

In general, taking all of the above recommended management actions into account, the following management actions are important in providing a conservation benefit to the species: Feral ungulate control; wildfire management; non-native 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 1995a, 1995b, 1996a, 1996b, 1997, 1998a, 1998b, 1999, 2001). 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 60 species of plants are found on Federal, State, and private lands on the islands of Maui and Kahoolawe. Information received in response to our public notices; meetings with landowners of Maui County and Maui District DOWAW staff; the December 18, 2000, and April 3, 2002, proposals; public comment periods; and the March 20, 2001, and September 12, 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 other areas do require special management or protection. The following discussion analyzes current management plans that provide a conservation benefit to the species to assess whether they meet the Service's requirements for adequate management or protection.

Federal Lands

The Sikes Act Improvements Act of 1997 (Sikes Act) requires each military installation that includes land and water suitable for the conservation and management of natural resources to complete, by November 17, 2001, an Integrated Natural Resources Management Plan (INRMP). An INRMP integrates implementation of the military mission of the installation with

stewardship of the natural resources found there. Each INRMP includes an assessment of the ecological needs on the installation, including needs to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. We consult with the military on the development and implementation of INRMPs for installations with listed species. We believe that bases that have completed and approved INRMPs that address the needs of the species generally do not meet the definition of critical habitat discussed above, because they require no additional special management or protection. Therefore, we do not include these areas in critical habitat designations if they meet the following three criteria: (1) A current INRMP must be complete and provide a conservation benefit to the species; (2) the plan must provide assurances that the conservation management strategies will be implemented; and (3) the plan must provide assurances that the conservation management strategies will be effective, by providing for periodic monitoring and revisions as necessary. If all of these criteria are met, then the lands covered under the plan would not meet the definition of critical habitat.

One species, *Sesbania tomentosa*, occurs on Kanaio Training Area (Hawaii Army National Guard) lands on the island of Maui, and we believe this land is essential for the conservation of this species. In 1998, funds were provided for protective fencing and monitoring of *Sesbania tomentosa* on this land. Since then, however, these management activities for *Sesbania tomentosa* have been curtailed due to a lack of funding (Lt. Col. Richard Young, Hawaii Army National Guard, *in litt.* 2000). Because appropriate conservation management strategies have not been adequately funded or effectively implemented for *Sesbania tomentosa* on this land, we cannot at this time find that management of this land under Federal jurisdiction is sufficient to find that they do not meet the definition of critical habitat. Therefore, this area has been included within the critical habitat units.

Contractors for the U.S. Navy are clearing the state-owned island of Kahoolawe of military ordnance utilizing Congressional funding that expires in 2003. The Navy has consulted with the Service under section 7 of the Act to ensure protection of threatened and endangered species during the clearance activities. In June 1998, the

State of Hawaii Kahoolawe Island Reserve Commission developed an environmental restoration plan for Kahoolawe (Social Science Research Institute, University of Hawaii 1998). The plan, however, does not address specific management actions to protect and conserve endangered plant species. While the island is isolated and remote, and access is restricted due to the presence of unexploded ordnance hazards, this action alone is not sufficient to indicate that special management is not required for the listed plant species, and areas on the island are included within the critical habitat units for *Kanaloa kahoolawensis*.

State of Hawaii Lands

The Upper Areas of Hanawi Natural Area Reserve (HNAR)

Three plant species, *Geranium multiflorum*, and *Clermontia samuelii* ssp. *hanaensis*, and *Cyanea mceldowneyi* are reported from the upper areas of HNAR (GDSI 2000; HINHP Database 2000). The HNAR was established in 1986, and comprises 3,035 ha (7,500 ac) of diverse native ecosystems and endangered forest bird habitat. The Department of Land and Natural Resources (DLNR) manages Natural Area Reserves, except that any use must be specifically approved by the Natural Area Reserve System Commission. The State holds Natural Area Reserves in trust and they may not be non-nativated except upon a finding by the DLNR of an imperative and unavoidable necessity. DLNR must provide public notice and conduct public hearings before revoking or modifying an executive order that sets aside lands for the reserve system (Haw. Rev. Stat. sections 195-1—195-11). The primary goals of the HNAR are to: (1) Protect the upper areas of the reserve by fencing smaller manageable units to restrict pig movements; (2) prevent degradation of native forest by reducing feral ungulate damage; and (3) improve or maintain the integrity of native ecosystems in selected areas of the preserve by reducing the effects of non-native plants.

Specific management actions to address feral ungulate impacts include the construction of fences, including strategic fencing of smaller manageable units, and staff hunting. Currently, the upper 809 ha (2,000 ac) has been fenced and pigs removed. Fences have been constructed along the western boundaries of the HNAR, along the 1,585 m (5,200 ft) contour to the east up to the Haleakala National Park boundary on State land. The Haleakala National