

## Native Grass Viewing at

# Jasper Ridge Biological Preserve's

## Serpentine Grassland

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Jasper Ridge, a low ridge in the eastern foothills of the Santa Cruz Mountains, offers ample opportunity for native grass appreciation in a small space. Walking trails through 60 acres of serpentine grassland yield a reliable show of common native annual and perennial grasses, 24 in all, comparing favorably in number to the East Bay Regional Park's Skyline Serpentine Prairie

across San Francisco Bay.\* Average annual rainfall is 26 inches. Forty-three native grasses (and 726 total vascular plant taxa) have been vouchered for the entire Preserve, which covers 1,200 acres on the Stanford University campus in San Mateo County. The Preserve's elevation varies from 217 to 679 feet.

\* See profile of Skyline Serpentine Prairie at <CNGA.org> / Guide to Visiting California's Grasslands / Visiting Serpentine Grassland.

Grazing has been excluded since 1960, and during the preceding century different uses had been made of the ridgetop grassland, including cattle and sheep grazing, mineral prospecting, horseback riding, and camping by local clubs.

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Jasper Ridge Biological Preserve serpentine grasslands

Photo: Toni Corelli

Exclosures in the serpentine grassland, built by the Carnegie Institution's A.G. Vestal in 1926 prior to a regime of sheep grazing, can still be visited. At that time Vestal wrote of annual grassland adjoining the serpentine, "Invasions ... by *Baccharis* and *Rhus diversiloba* can be observed, and the frequent germination of acorns would result in establishment of many young trees if it were not for the intense competition of wild oats, and the repeated burning, cutting, grazing, and trampling to which the fields are subject."

The barbed-wire enclosure fencing has been breached for decades; no difference in vegetation inside and outside the exclosures is apparent. The earliest plant vouchers in the Jasper Ridge herbarium are from 1867, and include vanilla grass (*Hierochloa occidentalis*). Vanilla grass hasn't been collected since that time, and may have been extirpated from the site as early as 1888–1891 when the Searsville Dam was built, flooding redwood groves on the lower stretches of Corte Madera Creek within the current preserve's boundaries.

Some of the grasses favor transition zones, and it is frequently difficult to characterize the underlying soil. One can engage in friendly discussion as to whether *Trisetum canescens*, for example, is or isn't growing on serpentine. Most grasses mentioned are clearly growing on serpentine soils, and all should readily reveal themselves in a normal year to those ambling along established trails, including the diminutive annual Scribner's grass (*Scribneria bolanderi*), which is on many plant lists but not frequently seen. An exception is hairy fescue (*Vulpia microstachys* var. *ciliata*), which is elusive, although often observed growing on the same serpentine outcrops as the introduced annual *Bromus trinitii*, with only two known stations here. A detour is also required to visit the only significant *Phalaris californica* stand, which grows at a north-facing seep just below the

ridge crest and adjacent to a fine stand of serpentine sedge (*Carex serratodens*).

Scribner's grass prefers the chaparral bare zone and other rocky, sparse vegetation zones. The common, widespread, and conspicuous foothill needlegrass (*Nassella lepida*) also likes the scrub/grassland transitions. One finds of course the typical inhabitants of the open grassland, including the very beautiful California onion grass (*Melica californica*), the widespread, shape-shifting junegrass (*Koeleria macrantha*), and early-blooming *Poa secunda* (one-sided bluegrass, the typical in our area

*Poa scabrella* form). In good *Poa secunda* years, as was 2006 at Jasper Ridge, one-sided bluegrass is abundant, even striking. Purple needlegrass (*Nassella pulchra*) is common throughout the Preserve's grasslands. One will run across the squirreltail hybrid *Elymus glaucus* × *E. multisetus* and its ubiquitous parents. Sharp-eyed visitors may also discover *Elymus glaucus* ssp. *virescens*, which we had seen but failed to voucher, and now cannot relocate. Dry years favor widespread and ample growth of *Vulpia microstachys* var. *pauciflora*. California

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Jasper Ridge Biological Preserve serpentine grassland

Photo: Toni Corelli

fescue predictably grows on north-facing brushy slopes and is prominent on and off serpentine. Vernal wet areas are the preferred habitat of small-leaved bent grass (*Agrostis microphylla*), annual hairgrass (*Deschampsia danthonioides*), and California meadow barley (*Hordeum brachyantherum* ssp. *californicum*). California oatgrass (*Danthonia californica* var. *idem*), often cryptic with low-to-the-ground tufts and nodding culms, is fairly common, but its best example is a beautiful, hummocky prairie on Santa Clara sandstone adjacent to a vernal pond dominated by the annual semaphore grass *Pleuropogon californicus*.

Trails connecting the pocket prairies run through different vegetation, including oak/madrone woodland, valley oak woodland, blue oak woodland, and serpentine chaparral, enhancing the visitor's overall aesthetic experience as well as the diversity of native grasses seen. One of the nicest stands of California fescue the heart could desire forms an understory beneath blue and black oaks along the way, and a short diversion on the San Francisquito Creek trail usually offers *Agrostis exarata*, *Deschampsia elongata*, and *Melica subulata* en route to a beautiful late-spring and early-summer garden growing on serpentine that cuts from the ridge to San Francisquito Creek. Here one can enjoy not only a lovely, cliffy *Melica torreyana* garden, but *Silene californica*, *Angelica tomentosa*, *Eriophyllum lanatum*, *Berberis pinnata*, *Lilium pardalinum*, *Mimulus cardinalis*, and the attractive onion for which Jasper Ridge is the type locale, *Allium peninsulare* var. *franciscanum*. Torrent sedge (*Carex nudata*) in the creek bottom and hybrid leather oaks upslope provide additional accents.

Jasper Ridge Biological Preserve is the western portion of Stanford University's 8,000-acre campus and is managed as a teaching and research facility. Though the

## Native Grasses Inhabiting the Serpentine Grasslands at Jasper Ridge

Scientific name	Common Name	Season
<i>Agrostis microphylla</i>	small-leaved bent grass	May–June
<i>Agrostis pallens</i> (A. <i>diegoensis</i> )	leafy bent grass	May–June
<i>Bromus carinatus</i> var. <i>carinatus</i>	California brome	April–Oct
<i>Bromus laevipes</i>	woodland brome	May–August
<i>Danthonia californica</i> var. <i>californica</i>	California oatgrass	May–July
<i>Deschampsia danthonioides</i>	annual hairgrass	May–July
<i>Deschampsia elongata</i>	slender hairgrass	May–July
<i>Elymus glaucus</i> ssp. <i>glaucus</i>	blue wildrye	April–June
<i>Elymus glaucus</i> × E. <i>multisetus</i>	squirreltail hybrid	May–August
<i>Elymus multisetus</i>	big squirreltail	May–August
<i>Festuca californica</i>	California fescue	March–July
<i>Hordeum brachyantherum</i> ssp. <i>californicum</i>	meadow barley	April–June
<i>Koeleria macrantha</i>	junegrass	April–July
<i>Melica californica</i>	California melic	March–June
<i>Melica subulata</i>	Alaska onion grass	May–July
<i>Melica torreyana</i>	Torrey's melic	March–June
<i>Nassella lepida</i>	foothill needlegrass	March–June
<i>Nassella pulchra</i>	purple needlegrass	March–June
<i>Phalaris californica</i>	California canary grass	April–June
<i>Poa secunda</i> ssp. <i>secunda</i>	one-sided bluegrass	Feb–May
<i>Scribneria bolanderi</i>	Scribner's grass	March–May
<i>Trisetum canescens</i>	tall trisetum	May–August
<i>Vulpia microstachys</i> var. <i>ciliata</i>	annual fescue	April–May
<i>Vulpia microstachys</i> var. <i>pauciflora</i>	common hairy-leaf fescue	April–May

Preserve is fenced and access is controlled, I or my herbarium colleagues would be pleased to host CNGA members, schedules permitting.

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Jasper Ridge

Photo: Toni Corelli

### Jasper Ridge Online

- Visit <http://jrpbp.stanford.edu/> for additional information about the Jasper Ridge Biological Preserve.
- A list of all the vascular plants at Jasper Ridge growing on serpentine can be found at [http://spreadsheets.google.com/pub?key=pbVCyMeU4\\_CBs8iCu9TkreQ](http://spreadsheets.google.com/pub?key=pbVCyMeU4_CBs8iCu9TkreQ).
- The Web site also includes a preliminary outline of grass floristics and grassland ecological studies at Jasper Ridge Biological Preserve: [http://docs.google.com/View?docid=dd9d82jv\\_32fbsfm](http://docs.google.com/View?docid=dd9d82jv_32fbsfm).
- This document also links to the complete grass list and a field guide to identifying grasses at Jasper Ridge: <http://jrpbgrass.blogspot.com/>.

## Jasper Ridge Plant Communities

Within its approximately 2 square miles (1,189 acres), Jasper Ridge Biological Preserve contains representatives of 98 of the 173 vascular plant families that grow in all of California's 158,693 square miles (100,000,000 acres) (Jepson Manual 1993).

The Preserve contains most of the plant communities of the Coast Ranges of Central California, except for coastal strand, saltwater marsh, and coastal scrub. Many coastal scrub plants do occur in the Preserve as components of other communities. Here, roughly in order of decreasing water availability, are the Preserve's main plant communities and some of their sub-communities.

- **Searsville Lake**, a fluctuating reservoir, supports a number of typical aquatic plants.
- **Freshwater marsh**, also part of a fluctuating reservoir.
- **Riparian vegetation**. The area along San Francisquito Creek below the dam is a classic riparian woodland.
- **Vernal pond**.
- **Redwood forest**, really second-growth redwood stands. Douglas fir grows intermingled with the redwoods. Also called moist coniferous forest.
- **Mixed evergreen forest**.
- **Oak woodland**. The blue oak woodland is usually discussed as a separate community. There is also a remnant valley oak woodland.
- **Chaparral**. Chamise chaparral is pre-dominant, but there are also areas of mixed chaparral, usually on cooler exposures. There are also small areas of serpentine chaparral dominated by leather oak and chamise. Portions of the serpentine chaparral have extensive openings supporting some of the same grasses and forbs found in the serpentine prairie. Some workers have characterized open scrub areas of coyote brush and poison oak as northern coastal scrub, a transitional community in the Preserve where woody plants are reclaiming grassland.
- **Grasslands**.<sup>\*</sup> Serpentine grassland or prairie, and annual grassland on greenstone, chert, and sandstone substrates.

Vegetation remapping based on the CNPS "A Manual of California Vegetation" is underway.

<sup>\*</sup> Jasper Ridge is the type locale for Rodriguez-Rojo (2001) *Hesperoacetum sparsiflorae lasthenietosum californicae* association of serpentine annual grassland. Typology and ecology of Californian serpentine annual grasslands. *Journal of Vegetation Science* 12:687-698

## Grasslands you can visit:

### Tufted Hairgrass Grassland Point Reyes National Seashore, Historic F Ranch

**P**oint Reyes National Seashore is in western Marin County and is most easily reached via Sir Francis Drake Boulevard. The largest tufted hairgrass grassland is on the Bull Point Trail, in a low, rolling area in the middle of

the park between the ocean and an estuary called Drake's Estero. From the town of Inverness, go west on Sir Francis Drake Boulevard for 7¼ miles, then turn left into the parking area for the trailhead. The parking area has a sign and is surrounded by a split-rail fence.

While the beginning of Bull Point Trail is mixed native and nonnative grassland, after 300 feet there are small areas of tufted hairgrass along the trail. More may be found by exploring the area further along the trail toward Drake's Estero. More information on the park is available at <http://www.nps.gov/pore/> or 415-464-5100.

#### Overview

Point Reyes National Seashore, established in 1962, is noted for its spectacular panorama of thunderous ocean breakers, open grasslands, bushy hillsides, and forested ridges. Thanks in part to this variety of habitats, Point Reyes has tremendous biological diversity: the peninsula has nearly a fifth of California's flowering plant species, and 37 land mammal and 12 marine mammal species. In addition, more than 45 percent of the bird species in North America have been sighted at Point Reyes. Although other stands of tufted hairgrass are scattered around the coastal portions of the Seashore, the stand along Bull Point Trail is among the largest and most accessible.

**TUFTED HAIRGRASS**, continued on page 12



*Deschampsia holciformis* stand near Point Reyes in Marin County (Photo: David Amme)