

To evaluate whether the conservation area is similar in biological value to Block C, an aerial analysis and a site evaluation was conducted. This area of Napa County burned in the Glass Fire of 2020, which burned over 67,000 acres in Napa and Sonoma, making the one-to-one comparison difficult. As a result, both an on the ground review and a review of pre- and post-fire aerial photography was used to make the analysis. See the Results section below for more analysis.

Previous reports prepared for the Babu Vineyards include the following:

- *Special Status Plant Survey Report for Babu Vineyard Block C 3600 White Sulphur Springs Road St. Helena, Napa County, CA 94574 (APN 027-010-033)* - Jane Valerius Environmental Consulting October 5, 2021
- *Memo: Babu Vineyard, 3600 White Sulphur Springs Road, St. Helena, CA (APN 027-010-033)* - Jane Valerius Environmental Consulting July 30, 2018
- *Habitat Assessment, Babu Vineyard, 3600 White Sulphur Springs Road, Saint Helena, CA 94574 (APN 027-010-033).* - Wildlife Research Associates and Jane Valerius Environmental Consulting 2016.

METHODS

A single-day site visit was conducted on May 10, 2022, by Jane Valerius, botanist, and Trish Tatarian, wildlife biologist, to evaluate the conditions of Block C and the proposed conservation area easement. Removal of dead Douglas fir trees was occurring at the time of the survey, so bird observation/auditory captures were reduced.

We also evaluated aerial analyses of pre-fire and post-fire conditions, comparing Block C with the conservation area easement. The aerial analysis was generated by O'Connor Environmental, Inc., using the ESRI Geographical Information System (GIS).

RESULTS

After two years post fire, many of the trees were resprouting. The herbaceous layer, which would have been relatively sparse due to the dense canopy cover of the trees before the fire, is becoming established, as was observed in June of 2021 and during the May 10, 2022, site visit. The herbaceous ground cover, varying between 25% to 30% in sparse areas to 40% to 50% in more open areas with sunshine, is typical for areas that experience fires. All of the trees in Block C had been removed due to fire damage and the herbaceous cover was higher, between 60 to 70% in 2021 and 2022. Many native grasses and forbs were observed. Please see below for a more detailed description of the plant communities at each site and Appendix A for a list of plants observed.

Plant Communities

One vegetation community occurred within Block C: *Pseudotsuga menziesii* Forest Alliance or Douglas fir Forest (Sawyer et. al. 2008) on an east-facing slope. The Conservation Area also supported a Douglas Fir Forest vegetation community and is situated on the nose of the slope downhill from Block C, resulting in a south-, east- and north-facing slope. These two areas are further described below:

Block C

Pseudotsuga menziesii Forest Alliance or Douglas fir Forest: This vegetation type is dominated by Douglas fir and includes an understory of coast live oak (*Quercus agrifolia*), black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*), big-leaf maple (*Acer macrophyllum*) and California bay (*Umbellularia californica*).

Pre-Fire: As described in the *Plant Survey Report* (Jane Valerius Environmental Consulting 2021) the 0.65-acre proposed Block C is, or was before the fire, a predominately a Douglas fir forest vegetation community. This can be seen on Figure 2, pre-fire.

Post-Fire: As described in the *Plant Survey Report* (Jane Valerius Environmental Consulting 2021), the understory shrubs were more prominent and include scrub oak (*Quercus berberidifolia*), poison oak (*Toxicodendron diversilobum*), and toyon (*Heteromeles arbutifolia*). A number of ferns were also noted in this area including goldback fern (*Pentagramma triangularis*), maidenhair fern (*Adiantum jordanii*), and wood fern (*Dryopteris arguta*). California fescue and narrow-flowered brome were common understory grass species in this area. Native forbs included Douglas iris (*Iris douglasiana*), sanicle (*Sanicular crassicaulis*), yellow fairy lantern (*Calochortus amabilis*), California helianthella (*Helianthella californica* var. *californica*), bush morning glory (*Calystegia occidentalis*), blue dics (*Dicholostemma capitatum*), Fremont's star lily (*Toxicoscordion fremontii*), and woodland madia (*Anisocarpus madioides*).

Conservation Area

The site is recovering from the 2020 Glass Fire and is in the early stages of succession, with herbaceous growth and shrubs growing faster than the trees.

The pre-fire conditions (Figure 2) likely supported three different vegetation communities and are as follows.

Mixed Chaparral: Situated on the south-facing slope this community is dominated by shrubby species including sticky monkeyflower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis*), common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), toyon, poison oak, and scrub oak. This vegetation type has an understory of native and non-native grasses and forbs similar to that for the forest and woodland communities.

Quercus agrifolia Woodland Alliance or Coast Live Oak Woodland: Situated on the east-facing slope, coast live oak woodland type is dominated by coast live oak but includes a variety of native trees including California bay laurel, Douglas fir, black oak and madrone (*Arbutus menziesii*). Understory shrubs include poison oak, toyon, hazelnut (*Corylus cornuta*) and coyote brush. Understory herbs include a variety of native grasses and forbs including blue wildrye (*Elymus glaucus*), California brome (*Bromus carinatus*), California fescue (*Festuca californica*), honeysuckle (*Lonicera hispidula*), soaproot (*Chlorogalum pomeridianum*), hedge nettle (*Stachys ajugoides*), California pipevine (*Aristolochia californica*), and sweet cicely (*Osmorhiza chilensis*). Non-native and weedy species observed include hare barley (*Hordeum murinum* ssp. *leporium*), dogtail grass (*Cynosurus echinatus*), false brome (*Brachypodium distachyon*), ryegrass (*Festuca perennis*), vetch (*Vicia* sp.), French broom (*Genista monspessulana*), yellow star thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), and salsify (*Tragopogon porrifolius*

Pseudotsuga menziesii Forest Alliance or Douglas fir Forest: Situated primarily on the north-facing slope, this vegetation type is dominated by Douglas fir and includes coast live oak, black oak, madrone, big-leaf maple and California bay. Understory shrubs include scrub oak, poison oak, and toyon. A number of ferns were also noted in this area including goldback fern (*Pentagramma triangularis*), maidenhair fern (*Adiantum jordanii*), and wood fern (*Dryopteris arguta*). California fescue and narrow-flowered brome were common understory grass species in this area. Native forbs included Douglas iris (*Iris douglasiana*), yerba Buena (*Clinopodium douglasii*), sanicle (*Sanicula crassicaulis*), and starry false lily of the valley (*Maianthemum stellatum).*

Post-Fire: The post-fire condition (Figure 3) is similar to that for Block C in that the trees, shrubs and herbaceous species are regenerating and in a successional stage. It will likely be decades before the trees obtain the same mature status, but the site will, in time, return to the pre-fire conditions. Although the larger dead trees have been removed for safety reasons, several smaller dead trees will be retained and they can be used in the future for acorn granaries or nesting trees for cavity nesting birds.

Benefits of the Proposed Conservation Area

The proposed conservation area is more vegetatively diverse than Block C, as shown in both the pre-fire and post fire figures (Figures 2 and 3). This diversity is likely based on the various slopes comprising the area. In addition, the location of the conservation area increases the acreage of the existing conservation area instead of being an isolated conservation area between two vineyards.

The shrub habitat (chaparral) that is successional after the fire, contains native plant species that benefit both invertebrates and vertebrate species. Native manzanita (*Arctostaphylos* spp.), madrones (*Arbutus menziesii*) and toyon (*Heteromeles arbutifolia*) are good native bee food, as described in *Farming for Bees Guidelines* (Vaughan et al 2015). Many of the native bees are solitary ground nesters that will likely inhabit the untilled native areas of scrub, rock piles, rocky embankments, and similar structures provide important habitat for a diversity of beneficial insects and other wildlife. Leafcutter bees (*Megachile* spp.) will nest in cracks or crevices in some types of rocks and in old logs. Other tunnel-nesting bees (i.e., digger bees (*Anthophora* spp.) use water to soften sandstone and excavate into the rock. Bumble bees will nest in pre-existing cavities (hollow logs, spaces in rock walls, under bunchgrasses, in bird nest boxes if vacant).

The following table presents some wildlife species observed and expected to occur in the habitats present in the conservation area.

Table 1: Wildlife species observed/expected and their occupiable habitats – May 10, 2022.

Scientific Name	**Common Name**	Chaparral scrub	Mixed hardwood conifer	Mixed Oak Forest	Observed/ Expected
Amphibians					
Taricha torosa	California newt		X	X	E
Birds					
Accipiter striatus	Sharp-shinned hawk	X		X	E
Aphelocoma californica	California scrub jay	X	X	X	E
Baeolophus inornatus	Oak titmouse		X	X	E
Buteo jamaicensis	Red-tailed hawk		X	X	**O**
Buteo lineatus	Red-shouldered hawk			X	**O**
Callipepla californica	California quail	X		X	**O**
Calypte anna	Anna's hummingbird	X	X	X	**O**
Cathartes aura	Turkey vulture	X	X	X	E
Catharus ustulatus	Swainson's thrush		X	X	E
Colaptes auratus	Northern flicker		X	X	E
Corvus brachyrhynchos	American crow	X	X	X	**O**
Corvus corax	Common raven	X	X	X	**O**
Junco hyemalis	Dark-eyed junco		X	X	E
Melospiza melodia	Song sparrow	X		X	**O**
Melozone crissalis	California towhee	X		X	**O**
Pipilo maculatus	Spotted towhee	X	X	X	**O**
Poecile rufescens	Chestnut-backed chickadee	X	X	X	E
Psaltriparus minimus	bushtit		X	X	E
Sayornis nigricans	Black phoebe	X			**O**
Thryomanes bewickii	Bewick's wren	X		X	E
Vireo huttonii	Hutton's vireo		X	X	E
Zonotrichia atricapilla	Golden-crowned sparrow	X			E
Zonotrichia leucophrys	White-crowned sparrow	X			E
Mammals					
Mephitis	Striped skunk	X	X	X	E
Neotoma fuscipes	Wood rat	X	X	X	E
Puma concolor	Mountain lion	X	X	X	E

Scientific Name	**Common Name**	Chaparral scrub	Mixed hardwood conifer	Mixed Oak Forest	Observed/ Expected
Sciurus carolinensis	Gray squirrel		X	X	**O**
Thomomys bottae	Botta's pocket gopher	X		X	**O**

SUMMARY

The proposed conservation area for Block C includes the same or similar habitat types that will be developed in the vineyard block and actually includes a higher diversity of plants and slope aspects. The location of the conservation area is also a benefit as it is not only representative of the vegetation communities to be impacted by the vineyard development, but it is in close proximity and will provide the same wildlife habitat values as were present for Block C.

REFERENCES

California Department of Fish & Wildlife (CDFW). 2021. California natural community list. https://wildlife.ca.gov/data/vegCAMP/Natural-Communities. September 9.

Jane Valerius Environmental Consulting. 2021, Special Status Plant Survey Report for Babu Vineyard Block C 3600 White Sulphur Springs Road St. Helena, Napa County, CA 94574 (APN 027-010-033). Technical Report Prepared for Matt O'Connor, O'Connor Environmental, Inc. October 5.

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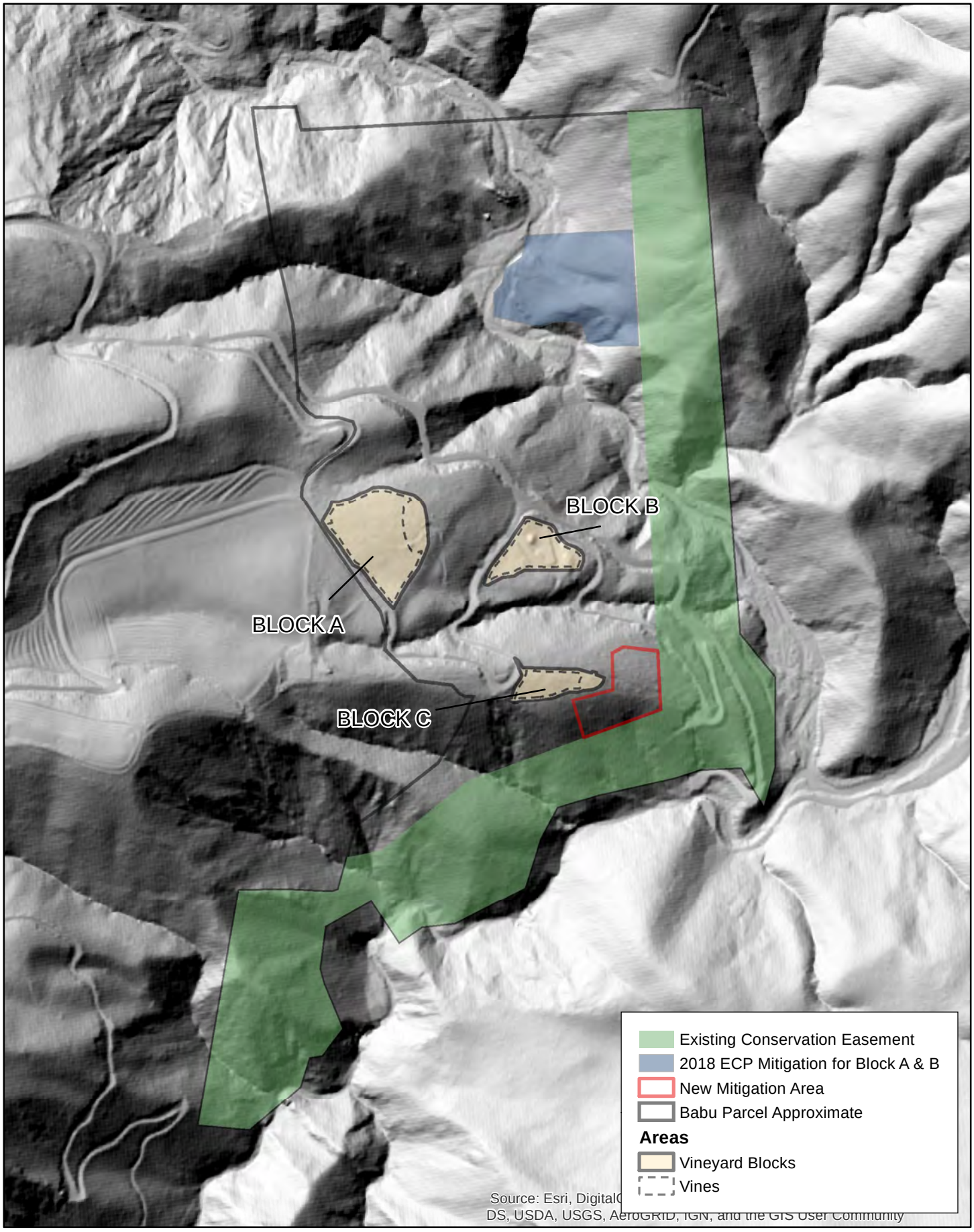
Appendix A:
Plant species (including mosses and lichens) observed in Block C -
April 12, May 14, and June 22, 2021 and May 10, 2022.

Scientific Name	Common Name
Vascular Plants (Flowering plants)	
Acer macrophylla	Big leaf maple
Acmispon americanus var. *americanus*	Spanish lotus
Acmispon brachycarpus	Short podded lotus
Acmispon glaber var. *glaber*	Deer weed
Agoseris grandiflora	California dandelion
Agoseris heterophylla	Annual agoseris
Aira caryophyllea	European hair grass*
Anisocarpus madioides	Woodland madia
Anthemis cotula	Dog fenel*
Arbutus menziesii	Madrone
Avena barbata	Wild oats*
Avena fatua	Oats*
Baccharis pilularis	Coyote brush
Brachypodium distachyon	False brome*
Brassica nigra	Black mustard*
Bromus catharticus	Rescue grass*
Bromus diandrus	Ripgut brome*
Bromus hordaeceus	Soft chess*
Bromus laevipes	Brome*
Calochortus amabilis	Yellow fairy lantern
Calystegia occidentalis	Bush morning glory
Cardamine californica	Milk maids
Cardamine oligosperma	bittercress
Carduus pycnocephalus	Italian thistle*
Carex brevicaulis	Short stem sedge
Cenaturea cyanus	Bachelor's button*
Centaurea solstitialis	Yellow star thistle*
Cerastium glomeratum	Mouse-ear chickweed*
Chlorogalum pomeridianum	Soaproot
Clarkia concinna	Red ribbons
Cynosurus echinatus	Dogtail grass*
Cyperus eragrostis	Tall flatsedge
Daucus carota	Queen Anne's lace*
Dichelostemma capitatum ssp. *capitatum*	Blue dics
Dryopteris arguta	California wood fern
Elymus glaucus	Blue wildrye
Epilobium brachycarpum	Willow herb
Erigeron bonariensis	Horse weed*
Festuca myuros	Rattail fescue*
Festuca perennis	Ryegrass*
Logfia gallica	Daggerleaf cottonrose*
Galium aparine	Bedstraw*

Scientific Name	Common Name
Galium porrigens	Climbing bedstraw
Geranium roberterianum	Robert geranium*
Helianthella californica var. *californica*	California helianthella
Heteromeles arbutifolia	Toyon
Hordeum murinum ssp. *leporinum*	Hare barley*
Hypochaeris radicata	Rough cat's-ear*
Iris douglasiana	Douglas iris
Lactuca serriola	Prickly lettuce*
Lathyrus vestitus var. *vestitus*	Hillside pea
Lonicera hispidula	Honeysuckle
Lupinus nanus	Sky lupine
Lysimachia arvensis	Scarlet pimpernel*
Matricaria discoidea	Pineapple weed*
Medicago polymorpha	Bur clover*
Petrorhagia dubia	Hairypink*
Plantago lanceolata	English plantain*
Poa annua	Annual bluegrass*
Polystichum californicum	California sword fern
Pseudotsuga menziesii	Douglas fir
Quercus agrifolia	Coast live oak
Quercus berberidifolia	Scrub oak
Quercus garryana	Oregon oak
Quercus kelloggii	Black oak
Quercus wizlizeni	Interior live oak
Raphanus sativus	Wild radish*
Rubus armeniacus	Himalayan blackberry*
Rumex crispus	Curly dock*
Sanicula crassicaulis	Sanicle
Senecio vulgaris	Common groundsel*
Silybum marianum	Milk thistle*
Sisrynchium bellum	Blue-eyed grass
Solanum sp.	Solanum
Sonchus asper	Prickly sow thistle*
Sonchus oleraceus	Common sow thistle*
Stachys rigida	Rigid hedge nettle
Symphoricarpos mollis	Creeping snowberry
Tolpis barbata	European milkwort*
Torilis arvensis	Field hedge parsley*
Toxicodendron diversilobum	Poison oak
Toxicoscordion fremontii	Fremont's star lily/death camas
Tragopogon porrifolius	Salsify*
Trifolium hirtum	Rose clover*
Trifolium incarntum	Crimson clover*
Umbellularia californica	California bay laurel
Vicia sativa	Spring vetch*
Vicia villosa	Hairy vetch
Wyethia angustifolia	Mule's ears
Non-Vascular Plants or Lichens and Mosses	

Scientific Name	**Common Name**
Scientific Name	Habitat and Substrate
Dendralisa abietina	Moss on trunks and limbs of oaks
Evernia prunastri	Lichen epiphytic on oak branches
Flavoparmelia caperata	Lichen on limbs and bark of oaks
Homalothecium nuttallii	Moss on bark of oaks
Isothecium cristatum	Moss on bark of oaks
Ramalina farinacea	Lichen on branches and bark of oaks
Timmiella crassinervis	On thin soil over rock
Usnea arizonica	Lichen on branches of oaks
Usnea glabrata	Lichen on branches of oaks

Species with an * are non-native species.



Babu Vineyard Blocks and Mitigation Areas

N

0 250 500 1,000 1,500 Feet

Babu Vineyard Blocks and Mitigation Areas - Pre-Fire Imagery

N

0 45 90 180 270 Feet

Babu Vineyard Blocks and Mitigation Areas - Post-Fire Imagery

N

0 62.5 125 250 375 Feet