

(Bruegmann *et al.* 2001; Cuddihy and Stone 1990; D'Antonio and Vitousek 1992; Howarth 1985; Mack 1992; Scott *et al.* 1986; Service 1994, 1995, 1996, 1997, 1998a, 1998b, 1998c, 1999; Smith 1985; Tunison *et al.* 1992);

(2) The recommendations from the HPPRCC in their 1998 report to us ("Habitat Essential to the Recovery of Hawaiian Plants"). As summarized in this report, recovery goals for endangered Hawaiian plant species cannot be achieved without the effective control of nonnative species threats, wildfire, and land use changes; and

(3) The management actions needed for assurance of survival and ultimate recovery of Hawaii's endangered plants. These actions are described in our recovery plans for these 83 species (Service 1994, 1995, 1996, 1997, 1998a, 1998b, 1998c, 1999), in the 1998 HPPRCC report to us, and in various other documents and publications relating to plant conservation in Hawaii (Cuddihy and Stone 1990; Mueller-Dombois 1985; Smith 1985; Stone 1985; Stone *et al.* 1992). In addition to monitoring the plant populations, these actions include, but are not limited to: (1) Feral ungulate control; (2) nonnative plant control; (3) rodent control; (4) invertebrate pest control; (5) fire management; (6) maintenance of genetic material of the endangered and threatened plant species; (7) propagation, reintroduction, and augmentation of existing populations into areas deemed essential for the recovery of these species; (8) ongoing management of the wild, outplanted, and augmented populations; and (9) habitat management and restoration in areas deemed essential for the recovery of these species.

In general, taking all of the above recommended management actions into account, the following management actions are important: Feral ungulate control; wildfire management; nonnative plant control; rodent control; invertebrate pest control; maintenance of genetic material of the endangered and threatened plant species; propagation, reintroduction, and augmentation of existing populations into areas deemed essential for the recovery of the species; ongoing management of the wild, outplanted, and augmented populations; maintenance of natural pollinators and pollinating systems, when known; habitat management and restoration in areas deemed essential for the recovery of the species; monitoring of the wild, outplanted, and augmented populations; rare plant surveys; and control of human activities/access (Service 1994, 1995, 1996, 1997, 1998a, 1998b, 1998c,

1999). On a case-by-case basis, these actions may rise to different levels of importance for a particular species or area, depending on the biological and physical requirements of the species and the location(s) of the individual plants.

As shown in Table 2, the 83 species of plants are found on Federal, State, and private lands on the islands of Kauai and Niihau. Information received in response to our public notices; meetings with landowners of Kauai County and Kauai District DOFAW staff; the November 7, 2000, and January 28, 2002, proposals; public comment periods; and the February 6, 2001, and February 13, 2002, public hearings; as well as information in our files, indicated that there is limited on-going conservation management action for these plants, except as noted below. Without management plans and assurances that the plans will be implemented, we are unable to find that the land in question does not require special management or protection.

Federal Lands

The Pacific Missile Range Facility (PMRF) at Barking Sands on Kauai's west side is on federally owned or State-leased lands administered by the Navy for instrumented and multi-environment weapon testing and tracking. *Sesbania tomentosa* and *Panicum niihauense* are reported from the dunes on State lands adjacent to the Barking Sands Facility at Polihale State Park. The dune system extends from Polihale State Park through the PMRF to State-owned lands at Kekaha, and may be one of the best intact coastal dune systems remaining on the main Hawaiian Islands. We evaluated the dune habitat at the Barking Sands Facility for *Sesbania tomentosa* and *Panicum niihauense*, (proposed Unit H), as well as the habitat on Navy lands at Makaha Ridge for *Wilkesia hobdyi* (proposed Unit I), and determined that these lands are not essential for the conservation of *Sesbania tomentosa* or *Wilkesia hobdyi*, although they are essential for *Panicum niihauense*. The Navy completed an Integrated Natural Resources Management Plan (INRMP 2001) that addressed some of the issues concerning maintenance and improvement of the essential elements for listed threatened and endangered species on their lands at PMRF and Makaha Ridge. In 2001, we sent a letter pursuant to section 7 of the Act concurring that the actions in the plan would not have an adverse impact on listed threatened or endangered species, but that the plan did not address the specific needs of *Panicum niihauense*.

Management at the Barking Sands Facility lands currently consists of restricting human access and off-road vehicles from the dune ecosystems and mowing landscaped areas. These actions alone are not sufficient to address the factors inhibiting the long-term conservation of *Panicum niihauense*. Therefore, we cannot at this time find that management on these lands under Federal jurisdiction as sufficient to find that they no longer meet the definition of critical habitat. If the Navy revises and implements an INRMP or other endangered species management plans that address the maintenance and improvement of the essential elements for this plant species and provides for its long-term conservation, we will reassess the critical habitat boundaries in light of these management plans.

State of Hawaii Lands

The State lands on the island of Kauai include ceded and leased lands, and those that are administered by the Department of Land and Natural Resources (DLNR). DLNR lands include State Parks, administered by the State Division of State Parks; and Forest Reserves, NARs, and the Alakai Wilderness Preserve, administered by the DOFAW. The DLNR also manages DHHL lands on the island of Kauai. We determined that habitat that is essential to the conservation of the following 78 of the 83 federally threatened or endangered plant species is found on State lands: *Adenophorus periens*, *Alectryon macrococcus*, *Alsinidendron lychnoides*, *Alsinidendron viscosum*, *Bonamia menziesii*, *Brighamia insignis*, *Centaurium sebaeoides*, *Chamaesyce halemanui*, *Ctenitis squamigera*, *Cyanea asarifolia*, *Cyanea recta*, *Cyanea remyi*, *Cyanea undulata*, *Cyperus trachysanthos*, *Cyrtandra cyaneoides*, *Cyrtandra limahuliensis*, *Delissea rhytidosperma*, *Delissea rivularis*, *Delissea undulata*, *Diellia erecta*, *Diellia pallida*, *Diplazium molokaiense*, *Dubautia latifolia*, *Dubautia pauciflora*, *Euphorbia haeleeleana*, *Exocarpos luteolus*, *Flueggea neowawraea*, *Gouania meyenii*, *Hedyotis cookiana*, *Hedyotis st.-johnii*, *Hesperomannia lydgatei*, *Hibiscadelphus woodii*, *Hibiscus clayi*, *Hibiscus waimeae* ssp. *hannerae*, *Ischaemum byrone*, *Isodendron laurifolium*, *Isodendron longifolium*, *Kokia kauaiensis*, *Labordia lydgatei*, *Lipochaeta fauriei*, *Lipochaeta micrantha*, *Lipochaeta waimeaensis*, *Lobelia niihauensis*, *Lysimachia filifolia*, *Mariscus pennatifolius*, *Melicope haupuensis*, *Melicope knudsenii*, *Melicope pallida*, *Munroidendron racemosum*, *Myrsine*