

addition, if the proposed designation of critical habitat precipitates conversion of agricultural lands to conservation land that has no economically beneficial use, then the Federal and State governments will have taken private property. Additionally, the landowner may incur the cost of litigation against the government to make it pay just compensation.

Our Response: The possible costs associated with redistricting land were discussed in the DEA under indirect costs. Since the publication of the DEA, we have removed most of the land in the Agricultural District from the final critical habitat designation. As noted above, redistricting the remaining parcels to the Conservation District is not likely to significantly reduce the value of the land because: (1) Any areas that have been historically grazed are likely to be put in a subzone that will allow grazing (*i.e.*, not the Protective Subzone); and (2) the economic use of the land is already constrained by topography, remote location, and other existing restrictions.

(36) *Comment:* One commenter stated that precise mapping of manmade objects is needed and that the estimate of the time to investigate the implications of critical habitat is too low given the size of the proposed designated areas, the vagueness of the regulations concerning these unmapped holes, and the real costs of obtaining all necessary approvals for a development project in Hawaii. Another commenter questioned whether the indirect cost of investigating the implications of critical habitat should be considered a “sunk” cost of the critical habitat designation process rather than a potential future cost of a final designation.

Our Response: To address these concerns, the Addendum revisited the hour estimates presented in the DEA. Chapter VI, Section 4.f. of the DEA indicated that the landowner may want to learn how the designation may affect: (1) The use of his land (either through restrictions or new obligations); and (2) the value of his land. Since the commenters did not provide an estimate of time or cost incurred in order to investigate implications of critical habitat, the Addendum conservatively doubled the estimate of hours spent by the landowner and/or his attorneys or professional staff on investigating the issues. Using these new assumptions, the analysis estimated that total section 7 costs range from \$73,500 to \$218,500, all of which are attributable to critical habitat.

While some landowners may expend time and money to investigate the implications of critical habitat on their

land during the designation process, many landowners may not do so until after final designation is complete. Thus, the DEA and the Addendum treated these costs as a cost attributable to the final designation and nondesignation.

(37) *Comment:* One commenter stated that the DEA lacks a thorough benefits analysis. The commenter maintained that the DEA does not include the benefits of watershed protection and improvement, protection of other stream and riparian biota, and the value of the designated plant species as an indicator of ecological health. Other multiple commenters stated that the DEA ignored the benefit of keeping other native species off the endangered species list, of maintaining water quality and quantity, of promoting ground water recharge, and of preventing siltation of the marine environment, thus protecting coral reefs. Another commenter noted that additional benefits of critical habitat include combating global warming, providing recreational opportunities, attracting ecotourism, and preserving Hawaii’s natural heritage. The commenter also noted that the Service must use the tools available, such as the University of Hawaii (UH) Secretariat for Conservation Biology study that estimated the value of ecosystem services, to determine the benefits of critical habitat. Another commenter stated that the DEA overestimates economic benefits and many of the alleged benefits are entirely speculative, unquantifiable or lack any commercial value.

Our Response: There is little disagreement in the published economic literature that real social welfare benefits can result from the conservation and recovery of endangered and threatened species (Bishop 1978, 1980; Brookshire and Eubanks 1983; Boyle and Bishop 1986; Hageman 1985; Samples *et al.* 1986; Stoll and Johnson 1984). Such benefits have also been ascribed to preservation of open space and biodiversity (see examples in Pearce and Moran (1994) and Fausold and Lilieholm (1999)), both of which are associated with species conservation.

Chapter VI, Section 6.c. of the DEA and Section 6 of the Addendum discuss the potential benefits addressed in the above comments. However, the DEA and Addendum also indicate that these benefits are not quantified due to lack of information available on: (1) Quantified data on the value of the 41 species; and (2) quantified data on the change in the quality of the ecosystem and the species as a result of the designation (for example, how many

fewer ungulates will roam into the critical habitat, how many fewer invasive plants will be introduced as a result, and therefore how many more individuals of the 41 species will be present in the area).

Although the UH study does value ecosystem services, it has limited applicability for valuing the benefits of the proposed critical habitat designation for the 41 species for a number of reasons. First, the UH study had a different purpose, which was to estimate the total value of environmental benefits provided by the entire Koolau Mountains on the island of Oahu versus the value of the more limited benefits provided by the proposed critical habitat for the 41 species on the island of Molokai. Consistent with its purpose, the UH study provides no estimates of the changes in environmental conditions resulting from changes in land and stream management due to critical habitat designation.

Furthermore, many of the assumptions and much of the analysis in the UH study are not transferable to the economic analysis of critical habitat for the 41 species. For example, the value of water recharge in the UH study reflects projected water supply and demand conditions on Oahu, an island which is more than twice the size of Molokai but has a population more than 115 times that of Molokai. Also, the UH benefit analysis of reducing soil runoff is unique to three valleys that drain through partially channelized streams in urban areas into the manmade Ala Wai Canal. Since this canal was designed with inadequate flushing from stream or ocean currents, it functions as an unintended settling basin and so must be dredged periodically. In addition, the recreational and ecotourism values provided in the UH study apply to areas that are accessible to most hikers, which is not the case with most of the critical habitat for the 41 species. Most of the Molokai critical habitat units are in mountainous areas with steep slopes and difficult access or on coastal cliffs. Perhaps more importantly, a critical habitat designation provides no guarantee of public use of or access to the property. It therefore is not clear to what extent a study which derived values from expectations of public use would be applicable to critical habitat designations.

(38) *Comment:* One commenter stated that although agricultural production areas are excluded from the proposed critical habitat units, agricultural resources appear to be included, particularly the source for the Molokai Irrigation System in Waikolu Valley.