# Suscol Headwaters

## *Botanical Resource and Special Status Plant Study -Phase 2*

**Suscol Creek Road**

**March 2023**

**Prepared for:**

**Napa County Regional Park and Open Space District**

**1195 Third Street, Room 210**

**Napa, CA 94559**

**By**

*Napa Botanical Survey Services*

**3549 Willis Drive**

**Napa CA 94558**

## Table of Contents

*Suscol Headwaters, Phase 1*- Botanical Resource and Special Status Plant Study



### List of Figures and Tables

## Introduction

The Suscol Headwaters property was acquired by the Napa County Regional Park and Open Space District (NCRPSD) in part as surplus land from a vineyard developer's holdings (purchase option, Phase 2). An additional 298 acres was acquired with mitigation money designated to benefit an endangered species. The 709 acre property is located about 4 miles southeast of the city of Napa, along the eastern boundary of the county (approximately 40 acres of the Suscol *Headwaters* property is located in Solano County). It is contiguous with Skyline Park Wilderness along its northern boundary, providing an opportunity to extend the Bay Area Ridge Trail across private and public properties from the Tuteur Ranch and Skyline Park southward to Jameson Canyon. The property preserves open space but also preserves Critical Habitat Area for California Red-legged Frog (*Rana draytonii*). The NCRSPD has constructed a small reservoir on the property to provide breeding habitat for the frog. The property It is currently inaccessible for public recreational use. A proposed trail and parking area near North Kelly Road will provide public access for recreational purposes.

The eastern and southern boundaries of the property border undeveloped rangeland in Solano County, currently used to graze cattle. Lands to the west have been developed into premium grapes to the extent permitted while habitat corridors have been left undeveloped adjacent to Suscol Creek and Fagan Creek. These corridors permit wildlife mobility from the Headwaters property to the Napa River.

Botanical surveys were conducted by *LSA Associates* from 2007 to 2009 with the results published as part of the *Biological Survey Report for the Suscol Mountain Property, Napa County, California* in 2010. Those surveys covered the entire 2,123 acre property with a focus on lands that were deemed both suitable and available for agricultural development. Remaining lands were given a lower level of discovery. California Department of Fish and Wildlife regulations require an update of surveys if five years have passed since previous surveys. Napa Botanical Survey Services provided an updated report of botanical resources on approximately half of the Suscol Headwaters property (Phase 2 & part of Phase 1) in 2019.

Elevation at Suscol Headwaters ranges from 300 ft., along Sheehy Creek, to 1505 ft at the Napa-Solano County line. The terrain ranges from moderate too steeply sloped with the exception of gradual slopes along ridgelines and near stream corridors. The Phase 1 survey area was accessed via Anderson Road or Suscol Creek Road and thence through Silverado Properties landholdings. An additional access point was provided by the Napa Sanitation District through an electronically controlled gate on North Kelly Road. This access point permitted surveys of a proposed parking area and trail route that would enter the Headwaters property south of Suscol Ridge near Sheehy Creek.

The Suscol Headwaters property is currently grazed under a Resource Management Plan that was prepared by a Certified Rangeland Manager. Cattle do not have access to the lower trail corridor that crosses Napa Sanitation property. Grazing is excluded by a vineyard and movable electrical fencing north of the wastewater spray fields.

Figure 1  Survey Area

# Figure 1 : *Survey Area*

*Phase 1 Botanical Surveys*

Soils on the Phase 1 portion of the property originated from decomposition and weathering of volcanic and sedimentary rock. Soils of the Hambright Series (mapping code 152), with 30-75% slopes, occur on canyon slopes in the upper Suscol Creek watershed and on Suscol Ridge. The dark brown to grayish brown stony loam is well drained with basic igneous rock occurring at a maximum of 12 inches depth (other soil series may be intermingled). This series supports annual grassland and sparse herbaceous vegetation near exposed bedrock as well as narrow bands of oak and bay at ridgelines. Soils of the Fagan Series (m.c. 131) with 5-15% slopes and (m.c. 134) with 30-50% slopes, are derived from sandstone and shale. This is the predominant soil series mapped as occurring on Phase 1 property; on the south side of Suscol Ridge in the upper Fagan and Sheehy Creek watersheds. This soil type includes a gray-brown clay loam in the upper horizon that is medium acidic with a depth up to 10 inches. The subsoil is a medium acidic clay-loam extending to a sandy clay loam at a depth of up to 46 inches (other soils may be intermingled). This series supports forest and woodland communities near drainages and grasslands on gradual to steep slopes. It carries a high erosion potential on steeper slopes, subject to landslip in years of high rainfall. (*A Soil Survey of Napa County, California,* 1978).

The Suscol Headwaters property encompasses the "headwaters" (source) of Suscol, Fagan and Sheehy Creeks. The Phase 1 area, is located mostly within the Fagan Creek watershed but also includes portions of the (upper) Suscol Creek and Sheehy Creek watersheds. A number of springs emanate from the steep slopes on the south side of Suscol Ridge and feed into both Fagan and Sheehy Creeks. All three creeks drain into brackish marsh before reaching the Napa River.

Precipitation is not recorded on the property but measurements collected at the American Canyon Airport have recorded an annual mean rainfall of about 22 inches. The summers are warm and dry and moderated by maritime breezes. Typical summer temperatures are in the 70s to low 90s ˚F. Frost is limited in occurrence in this part of the county while soil moisture, retained by fine clay soils, typically sustain the growth annual grassland well into the month of May.

The Phase 1 portion of the Suscol Headwaters property has been utilized as rangeland for many decades. Disturbance from cattle and competition from invasive plant species is prominent in grassland habitats, especially near water sources and along roadways. The site supports indigenous wildlife but also supports feral pigs and Wild Turkey (Suscol Creek drainage).

The goals of the botanical field work was to:

- Develop a list of potentially occurring rare plant species and record any special status plant species observations with a GPS unit.
- Assimilate an inventory of vascular plant species observed on the Phase 1 portion of the property noting any state, federal, California Native Plant Society and locally-rare taxa.
- Provide brief descriptions of observed vegetation alliances/associations.
- Provide a report of findings including a map of special status plant species observed during 2022-2023 surveys.
- Provide a discussion of habitat quality and potential impacts to sensitive plant habitat.

- Flag all Streamside Daisy populations located during 2019 surveys to assist in avoidance of impacts during trail construction.

## Field Survey Methodology

Field surveys focused on portions of Phase 1 (Napa County Open Space District fee title lands) that were not surveyed in 2019, the proposed trail route through Napa Sanitation property, and a trail segment that will pass through two vineyard blocks (privately owned). A late season survey was completed on October 12, 2022 while spring surveys were completed on March 9 and March 15, 2023. It was requested that surveys be completed no later than March in order to meet an April 1 reporting deadline. Field surveys covered the project area during the blooming season of some species but some species were necessarily identified vegetatively due to the April deadline. Woody species and most perennials are readily identifiable vegetatively through much of the year but some annual species may be overlooked outside of the flowering season. Some habitats and locations with potential of special status species were recommended for further study.

## Survey Findings

Rainfall during the 2022-23 season, leading into and through the field study, was in excess of 100% of the predicted seasonal mean at this location but below normal seasonal temperatures delayed spring flowering by perhaps one to two weeks. Most annual species remained in a vegetative state at the time of March surveys. Recent storms provided for easy recognition of seasonal wetland features.

Most of the property was burned by the October 2018, *Atlas Fire* that devastated about 51,600 acres of land from Jameson Canyon to Lake Hennessey. Forested and wooded areas on *Headwaters* were lightly to severely damaged. The property has been in post-fire recovery for over four years which has covered most evidence of fire beyond fallen tree trunks and burn scars visible on some woody species.

Surveys of Phase 1 encompassed a broad sampling of habitats on the portion of the area not surveyed in 2019. Surveys were completed with minimal use of jeep roads and trails. Open grasslands were surveyed by walking meandering transects with focus on habitat diversity in order to capture the diversity of plant species and vegetation types that occur in the study area. Surveys included off-road exploration through woodland, shrubland and forest communities. All vascular plants observed during the surveys were identified in the field or collected for positive identification in the home office. A complete list of species observed in 2022-23 surveys is included at the conclusion of this report. Taxonomy follows *The Jepson Manual, Vascular Plants of California*, Baldwin et al., 2012 with one exception (*Zauschneria*).

The survey area was open to cattle grazing during the study, muting the phenology of some herbaceous plant species. About 160 species of vascular plants were observed in 2022-23. Of these, 99

are native and 61 are not native. What follows is a description of findings regarding vegetation composition, significant plant species and invasive plant species.

The following described vegetation types are based on a preliminary classification and definitions from 2002 data collected by a research team including UC Davis –Information Center for the Environment (ICE), NatureServe, California Department of Fish and Game, The California Native Plant Society, and Aerial Information Systems (AIS). The definitions may have undergone expansion and further partitioning following additional studies conducted in 2018. The descriptions that follow were collected during the 2022-23 field surveys. (* Indicates non-native species.)

## Vegetation Types Observed on the Suscol Headwaters Property – Phase 1

At least seven vegetation types were observed during this study, including forest, brushland, grassland and wetland habitats. Vegetation titles were adapted from *A Vegetation Map and Classification* (Thorne, Kennedy, Quinn and McCoy; 2003). A brief descriptive title (in bold) was assigned by this botanist followed by the closest title assigned by ICE in their classification code (indicated in bold). Some titles assigned by ICE have not yet been formally described. (An * following a botanical name indicates a species that is not native.)

### Ruderal Vegetation

*Agriculture* **9200**

The site proposed for a parking lot extends into a field that is currently utilized for the dissipation of sanitation waste water. There was no vegetation present at this location during the October survey. This area was planted to a grain crop in the fall of 2022 and was in early development at the time of the spring survey. The planted crop appears to be cultivated Oats (*Avena sativa*). Field Mustard (*Brassica campestris*) has volunteered sparsely among the crop. The first segment of the trail passes along a gravel road through weedy (ruderal) vegetation that includes a mix of native and non-native grasses and forbs. Common species include Branched Willowherb (*Epilobium brachycarpum*), Italian Rye (*Festuca*

October 2022

March 2023

*perenne**), Prickly Lettuce (*Lactuca serriola**), Bristley Ox-tongue (*Helminthoheca echioides**) and Harding Grass (*Phalaris aquatica**). It also includes scattered shrubs and trees that were either planted or perhaps have volunteered including Coast Live Oak (*Quercus agrifolia* ssp*. agrifolia*), Italian Buckthorn (*Rhamnus alaternus* *), Long-leaf Ironwood (*Casuarina* glauca *) and Silver Wattle (*Acacia dealbata* *).

**Coastal Prairie**

*Creeping Ryegrass Alliance* **6121**

At the point of exit from the roadside, the trail passes into what likely was *Coastal Prairie* historically. This vegetation type, under natural conditions, is dominated by perennial native grasses with a mix of annual and perennial forbs. This community has been altered by grazing and fallowing and is currently dominated by invasive annual and perennial grasses including Wild Oats (*Avena* sp.), Rip-gut Grass (*Bromus diandrus**), Bermuda Grass (*Cynodon dactylon**), and Harding Grass (*Phalaris aquatica**) and includes patches of Himalayan Blackberry (*Rubus armeniacus**). Other non-native forbs such as Italian

(*Carduus pycnocephalus**), Rose Clover (*Trifolium hirtum**) and Dock (*Rumex* sp.*) are scattered too locally common. A number of native species do persist including Alkali Rye (*Elymus triticoides*), Branched Willow Herb, Wavy-leaf Soap Plant (*Chlorogalum pomeridianum*), Lupine (*Lupinus* sp.), and Cleavers (*Galium aparine*). Coyote Brush (*Baccharis pilularis* ssp*. consanguinea*) is a widely scattered to patchy shrub. A few narrow bands of wetland vegetation occur along seasonal drains with Pacific Bog Rush (*Juncus effusus* var*. pacificus*) an indicator of seasonally saturated conditions at these locations.

**California Annual Grassland**

*California Annual Grassland Alliance* **7120**

This vegetation type covers much of the *Phase I* portion of the *Suscol Headwaters* property. Species dominance is variable, determined by soil depth and slope. Long term grazing and competition from introduced species has established a predominance of non-native grasses and forbs. Common to abundant species include Long-beaked Filaree (*Erodium botrys**), Red-stem Filaree (*E. cicutarium**), Common Fiddleneck (*Amsinckia intermedia*), Italian Thistle (*Carduus pycnocephalus**), Pretty Dock (*Rumex pulcher**), and Sub Clover (*Trifolium subterraneanum**). Dense patches of Black Mustard (Brassica nigra*) dominate into late spring while Yellow Star Thistle (*Centaurea soltitialis**) is an abundant non-native forb that is locally abundant in summer. Other non-native species that are locally common includie Mediterranean Linseed (*Bellardia trixago**), Rosy Sand Crocus (*Romulea rosea* var. *australis**), Milk Thistle (*Silybum marianum**) and Rose Clover (*Trifolium hirtum**). Miniature Lupine (*Lupinus bicolor*) is a native forb that is common in grasslands at lower elevations. California Poppy (*Eschscholzia californica*) is widely distributed and is especially common on steep south facing slopes in wet years (2023). Other native species including Blue Dics (*Dichelostemma capitatum*), Summer Lupine (*Lupinus formosus*), California Buttercup (*Ranunculus californicus*), Purple Needlegrass (*Stipa pulchra)*, and Western Morning Glory (*Calystegia occidentalis*) are generally more localized than the mentioned non-native species. There are a number of additional native species that retain a limited foothold,

*California Annual Grassland* with scattered volcanic stones, March 2023

Grassland with *Ranunculus californicus*

*Hemizonia congesta* ssp *lutesens* x *luzulifolia*

restricted to isolated patches or individuals. This includes Narrow-leaved Mule Ears (*Wyethia angustifolia*), Sun Cups (*Taraxia ovata*), and Arroyo Lupine (*Lupinus succulentus*). The last species occupies steep cut-banks and slumping slopes. During summer and into fall, there are late flowering native annuals that are locally common including Rosin Weed (*Calycadenia truncata*), covering 1-2 acres on a steep rocky slope, and Hayfield Tarweed (*Hemizonia congesta* ssp. *lutescens* x *luzulifolia*; there is introgression of the white and yellow flowered subspecies here; this occurs locally in south Napa County and is uncommon). Dove Mullein (*Croton setigerus*) is sparsely distributed in dry grasslands in summer. Coyote Brush (*Baccharis pilularis* ssp*. consanguinea*) is very sparsely distributed shrub.

Strands of cobbles and small boulders are prominent at some grassland locations, particularly on volcanic substrate in the upper reach of the Fagan Creek watershed. Around and among these rocks there are patches or thickets of native shrubs comprised of one or more species such as California Rose (*Rosa californica*), Poison Oak (*Toxicodendron diversilobum*), California Blackberry (*Rubus ursinus*), and Trailing Snowberry (*Symphoricarpus mollis*). This habitat also supports a mix of native perennials including Coast Manroot (*Marah fabaceus*), Rigid Hedge Nettle (*Stachys rigida* ssp*. quercetorum*), Douglas Mugwort (*Artemisia douglasiana*) and Common Yarrow (*Achillea millefolium*). Concentrations of volcanic surface rubble also provides habitat for Common Phacelia (*Phacelia distans*; locally numerous).

**Freshwater Marsh**

*(Carex spp. – Juncus spp. -Wet Meadow Grasses) Mapping Unit* **6403**

Freshwater springs emanate from the steep south slopes of Suscol Ridge. These outflows are muddy and generally pitted (trampled) by cattle. This vegetation type is generally circumscribed by California Annual Grassland or found on shallow rocky ground at the origin of riparian corridors. The vegetation is dense to sparse, changing with seasonal progression. It is dominated by perennial species such as Pacific Bog Rush (*Juncus effusus var. pacificus*), Pennyroyal (*Mentha pulegium**) and Willow Weed

(*Persicaria lapathifolia*). These springs also support annual native taxa such as Cotton Batting Plant (*Pseudognaphalium stramineum*), Dove Mullein (*Croton setigerus*), and Spiny Clotbur (*Xanthium spinosum*) in the saturated fine clay soils. Tall Nutgrass (*Cyperus eragrostis*) occurs sparingly and Baltic Rush (*J. balticus*) is sparsely distributed. Hyssop-leaved Loosestrife (*Lythrum hyssopifolia**) and Bull Thistle (*Cirsium vulgare**) are localized non-native species. Some places are perennially swampy with standing surface flow and support Water Cress (*Nasturtium aquaticum*), Seep-spring Monkeyflower (*Erythranthe gutatta*), and Pacific Oenanthe (*Oenanthe sarmentosa*). Clustered Dock (*Rumex conglomeratus**) and Bristly Ox-tongue (*Helminthotheca echioides*) occupy heavy moist to dry soils in surrounding transitional habitat. The lower reach of Sheehy Creek, near the point of exit from the property, is dominated by Freshwater Marsh vegetation but here it is lacking in cespitose (bunch forming) perennials. The dominant species include Brown-headed Rush (*Juncus phaeocephalus*) and

Clustered Dock. One productive spring on the property has been tapped for livestock watering and includes a pipeline and concrete trough. The associated wetland at this location covers >0.5 acre. The site shown in photos above and below supports a diverse pallet of annual perennial species including Tall Nutgrass, Pacific Bog Rush, Clustered Dock, Willow Weed, Seep-spring Monkeyflower, Rabbit's Foot Grass (*Polypogon monspeliensis **), and Spiny Clotbur (*Xanthium spinosum*). At this location, three springs feed into a single drainage that feeds directly into Fagan Creek.

**Seasonal Freshwater Ponds**

*Riverine, Lacustrine, and Tidal Mudflats* **9002**

A number of seasonal ponds were made evident by the abundant rains of February and March of 2023. Dependent on depth and duration of inundation, these features support a variety of wetland (hydrophytic) and non-wetland species. The largest of these features covers about one acre but displayed no presence of hydrophytic species at the time of the survey. This is perhaps due to irregular inundation in recent years. Other pools each cover less than 2000 sq. ft. and are either natural

Pond with *Ranunculus lobbii* (white)

(perhaps land-slump related) in occurrence or were constructed for livestock watering. Spiny Clotbur reaches peak bloom with the late seasonal desiccation of these ponds and was found in a number of these features. Some pond sites support *Dock* (*Rumex* sp.) and Toad Rush (*Juncus bufonius*). A stock pond in the upper area of the Fagan Creek watershed supports Flowering Quillwort (*Triglochin scilloides*), Lobb's Water Buttercup (*Ranunculus lobbii*; CNPS List 4.2), Bolander's Water Starwort (*Callitriche heterophylla* var. *bolanderi*), and Knotweed (*Paspalum distichum*). Early season surveys (March 2023) could not be comprehensive in the inventory of all plant species occupying this habitat type. Additional species may become apparent as these feature dry out.

**Coastal Sage Scrub**

*Coyote Brush-California Sagebrush – (Lupine spp.) NFD Super Alliance* **4501**

This vegetation type is highly restricted in Napa County, forming small stands or patches, mostly on the south end of the Napa and Hood Mtn. Ranges. Composition is influenced by maritime breezes and moisture from the San Pablo Bay. Grazing may reduce the size and expression of these communities. Scattered patches, occupying less than ½ acre each, occur on steep south slopes at Suscol Headwaters. Some patches of this vegetation type that were observed on the Phase 2 portion of the property include Coyote Brush, Sticky Monkeyflower and other species but the two patches observed on Phase 1 are almost purely comprised of California Sagebrush (*Artemisia californica*). Poison Oak and is a minor

component and a few Arroyo Willows occur in a wet draw. Herbaceous species including Rough-leaved Aster (*Eurybia radulina*) and Common Phacelia (*Phacelia distans*) are found in openings and near the outer margins. California Bay and Coast Live Oak occur in narrow bands above (upslope) these vegetation patches.

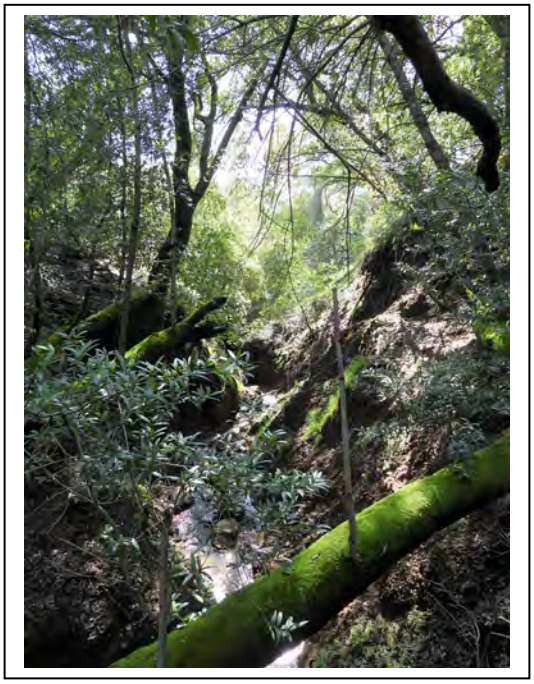
**Coast Live Oak Riparian Forest**

*Valley Oak-(California Bay – Coast Live Oak – Walnut – Ash) Riparian Mapping Unit* **3101**

Fagan Creek originates near the Napa-Solano County line to the south of the Suscol Creek drainage. The headwater area is dominated by annual grassland but the drainage corridor supports a continuous tree canopy of varying breadth. This canopy is dominated by Coast Live Oak (*Quercus agrifolia* ssp. *agrifolia*) with California Bay (*Umbellularia californica*) occurring as an important associate. Not entirely restricted to the stream channel, this contiguous forest encompasses small stands of upland Coast Live Oak Forest that are too confined to map as a distinct vegetation type and therefore included within this description. The total canopy cover is 75-85% with trees reaching up to 45-55 ft in height. Sapling California Bay occurs in the understory. The riparian corridor also includes stands of bay and scattered individuals of California Buckeye (*Aesculus californica*) as well as a few Oregon Ash (*Fraxinus latifolia*) and Pacific Madrone (*Arbutus menziesii*). A single Coast Redwood (*Seqouia sempervirens*) is prominent among the riparian canopy at one point. [Big-leaf Maple was observed in this riparian community on the south side of the drainage, outside the property boundary.] Arroyo Willow (*Salix lasiolepis*) is scattered along the channel and forms a continuous stand along one tributary channel. The deeply incised slopes near the stream channel also support a shrub layer that includes a California Hazelnut (*Corylus cornuta* var. *californica*; few), Toyon (*Heteromeles arbutifolia*), Coyote Brush (*Baccharis pilularis* ssp. *consanguinea*), Hairy Honeysuckle (*Lonicera hispidula*), California Blackberry (*Rubus ursinus*), and Poison Oak (*Toxicodendron diversilobum*). Woodland Rose (*Rosa gymnocarpa;* an atypical form of this species,

perhaps a hybrid) was observed at a single location. Sour Cherry (*Prunus cerasifera* *) is an uncommon non-native tree here, adventive from the days of fruit orchards in the county.

The herb layer is sparse to moderate in density and includes a number of native perennials such as Wavy-leaf Soap Plant (*Chlorogalum pomeridianum*), Torreys's Melica (*Melica torreyana*), Western Rye (*Elymus glaucus* ssp. *glaucus*), and Santa Barbara Sedge (*Carex barbarae*). The understory is grazed and is dominated by Rip-gut Grass (*Bromus diandrus**) by summer. Exposed stream banks near the upper end of a tributary drainage support Spiny Clotbur (*Xanthium spinosum*), Pacific Bog Rush, Milk Thistle (*Silybum marianum* *), and Bristly Oxtongue in seasonally saturated swales. [possible SOD here]. Other common perennial species observed in the understory include English Plantain (*Plantago lanceolata**), Pacific Snakeroot (*Sanicula crassicaulis*), California Buttercup (*Ranunculus californica*), Woodland Strawberry (*Fragaria vesca*), Rigid Hedge Nettle (*Stachys rigida*), and Rough-leaved Aster (*Eurybia radulina*). Annuals such as Common Chickweed (*Stellaria media**), Purple Geranium (*Geranium purpureum**) are common in places with filtered sun. Deeply shade slopes close to the channel are sparsely vegetated but support perennials such as Wood Fern (*Dryopteris arguta*), Sword Fern (*Polystichum minutum*), California Polypody (*Polypodium calirhiza*), Hooker's Fairy Bells (*Prosartes hookeri*), and Maidenhair Fern (*Adiantum jordanii*) in scattered to patchy distribution. Dense stands of California Bay cast a deep shade over patches of Star California Solomon's Seal (*Maianthemum stellatum*). The two confluent tributaries of Fagan Creek showed minimal perennial flow in October 2022 but transported rapid flowing waters in March 2023.



## Potentially Occurring Special Status Plant Species and Survey Results

A review of the *Suscol Mountain Vineyard Report* (2010) and personal records of local special status plant species were used to determine the following list of potentially occurring special status species.

Streamside Daisy (*Erigeron bioletti*) was already confirmed during 2007-2009 and 2019 surveys. A more extensive list of potential species was presented in the 2010 report. Please refer to pages 28-32 of that report regarding the focus of previous surveys. The following refined list includes those species deemed to have potential to occur on the property based on the vegetation types and substrates that occur on the property and 2019 surveys. These were the focus of 2022-2023 field surveys.

Bent-flowered Fiddleneck (*Amsinckia lunaris*) – This species occurs in grassland, brushland and woodland habitats. It blooms from March to June and has been recorded in Skyline Park about 2.3 mi north of the Headwaters property. Suitable habitat occurs within the Phase 1 study area. It was not found although a related species, Common Fiddleneck (*A. intermedia*) was found to be locally numerous. CNPS List 1B.2

Narrow-anthered Brodiaea (*Brodiaea leptandra*) – This species occurs in wooded and brushy places on volcanic substrates. It has been recorded in Skyline Park about 1.5 miles north of the study area. Suitable habitat is restricted at Suscol Headwaters to areas of volcanic rock outcroppings where there is seasonal surface (sheet) drainage. This species blooms from late May into July. The 2023 surveys were not conducted during the flowering season of this species. The probability of occurrence is considered to be low in grassland/woodland transitions. CNPS List 1B.2

American Dogwood (*Cornus sericea* ssp. *sericea*) – This species occurs along perennial streams on volcanic substrates. It is known to occur along Sarco Creek about 7 miles north of the study area. Suitable habitat occurs within the survey area. This deciduous shrub would be identifiable vegetatively during October. It was not found during 2022-2023 surveys. It is considered to be “locally rare” in Napa County.

Streamside Daisy (*Erigeron bioletti*) – This species prefers rocky places on a variety of substrates. It was confirmed as occurring on the Suscol Headwaters property during the 2019 surveys (also previously in 2007-09). It blooms from June to September. Although surveys were conducted outside of the blooming season, this species is identifiable vegetatively in March and October. It was not found within the Phase 1 survey boundaries during 2022-23 surveys. CNPS List 3 [See page 17 for a list of additional GPS waypoints collected in March 2023 while conducting pre-construction flagging of populations within the 2019 Phase 2 survey area.)

Narrow-leaved Daisy (*Erigeron greenei*) – This species prefers rock outcrops on volcanic and serpentine substrates. It occurs on Mt. George, about 6 miles north of the site. Suitable habitat is restricted within the 2022-2023 survey area. Surveys conducted in spring were out of season but this species could be identified to genus in March and October. This species was not found during 2022-2023 surveys. CNPS List 1B.2

Nodding Harmonia (*Harmonia nutans*) – This species grows among low profile rock outcrops on a variety of substrates, especially on volcanics. It has been recorded on the Tuteur and Green Valley Ranch less than 2 miles northeast of the site. Suitable habitat is restricted in the Phase 1 survey area to upper

elevations with volcanic surface rubble and shallow gravelly soils. This species blooms from April-May. It may be identifiable vegetatively in mid-March, in part due to its typically sparsely vegetated habitat. It was not observed during the March 2023 survey. CNPS List 4.3

Hogwallow Starfish (*Hesperevax caulescens*) – This species occurs on grassy slopes in seasonal wet places. There is a historic report of this species from Napa Valley although the location was unspecified and there is no supporting voucher collection. Suitable habitat occurs on the property around rock outcrops. It blooms from April-June. Although this species would not be expected to be blooming in March, potential occurrence could be registered by grayish foliage that would visibly stand out among other annuals in March. A single species with this characteristic was observed during the March 2023 surveys. That species was identified as Q-tips (*Micropus californicus*), a common species. The potential occurrence of Hogwallow Starfish within the survey area is considered extremely low. CNPS List 4.2

Coast Iris (*Iris longipetala*) – This species occurs in heavy soils on grassy slopes and flats in seasonally saturated places. It grows on various substrates. It occurs about 6.2 miles south of the site in American Canyon. Suitable habitat occurs within the Phase 1 survey area around springs. This species blooms in April-May. Although surveys occurred out of season, it could be identifiable to genus in March. No species of this genus was detected in suitable habitat during the March 2023 surveys. CNPS List 4.2

Green Coyote Mint (*Monardella viridis*) – This is a widespread species in Napa County occurring in brushy to forested habitats. It occurs on the Tuteur Ranch less than 0.5 miles northeast of the site. The probability of occurrence in the Phase 1 survey area is considered very low due to limited presence of brushy or upland forest habitat. It blooms from June to September. It can be identified vegetatively throughout the year. It was not observed during the 2022-2023 surveys. CNPS List 4.3

Gairdner's Yampah (*Perideridia gaidneri* ssp. *gairdneri*) – This species prefers seasonally wet places on gradual slopes or flats. It has been recorded on the east side of Mt. George, about 6 miles north of Suscol Headwaters. A species of Yampah was reported and mapped in the *Suscol Mountain Report* but specific identification was unconfirmed by 2007-2009 surveys. It blooms from June into August. Surveys for this species were not completed during the blooming season. No species of this genus was detected during 2022-2023 surveys although vegetative identification to species is possible in March. The potential for occurrence is considered very low. Detection is complicated by livestock grazing. CNPS List 4.2

Lobb's Aquatic Buttercup (*Ranunculus lobbii*) – This species grows in seasonally inundated swales or pools in shallow streams. The potential for occurrence was seen as remote in October 2022 but plentiful rainfall revealed suitable habitat at multiple locations in 2023. One location was found to harbor this species. This man-made wetland feature was likely constructed to provide water for livestock. The area of ponded water covers less than 2000 sq. ft. but a sizable portion of the surface of the pond was occupied by this aquatic buttercup (see photo on page 10). This species has been recorded in about 12 locations in Napa County although half of these locations have been destroyed in

recent years. It was in bloom at the time of the March survey. CNPS List 4.2 (GPS location: N38˚14'18.9"/W122˚12'36.3")

Yellow-eyed Grass (*Sisyrinchium californicum*) – This species grows in Freshwater Marsh along perennial springs and has been recorded on Mt. George about 6.2 miles north of the site. Suitable habitat occurs within the Phase 1 survey area. It blooms from April into June. Surveys were not completed during the blooming season and cattle grazing can obscure vegetative indicators of possible occurrence of this species. The March survey was not be conclusive as to presence or absence of this species. It is considered to be "locally rare" in Napa County.

Showy Indian Clover (*Trifolium amoenum*) – This species reportedly occurs on deep rich clay soils in swales. Historic occurrences were recorded in lower Napa Valley but there have been no local records of this species since 1952. Conditions within the Phase 1 survey area could potentially support this species although long-standing grazing has likely diminished habitat suitability even if it ever occurred here historically. This species blooms from April to June. The probability of occurrence is considered extremely low. CNPS List 1B.1; U.S.F.&W. List: Endangered.

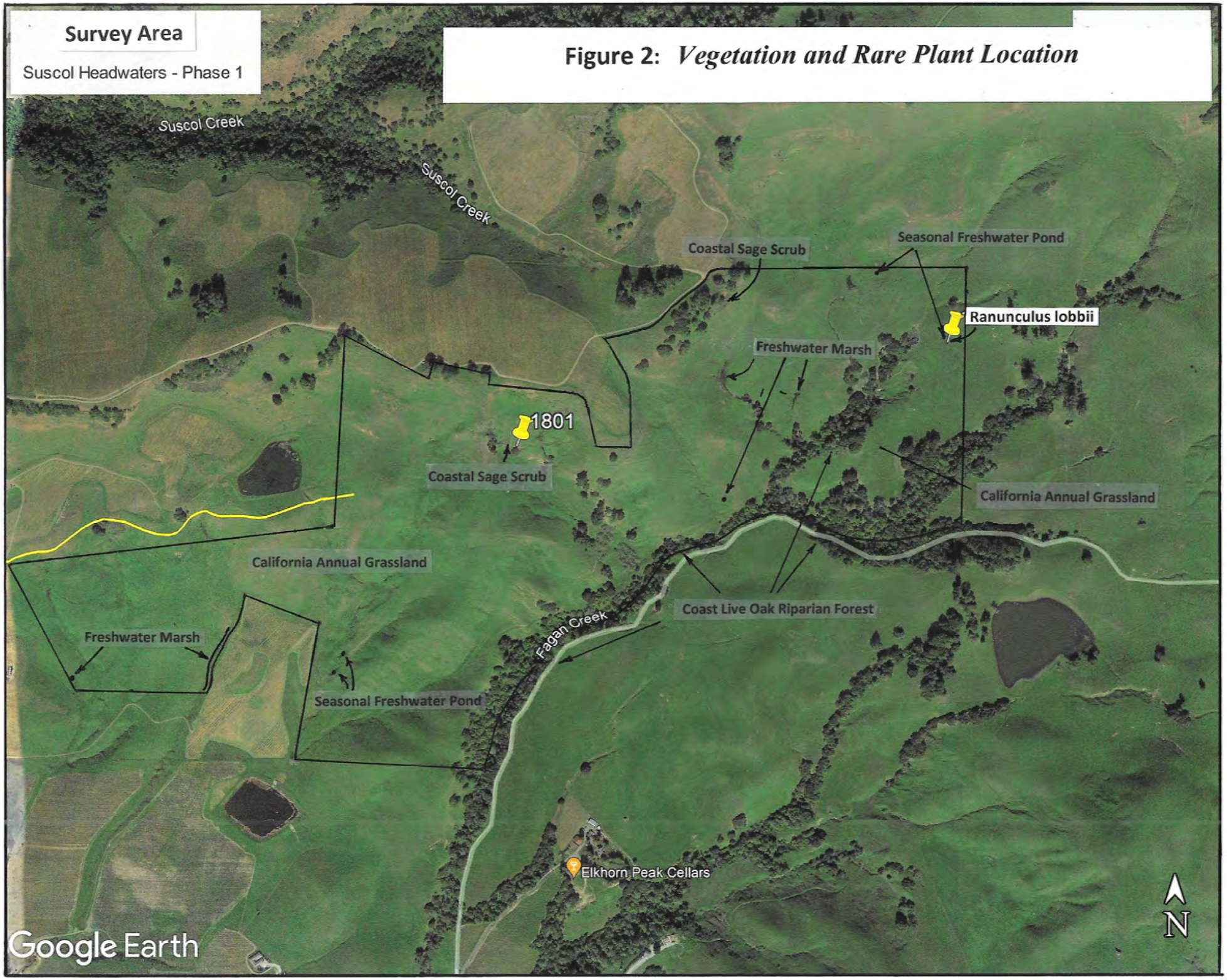
Oval-leaved Viburnum (*Viburnum ellipticum*) – There are two records of this species in Napa County; both occurrences were found in Mixed Hardwood Forest. A historic location at Skyline Park is about 6 miles north of the site. Potential habitat occurs within the Phase 1 survey area in riparian vegetation along Fagan Creek. This deciduous shrub blooms in May and June. Surveys occurred outside of the blooming season of this species. It could be overlooked in winter dormancy in March but a survey conducted in October could utilize vegetative morphology to confirm identification. This species was not found during the October 2022 survey. CNPS List 2.3

*Status Codes*: CNPS lists - 1B = Rare and Endangered in California and elsewhere, 2 = Rare and Endangered in California but more common elsewhere, 3 = Taxonomy or distribution needs further study, 4 = Limited Distribution – A Watch List. Additional coding was applied to the status of most species by CNPS in 2006 providing greater focus on rarity and threats to each species. An added code of ".1" indicates the highest level of threat while ".3" indicates the lowest.

*Ranunculus lobbii*

at Suscol Headwaters

Figure 2 Vegetation and Rare Plant Location


Survey Area
Suscol Headwaters - Phase 1
Figure 2: Vegetation and Rare Plant Location
Suscol Creek
Suscol Creek
Coastal Sage Scrub
Seasonal Freshwater Pond
Ranunculus lobbii
Freshwater Marsh
1801
Coastal Sage Scrub
California Annual Grassland
California Annual Grassland
Coast Live Oak Riparian Forest
Fagan Creek
Freshwater Marsh
Seasonal Freshwater Pond
Elkhorn Peak Cellars
N
Google Earth

**Streamside Daisy - Locations Mapped and Flagged at Suscol Headwaters**

Seven GPS waypoints (wp.) were collected during 2019 surveys for *Erigeron bioletti*. Additional waypoints were recorded during pre-construction flagging in March 2023. Flags were placed in locations where plants occur although not every individual plant was flagged. Note: Pin flags may be temporary due to wind damage and cattle trampling. Photos shown below may further assist with impact avoidance in the field.

-A mitigation site was established as compensation for 0.61 acres (40%) of Streamside Daisy habitat converted during establishment of Suscol Mountain Vineyards. That site is protected by additional fencing and was not flagged.

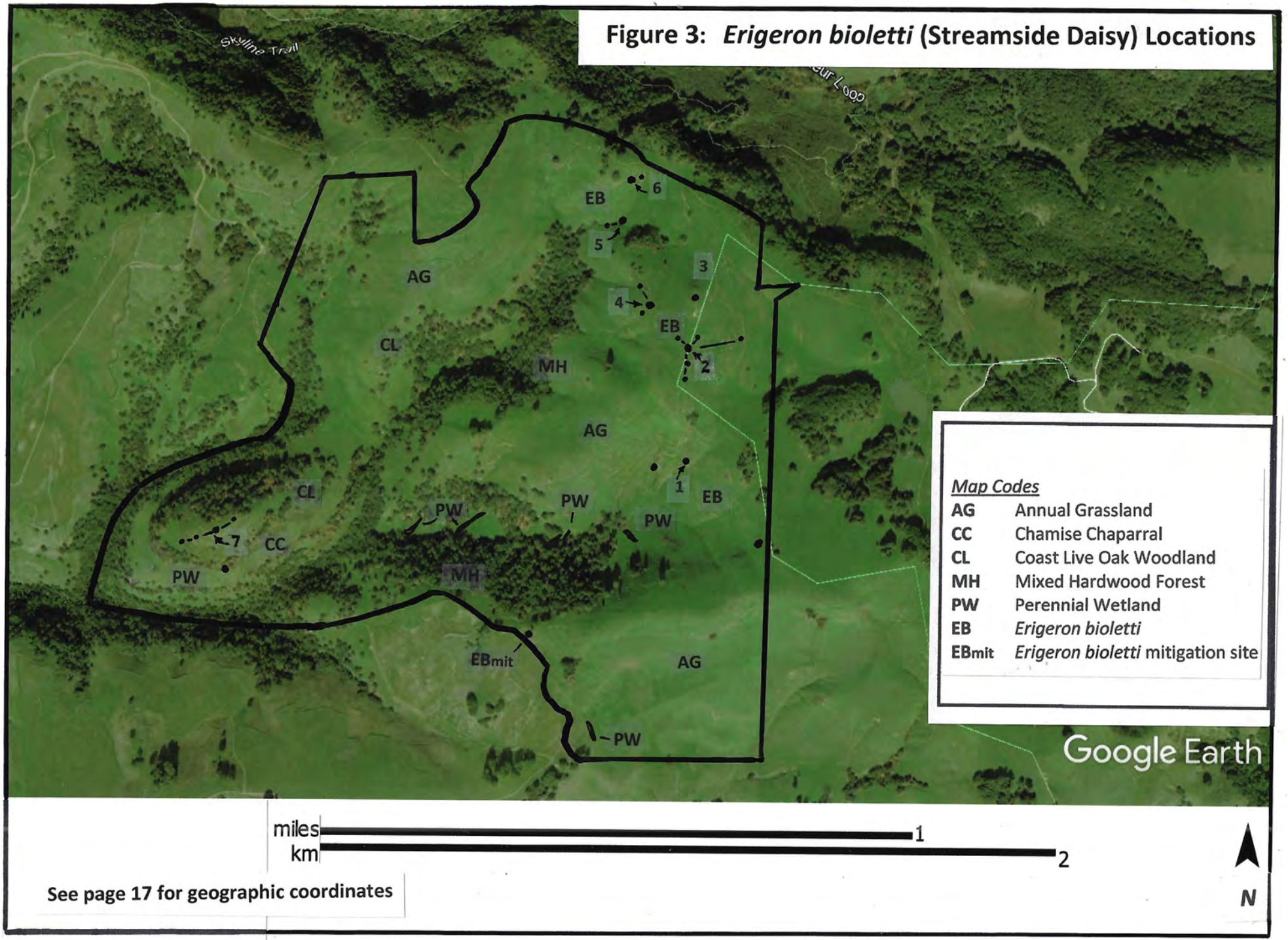
-Each of the following locations is enumerated on the attached map (Figure 3).

1 – (GPS wp. 760) - N38˚14'49.1"/W122˚12'43.6"
2 – (GPS wp. 633) - N38˚14'58.5"/W122˚12'43.8" – added in 2023 (GPS wp. 1786, 1787, 1788, 1789) - N38˚14'59.4"/W122˚12'43.0"; N38˚14'59.3"/W122˚12'39.5;" N38˚14'57.1"/W122˚12'43.6"; N38˚14'55.9"/W122˚12'43.7"
2b - (GPS wp. NI) - N38˚14'59.8"/W122˚12'44.8" (between 633 and 851; flagged ?)
3 – (GPS wp. 634) - N38˚15'02.5"/W122˚12'43.3"
4 – (GPS wp. 851) - N38˚15'02.2"/W122˚12'47.5" (omitted from map in 2019 report) – added in 2023 (GPS wp. 1782, 1783) N38˚15'02.1"/W122˚12'47.7"; N38˚15'03.7"/W122˚12'48.3"
5 – (GPS wp. 759) - N38˚15'09.3"/W122˚12'50.9" – added in 2023 (GPS wp. 1784) N38˚15'09.1"/W122˚12'52.4"
6 – (GPS wp. 635) - N38˚15'12.7"/W122˚12'50.1" – added in 2023 (GPS wp. 1785) N38˚15'13.1"/W122˚12'49.4"
7 – (GPS 757) - N38˚14'42.3"/W122˚13'35.7" – added in 2023 (GPS wp. 1816, 1817, 1818) N38˚14'43.6"/W122˚13'32.9"; N38˚14'43.4"/W122˚13'33.4"; N38˚14'42.3"/W122˚13'36.2"

*Erigeron bioletti* (blue-gray leaves)

Figure 3  Streamside Daisy Locations

## Figure 3: *Erigeron bioletti* (Streamside Daisy) Locations




*Map Codes*

| | |
|---|---|
| **AG** | Annual Grassland |
| **CC** | Chamise Chaparral |
| **CL** | Coast Live Oak Woodland |
| **MH** | Mixed Hardwood Forest |
| **PW** | Perennial Wetland |
| **EB** | *Erigeron bioletti* |
| **EBmit** | *Erigeron bioletti* mitigation site |

**See page 17 for geographic coordinates**

## Recommendations

Rare plant surveys conducted during this study were completed outside of the blooming season of some species. Some of these could be identifiable vegetatively on the survey dates. Further study is recommended regarding the following two species:

-*Brodiaea leptandra* – The probability of occurrence is seen as low in woodland/grassland transitions. March surveys could not be conclusive as to presence or absence of this species. This species was not observed in the Phase 2 area and is perhaps less likely to occur in the Phase 1 area. An in-season survey is recommended prior to construction of trails along the Fagan Creek riparian corridor.

-*Sisyrinchium californicum* – The probability of occurrence is seen as low. March surveys could not be conclusive due to out-of-season survey timing and grazing. Although a potential of occurrence exits for this species, potential impacts from trail construction is expected to be nil due to wetland characteristics that would lead to avoidance of these areas for trail passage. No further survey is recommended.

Noxious weeds may detract from the hiking experience and further impact habitat quality at Suscol Headwaters. The following invasive species are rated by the California Invasive Plant Council (Cal-IPC) and are worthy of note with regards to safety and habitat diversity.

-Fennel (*Foeniculum vulgare*) – This species forms stout flowering stems to 6+ ft in height that may pose a challenge to passing hikers perhaps leading to a maintenance issue. This species is currently not abundant enough to present such an issue but it is worthy of monitoring or consideration of preventive control measures. Cal-IPC Rating: Moderate, A-1

-Purple Star Thistle (*Centaurea calcitrapa*) – This species forms stout thorns on flowering heads that are uncomfortable to passing hikers. Disturbance and soil compaction promotes this species. It is currently not common at Suscol Headwaters but bears monitoring and perhaps consideration of preventive control measures. Cal-IPC Rating: Moderate, BW (USDA)

-Yellow Star Thistle (*Centaurea solstitialis*) – This species is locally abundant within the Phase 1 survey area. Spines on flower heads are uncomfortable to passing hikers. Control would improve recreational values. Cal-IPC Rating: High, A-1 (rapid rate of invasion), CW (USDA: Noxious)

-Stinkwort (*Dittrichia graveolens*) – This species is potentially highly invasive in disturbed habitats. This species may cause dermatitis to susceptible hikers. It was observed along the access trail through Napa Sanitation property. Cal-IPC Rating: Moderate - Alert

-Milk Thistle (*Silybum marianum*) – This species is stout and produces robust spines on flower heads and leaves. Passage through a patch of this species is treacherous. Control is recommended where trails encounter this species. Cal-IPC Rating Limited, CW (USDA: Noxious)

-Black Mustard (*Brassica nigra*) – This species forms dense stands of stems six to eight feet in height producing a challenge to hikers and severely degrading habitat quality. Cattle generally avoid these areas leading to rutted pass-throughs. Management to reduce these stands near trails may be advisable. Cal-IPC Rating: Moderate, BW (USDA: Noxious)

-Himalayan Blackberry (*Rubus armeniacus*) – This species can overtake wetlands severely diminishing habitat quality and the coarsely thorned stems can harm hikers. It is currently not common on Phase 1 but abundance should be monitored or perhaps given consideration of preventive control measures. Cal-IPC Rating: High, A-1

-Harding Grass (*Phalaris aquatica*) – This species is a robust invasive perennial grass with flowering culms 4+ ft tall. Grazing currently controls the extent and productivity of this species. Proliferation can lead to habitat degradation. Cal-IPC Rating: Moderate, BW (USDA: Noxious)

Jake Ruygt

botanist

## References


Baldwin, Goldman, Patterson, Rosatti and Wilken. 2012. The Jepson Manual Vascular Plants of California. University of California Press. Berkeley, California. 1568 pp.

Hickman, James C., Editor. 1993. *The Jepson Manual. Higher Plants of California*. University of California Press. Berkeley, California. 1400 pp.

Lambert, G. and Kashiwagi, J. 1978. *A Soil Survey of Napa County. California.* United Stated Department of Agriculture, Soil Conservation Service. Calfornia.

LSA Associates. 2010. Biological Survey Report for the Suscol Mountain Vineyard Property, Napa County, California.

Ruygt, J. 2020. A Flora of Napa County. California Native Plant Society.

The Cal-IPC Inventory – California Invasive Plant Council. www.cal-ipc.org/plants/inventory

Thorne, J.H., Kennedy, J.A., Quinn, J.F., and McCoy, M. 2003. *A New Vegetation of Napa County Using the Manual of California Vegetation Classification and its Comparison to Other Digital Vegetation Maps.* Information Center for the Environment. University of California, Davis. 106 pp.

Tibor, David T. 2001. *Inventory of Rare and Endangered Plants of California.6*. *Special Publication 1* (Sixth Edition), California Native Plant Society. Berkeley, California. 387 pp.

**Addendum to March 2023 Report**

Napa County Regional Park and Open Space District
1195 Third Street, Room 210
Napa, Ca 94559

Kyra Purvis,

After reviewing my records, it has come to my attention that additional locations of Streamside Daisy (Erigeron bioletti) may occur at Suscol Headwaters. I visited the site on April 5 to confirm the possible unmapped locations. Two additional locations were flagged. I have attached a revised map with these locations highlighted. Below is an updated list of locations. My apologies for the oversite.

-Each of the following locations is enumerated on the attached map (Figure 3).

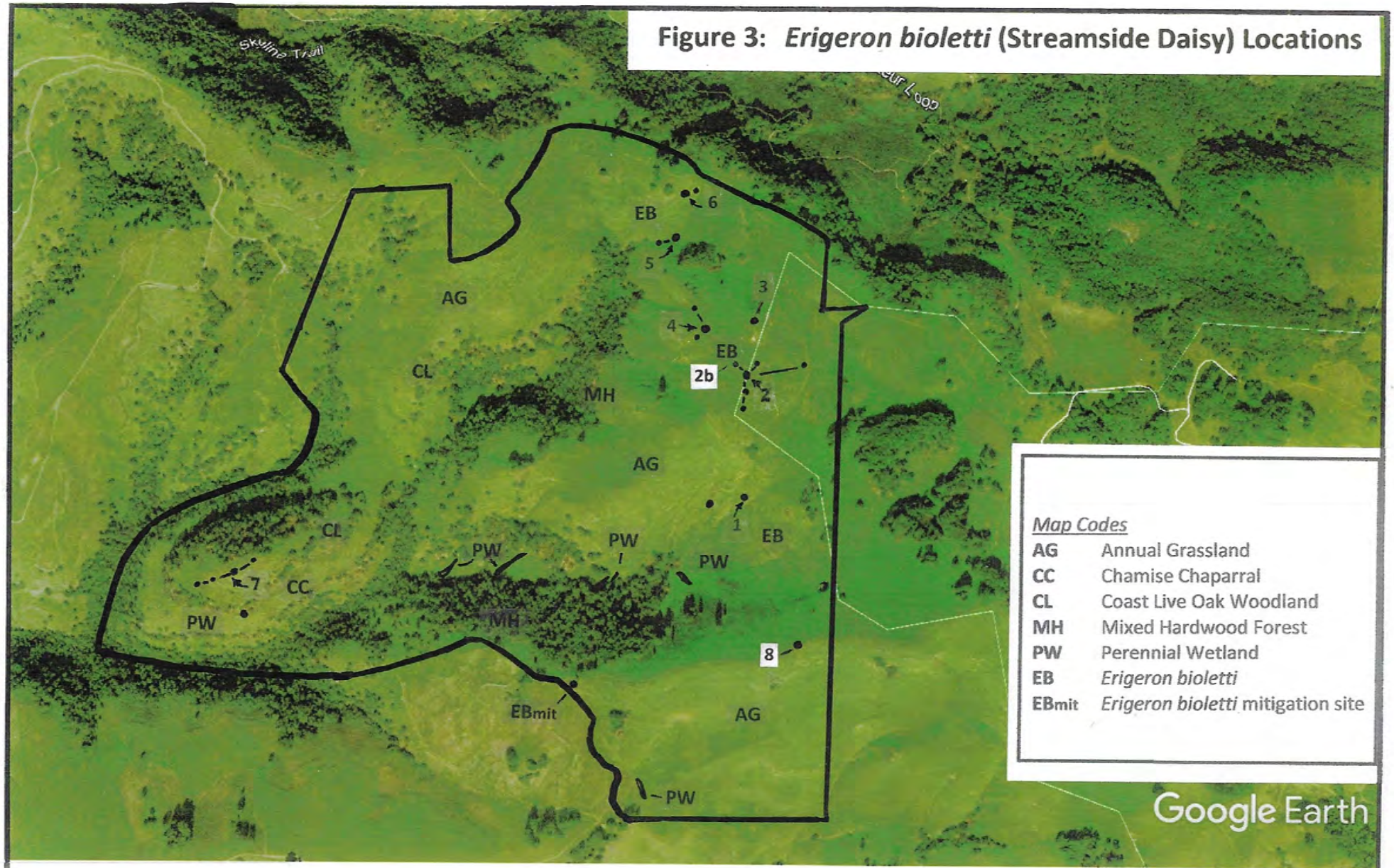
1 – (GPS wp. 760) - N38˚14'49.1"/W122˚12'43.6"
2 – (GPS wp. 633) - N38˚14'58.5"/W122˚12'43.8" – added in 2023 (GPS wp. 1786, 1787, 1788, 1789) - N38˚14'59.4"/W122˚12'43.0"; N38˚14'59.3"/W122˚12'39.5;" N38˚14'57.1"/W122˚12'43.6"; N38˚14'55.9"/W122˚12'43.7"
2b - (GPS wp. NI) - N38˚14'59.8"/W122˚12'44.8" (between 633 and 851)
**Added April 5, 2023** (GPS wp. 1838 to 1839) N38˚14'59.7"/W122˚12'45.2" - N38˚15'00.6"/W122˚12'45.4"
3 – (GPS wp. 634) - N38˚15'02.5"/W122˚12'43.3"
4 – (GPS wp. 851) - N38˚15'02.2"/W122˚12'47.5" (omitted from map in 2019 report) – added in 2023 (GPS wp. 1782, 1783) N38˚15'02.1"/W122˚12'47.7"; N38˚15'03.7"/W122˚12'48.3"
5 – (GPS wp. 759) - N38˚15'09.3"/W122˚12'50.9" – added in 2023 (GPS wp. 1784) N38˚15'09.1"/W122˚12'52.4"
6 – (GPS wp. 635) - N38˚15'12.7"/W122˚12'50.1" – added in 2023 (GPS wp. 1785) N38˚15'13.1"/W122˚12'49.4"
7 – (GPS 757) - N38˚14'42.3"/W122˚13'35.7" – added in 2023 (GPS wp. 1816, 1817, 1818) N38˚14'43.6"/W122˚13'32.9"; N38˚14'43.4"/W122˚13'33.4"; N38˚14'42.3"/W122˚13'36.2"
8 – **Added April 5, 2023** (GPS wp. 1840) - N38˚14'37.5"/W122˚12'39.0"

Sincerely,

Jake Ruygt

Botanist

## Figure 3: *Erigeron bioletti* (Streamside Daisy) Locations




*April 5, 2023 update*

See page 17 for geographic coordinates