



Recovery and Management

RECOVERY AND MANAGEMENT—INTRODUCTION

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Hawai'i has 29 threatened and endangered bird species (see Table 2 following the Introduction to this volume). The most recent assessment of their status indicated that none of the populations are improving, 15 are stable, 8 are declining, and 6 are of uncertain status (USFWS 1996a,b). Despite large increases in personnel and funds for research and management of endangered birds in Hawaii, this disappointing record persists since the passage of the Endangered Species Act in 1973 (Steiner *this volume*). Reasons for this failure to restore species to healthy self-sustaining populations are indicative of the complexity of the problem and the pervasiveness of threats. There are examples where a limiting factor is clearly identified and its impact on the species is fully documented and we still failed to take action over areas large enough to be biologically meaningful.

Perhaps the best documented example is the loss of habitat for the Palila (*Loxioides bailieui*) across its range by feral ungulates browsing on māmane (*Sophora chrysophylla*), an important plant to the Palila (Warner 1960, Scowcroft 1983, Scowcroft and Giffin 1983, Juvik and Juvik 1984, Scowcroft and Sakai 1984, Scott et al. 1984). In 1979, the Ninth Circuit Court ruled that feral sheep (*Ovis aries*) and goats (*Capra hircus*) maintained by the state of Hawai'i for hunting were threatening the survival of the Palila. The feral ungulates browsed on māmane trees that provide food, nesting sites, and cover for Palila. Damage to Palila habitat by these feral species was found to be a violation of Section 9 of the Endangered Species Act, in response to a suit filed by the Sierra Club "Palila vs. Hawaii Department of Natural Resources" ("Palila II") by the Ninth Circuit Court of Appeals (Bean and Rowland 1997). In 1985, this decision was affirmed and broadened to include mouflon (*Ovis musimon*). Methods to eliminate ungulates from such large areas are well documented and have been clearly demonstrated in Hawai'i at Hawai'i Volcanoes National Park and Haleakalā National Park (Taylor and Katahira 1988). Despite a clear legal mandate, 20 years later there are still hundreds of sheep and mouflon within critical habitat of the Palila on Mauna Kea (M. Sherwood, pers. comm.). Additionally, there is no systematic effort to eliminate rats (*Rattus* spp.) and cats (*Felis catus*), known avian predators, from this area. If there is an inability, or unwillingness of the responsible

agency, in this case the Hawaii Department of Land and Natural Resources, to intervene on behalf of the last remaining individuals of an endangered endemic Hawaiian bird, can we hold out much hope for the endangered plants and invertebrates?

A number of very positive things have been done on behalf of Hawai'i's beleaguered endemics. The Nature Conservancy has established nature reserves on Maui, Moloka'i, and O'ahu. These areas are being managed for the long-term viability of native species. As previously stated, goats and pigs (*Sus scrofa*; Katahira et al. 1993) have been eliminated from Hawai'i Volcanoes National Park and Haleakalā National Park. Native vegetation is coming back in these areas and the endangered Hawaiian silversword (*Argyroxiphium sandwicense*) has increased dramatically in numbers. On privately owned Keauhou Ranch, scarification of soil and replanting of koa trees (*Acacia koa*) have resulted in dramatic increases in the numbers of endangered 'Akiapōlā'au (*Hemignathus munroi*; T. Pratt pers. comm.). The Ōla'a, Kilauea, partnership involving Hawai'i state prisons, Kamehameha Schools, and Hawai'i Volcanoes National Park is managing more than 10,000 hectares of mid-elevation native forests to benefit native species. Such public-private partnerships bode well for the future (Stone 1985).

Other actions taken on behalf of endangered birds are documented in the following articles. Cathleen Hodges and Ronald Nagata demonstrate the importance of predator control for cats and small Indian mongoose (*Herpestes auro-punctatus*) in improving the reproductive success of the Dark-rumped Petrel (*Pterodroma phaeopygia sandwichensis*). However, despite this and other earlier demonstrations of the harm caused by nonnative predators and the effectiveness of predator control in improving nesting success of burrowing seabirds (Coulter et al. 1985, Johnstone 1985, Tomkins 1985, Veitch 1985), there are breeding colonies on Hawai'i and Kaua'i where no predator control actions are being taken. Such failure to act on behalf of this endangered species is extremely disappointing. Frederike Woog and Jeffery Black discuss the role of managed grasslands in providing quality food for the Nēnē (*Branta sandwicensis*). Diane Drigot documents the role of ecosystem management in enhancing waterbird habitat on military lands. Sheila Conant and Marie Morin ask

why the Nihoa Millerbird (*Acrocephalus familiaris kingi*) is not extinct and discuss the management possibilities for the dangerously small population. Steven Fancy and co-authors document methods used in translocating small passerine species, whereas Cyndi Kuehler and co-

authors document methods suitable for the captive rearing of endemic Hawaiian birds. Paul Banko and co-authors provide details regarding the effectiveness of ongoing recovery efforts, and William Steiner concludes with an assessment of costs.

