

Congress intended that all listed species enjoy.

Our Response: We continue to believe that it would not be prudent to designate critical habitat for *Acaena exigua*. It has not been seen in the wild since March 2000 (Hank Oppenheimer, Maui Pineapple Company Limited, pers. comm., 2001; Service 1997; 57 FR 20772) and is not known to be in storage or under propagation. Given these circumstances, we have determined that designation of critical habitat for *Acaena exigua* is not prudent because such designation would not be beneficial to the species. If this species is rediscovered, we may reconsider designating critical habitat for this species as new information becomes available. See 16 U.S.C. 1532(5)(B); 50 CFR 424.13(f).

Issue 2: Biological Justification and Methodology

(8) *Comment:* One peer reviewer was concerned about the number of populations needed for recovery. The expert opinion of the Hawaii Pacific Plant Recovery Coordinating Committee (HPPRCC) is that 10 to 20 viable populations are needed for recovery. How did the Service determine that 8 to 10 populations were all that should be required? While 8 to 10 populations may be sufficient for the recovery of long-lived species, it may be insufficient for ephemeral annuals or certain ferns or species with unique island variants. The target number of populations should be revisited on a species-by-species basis. Another peer reviewer commented that the proposed rule was improved by the use of targets of 8 to 10 populations ranging in size from 100 to 500 mature individuals, unless information that is more specific was available (e.g., *Argyroxiphium sandwicense* ssp. *macrocephalum*). However, these targets are generally lower than those used by the HPPRCC and should be considered the “low end” of what is needed for recovery.

Our Response: In defining the procedures used to delineate essential habitat areas the HPPRCC agreed that “the minimum target for each species was to have habitat for at least 10 potential populations for each species that was found on a single island and have habitat for at least 5 potential populations on each island for species that occurred on two or more islands. The maximum number of target populations was set at 20 potential populations.” However, in defining generalized recovery objectives for Hawaiian plants, the committee recommended 5–10 populations for delisting. The Service adopted a

relatively conservative 8–10 viable populations for the recovery objectives for each species in the recovery plans. Establishing and conserving 8 to 10 viable populations on one or more islands within the historic range of the species will provide each species with a reasonable expectation of persistence and eventual recovery, even with the high potential that one or more of these populations will be eliminated by normal or random adverse events, such as the hurricanes that occurred in 1982 and 1992 on Kauai, fires, and nonnative plant invasions (HPPRCC 1994; Luijten *et al.* 2000; Mangel and Tier 1994; Pimm *et al.* 1998; Stacey and Taper 1992). We conclude that designation of adequate suitable habitat for 8 to 10 populations as critical habitat is essential to give the species a reasonable likelihood of long-term survival and recovery, based on currently available information.

(9) *Comment:* Areas that are excluded from proposed critical habitat should be identified and mapped in the proposed and final rule to allow reviewers to fully evaluate how well the proposal provides for listed species.

Our Response: Although we have not mapped the areas excluded from critical habitat, textual descriptions of the areas excluded can be found in the section titled “Summary of Changes from the Revised Proposed Rule and Analysis of Impacts Under Section 4(b)(2).”

(10) *Comment:* One peer reviewer stated that the Service did not identify explicit modeling efforts that provide clear guidance for Hawaiian species. If available, these models should be evaluated and included in the Service’s methodology to determine future critical habitat designations. Models of the population dynamics of understory plants in tropical forests, focusing on environmental variation caused by natural disturbance and plant-animal interactions, do exist.

Our Response: The lack of detailed scientific data on the life history of these plant species makes it impossible for us to develop a robust quantitative model (e.g., population viability analysis) to identify the optimal number, size, and location of critical habitat units to achieve recovery. At this time, and consistent with the listing of these species and their recovery plans, the best available information leads us to conclude that the current size and distribution of the extant populations are not sufficient to expect a reasonable probability of long-term survival and recovery of these plant species. Therefore, our approach employed two widely recognized and scientifically accepted goals for promoting viable

populations of listed species: (1) Creation or maintenance of multiple populations so that a single or series of catastrophic events cannot destroy the entire listed species, and (2) increasing the size of each population in the respective critical habitat units to a level where the threats of genetic, demographic, and normal environmental uncertainties are diminished. In addition, we used a GIS model that evaluated known current and historic range, elevation, rainfall, and vegetation units to determine potential habitat for each species. Using this information plus information from existing historically known plant locations and advice from species experts, we modeled the potentially suitable habitat for each species. The critical habitat designated is a subset of suitable potential habitat that was determined to be essential to the conservation of each species (see the “Methods” section for more detail).

(11) *Comment:* One peer reviewer commented that fencing and control of ungulates is critical to the success of a plant restoration program. One commenter was concerned that there is a lack of solid scientific evidence on the relationship between introduced ungulates (in particular, cattle), nonnative plants, and native ecosystems. In the recovery plan for *Lipochaeta kamolensis*, the Service appears to concur that more research on the relationship between managed ungulates and native plants needs to be examined. In the Recovery Plan for the Maui Plant Cluster, the Service states, “Portions of the populations should be left unfenced until the effects of protection from grazing and browsing are fully known.” Because the science on how to best protect these plants is not certain, the designation of critical habitat may have a negative, rather than positive impact.

Our Response: We believe that it is important to control threats to the survival and recovery of federally listed species and have received numerous sources of information demonstrating that nonnative ungulates are a threat to the listed plant species as can be seen in the discussion of each species’ background in the “Discussion of Plant Taxa” and “Analysis of Impacts Under Section 4(b)(2): Other Impacts” sections of this final rule. However, critical habitat is only one of many tools established in the Act that can play an important role in the recovery of the species. Critical habitat designation does not create a wilderness area, preserve, or wildlife refuge. It does not require activities associated with conservation management such as