A.33 SLENDER ORCUTT GRASS (*ORCUTTIA TENUIS*)


photo courtesy Dr. Dean Wm. Taylor

A.33.1 Legal and Other Status

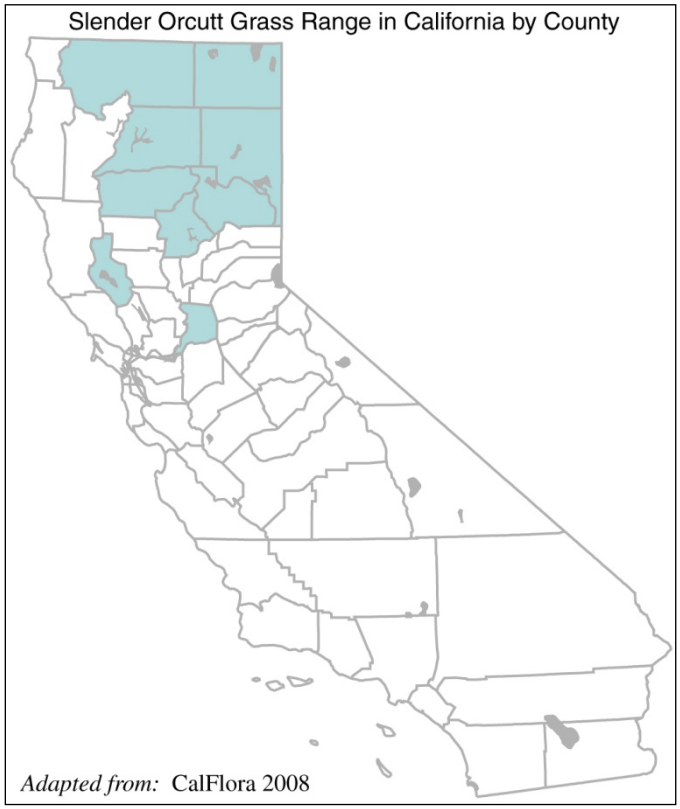
Slender Orcutt grass (*Orcuttia pilosa*) is listed as threatened under the federal ESA and is listed as endangered under the California ESA (DFG 2011). The California Native Plant Society (CNPS) includes slender Orcutt grass on California Rare Plant Rank 1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere (CNPS 2010).

Critical habitat has been designated for the slender Orcutt grass; however, none of this critical habitat occurs within Butte County (71 FR 7118).

A.33.2 Species Distribution and Status

A.33.2.1 Range and Status

Slender Orcutt grass occurs in valley grassland and blue oak woodland where it grows in vernal pools on remnant alluvial fans, high stream terraces and recent basalt flows (USFWS 2006). It has some ability to colonize artificial habitats, such as the margins of stock ponds. A total of 82 occurrences are known, of which 76 are presumed extant, two are possibly extirpated, and four are extirpated (CNDDB 2008).



Slender Orcutt grass is reported in Sacramento, Lake, Tehama, Shasta, Siskiyou, Lassen, Modoc, Butte, and Plumas Counties. The primary area of concentration for slender Orcutt grass is Tehama County, where 27 natural occurrences and the three introduced populations are extant. Those 30 occurrences and the four at the Vina Plains in Tehama County are all in the Northeastern Sacramento Valley Vernal Pool Region (Keeler-Wolf et al. 1998). A secondary area of concentration is the

Modoc Plateau Vernal Pool Region in Lassen, Plumas, Shasta, and Siskiyou Counties, with 25 extant occurrences. The portion of Shasta County that is in the Northwestern Sacramento Valley Vernal Pool Region has 12 extant occurrences. The Lake-Napa Vernal Pool Region accounts for two extant occurrences, both in Lake County; three occurrences are in Sacramento County, in the Southeastern Sacramento Valley Vernal Pool Region; and the one remaining occurrence, in Shasta County (Occurrence No. 69), is outside of mapped vernal pool regions (CNDDB 2008). The overall trend for this species is declining due to loss of vernal pool habitat (USFWS 2005).

A.33.2.2 Distribution and Status in the Plan Area

There are two records of occurrence for this species in Butte County (see Figure A.33-1, *Slender Orcutt Grass Modeled Habitat and Recorded Occurrences*); both are along the roadside of State Route 70 south of Oroville. The first occurrence is along the east side of State Route 70, approximately 0.15 mile (0.24 kilometer [km]) north of the junction with Palermo Road. The second occurrence is along the east side of State Route 70, approximately 0.5 mile (0.8 km) north of the junction with Palermo Road. Both records were submitted in 2000 to the CNDDB with an estimate of 500 plants between the two occurrence sites (CNDDB 2008). In addition to the CNDDB recorded occurrences, two vernal pools were casually seeded in 1978 but there are no follow-up data on the success of the seeding (USFWS 2005).

A.33.3 Habitat Requirements and Special Considerations

Slender Orcutt grass is found primarily on substrates of volcanic origin, classified as Northern Volcanic Ashflow and Northern Volcanic Mudflow vernal pools (USFWS 2005). However, this species has also been reported from other natural and artificially created seasonal wetlands such as creek floodplains, stock ponds, and borrow pits. Based on one study, the median area of pools occupied by slender Orcutt grass was 0.65 hectare (1.6 acres) and ranged from 0.08 to 45 hectares (0.2 to 111 acres) (USFWS 2005). On the Modoc Plateau, occupied pools known as of 1989 ranged in size from 2 to 40 hectares (5 to 100 acres) and were typically at least 30 centimeters (11.8 inches) deep; this species was restricted to the deepest areas of these pools (Corbin and Schoolcraft 1989). Slender Orcutt grass occurs across a wide range of elevations corresponding to its broad geographical range.

Associated species vary throughout the range of slender Orcutt grass. Among the most common associates in the Sacramento Valley are stalked popcorn flower (*Plagiobothrys stipitatus)*, pale spikerush (*Eleocharis macrostachya)*, eryngo (*Eryngium* spp.), white-headed navarretia (*Navarretia leucocephala)*, and water clover (*Marsilea vestita)* (USFWS 2005).

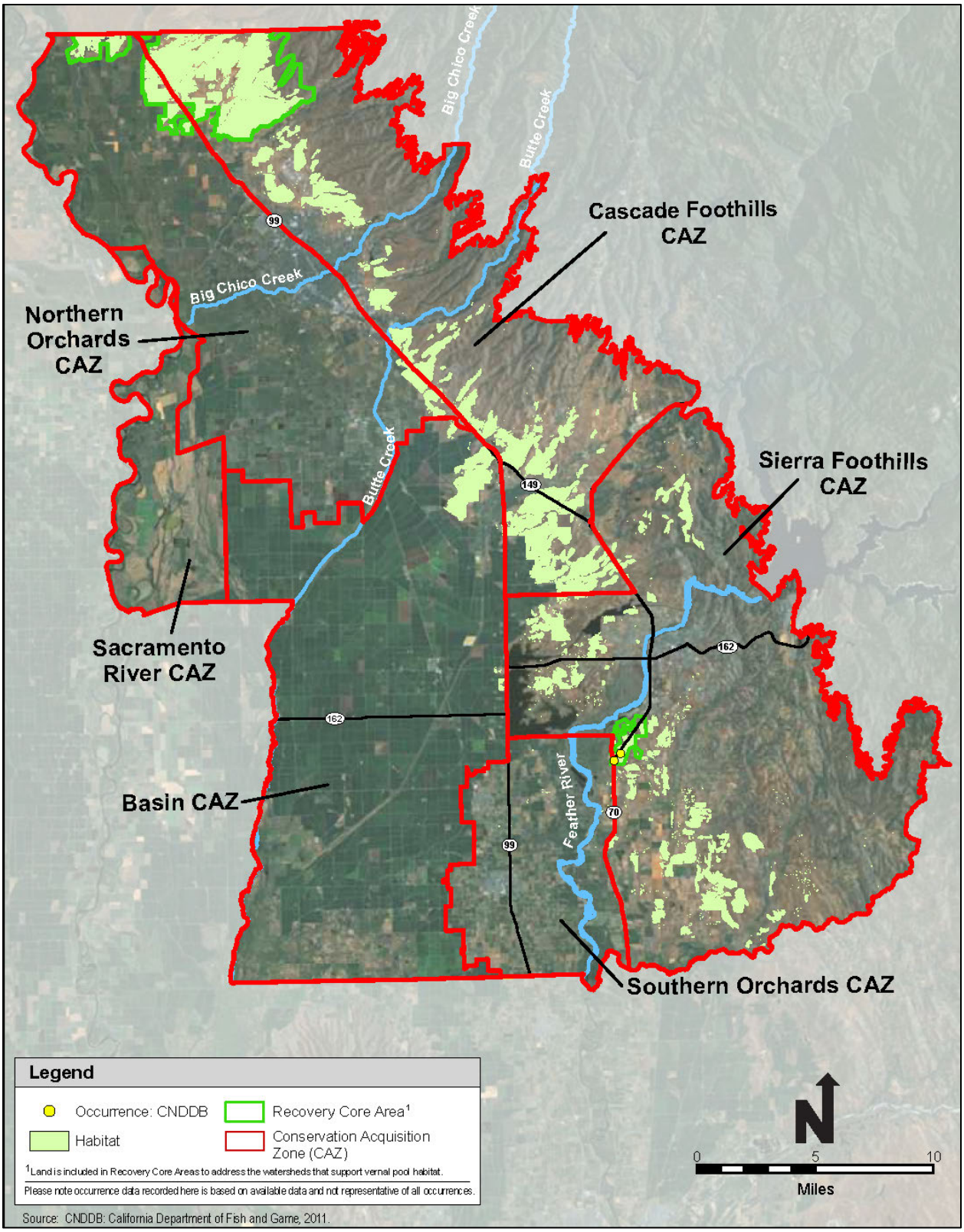


Figure A.33-1. Slender Orcutt Grass Modeled Habitat and Recorded Occurrences

A.33.4 Life History

Peak flowering of this species typically occurs in May in the Central Valley (USFWS 2005). The life history characteristics of slender Orcutt grass are common to all species of Orcutt grasses (tribe Orcuttieae). They are all annuals and wind-pollinated, although the pollen probably is not carried long distances between populations. Local seed dispersal is by water, which breaks up the inflorescences. It is speculated that long distance dispersal is unlikely, but seed may have historically been carried by waterfowl or other animals that visit vernal pools. The seeds can remain dormant for an undetermined length of time (at least 3 to 4 years) and germinate underwater after they have been immersed for prolonged periods (USFWS 2005).

A.33.5 Threats

A number of specific active threats are identified for this species. In particular, urbanization is a continuing threat to slender Orcutt grass populations in the vicinity of Redding and Sacramento. Off-road vehicle use is a problem near Redding and in forested areas of the Modoc Plateau. Despite the comparatively wide range of slender Orcutt grass, small population size is of concern in the Lake Napa Vernal Pool Region and the Millville Plains-Stillwater Plains area of the Northeastern and Northwestern Sacramento Valley Vernal Pool Regions.

Threats to vernal pool habitat and all vernal pool species in general, including slender Orcutt grass, are described in the Recovery Plan for Vernal Pool Ecosystems for California and Southern Oregon (Recovery Plan) approved by the USFWS in December 2005 (USFWS 2005). Threats consist of the following:

- Habitat loss and fragmentation generally resulting from urbanization, agricultural conversion, mining, and also occurring as a result of habitat alteration and degradation due to changes to natural hydrology, invasive species, incompatible grazing regimes (including insufficient grazing for prolonged periods), infrastructure projects (such as roads and utility projects), recreational activities (such as off-highway vehicles and hiking), erosion, climatic and environmental change, and contamination.
- Conversion of land use, such as from grasslands or pastures, to more intensive agricultural uses, such as croplands or from one crop type to another, has contributed and continues to contribute to the decline of vernal pools in general and is identified as one of the major threats to the remaining populations of slender Orcutt grass (USFWS 2005).
- Competition from invasive species. Native and nonnative plant species that occupy the same microhabitat as slender Orcutt grass can compete for light and space. Native competitors include coyote thistle (*Eryngium spp.*), alkali mallow (*Malvella leprosa*), lippia (*Phylanodiflora* spp.), hard-stemmed tule (*Scirpus acutus var. occidentalis*), alkali bulrush (*Scirpus maritimus*), and cocklebur (*Xanthium strumarium*). Nonnative competitors include bindweed (*Convolvulus arvensis*) and swamp grass (*Crypsis schoenoides*). Competition from invasive plant species is identified as an increasing

problem throughout the range of slender Orcutt grass. Increasing dominance by competitors may also contribute to changes in hydrology and livestock grazing practices (USFWS 2005).

- Changes in hydrology that result in a change in the timing, frequency, and duration of inundation in vernal pools can create conditions that render vernal pools unsuitable for vernal pool species. Several of the reported occurrences of slender Orcutt grass were extirpated due to changes in hydrology from agricultural practices (CNDDB 2008).
- Several other threats to vernal pools and vernal pool species were identified in the Recovery Plan. Water contamination can result from use of herbicides, fertilizers, and other chemicals commonly used in urban and agricultural settings. Fertilizers may also contribute to the growth of invasive plants that compete with native species (USFWS 2005). Increased human presence may lead to overuse, trampling (by walking or off-road vehicles), vandalism, and dumping (62 FR 14338). Habitat alteration may also result from large-scale climate and environmental changes, such as global warming, that lead to changes in the precipitation patterns, evaporation/transpiration rates, and atmospheric conditions (USFWS 2005).

A.33.6 Relevant Conservation Efforts

Four natural occurrences of slender Orcutt grass are in designated preserves. These include the Trust for Wildland Communities' Boggs Lake Preserve in Lake County, The Nature Conservancy's Vina Plains Preserve in Tehama County, and two occurrences on the California Department of Fish and Game's Dales Lake Ecological Reserve in Tehama County (USFWS 2005). Introductions of slender Orcutt grass have been attempted at two privately owned sites. In 1978, slender Orcutt grass was seeded into two adjacent "ponds" in Chico, Butte County. Fewer than 100 plants grew in the two ponds that year or in 1979, which was the last time the population size was reported (USFWS 2005). The other introduction was in 1982, when slender Orcutt grass was seeded into an artificial pool in Shasta County. As of 1987, the population was thriving (CNDDB 2008), but its current size is not known.

Slender Orcutt grass is proposed as a covered species under the draft South Sacramento County HCP (Sacramento County 2008).

A.33.7 Species Habitat Suitability Model

A.33.7.1 Habitat

Slender Orcutt grass habitat includes areas in the following BRCP mapped land cover types:

- Vernal pools;
- Altered vernal pools; and
- Grassland with vernal swale complex.

Vernal pools that may support slender Orcutt grass habitat may also occur as inclusions in mapped grassland, blue oak savanna, ranchettes–open, and disturbed ground land cover types. These inclusions were not mapped because they did not meet the mapping criteria for vernal pool, altered vernal pool, and grassland with vernal swale complex land cover types.

A.33.7.2 Assumptions

Slender Orcutt Grass is restricted to swales and shallow areas within low elevation Northern Basalt Flow, Northern Claypan, Northern Hardpan, and Northern Volcanic Mudflow vernal pool types (Sawyer and Keeler-Wolf 1995, USFWS 2005). The species specialize on higher, less mesic edges of vernal pools but has also been documented in deeper parts of vernal pools (USFWS 2005). Microhabitats from which the plants have been reported are the edges of vernal pools, bottoms of intermittent drainages, and on pocket gopher (*Thomomys* species) and ground squirrel (*Spermophilus* species) mounds (USFWS 2005).

Given these habitat preferences, suitable habitat for the slender Orcutt grass is defined as the vernal pool, altered vernal pool, and grassland with vernal swale complex land cover types within the Plan Area.

A.33.8 Recovery Plan Goals

A general statement for recovery of slender Orcutt grass is presented in the Recovery Plan: to ensure protection of the full geographic, genetic and ecological extent of this species and to improve the circumstances that caused it to be listed in the first place (USFWS 2005).

A.33.9 References

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