

# Botanical Side Trips From the Oat Hill Mine Trail in Napa and Lake Counties

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IN LATE 2001, having completed a preliminary four-season botanical survey of the Oat Hill Mine Trail (OHMT) and the volcanic country through which it passes<sup>1</sup>, I applied the same survey method to nearby serpentinite areas; that is, I regularly revisited five areas with serpentinite outcrops. Four of the sites are located in Napa County: the lower slopes of Oat Hill, the upper reaches of Cedar Canyon, the serpentinite of the lower Aetna Springs Road, and the area around the Corona mine. One of the serpentinite sites is in Lake County: the area around Three Peaks. All of these areas are near the northern end of the OHMT.

From the late summer of 2001 through mid-summer 2002 I visited at least one of the areas nearly every weekend. I documented the plants and the succession of plants through the seasons. While a thorough survey will require at least a couple more years, I consider this a good start. I learned more about the deep richness and ever-changing flora of the land adjacent to the OHMT, found several rare plants and logged many rugged miles in rain, over ice and snow, in baking heat and massaging breezes. I found to my relief where the cool water is in early summer, and, often to my surprise, where old roads lead.

## OVERVIEW

The following is a brief sketch of the five areas (see Map), highlighting their most interesting features and some of the flora to be found there. A table of the serpentinite flora I found during this survey with notes on locations follows the Overview.

<sup>1</sup>Richard O'Donnell, "The Oat Hill Mine Trail in Napa County," *The Four Seasons*, Vol. 11, No. 3, December 2001, pp. 3–41.

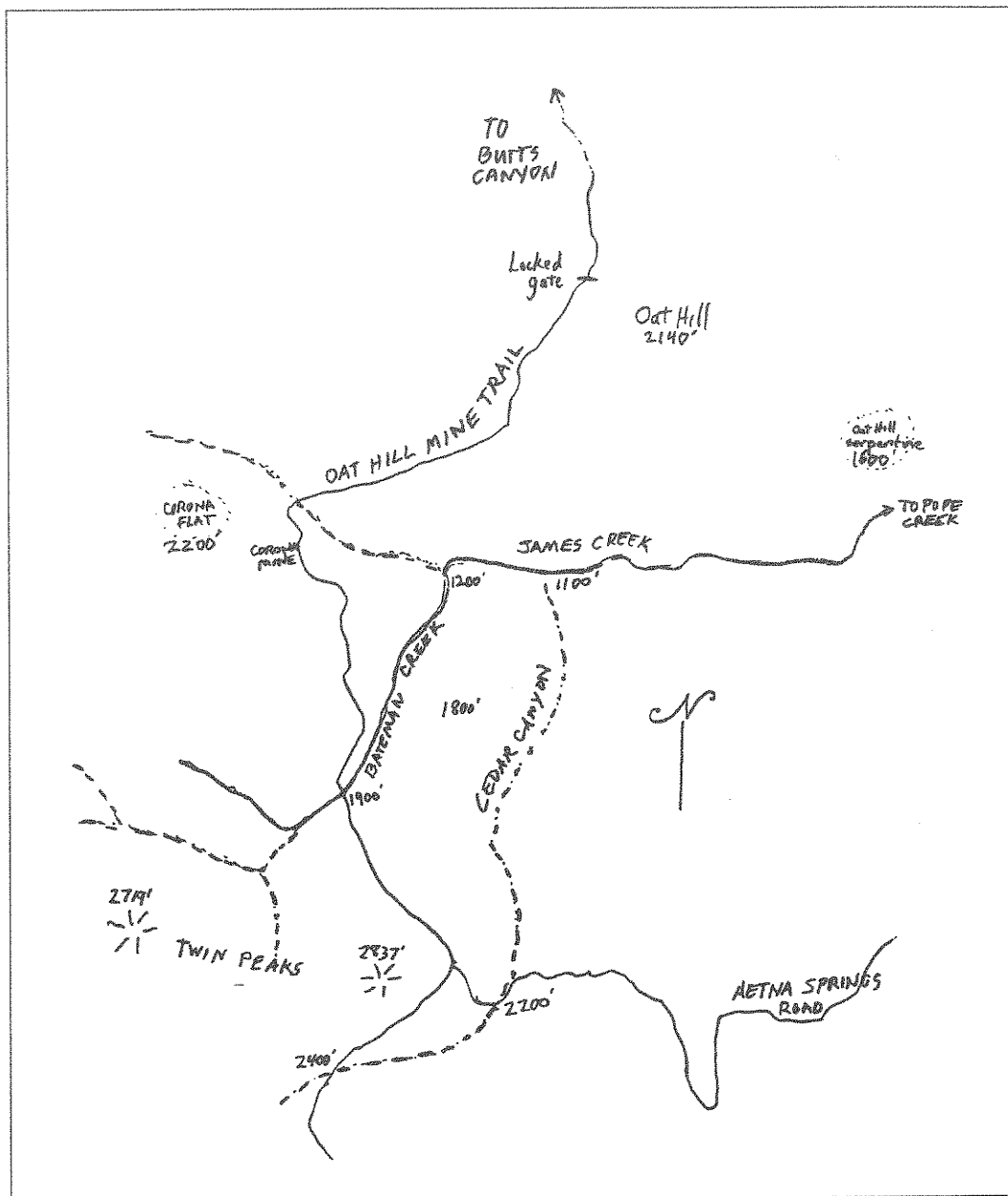


Figure 1. Sketch map of the northern part of the Oat Hill Mine Trail, showing serpentine localities.

### *The Corona Serpentine*

The Corona serpentine begins above Corona Flat and covers the hillside to Bateman Creek, crossing the OHMT. One of the most prominent features of the Corona serpentine is what I've called Corona Flat. Corona Flat is an interface or transition zone where Sonoma Volcanics meet serpentine and, thus, has more floral variety than the rest of the Corona serpentine. Two shallow seasonal creeks cross Corona Flat keeping it moist well into the summer.

The transitional character of Corona Flat is displayed by the proximity of serpentine endemics and plants endemic to the Sonoma volcanics. McNab cypress (*Cupressus macnabiana*), locally a Sonoma Volcanics indicator species, and Sargent cypress (*Cupressus sargentii*), a serpentine indicator species, grow close together; in one place their branches intertwine. Among the Sargent cypress on the east side of the flat, *Ceanothus prostratus* var. *occidentalis* grows, while the lightly forested west side of the flat supports *Ceanothus confusus*, a Sonoma Volcanics endemic. Leather oak (*Quercus durata*) and *Ceanothus jepsonii* var. *albiflorus*, on serpentine, grow close to Stanford's manzanita (*Arctostaphylos stanfordiana*) and Oregon oak (*Quercus garryana*), the latter two on volcanics.

### *The Oat Hill Serpentine*

Looking east from the edge of Corona Flat down the James Creek canyon into Pope Valley, you'll see off to the left a small blue-green patch of serpentine near the bottom of Oat Hill. It also goes to the other side of Oat Hill and goes north to Butts Canyon. From a high point above the serpentine you can look northeast and see the Homestake Mine at Knoxville, a famous, vast and botanically rich serpentine area.

The Oat Hill serpentine is the smallest of the areas discussed in this article but it supports a good number of interesting and rare plants. *Hesperolinon breweri* and *Layia septentrionalis*, for example, are found here and not on the other serpentine areas I surveyed. While small, the Oat Hill serpentine is close to a more expansive serpentine that extends to Butts Canyon—plenty of potential.

### *The Aetna Springs Road Serpentine*

The Aetna Springs Road (ASR) begins at Pope Valley Road and ends just before the OHMT. The serpentine area is at the mid-point; it begins just about where the pavement ends and ends where the ASR passes through a small grove of redwoods.

One noteworthy feature of this site is its accessibility. As a public road, it is open to all. To walk through the serpentine is not particularly difficult; the grade, although uphill, is gentle, the footing is good. The roadcut supports *Erythronium helenae*, *Collomia diversifolia*, *Hesperolinum spergulinum*, *Calystegia collina*, *Senecio greenii* and many other serpentine endemics.

### *The Cedar Canyon Serpentine*

Cedar Creek crosses the OHMT at 2400 feet elevation near its intersection with the Aetna Springs Road. It drops to James Creek through mixed forest, meeting the creek at 1100 feet. In its progress it cuts through a ridge that is topped with Sonoma Volcanics. The creek's erosion exposes serpentine patches. The exposed serpentine is extensive but discontinuous, forming a set of islands, mostly small. The largest island forms a ridge between Bateman Creek and Cedar Creek; I've visited this site several times but I haven't explored the upper slopes of the rugged canyon.

Only recently have I explored the upper reaches of Cedar Creek, a steep and difficult hike, but rewarding. Not only did I find the cedars (*Calocedrus decurrens*) for which the canyon is named<sup>2</sup>, and the junction of the serpentine and Franciscan sedimentary rock, but also several large patches of *Lilium pardalinum*; one patch was particularly beautiful. It was set in the boulder-filled canyon towering over relaxed green rushes, under which cool water ran quietly, among spreading and fragrant spicebush (*Calycanthus*), with a thick beam of sunlight filling the place with a clear light.

The bulk of the Cedar Canyon serpentine I've explored lies on a ridge on the upper west side of the canyon. Here, in spring, you step carefully to avoid the *Erythronium helenae* that grow thickly everywhere. In one clearing—and only this one so far—grows *Streptanthus brewerii hesperidis*, notable for its bright yellow leaves. At another clearing—and only here—grow *Hesperolinon micranthum* and *Malacothrix floccifera*.

### *The Three Peaks Serpentine*

The Three Peaks serpentine begins at the northwestern edge of the same ridge that contains at its other end the Corona serpentine. The heights of that ridge,

<sup>2</sup>Name-givers have misapplied the name "cedar" to Sargent cypress, notably in the "Cedar Roughs" near Lake Berryessa, and "The Cedars" near Austin Creek in Sonoma County. This time they got it right! This is an eastern range extension for *Calocedrus* in the Coast Ranges.

however, are Sonoma Volcanics. Three Peaks is dominated by a serpentine hill by that name. The Three Peaks serpentine is an island but much closer to the “mainland” of serpentine that begins in Butts Canyon and extends to and beyond Knoxville.

The Three Peaks serpentine supports several rare serpentine endemics: Three Peaks *Streptanthus* (*Streptanthus morrisonii elatus*), *Erythronium helenae*, and *Streptanthus brachiatus* to name a few. Chris Thayer and Steve Edwards have found a dwarf jewelflower there referable to *Streptanthus breweri*. The Three Peaks serpentine stretches east to cross the paved section of the Oat Hill Road near Detert Reservoir.

## DISCUSSION

I visualize this serpentine archipelago as a single unbroken expanse of ultramafic rock that in some places is overlain with Sonoma Volcanics—a thick layer of volcanic mudflow, ash and pyroclastic surge deposits—and in other places is at the surface. The surface elevation of the exposed places differs, possibly because of the irregular tectonic uplift. The non-serpentine contains a huge variety of plant life, some of which I described in the previous essay and some of which I am still discovering—the subject of a future essay.

In addition to the overall program of documenting the flora of the OHMT and vicinity year ’round, I have two personal goals. One is to find the “bridges” that link the flora of Butts Canyon to the flora of the OHMT serpentine and non-serpentine. Why Butts Canyon? Because it’s the next expanse of serpentine northeast and it’s where I saw for the first time some of the North Bay’s outstanding serpentine flora: *Lewisia rediviva*, *Erythronium helenae*, and *Fritillaria recurva* and *purdyi*. The other goal is to find examples of serpentine “endemics” off serpentine, especially on volcanics.

With respect to the first goal, there are many examples of OHMT serpentine flora in Butts Canyon: for example, *Triteleia peduncularis*, *Streptanthus breweri*, and *Erythronium helenae*, but there are mysteries, too: *Fritillaria purdyi* flourishes in the Sonoma Volcanics and in Butts Canyon, but I haven’t found it on the OHMT serpentines. The Bitterroot (*Lewisia rediviva*) of the OHMT volcanics is abundant, fairly small-blossomed, and white, rarely light pink. The lewisias of Butts Canyon are large-blossomed and bright magenta. Until May 2002, I had found no lewisia on any of the OHMT serpentines. Finally, in one small clearing in the middle of the Three Peaks chaparral, I found three lewisias, two of them white (suggesting their relationship to the white lewisias of the Sonoma Volcanics) and one of them dark pink (suggesting a relationship to the magenta lewisias of Butts Canyon). Further exploration may turn up

other populations but this one is the first evidence I have of a bridge between the volcanic lewisias and the serpentine lewisias, not only from the OHMT region to Butts Canyon but also between the OHMT volcanics and the OHMT serpentines.

On the other hand, I have been unsuccessful with Flannelbush (*Fremontodendron californicum napense*). Flannelbush flourishes on serpentine near Knoxville, at Austin Creek (Sonoma County), and on San Geronimo Ridge (Marin County), and there is a small population in the serpentine along Route 29 west of Middletown. They are widespread though uncommon on the OHMT volcanics. There “should be” flannelbush on the OHMT serpentine and in Butts Canyon but I’ve found no evidence of it.

The day before this article was sent to the editor, I took a short reconnaissance hike to an eastern extension of the Three Peaks serpentine. It proved to be very fruitful. The stony serpentine barren is cut by several creeks and the narrow riparian environment that is associated with these creeks is in serpentine. Although it’s too late in the year to look for some of the plants, the presence of which I hope to confirm, I did see *Collinsia greenei*, *Streptanthus brachiatus*, *Streptanthus morrissonii elatus*, *Malacothrix floccifera*, and signs of *Allium falcifolium*. The area holds much promise for long hikes next year and new plant populations. The more I look, the more I am reminded how much there is to see on and around the Oat Hill Mine Trail.



Figure 2. *Streptanthus breweri hesperidis* is found at only one site in the Cedar Mountain serpentine. Its bright yellow leaves are very distinctive and may distract the observer from the delicate yellowish calyx and purple-striped petals. This taxon is also found in Butts Canyon.





Figure 3. *Streptanthus brachiatus* is found at the Three Peaks serpentine, where it is dwarfed by towering *S. morrisonii elatus*.



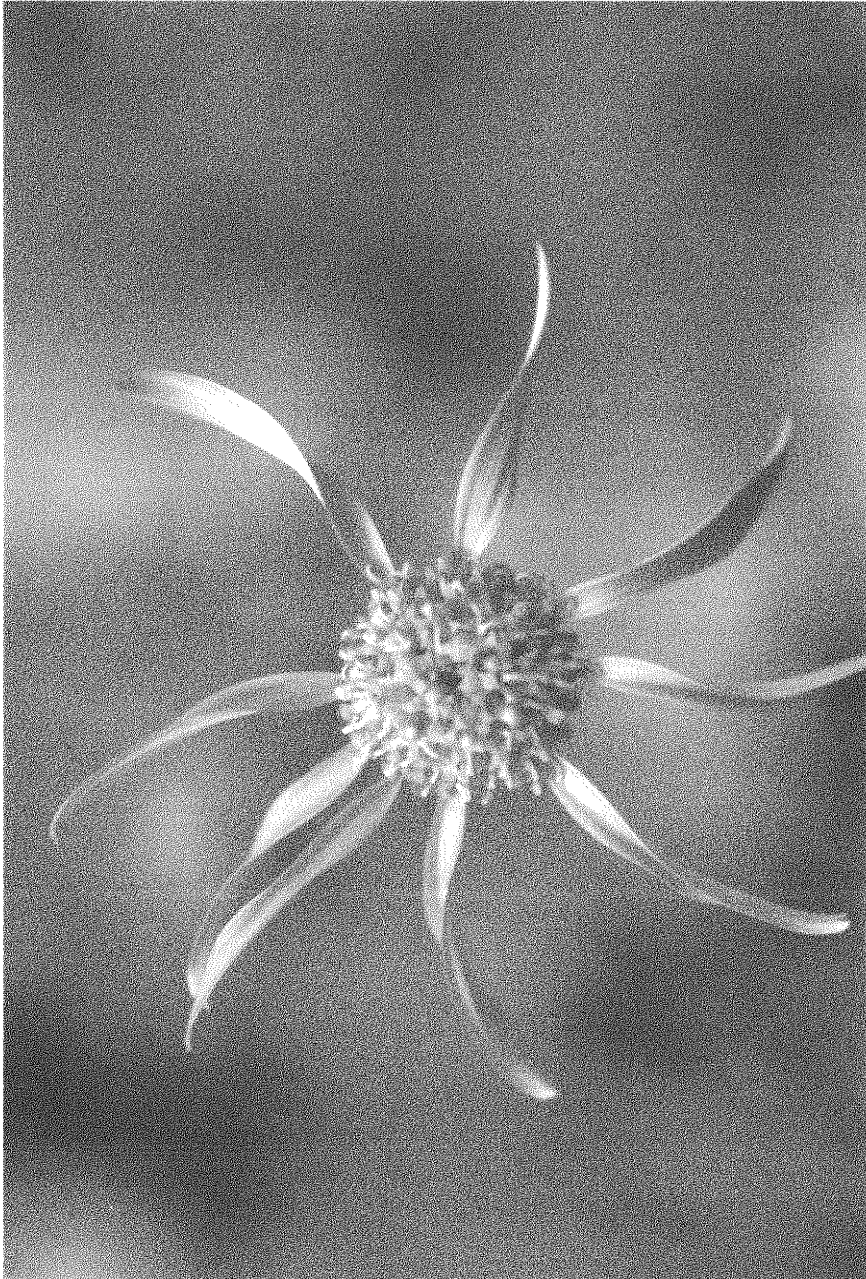


Figure 4. *Senecio greenii* is a brilliant inhabitant of all the Oat Hill Mine Trail serpentines. Just before it progresses to the sunburst (or propeller) stage, its ray flowers stand straight up like feathers attached to a pencil eraser.

PARTIAL LIST OF THE FLORA OF THE  
OAT HILL MINE TRAIL SERPENTINES

Note: The serpentine sites at which I found the plants named here are indicated in the Notes column as follows: Corona = C, Cedar Canyon = CC, Aetna Springs Road = ASR, Three Peaks = 3P, Oat Hill = OH, and All sites = All.

<u>Name</u>	<u>Common Name</u>	<u>Family</u>	<u>Notes</u>
<i>Allium cratericola</i>	Crater onion	Liliaceae	C First population I've seen on serpentine. Usually on volcanics.
<i>Allium falcifolium</i>	Sickle-leaf onion	Liliaceae	C
<i>Antirrhinum vexillo-calyculatum</i>	Wire dragon	Scrophulariaceae	OH
<i>Antirrhinum virga</i>	Tall snapdragon	Scrophulariaceae	C
<i>Aquilegia eximia</i>	Columbine	Ranunculaceae	3P
<i>Asclepias cordifolia</i>	Purple milkweed	Asclepiadaceae	C
<i>Asclepias fascicularis</i>	Narrow-leafed milkweed	Asclepiadaceae	ASR
<i>Aspidotis densa</i>	Indian's dream	Pteridaceae	All
<i>Brodiaea elegans</i>	Harvest Brodiaea	Liliaceae	All
<i>Calochortus amabilis</i>	Fairy lantern	Liliaceae	All
<i>Calochortus tolmei</i>	Pussy-ears	Liliaceae	All
<i>Calycadenia parviflora</i>		Asteraceae	CC
<i>Calycadenia truncata</i>	Rosinweed	Asteraceae	OH
<i>Calystegia collina collina</i>	Mt. St. Helena morning glory	Convolvulaceae	All
<i>Campanula angustiflora</i>		Campanulaceae	3P Only one or two plants found. Inconspicuous.
<i>Cardamine californica sinuata</i>	Milkmaids	Brassicaceae	ASR
<i>Castilleja foliolosa</i>	Felt paintbrush	Scrophulariaceae	All
<i>Ceanothus confusus</i>	Rincon ceanothus	Rhamnaceae	C
<i>Ceanothus jepsonii albiflorus</i>	Musk brush	Rhamnaceae	All
<i>Ceanothus prostratus occidentalis</i>	Mahala Mat	Rhamnaceae	C
<i>Centaurium tricanthum</i>		Gentianaceae	3P, C
<i>Chaenactis glabriuscula heterocarpha</i>	Yellow pincushion	Asteraceae	OH
<i>Collinsia greenei</i>		Scrophulariaceae	OH
<i>Collomia diversifolia</i>	Serpentine collomia	Polemoniaceae	ASR, C
<i>Collomia heterophylla</i>	Varied-leaf collomia	Polemoniaceae	3P, C
<i>Cordylanthus tenuis brunneus</i>		Scrophulariaceae	3P
<i>Cryptantha hispidula</i>		Boraginaceae	3P east. Uncommon
<i>Cryptantha intermedia</i>		Boraginaceae	3P
<i>Cupressus sargentii</i>	Sargent cypress	Cupressaceae	All
<i>Deschampsia elongata</i>		Poaceae	C Beautiful in all seasons
<i>Erigeron angustifolia</i>		Asteraceae	CC
<i>Eriogonum luteolum</i>	Wicker-stemmed buckwheat	Polygonaceae	OH, C, 3P
<i>Eriogonum vimineum</i>		Polygonaceae	OH, C, 3P

<u>Name</u>	<u>Common Name</u>	<u>Family</u>	<u>Notes</u>
<i>Eriophyllum lanatum</i>	Oregon sunshine	Asteraceae	All
<i>Erythronium helenae</i>	Mt. St. Helena fawn lily	Liliaceae	3P, ASR, CC, C
<i>Fritillaria affinis</i>	Checker lily	Liliaceae	All
<i>Fritillaria recurva</i>	Scarlet fritillary	Liliaceae	CC, 3P, C
<i>Galium andrewsii</i>		Rubiaceae	All
<i>Gilia sinistra</i>		Polemoniaceae	C
<i>Githopsis diffusa</i>		Campanulaceae	3P Only a couple of plants; very inconspicuous
<i>Hesperolinon breweri</i>	Brewer's dwarf flax	Linaceae	OH Small population. Rare
<i>Hesperolinon micranthum</i>		Linaceae	CC Small population
<i>Hesperolinon spergulinum</i>		Linaceae	All Most white or whitish-pink hesperolinum in the serpentine are these
<i>Layia septentrionalis</i>	Colusa layia	Asteraceae	OH One small population. Rare
<i>Lewisia rediviva</i>	Bitterroot	Portulacaceae	3P
<i>Linanthus ciliatus</i>	Whiskerbrush	Polemoniaceae	OH, 3P
<i>Linanthus dichotomus meridianus</i>	Evening snow	Polemoniaceae	OH
<i>Linanthus parviflorus</i>		Polemoniaceae	OH, 3P
<i>Lonicera hispidula</i>		Caprifoliaceae	CC—not hispid
<i>Madia minima</i>		Asteraceae	All
<i>Madia nutans</i>	Nodding madia	Asteraceae	C Normally a volcanics endemic
<i>Malacothrix floccifera</i>		Asteraceae	CC, 3P
<i>Mimulus brachiatus</i>		Scrophulariaceae	C
<i>Mimulus cardinalis</i>	Scarlet monkeyflower	Scrophulariaceae	ASR
<i>Mimulus douglasii</i>		Scrophulariaceae	OH
<i>Mimulus "douglasii"</i>		Scrophulariaceae	OH The size and shape of <i>M. douglasii</i> but not the color
<i>Mimulus layneae</i>		Scrophulariaceae	C, 3P
<i>Minuartia douglasii</i>		Caryophyllaceae	All
<i>Monardella viridis viridis</i>	Green coyote mint	Lamiaceae	C, CC
<i>Naverettia diversifolia</i>	Mountain navarettia	Polemoniaceae	C
<i>Naverettia pubescens</i>	Polemoniaceae	OH	
<i>Naverettia subuligera</i>	Awl-leaved navarettia	Polemoniaceae	C – Rare
<i>Rhododendron occidentale</i>	Western azalea	Ericaceae	3P
<i>Rigiopppus leptocladus</i>		Asteraceae	OH
<i>Silene californica</i>		Caryophyllaceae	C, CC, 3P
<i>Streptanthus brachiatus</i>		Brassicaceae	3P
<i>Streptanthus breweri</i>	Brewer's jewelflower	Brassicaceae	3P acc. To S. Edwards and C. Thayer
<i>Streptanthus breweri hesperidis</i>		Brassicaceae	CC
<i>Streptanthus glandulosus</i>	Jewelflower	Brassicaceae	OH
<i>Streptanthus morrissonii elatus</i>	Three Peaks jewelflower	Brassicaceae	3P – Rare
<i>Swertia albicaulis</i>	Green gentian	Gentianaceae	C
<i>Trichostema laxum</i>	Turpentine weed	Lamiaceae	C
<i>Triteleia lugens</i>		Liliaceae	C
<i>Triteleia peduncularis</i>	Long-rayed Brodiaea	Liliaceae	ASR, 3P