

## **DRAFT**

### **Butte County Golden Clover Habitat Model**

**Habitat:** Butte County golden clover habitat includes areas with suitable soil type in the following land cover types:

- Grassland with and without Vernal Swale Complex;
- Blue Oak Savanna with and without Vernal Swale Complex;
- Vernal Pools; and,
- Altered Vernal Pools.

The following soil survey map units support Lovejoy Basalt and Tuscan Formation-derived soil series that are considered to be suitable soil types for Butte County golden clover present within the planning area: Redtough-Redswale-Anita, gravelly duripan (305), Durixeralfs-Typic Petraquepts complex (321), Rock outcrop, Lovejoy basalt (340), Elsey-Beatsonhollow-Campbellhills-Rock outcrop complex (341), Cherotable-Elsey complex (346), and Flagcanyon taxadjunct-Durixeralfs-Duraquerts complex (677).

**Assumptions:** Butte County golden clover is found within valley and annual grassland communities containing vernal pool, typically inhabiting the swales surrounding pools, margins of the pools, or banks of ephemeral streams (CNDDDB 2007). Elevation ranges from 165 to 1265 feet (50 to 385 meters)(CNDDDB 2007). Site-specific soil conditions are not documented, but the parent material is basalt or volcanic mudflow throughout the species range (CNDDDB 2007) Given these habitat preferences, suitable habitat is defined as the grassland, grassland with vernal swale complex, blue oak savanna, blue oak savanna with vernal swale complex, vernal pool, and altered vernal pool land cover types, when present on suitable shallow soils with underlying basalt or volcanic mudflow bedrock. Suitable habitat for the plant was selected by intersecting these selected land cover types with selected soil map units.

The NRCS Soil Survey for Butte County was used to select suitable soils within the planning area (NRCS 2006). Soils that support Butte County golden clover are defined as shallow soils with underlying basalt or volcanic mudflow bedrock. To determine suitable soil map units, the California Natural Diversity Database was used to initially identify the relationship between golden clover occurrences and soil units based on known historic and extant occurrences of the species (CNDDDB 2007). Physical and chemical characteristics (e.g., soil depth, parent material) were used to both verify these selected soils, and to identify additional suitable soils within the planning area (NRCS 2006). Generally, shallow soils with underlying bedrock composed of the Lovejoy Basalt and specific soils on the Tuscan Formation were considered suitable. All soils were cross referenced with existing research on the plant. NRCS staff was consulted to confirm that appropriate soils were chosen in the planning area (Conlin, pers. comm.).

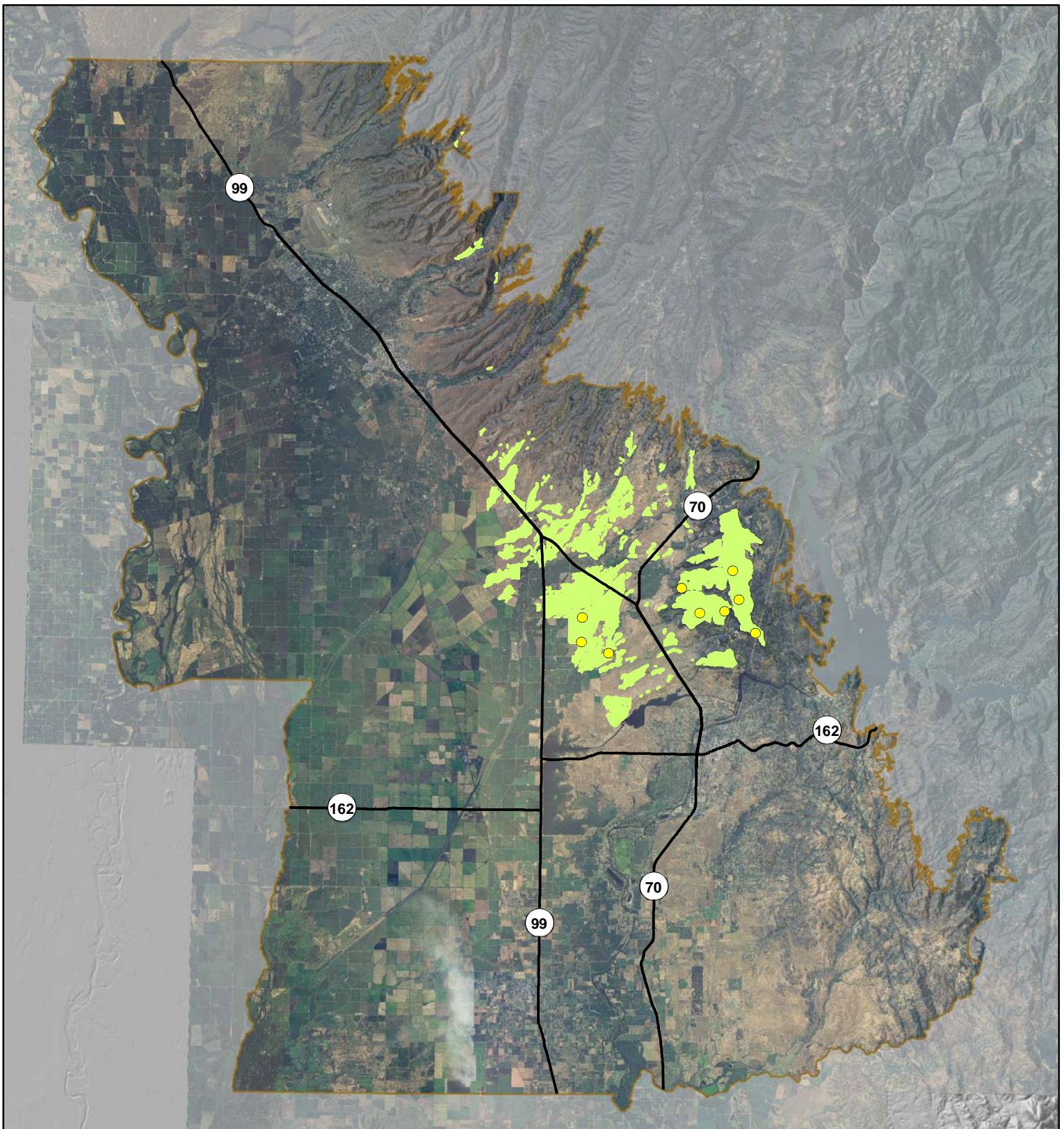
**References**

CNDDDB (California Natural Diversity Database). 2007. California Department of Fish and Game, Sacramento, CA.

Natural Resources Conservation Service (NRCS) Soil Survey of Butte Area, California, Parts of Butte and Plumas County. 2006.

**Personal Communication:**

Andrew Conlin, phone conference with Drs. Paul Cylinder and Letty Brown on 12/04/08.



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**Figure A.35: Butte County Golden Clover Habitat Model**

Legend

- Occurrence: CNDDB
- Habitat
- Planning Area Boundary

This map presents outcomes of a draft habitat model that is described in the Covered Species Accounts of the HCP/NCCP. The purpose of the model is to identify areas within the planning area where the species occurs or could occur based on known habitat requirements. Please note occurrence data recorded here is based on available data and not representative of all occurrences.

