

critical habitat units reflects the dynamic nature of the habitat and the life history characteristics of this taxon. Unoccupied areas provide areas into which populations might expand, provide connectivity or linkage between colonies within a unit, and support populations of pollinators and seed dispersal organisms. Other areas, specifically the steeper slopes above the occurrences of *P. hickmanii*, and including non-grassland areas that extend up to the ridgelines, are necessary to maintain the hydrologic and edaphic characteristics of the wildflower field patches where *P. hickmanii* is found.

Summary of Changes From the Proposed Critical Habitat Designation

Based on a review of public comments received on the proposed designation of critical habitat, we reevaluated our proposal and made several changes to the final designation of critical habitat. These changes include the following:

(1) The description of the primary constituent elements was modified and clarified. One peer reviewer suggested expanding the list of primary constituent elements; we did not believe it was appropriate to do so (see comment 2 in Summary of Comments above). However, we did incorporate some of the additional elements suggested by the peer reviewer and included discussion of them as features of the landscape that need special management or protections. In the third primary constituent element ("grassland plant community that supports the wildflower field habitat that is stable over time"), we removed the reference to nonnative species being absent or at low densities in recognition that such areas, even if they contain nonnative species, may have the potential to be restored so as to support *Polygonum hickmanii* in the future. Two other primary constituent elements (pollinator activity between existing colonies of *P. hickmanii*, and seed dispersal mechanisms between existing colonies and other potentially suitable sites) were removed as individual primary constituent elements. Instead, these two elements were added into primary constituent element #3. We did this because we think it more accurately portrays the role of pollinators and seed dispersers as integrated parts of a healthy plant community that could support *P. hickmanii*, rather than as elements whose absence would lead the public to conclude that an area was not critical habitat.

(2) One primary constituent element ("physical processes * * * that support

natural dune dynamics") was erroneously included in the proposed rule; it has been removed from this final rule.

(3) We added a section describing the Special Management Needs or Protections that *Polygonum hickmanii* may require. We believe that this new section will assist land managers in developing strategies for conservation and protection of *P. hickmanii* on lands they manage.

(4) We made revisions to the boundary lines on both critical habitat units. The purpose of these changes was to remove areas that do not contain the primary constituent elements. The use of recently acquired high-resolution aerial photographs (April 2000) enabled us to more precisely map critical habitat. These changes reduced the Glenwood Unit by 4 percent (3 ha, 8 ac). The Polo Ranch Unit was reduced 15 percent (5 ha, 13 ac) by eliminating some of the riparian gallery forest at the western edge of the unit that borders Carbonero Creek and does not support any of the primary constituent elements.

Primary Constituent Elements

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to propose as critical habitat, we consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species and that may require special management considerations or protection. These include, but are not limited to: Space for individual and population growth, and for normal behavior; food, water, air, light, minerals or other nutritional or physiological requirements; cover or shelter; sites for germination, or seed dispersal; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

Much of what is known about the specific physical and biological requirements of *Polygonum hickmanii* is described in the Background section of this final rule. Based on the best available information at this time, we believe the long-term probability of the conservation of *P. hickmanii* is dependent upon the protection of existing population sites and the maintenance of ecological functions within these sites, including connectivity between colonies within close geographic proximity to facilitate pollinator activity and seed dispersal mechanisms, and the ability to maintain disturbance factors (for example, fire disturbance) that contribute to the openness of plant cover upon which the

species depends. In addition, the small range of this species makes it vulnerable to edge effects from adjacent human activities, including disturbance from trampling and recreational use, the introduction and spread of nonnative species, and the application of herbicides, pesticides, and other contaminants (Conservation Biology Institute 2000).

The primary constituent elements of critical habitat for *Polygonum hickmanii* are:

(1) Thin soils in the Bonnydoon series that have developed over outcrops of Santa Cruz mudstone and Purisima sandstone;

(2) "Wildflower field" habitat that has developed on these thin-soiled sites;

(3) A grassland plant community that supports the "wildflower field" habitat and that supports the pollinator activity and seed dispersal mechanisms that typically occur within the grassland plant community;

(4) Areas around each colony to allow for recolonization to adjacent suitable microhabitat sites;

(5) Habitat within the subwatersheds upslope to the ridgelines to maintain the edaphic and hydrologic conditions and slope stability that provide the seasonally wet substrate for growth and reproduction of *P. hickmanii*.

Special Management Considerations or Protections

Special management considerations or protections may be needed to maintain the primary constituent elements for *Polygonum hickmanii* within the units being designated as critical habitat. In some cases, protection of existing habitat and current ecologic processes may be sufficient to ensure that populations of *P. hickmanii* are maintained at those sites and have the ability to reproduce and disperse in surrounding habitat. In other cases, however, active management may be needed to maintain the primary constituent elements for *P. hickmanii*. We have outlined below the most likely kinds of special management and protection that *P. hickmanii* may require.

(1) The soils on which *Polygonum hickmanii* is found should be maintained to optimize conditions for its persistence. Physical properties of the soil, such as its chemical composition, surface crust, and drainage capabilities, would best be maintained by limiting or restricting the use or application of herbicides, fertilizers, or other soil amendments.

(2) Overspray from irrigation or saturation of soils beyond the normal rainfall season should also be avoided,