

Endangered Species UPDATE

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In this Issue

Endangered Species
Conservation in
Australia: A Partial
Review

The National
Academy of Sciences
Report on the
Endangered
Species Act

A New Funding
Source for Species
Conservation?

Recovery of the
American Peregrine
Falcon



Endangered Species Conservation in Australia: A Partial Review and Recommendations

by

Gary N. Backhouse and Tim W. Clark

Australia is in the middle of the planetary biodiversity crisis. It has the world's highest extinction rate for mammals in modern times, and an estimated 20% of the country's vertebrate fauna is currently at risk (Recher and Lim 1990). The growing list of threatened flora and fauna reflects wide-scale habitat alteration in Australia—50+% of the country's soils are significantly degraded, and over 75% of the native vegetation has been extensively modified by clearing, fragmentation, and alteration (Fry and Benson 1986). However, as the only country occupying an entire continent by itself, Australia has a unique opportunity to effect widespread improvements without the complications and delays of international agreements.

This paper reviews some recent initiatives to stem the Australian extinction crisis and looks at the recommendations of the 1993 Australasian Wildlife Management Society (AWMS) symposium. The proceedings, *Case studies and policy initiatives in endangered species recovery in Australia* (Backhouse and Clark 1995), were published together with those of another symposium, *Wildlife conservation and management on private land* (Bennett 1995), in a book called *People and nature conservation: Perspectives on private land use and endangered species recovery* (Bennett et al. 1995), published by the Royal Zoological Society of New South Wales.

Redressing Biodiversity Loss

The magnitude of Australia's extinction problem is indicated in two recent assessments at the federal level. First, the Commonwealth's Endangered Species Protection Act 1992 (ESP Act) lists 40 vertebrate taxa believed extinct and another 150 threatened, about 75

plant taxa extinct, and another 870 threatened since European settlement of the continent. Additionally, Briggs and Leigh (1988) list about 2,000 plant taxa most likely rare or threatened. Second, the federal government, in the form of the Australian Nature Conservation Agency (ANCA), is producing a series of comprehensive, national "Action Plans" for the conservation of threatened vertebrates. The four plans produced to date and currently being implemented cover 27 taxa of marsupials and monotremes (Kennedy 1990), 95 taxa of birds (Garnett 1992), 24 taxa of freshwater fish (Wager and Jackson 1993), and 47 taxa of reptiles (Cogger et al. 1993). Additional action plans for frogs, rodents, and cetaceans are underway. These are important and encouraging steps to stem Australia's biodiversity loss.

Conservation actions are also underway at the state level. Victoria, for example, has lost about 20 vertebrate and one invertebrate species since European settlement nearly 180 years ago. Another 170 vertebrate taxa and a minimum of 50 invertebrate species are currently threatened (Conservation and Natural Resources 1993). Nearly 30 plant taxa are possibly extinct and another 660 rare or threatened (Gullen et al. 1990). The state's conservation response was the Flora and Fauna Guarantee Act 1988 (FFG Act). As of October 1994, 98 taxa of vascular plants, 93 invertebrates and vertebrates, 14 biotic communities, and 12 potentially threatening processes have been listed under the FFG Act. Action Statements (mini-recovery plans) have been prepared and are being implemented for 53 taxa. Several other states are considering adopting legislation similar to Victoria's.

Australia's response to the extinction crisis is noteworthy for several reasons. First, appreciation of the

biodiversity crisis is widespread right through to the highest levels of government, although, needless to say, more attention would be helpful. Second, the 1988 FFG Act and 1992 ESP Act differ significantly from the American Endangered Species Act of 1973 (as amended) in that they not only protect threatened taxa, but they also list and protect threatened communities and identify and eliminate threatening processes in the environment (e.g., habitat loss, feral predators). Third, a systematic strategy is developing in the form of the *Threatened Species Conservation Strategy for Australia* (Kennedy and Burton 1986) and the *Australian National Strategy for the Conservation of Australian Species and Communities Threatened with Extinction* (ANPWS 1992). Fourth, an increasing number of scientific, management, and policy conferences are focusing on this issue. Since the September 1989 Conference on Management and Conservation of Small Populations in Melbourne (Clark and Seebeck 1990), nearly a dozen conferences, small and large, have focused on biodiversity loss. Finally, in addition to government actions, numerous efforts are being initiated within scientific, academic, and citizen group communities to address this local, national, and global problem.

Case Studies and Policy Analyses

Ultimately, how these myriad policies, strategies, action plans, recovery plans, and other actions are implemented on the ground will make the difference between survival and extinction for species and communities. *Case studies and policy initiatives in endangered species recovery in Australia* (Backhouse and Clark 1995) focuses on implementation of conservation efforts and encourages improvements. Con-



An intensive cooperative program has helped to improve the status of the Eastern barred bandicoot, a grassland marsupial. Photograph by Tim W. Clark.

tributors to the AWMS symposium presented their implementation experiences and addressed such questions as: Are species being recovered effectively? Are "traditional" approaches to restore threatened species working? Do recovery programs target areas of greatest need? Are implementation problems being identified and rectified? What lessons can be learned from these experiences? Can more effective, practical means for improving threatened species recovery be suggested?

The cases in this book exemplify some of the challenges facing biodiversity conservation in Australia, explore the utility of various solutions, and make recommendations based on the contributors' hard-won experience. Invertebrates—the "neglected fauna"—are acknowledged as especially important in ecosystem functioning, yet very limited data are available and few recovery programs are in place. Habitat and community conservation is believed to be the only reasonable strategy to conserve invertebrates. Butterflies are a unique group amongst invertebrates, however. Because comparatively more data exist for them and because the public knows and enjoys them, butterflies may serve as a "flagship" for all invertebrates. They may even serve to

elevate the profile of the extinction problem and educate the public and decision makers about all endangered species.

A new look is also being taken at freshwater fish conservation. A fundamental, strategic shift has taken place in recent years. Rather than view fish only as an economic resource, managers now realize that fish should be the focus of concerted conservation attention. This in turn has led to new conservation initiatives for habitat and watershed protection and public education.

Unlike the commercially important, heavily managed, and relatively well studied fish, the threatened striped legless lizard is a very rare grassland dwelling species, few specimens of which have ever been collected. As is common in many threatened species programs, uncertainty abounds in this case. The species persists in small, fragmented grassland habitats scattered over private and Crown (government) lands, a problem that adds another layer of complexity to the conservation challenges. However, progress is being made in managing key grasslands for the lizard.

Complexity and uncertainty also characterize the high profile freckled duck conservation program. Because illegal killing takes place during the

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 Photograph by Ken Phillips.

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The helmeted honeyeater, Victoria's state bird, consists of a single remnant wild population of about 40 breeding pairs in a limited habitat. Managing for the survival of such a small population presents many difficulties to conservation managers. Photograph by Gary N. Backhouse.

duck hunting season, conservation of this species is not only a matter of protecting nesting and winter habitat and monitoring population status, but also of successfully addressing social issues raised by the large and well organized waterfowl hunting community, animal rights groups, and the public at large.

Another high profile case has been the eastern barred bandicoot, a small grassland marsupial. A renewed intensive cooperative effort in Victoria to restore this species, which was previously on a rapid decline, was initiated in 1988. This effort has restored bandicoot numbers through extensive field work, computer modeling, captive management, and a major reorganization of the recovery program, which improved key organizational and professional elements. Zoo participation in captive breeding and management of this species has been essential; the zoo community has contributed relevant expertise and centralized data management and analysis, two key elements in the program's successes.

The helmeted honeyeater, Victoria's state bird, is also one of Victoria's most endangered birds. The single remnant wild population of about

40 breeding pairs is limited to a narrow, six-kilometer length of forest along one stream system. It has been extremely challenging to coordinate management of the wild birds given the complex ecological dynamics within their limited habitat, competitor species, and an intensive, high profile captive breeding and reintroduction effort.

In addition to these several cases, the AWMS symposium proceedings examine Victoria's Flora and Fauna Guarantee Act 1988 — certainly one of the most progressive biodiversity laws anywhere — on the occasion of its fifth anniversary. There has been progress in meeting the act's goals and there have been notable achievements, but there have also been shortfalls and recommendations for improvements are offered. An analysis of how the act has been implemented so far quantifies many variables, such as the production rate of listings and action plans, and sets a benchmark for measuring future implementation progress. Social and economic issues have been central to successful implementation of the act; a "tool kit" of methods is described for managers and conservationists to use in addressing social and economic issues.

An international perspective on species conservation offers a framework for analyzing policy implementation and programs for species recovery. It can be applied to all restoration efforts regardless of species, issues, or setting and can serve as a means to learn about existing programs and to highlight variables that need attention.

Recommendations for Improving Conservation Prospects

The editors of the AWMS symposium proceedings conclude that Australia is making a commitment to biodiversity conservation and that several advances in recent years mark progress. Among these are substantial reservation of key ecosystems, such as wet tropical rainforests and coral reefs; development of strategies to overcome the pressing needs of land degradation in rural areas, feral predator control, and loss of native vegetation; and recent exemplary state and federal biodiversity legislation. Although a strong policy position is emerging in Australia to protect habitats, eliminate threatening process, and recover already threatened species, reversing the large-scale, long-

standing loss of biodiversity will not be quick or automatic, despite all the encouraging steps taken to date. Advances in endangered species recovery will be most successfully grounded in a thorough appraisal of past conservation efforts. This, in part, is what the AWMS conference aimed to do. The twelve threatened species cases and policy analyses in the proceedings represent one step in an open-ended learning and improvement process.

The cases and analyses revealed a number of recurring themes in the implementation of endangered species and biodiversity legislation, strategies, and plans. Participants in a single recovery program may not be able to see these patterns, but a comparative analysis permits these patterns to emerge. From these recurring themes, the editors derived seven recommendations that are applicable to most endangered species and biodiversity conservation implementation efforts.

(1) *Recovery programs need to be initiated much sooner than is frequently done.*

(2) *Participants need to recognize that the recovery task is a multifaceted effort with interacting biological, social, economic, and organizational elements, and they must pursue skills in interdisciplinary problem-solving methods.*

(3) *Reliable knowledge about all aspects of the extinction problem and the recovery task is essential, but lack of knowledge is not a reason to delay conservation action.*

(4) *Recovery programs need clearly defined, measurable goals. They should not be rigid, but instead should always be open to question and revision as knowledge is gained and advances made.*

(5) *Detailed, practical attention to implementation of policies and programs is necessary. Implementation is not an automatic or sure follow-up to enacted legislation or written recovery plans; it requires coordination, plan-*

ning, and ongoing appraisal.

(6) *All aspects of the recovery process need ongoing evaluation. Such feedback on performance is essential to any learning effort. Evaluation, both official and unofficial, can be carried out in constructive, positive ways as a genuine basis for improving recovery efforts.*

(7) *Recovery programs need to have a clearly defined ending. Termination forces participants to meet deadlines and to reappraise progress of their efforts regularly as a justification for continuing. Without planned termination, programs may shamble along indefinitely, without adequate evaluation or planning for program succession.*

The challenge for Australia is the same for other countries—to find the most successful ways to recover threatened species and conserve biodiversity. These suggestions for improvement are similar to those elsewhere (e.g., Yaffee 1994). The seriousness of the extinction crisis demands a renewed commitment and a continuing search for successful solutions.

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Report from Washington

The Fish and Wildlife Diversity Funding Initiative: An Attempt to Prevent Endangered Species Listings

By Deborah Richie



TEAMING WITH WILDLIFE *a natural investment*

In the current political and fiscal climate in Washington, simply keeping present levels of government funding for species conservation is considered a victory; increased funding is considered unlikely at best. To overcome this problem the Fish and Wildlife Diversity Funding Initiative proposes a workable approach to preventing species and habitats from becoming endangered. The project, called "Teaming with Wildlife, a Natural Investment," aims to raise \$350 million through user fees on outdoor equipment. The money would be used by the states to conserve a diverse array of fish and wildlife species and habitats, to provide outdoor recreation experiences, and to meet the rising demands for conservation education.

All 50 state fish and wildlife agencies, through the International Association of Fish and Wildlife Agencies (IAFWA), launched the campaign last year. Since then formal support has grown to more than 100 groups, ranging from the American Ornithologists Union to the Rivers Council of Washington and Quail Unlimited. The Steering Committee spearheading the initiative is composed of IAFWA, The Wildlife Society, American Fisheries Societies, National Audubon Society, Defenders of Wildlife, National Wildlife Federation, Wildlife Management Institute and the World Wildlife Fund.

The conservation focus will be on the more than 2,000 vertebrate species of fish and wildlife and countless inver-

tebrate species now receiving less than 5 percent of all funding for wildlife. Their conservation, ironically, is seriously underfunded because they are not listed as endangered, nor are they hunted or fished. As a consequence, we may be losing species and habitats even before there is a chance to recognize declines. Efforts to expand state funding sources through such efforts as wildlife tax checkoffs and automobile registration tags have helped, but ultimately have fallen far short of what is needed.

Allan Egbert, Assistant Executive Director of the Florida Game and Fresh Water Fish Commission, has stated: "We know that we can reduce, on some occasions even minimize, the adverse impacts that continued growth and development have on fish and wildlife and their habitats if we have people in place with the right expertise, armed with credible knowledge and with practicable ideas . . . Those who may doubt that this is possible need only look at the successes of state fish and wildlife agencies with game species. All it takes is a little focus and predictable, adequate funding." The funding Egbert refers to comes from the Sport Fish and Wildlife Restoration Acts (Pittman-Robertson and Dingell-Johnson/Wallop-Breaux programs), which have demonstrated the ability of user fees on hunting and angling equipment to fund successful conservation programs. Hunters and anglers have

seen a direct return on their investment in the dramatic comeback of species like white-tailed deer, wood duck, and striped bass, as well as the conservation of millions of acres of habitat.

The fish and wildlife diversity initiative simply expands on this proven model to include more users of wildlife and wilderness, from backyard watchers to avid hikers, by placing a user fee on tents, backpacks, hiking boots, canoes, bird feeders and seed, and recreational vehicles. The fee will be set as a percentage of the manufacturer's price and be progressive, so that higher priced items will pay a higher tax. However, the fee will never exceed 5 percent of the manufacturer's price. For example, a \$10 field guide will include a 30 cent fee and \$100 pair of binoculars, \$2.50. Swarovski Optik, Swift Instruments, and Falcon Press are among the companies that have already endorsed the funding initiative.

As with hunting and angling user fees, the funds will be collected by the US Treasury from manufacturers or import duties and given to the US Fish and Wildlife Service for distribution, with an administrative cap at 8 percent. The formula for distribution will be in the form of matching grants—75% federal: 25% state match. States will receive their share on a formula based on population (2/3) and land area (1/3) of each state. No state or territory will receive less than 0.5% or more than 5% of the funds. There can be no diversion of funds for purposes other than wildlife diversity projects focused on conservation, recreation, or education.

To give a sense of what is possible for preventing species and habitats from becoming endangered, here is a sampling of state fish and wildlife agency conservation projects targeted so far:

- Maine will fund management for the state's internationally significant