

This unit contains protected lands at the Big Table Mountain Ecological Reserve, which may help the species persist here over time (criterion 4). The Federal government owns 350 ac (142 ha) of this unit, the State owns 419 ac (170 ha), and TNC has 650 ac (260 ha) of conservation easements within this unit. This unit also contains an occurrence of *Orcuttia inaequalis* that is partially on public land administered by the BLM. The pool supports the second-largest population of the species known to be extant (CNDDDB 2001).

Unit 5 for *Orcuttia inaequalis* is comprised of two subunits. Both subunits are located east of Millerton Lake on basalt mesas above the San Joaquin River. Subunit 5B is located on Kennedy Table in Madera County, and Subunit 5A is directly south of this unit across the San Joaquin River on Table Mountain in Fresno County.

*Unit 6A and B, Tulare Unit, Tulare County (15,243 ac (6,169 ha))*

This unit contains *Orcuttia inaequalis* occurrences within vernal pools on Madera and Greenfield soils (CNDDDB 2001; USDA 2001). It represents the southernmost extent of *O. inaequalis* range (criterion 1).

There are two subunits within the Tulare Unit. The Tulare Unit is located in northwestern Tulare County. *Orcuttia inaequalis* occurs on CDFG land at Sequoia Fields Ecological Reserve (215 ac (88 ha)); however, most of the area within this unit is privately owned.

*Orcuttia tenuis*

Slender Orcutt grass is found in five general areas of concentration from south Sacramento County to the Modoc Plateau and west to Lake County with an elevational variation of near 61 m (200 ft) to near 1,067 m (3,500 ft). A broad distribution of slender Orcutt grass across its geographical and elevational distribution protects the natural environmental processes for the species and provides the best chance for retaining the species across the full extent of the species range.

The vernal pool types and soils associated with the five general areas of concentration of slender Orcutt grass differ greatly across the geographic range of the species and leads to different species compositions and environmental conditions between slender Orcutt grass occurrences. Providing for a mosaic of habitat types both between and among vernal pool species is essential because it would include the full extent of the physical and environmental conditions for the species (Fugate 1992, Fugate 1998, Gonzales *et al.* 1996, Ikeda and Schlising

1990, Noss *et al.* 2002a, Platenkamp 1998, Zedler *et al.* 1979). The wide ranging distribution of slender Orcutt grass has led to a large diversity of vernal pool habitat types for the species. The Modoc Plateau occurrences are associated mostly with Northern Basalt Flow and Northern Volcanic Mudflow type vernal pools. These pools range in size from a fraction of an acre to well over an acre with smaller pools having a short inundation period. The parent material of vernal pools greatly influences species composition and hydrologic functioning of the vernal pool (Hanes and Stromberg 1998, Holland and Jain 1981, 1988). Soils beneath vernal pools are extremely variable and are not the same as soils mapped by soil surveys, but are usually undescribed hydric inclusions which vary upon location (Holland and Dain 1990). The Lake County occurrences are associated with Ashflow type vernal pools and are the only area where vernal pools are associated with this type of landform. The Redding area vernal pools in the Northeastern Sacramento Valley Vernal Pool Region occur on volcanic Tuscan Formation or terrace-alluvial Redding soils. The hydrology within the terrace-alluvial pools tend to be less flashy than those with a volcanic origin (Keeler-Wolf *et al.* 1998). The soils associated with the Sacramento County occurrences include those occurring on old terrace formations. The primary constituent elements of critical habitat for *Orcuttia tenuis* are the habitat components that provide:

(i) Vernal pools, swales, and other ephemeral wetlands and depressions of appropriate sizes and depths and the adjacent upland margins of these depressions that sustain *Orcuttia tenuis* germination, growth and reproduction, including but not limited to, Northern Volcanic Ashflow and Northern Volcanic Mudflow vernal pools (Sawyer and Keeler-Wolf 1995) with iron-silica and bedrock hardpan impervious layers, and that typically become inundated during winter rains, but are dry during the summer and do not necessarily fill with water every year; and

(ii) The associated watershed(s) and hydrologic features, including the pool basin, swales, and surrounding uplands (which may vary in extent depending on pool size and depth, soil type and depth, hardpan or claypan type and extent, topography, and climate) that contribute to the filling and drying of the vernal pool or ephemeral wetland, and that maintain suitable periods of pool inundation, water quality, and soil moisture for *Orcuttia tenuis* germination, growth and reproduction,

and dispersal, but not necessarily every year.

*Unit 1A, B, C, D, E, F, G, H, and I, Modoc Plateau Unit, Plumas, Lassen, Shasta, Modoc, and Siskiyou Counties (33,146 ac (13,414 ha))*

This unit is important for the conservation of the geographic diversity of the species because it represents the northernmost extent of the range, and contains almost 25 percent of all known *Orcuttia tenuis* occurrences. The species is found growing within Northern Basalt Flow vernal pools occurring on Gooval, Lasvar, Lasvar-Pitvar, and Nosoni soils (CNDDDB 2002). These soils and vernal pool types are not otherwise well represented (criterion 2). Occurrences in the unit are all found on the Modoc Plateau, where they are located at higher elevations (criterion 1) and experience colder climatic conditions (criterion 2) than in any other area throughout the species range. The Federal government owns 22,994 ac (9,306 ha) of this unit. The remainder is privately owned.

This unit for *Orcuttia tenuis* consists of nine subunits largely within the volcanic plateau of northeastern California. The nine subunits are identified as the Lake Almanor, Crater Lake Mountain, Poison Lake, Badger Mountain, Lost Creek, Goose Valley, Long Valley, Cayton Creek, and Timbered Crater subunits. The Lake Almanor subunit is located in Plumas County, on the southwestern part of Lake Almanor along Humbug Humboldt Cross Road and State Route 89. The area extends from near the shoreline upslope to the watershed boundary. The Crater Lake Mountain subunit is located along Route 44 and encompasses the northwestern portion of Crater Lake Mountain as well as Grays and Harvey valleys. The watershed boundary was used to determine the extent of this subregion. The Poison Lake subunit north of State Route 44 near Pittville Road adjacent to South Cabin Reservoir and Ebey Lake. The western boundary is near Halls Flat Road. The Badger Mountain subunit is located north of Badger Mountain and east of State Route 89 and South of Potato Butte. Little Bunch Grass Meadow is included in this unit. The Lost Creek subunit is located south of Cinder Butte and west of the Hat Creek Rim. Lost Creek near Wilcox Road is within this subunit. The Goose Valley subunit is located in Shasta County northwest of the intersection of State Route 299 and Route 89 in Goose Valley north of Burney, California. The Long Valley subunit is located in Long Valley west of Black Ranch Road south of Long Valley Mountain and east of Lookout Mountain. The Cayton Creek