

avoided areas identified as not suitable for a particular species (*i.e.*, not containing the primary constituent elements). We then considered the resulting shape files for each species to define all suitable habitat on the island, including occupied and unoccupied habitat.

We further evaluated these shape files of suitable habitat. We used several factors to delineate the proposed critical habitat units from these land areas. We reviewed the recovery objectives, as described above and in recovery plans for each of the species, to determine if the number of populations and population size requirements needed for conservation would be available within the suitable habitat units identified as containing the appropriate primary constituent elements for each species. If more than the area needed for the number of recovery populations was identified as potentially suitable, only those areas within the least disturbed suitable habitat were included as proposed critical habitat. A population for this purpose is defined as a discrete aggregation of individuals located a sufficient distance from a neighboring aggregation such that the two are not affected by the same small-scale events and are not believed to be consistently cross-pollinated. In the absence of more specific information indicating the appropriate distance to assure limited cross-pollination, we are using a distance of 1,000 m (3,280 ft) based on our review of current literature on gene flow (Barret and Kohn 1991; Fenster and Dudash 1994; Havens 1998; Schierup and Christiansen 1996). We further refined the resulting critical habitat units by using satellite imagery and parcel data to eliminate areas that did not contain the appropriate vegetation or associated native plant species, as well as features such as cultivated agriculture fields, housing developments, and other areas that are unlikely to contribute to the conservation of one or more of the 99 plant species for which critical habitat was proposed on May 28, 2002. We used geographic features (ridge lines, valleys, streams, coastlines, etc.) or manmade features (roads or obvious land use) that created an obvious boundary for a unit as unit area boundaries.

Following publication of the proposed critical habitat rules, some of which were revised, for 255 Hawaiian plants (67 FR 3940, 67 FR 9806, 67 FR 15856, 67 FR 16492, 67 FR 34522, 67 FR 36968, 67 FR 37108), we reevaluated proposed critical habitat. State-wide, for each species using the applicable recovery guidelines (generally 8 to 10

populations with a minimum of 100 mature, reproducing individuals per population for long-lived perennial species; 300 mature, reproducing individuals per population for short-lived perennial species; and 500 mature, reproducing individuals per population for annual species) to determine if we had inadvertently proposed for designation too much or too little habitat to meet the essential recovery goals (HINHP Database 2000, 2001; Wagner *et al.* 1990, 1999).

Based on comments and information we received during the comment periods, we assessed the proposed critical habitat in order to ascertain which areas contained the highest quality habitat, had the highest likelihood of species conservation, were geographically distributed within the species' historical range, and were located a sufficient distance from each other such that populations of a single species are unlikely to be impacted by a single catastrophic event. We ranked areas of the proposed critical habitat by the quality of the primary constituent elements (*e.g.*, intact native plant communities, predominance of associated native plants versus nonnative plants), potential as a conservation area (*e.g.*, whether the land is zoned for conservation or whether the landowner is already participating in plant conservation actions), and current or expected management of known threats (*e.g.*, ungulate control; weed control; nonnative insect, slug, and snail control). Of these most essential areas, we selected adequate area to provide for 8 to 10 populations distributed among the islands of each species' historical range.

Areas that contain high quality primary constituent elements and conservation potential (*e.g.*, are zoned for conservation and have ongoing or expected threat abatement actions) were ranked the most essential. This ranking process also included determining which habitats were representative of the historic geographical and ecological distributions of the species (see "Primary Constituent Elements"). Of the proposed critical habitat for a species, areas that were not ranked most essential and that may provide habitat for populations above the recovery goal of 8 to 10 populations were determined not essential for the conservation of the species and were excluded from the final designation. Areas that were excluded because the benefits of exclusion outweigh the benefits of inclusion under 4(b)(2) of the Act are included in the total count of habitat for 8 to 10 populations.

In selecting areas of designated critical habitat, we made an effort to avoid developed areas, such as towns and other similar lands, that are unlikely to contribute to the conservation of the 99 species. However, the minimum mapping unit that we used to approximate our delineation of critical habitat for these species did not allow us to exclude all such developed areas from the maps. Existing manmade features and structures within the boundaries of the mapped areas, such as buildings; roads; aqueducts and other water system features, including, but not limited to pumping stations, irrigation ditches, pipelines, siphons, tunnels, water tanks, gaging stations, intakes, reservoirs, diversions, flumes, and wells; existing trails; campgrounds and their immediate surrounding landscaped area; scenic overlooks; remote helicopter landing sites; existing fences; telecommunications towers and associated structures and equipment; electrical power transmission lines and distribution, and communication facilities and regularly maintained associated rights-of-way and access ways; radars; telemetry antennas; missile launch sites; arboreta and gardens; heiau (indigenous places of worship or shrines) and other archaeological sites; airports; other paved areas; lawns and other rural residential landscaped areas do not contain one or more of the primary constituent elements and are therefore excluded from critical habitat designation under the terms of this regulation. Federal actions limited to those areas would not trigger a section 7 consultation unless they affect the species or primary constituent elements in adjacent critical habitat.

In summary, for these species, we utilized the approved recovery plan guidance to identify appropriately sized land units containing essential occupied and unoccupied habitat. Based on the best available information, we believe these areas constitute the essential habitat on Oahu to provide for the recovery of these 99 species.

The critical habitat areas described below constitute our best assessment of the physical and biological features needed for the conservation and special management needs of the 99 plant species, and are based on the best scientific and commercial information available (as described above). We publish this final rule acknowledging that we have incomplete information regarding many of the primary biological and physical requirements for these species. However, both the Act and the relevant court orders require us