

Response: As required by the Act and regulations (section 4(b)(2) and 50 CFR 424.12), we used the best scientific information available to determine areas that contain the physical and biological features that are essential for the conservation of *Polygonum hickmanii*. This information includes data from the California Natural Diversity Data Base (CNDDB 2000), geologic and soil survey maps (USGS 1989, SCS 1980), recent biological surveys and reports, our recovery plan for this species, additional information provided by interested parties, and discussions with botanical experts. We also conducted multiple site visits to the two locations that were proposed for designation.

Comment 2: One peer reviewer suggested expanding the list of primary constituent elements to include such factors as seed germination requirements, substrate salinity, microreliefs and microclimates within local habitats, seasonal and yearly groundwater levels, and bird populations that migrate within the range of *Polygonum hickmanii*.

Response: While we recognize that these factors may be important components of the habitats within which *Polygonum hickmanii* is found, we do not have sufficient information at this time that leads us to believe they are the primary factors essential to the conservation of *P. hickmanii* throughout its range.

Comment 3: One peer reviewer commented that, while the Service had reasonably performed the difficult task of identifying the primary constituent elements, that the importance of certain processes (e.g., habitat disturbance, pollination, seed dispersal) was not sufficiently supported in the proposal. Specifically, the reviewer asserts that pollination activity within colonies more likely has a major effect on seed set and population persistence than does pollination activity between colonies, and that the majority of pollination occurs across short distances. The concern is that general statements of opinion could be translated into major management actions without adequate scientific basis.

Response: The peer reviewer that supplied these comments was responding to a request to concurrently review critical habitat proposals for four plant taxa. While we were unable to confirm this with the peer reviewer, we believe that the concern was directed primarily to two other of the four species that have significantly larger distributions than *Polygonum hickmanii*, in which case the concern over discriminating between within-

colony and between-colony pollinator distances would be more germane.

With respect to *P. hickmanii*, the entire range of the species covers a distance of only 1.6 km (1 mi), with colonies clustered at the two proximal ends of this range. Although no information is available concerning the importance of pollinators to the long-term persistence of *P. hickmanii*, the distance between the colonies in each of the clusters is well within the 0.5 km (0.3 mi) distance that many native pollinators are thought to fly (Waser in litt. 2002).

Comment 4: One commenter submitted a map portraying a recommended revision to the proposed critical habitat covering the parcel owned by American Dream/Glenwood that would have reduced the extent of critical habitat on that parcel. The commenter suggested that the swath of low-elevation grasslands that occur along Carbonera Creek in the middle of the Glenwood Unit could be eliminated from critical habitat, as well as a portion of the Carbonera Creek watershed above them. The commenter suggested that the low-level grasslands do not support the primary constituent elements. Further the commenter suggested that the presence of existing residential development and the Scotts Valley High School along Glenwood Drive would make this area less desirable as a movement corridor for wildlife functioning as dispersal agents for *P. hickmanii*.

Response: While this narrow area of low-elevation grasslands does not contain wildflower fields, it is a grassland plant community that supports pollinators and seed dispersal agents for the wildflower fields. In addition, the low-level grassland along Carbonero Creek provide an important corridor for dispersers between the colonies on the west side and suitable, but unoccupied wildflower field habitat on the east side of Glenwood Valley. Similarly, the low-level grasslands would also be an important corridor to potential pollinators between the two sides of Glenwood Valley once *Polygonum hickmanii* is reestablished on the east side of the valley. Therefore, the low-level grasslands that occur along Carbonero Creek do include primary constituent elements.

The recent development of the Scotts Valley High School has reduced the extent of the corridor between the east and west sides of Carbonero Creek, and has therefore increased the conservation value and importance of the remaining corridor for pollinators and seed dispersers. In the background section of this final rule, we have expanded the

discussion of potential seed dispersers and pollinators, which are part of the primary constituent elements, to clarify the role that these elements may play in the long-term conservation of the species.

In the case of *Polygonum hickmanii*, we included conservation recommendations for this species in a multi-species recovery plan we published, which also addressed recovery actions for two listed insects and three listed plants (including the endangered *Chorizanthe robusta* var. *hartwegii* that occurs with *P. hickmanii*) in the Santa Cruz Mountains (Service 1998). Upon *P. hickmanii* being listed, we intend that the conservation recommendations included in this recovery plan will, in effect, become the recovery recommendation for this species. This plan identifies both State and Federal efforts for conservation of the plant and establishes a framework for agencies to coordinate activities and cooperate with each other in conservation efforts. The plan sets recovery priorities and describes site-specific management actions necessary to achieve conservation and survival of the plant.

As part of the recovery recommendations for *Polygonum hickmanii*, the recovery plan states that all known sites would have to be in protected status, a habitat conservation plan would have to be in place with the City of Scotts Valley, and population numbers would have to be stable or increasing (Service 1998). The limited range of the species, the limited opportunities for conservation, and the existence of threats on all locations where it occurs makes conservation of the species very difficult. Further loss of habitat or compromising the ecological processes on which the species depends may eliminate the ability of the species to persist. Therefore, we believe it is necessary to include the low-elevation grasslands in the critical habitat designation.

Issue 2: Legal and Procedural Issues

Comment 5: The proposed designation fails to designate specific areas as critical habitat, but instead used a landscape approach.

Response: The critical habitat designation delineates areas that support locations of known individuals of *Polygonum hickmanii* and areas with the primary constituent elements we believe essential to the long-term conservation of *P. hickmanii*. In fact, the distribution of *P. hickmanii* is so restricted that direct and indirect effects to its habitat will make recovery particularly challenging. However,