

*Gardenia mannii*, *Hedyotis degeneri*, *Hedyotis parvula*, *Labordia cyrtandrae*, *Lepidium arbuscula*, *Lipochaeta lobata* var. *leptophylla*, *Lipochaeta tenuifolia*, *Lobelia gaudichaudii* ssp. *koolauensis*, *Lobelia monostachya*, *Lobelia oahuensis*, *Melicope lydgatei*, *Melicope saint-johnii*, *Myrsine juddii*, *Neraudia angulata*, *Phyllostegia hirsuta*, *Phyllostegia kaalaensis*, *Sanicula mariversa*, *Schiedea kaalae*, *Schiedea kealiae*, *Silene perlmanii*, *Stenogyne kanehoana*, *Tetramolopium filiforme*, *Tetraplasandra gymnocarpa*, *Trematolobelia singularis*, *Urena kaalae*, *Viola chamissoniana* ssp. *chamissoniana*, and *Viola oahuensis* because the potential benefits of critical habitat designation outweigh the potential threats.

#### B. Methods

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 *Abutilon sandwicense*, *Adenophorus periens*, *Alectryon macrococcus*, *Alsinidendron obovatum*, *Alsinidendron trinerve*, *Bonamia menziesii*, *Cenchrus agrimonoides*, *Centaurium sebaeoides*, *Chamaesyce celastroides* var. *kaenana*, *Chamaesyce deppeana*, *Chamaesyce herbstii*, *Chamaesyce kuwaleana*, *Chamaesyce rockii*, *Colubrina oppositifolia*, *Ctenitis squamigera*, *Cyanea acuminata*, *Cyanea crispa*, *Cyanea grimesiana* ssp. *grimesiana*, *Cyanea grimesiana* ssp. *obatae*, *Cyanea humboltiana*, *Cyanea koolauensis*, *Cyanea longiflora*, *Cyanea pinnatifida*, *Cyanea st.-johnii*, *Cyanea superba*, *Cyanea truncata*, *Cyperus trachysanthos*, *Cyrtandra dentata*, *Cyrtandra polyantha*, *Cyrtandra subumbellata*, *Cyrtandra viridiflora*, *Delissea subcordata*, *Diellia erecta*, *Diellia falcata*, *Diellia unisora*, *Diplazium molokaiense*, *Dubautia herbstobatae*, *Eragrostis fosbergii*, *Eugenia koolauensis*, *Euphorbia haeleeleana*, *Flueggea neowawraea*, *Gardenia mannii*, *Gouania meyenii*, *Gouania vitifolia*, *Hedyotis coriacea*, *Hedyotis degeneri*, *Hedyotis parvula*, *Hesperomannia arborescens*, *Hesperomannia arbuscula*, *Hibiscus brackenridgei*, *Isodendron laurifolium*, *Isodendron longifolium*, *Isodendron pyriformis*, *Labordia cyrtandrae*, *Lepidium arbuscula*, *Lipochaeta lobata* var. *leptophylla*, *Lipochaeta tenuifolia*, *Lobelia gaudichaudii* ssp. *koolauensis*, *Lobelia monostachya*, *Lobelia niihauensis*, *Lobelia oahuensis*, *Lysimachia filifolia*, *Mariscus pennatifolius*, *Marsilea villosa*,

*Melicope lydgatei*, *Melicope pallida*, *Melicope saint-johnii*, *Myrsine juddii*, *Neraudia angulata*, *Nototrichium humile*, *Peucedanum sandwicense*, *Phlegmariurus nutans*, *Phyllostegia hirsuta*, *Phyllostegia kaalaensis*, *Phyllostegia mollis*, *Phyllostegia parviflora*, *Plantago princeps*, *Platanthera holochila*, *Pteris lidgatei*, *Sanicula mariversa*, *Sanicula purpurea*, *Schiedea hookeri*, *Schiedea kaalae*, *Schiedea kealiae*, *Schiedea nuttallii*, *Sesbania tomentosa*, *Silene lanceolata*, *Silene perlmanii*, *Solanum sandwicense*, *Spermolepis hawaiiensis*, *Stenogyne kanehoana*, *Tetramolopium filiforme*, *Tetramolopium lepidotum* ssp. *lepidotum*, *Tetraplasandra gymnocarpa*, *Trematolobelia singularis*, *Urena kaalae*, *Vigna o-wahuensis*, *Viola chamissoniana* ssp. *chamissoniana*, and *Viola oahuensis*. 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 99 species; the May 28, 2002, proposal; information received during the public comment periods and public hearings; recent biological surveys and reports; our recovery plans for these species; discussions with botanical experts; and recommendations from the Hawaii and Pacific Plant Recovery Coordinating Committee (HPPRCC) (see also the discussion below) (CPC in litt. 1999; GDSI 2000; HINHP Database 2000; HPPRCC 1998; Service 1994, 1995a, 1995b, 1996a, 1996b, 1996c, 1996d, 1997, 1998a, 1998b, 1999; 67 FR 37108).

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 99 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.

#### C. 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. 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 *Abutilon sandwicense*, *Adenophorus periens*, *Alectryon macrococcus*, *Alsinidendron obovatum*, *Alsinidendron trinerve*, *Bonamia menziesii*, *Cenchrus agrimonoides*, *Centaurium sebaeoides*, *Chamaesyce celastroides* var. *kaenana*, *Chamaesyce deppeana*, *Chamaesyce herbstii*, *Chamaesyce kuwaleana*, *Chamaesyce rockii*, *Colubrina oppositifolia*, *Ctenitis squamigera*, *Cyanea acuminata*, *Cyanea crispa*, *Cyanea grimesiana* ssp. *grimesiana*, *Cyanea grimesiana* ssp. *obatae*, *Cyanea humboltiana*, *Cyanea koolauensis*, *Cyanea longiflora*, *Cyanea pinnatifida*, *Cyanea st.-johnii*, *Cyanea*