

hawaiiensis, *Plantago princeps*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, *Zanthoxylum dipetalum* var. *tomentosum*, and *Zanthoxylum hawaiiense*. This information included the known locations, site-specific species information from the HINHP database and our own rare plant database; species information from the Center for Plant Conservation's (CPC's) rare plant monitoring database housed at the University of Hawaii's Lyon Arboretum; island-wide Geographic Information System (GIS) coverages (e.g., vegetation, soils, annual rainfall, elevation contours, landownership); the final listing rules for these 54 species; the May 28, 2002 proposal; information received during the public comment periods and the public hearings; recent biological surveys and reports; our recovery plans for these species; information from landowners, land managers, and interested parties on the island of Hawaii; discussions with botanical experts; and recommendations from the Hawaii and Pacific Plant Recovery Coordinating Committee (HPPRCC) (see also the discussion below) (GDSI 2000; HINHP Database 2000; Service 1994, 1995a, 1996a, 1996b, 1996c, 1997a, 1998a, 1998b, 1998c, 1999; 67 FR 36968; CPC, *in litt.* 1999; R. Hobby and S. Perlman, pers. comms. 2000; L. Pratt *et al.*, pers. comm. 2001).

In 1994, the HPPRCC initiated an effort to identify and map habitat it believed to be important for the recovery of 282 endangered and threatened Hawaiian plant species. The HPPRCC identified these areas on most of the islands in the Hawaiian chain, and in 1999, we published them in our *Recovery Plan for the Multi-Island Plants* (Service 1999). The HPPRCC expects there will be subsequent efforts to further refine the locations of important habitat areas and that new survey information or research may also lead to additional refinement of identifying and mapping of habitat important for the recovery of these species.

The HPPRCC identified essential habitat areas for all listed, proposed, and candidate plants and evaluated species of concern to determine if essential habitat areas would provide for their habitat needs. However, the HPPRCC's mapping of habitat is distinct from the regulatory designation of critical habitat as defined by the Act. More data have been collected since the

recommendations made by the HPPRCC in 1998. Much of the area that was identified by the HPPRCC as inadequately surveyed has now been surveyed to some degree. New location data for many species have been gathered. Also, the HPPRCC identified areas as essential based on species clusters (areas that included listed species, as well as candidate species and species of concern) while we have only delineated areas that are essential for the conservation of the specific listed species at issue. As a result, the critical habitat designations in this rule include not only some habitat that was identified as essential in the 1998 recommendations but also habitat that was not identified as essential in those recommendations.

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 are required to base critical habitat determinations on the best scientific and commercial data available and to 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 features 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 breeding, reproduction, or rearing of offspring, 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 the 54 species (*Achyranthes mutica*, *Adenophorus perians*, *Argyroxiphium kauense*, *Asplenium fragile* var. *insulare*, *Bonania menziesii*, *Cenchrus agrimonoides*, *Clermontia drepanomorpha*, *Clermontia lindseyana*, *Clermontia peleana*, *Clermontia pyricularia*, *Colubrina oppositifolia*, *Ctenitis squamigera*, *Cyanea hamatiflora* ssp. *carlsonii*, *Cyanea platyphylla*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Cyrtandra giffardii*, *Cyrtandra tintinnabula*, *Delissea undulata*, *Diellia erecta*, *Flueggea neowawraea*, *Gouania vitifolia*, *Hedyotis cookiana*, *Hedyotis coriacea*, *Hibiscadelphus giffardianus*, *Hibiscadelphus hualalaiensis*, *Hibiscus brackenridgei*, *Ischaemum byrone*,

Isodendron hosakae, *Isodendron pyriformis*, *Mariscus fauriei*, *Mariscus pennatifolius*, *Melicope zahlbruckneri*, *Neraudia ovata*, *Nothocestrum breviflorum*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Phyllostegia warshaueri*, *Plantago hawaiiensis*, *Plantago princeps*, *Pleomele hawaiiensis*, *Portulaca sclerocarpa*, *Sesbania tomentosa*, *Sicyos alba*, *Silene hawaiiensis*, *Silene lanceolata*, *Solanum incompletum*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, *Vigna o-wahuensis*, *Zanthoxylum dipetalum* var. *tomentosum*, and *Zanthoxylum hawaiiense*) is described in the "Background" section of this final rule. We are unable to identify these features for *Cenchrus agrimonoides*, *Ctenitis squamigera*, *Hedyotis cookiana*, *Mariscus pennatifolius*, *Phlegmariurus mannii*, *Phyllostegia parviflora*, and *Plantago princeps*, which no longer occur on the island of Hawaii, because information on the physical and biological features (i.e., the primary constituent elements) that are considered essential to the conservation of these seven species on the island of Hawaii is not known. Only scanty information based on old collection records (mostly from the 1800s) exists. We are able to identify these features for *Hedyotis coriacea*, *Silene lanceolata*, *Spermolepis hawaiiensis*, *Tetramolopium arenarium*, and *Zanthoxylum hawaiiense*, but we are not designating critical habitat for these species on the island of Hawaii for the reasons given in the "Analysis of Impacts Under Section 4(b)(2)" section. Sufficient habitat to meet the recovery goal of 8 to 10 populations for these 12 multi-island species has either been designated on other islands within their historical ranges or has been specifically identified in lands on this or other islands (68 FR 1220, January 9, 2003; 68 FR 9116, February 27, 2003; 68 FR 28054, May 22, 2003; 68 FR 35949, June 17, 2003; 68 FR 12982, March 19, 2003; 68 FR 25934, May 14, 2003).

All areas designated as critical habitat are either within the geographical range of the species at the time of listing and contain one or more of the physical or biological features (primary constituent elements) essential for the conservation of the species, or are essential to the conservation of the species.

As described in the discussions for each of the 41 species for which we are designating critical habitat, we are defining the primary constituent elements on the basis of the habitat features of the areas from which the plant species are reported, as described