

The Takahe: Fifty Years of Conservation Management and Research

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The Takahe: Fifty Years of Conservation Management and Research.—Edited by William G. Lee and Ian G. Jamieson. 2001. University of Otago Press, Dunedin, New Zealand. 132 pp., 14 color plates, 23 figures, 5 tables, 1 appendix. ISBN 1-877276-01-4. Paper, \$39.95.—Few accounts of endangered species conservation are more inspirational and informative than that of the Takahe (*Porphyrio hochstetteri*) of New Zealand. It incorporates the drama of rediscovery after years of being presumed extinct and the varied efforts made to ensure the survival and recovery of the bird. It also includes changes to New Zealand's wildlife conservation consciousness, both institutionally and in a broader societal context.

The Takahe is a large, flightless rail endemic to New Zealand's South Island, and the largest extant species of rail in the world. It and the Kakapo (*Strigops habroptilis*) are the two remaining species of the guild of flightless, terrestrial herbivores, a guild that included the moas (Dinornithiformes), and several rail species, among them the Takahe's North Island counterpart *Porphyrio mantelli*. In the environmental assault that followed the Polynesian settlement of New Zealand ~1,000 years ago and European settlement 200 years ago, over 70% of New Zealand's forest cover was lost to clearing and burning, there was hunting of birds, especially the larger rails and moas, and nearly 80 species of animals were introduced including predators such as rats (*Rattus rattus* and *R. norvegicus*), short-tailed weasel or stoat (*Mustela erminea*), and brush-tailed possum (*Trichosurus vulpecula*). The result was the extinction of half of the original 90 species of landbirds.

As of 1948, it looked as if the Takahe was one of those lost species. It was known from only four specimens, the last of which was collected 50 years previously. Enter Dr. Geoffrey Orbell, a medical doctor and hunter, who practiced in Southland and hunted deer in the rugged mountains near Te Anau in what is now Fiordland National Park. Fascinated by the possibility that the Takahe might still exist, Orbell compiled clues from historical sightings, hearsay, and Maori lore over a period of 30 years. In 1948, he mounted two expeditions in search of the bird in the Murchison Mountains on the western shore of Lake

Te Anau. The first expedition in April 1948 discovered tracks of a bird too large to be a Pukeko (*Porphyrio porphyrio*) and an unusual bird call was heard that was unknown to any of the expedition members. In November 1948, Orbell led a second expedition, and within only a few hours of putting on their packs and starting the rugged ascent to the remote mountain valley, they had captured two Takahes and taken photographs and 8 mm movies of their prizes. They returned "in a state of ornithological ecstasy" as a *Time* magazine article put it at the time, and made headlines around the world.

This book presents the contributed papers from a 1998 symposium marking the fiftieth anniversary of Dr. Orbell's dramatic rediscovery held as part of the joint annual meeting of the Australian and New Zealand Ecological Societies. As a follow-up to a symposium on the Takahe held 20 years earlier, it summarizes the current state of knowledge on the Takahe and progress made to conserve the existing natural population and to develop insurance populations in Fiordland and on predator-free offshore islands. Following a forward by American Ornithologists' Union president John W. Fitzpatrick and an introduction by the editors, there are two chapters on the history of the Takahe during Maori and European settlement and its rediscovery. The second of these is a partial reprint of an article by Joan Watson published in *The Mirror*, an Auckland paper, in 1949. She was a member of the first two expeditions with Dr. Orbell. Her account of the first sighting of the Takahes and their capture is great fun. The photograph of members of the expedition party lounging on the sand at the edge of the tussock grass and admiring their captive Takahes tethered to stakes a few yards away is a classic.

A chapter on the origins and prehistoric ecology of the Takahe follows (by S. A. Trewick and T. H. Worthy). This provides a review of Takahe morphometrics, genetics, and fossil history. Morphometric and genetic evidence suggest that North island and South Island Takahe have distinct evolutionary histories and probably arose from separate invasions of Pukeko. The modern-day Pukeko apparently represents a third invasion within the past 1,000 years. The fossil record suggests that the South Island Takahe was widespread and occurred at low-elevations as well as the high-elevation subalpine sites where the only naturally occurring population is now found. Nonetheless, debate continues over whether the Takahe is an alpine specialist or is a formerly widespread species that persisted in a montane refugium. Importantly though, the notion that the Takahe was widespread was used as part of the rationale for establishing "insurance" populations on predator-free offshore islands.

Three chapters deal with the main fronts of Takahe conservation action: the Fiordland population (by J. M. Maxwell); the captive rearing program (by D. K.

Eason and M. Willans); and the island populations (by I. G. Jamieson and C. J. Ryan). These chapters provide the meat of Takahe conservation history and take us through the early survey periods, deer control, translocations to neighboring ranges in Fiordland, egg swapping to enhance productivity and survivorship of young, captive rearing to boost survivorship in the Fiordland population and to provide birds for island populations, captive breeding, ecological correlates of breeding success in the wild, disease, diet, and other topics. The important underlying concept is one that North American readers will quickly relate to: preservation alone could not have saved the Takahe, and active management of the remaining birds was absolutely critical to success (and still is). Not only has the natural population been vulnerable to predators, such as stoats, and to competition with introduced ungulates, but it has been vulnerable to stochastic effects such as harsh winters. If all that was done was to preserve the land, there would clearly be no Takahes today. All together it describes the evolution of a host of tools to conserve and recover endangered species. The underlying processes are the development of a national awareness of endangered species management and its role in maintaining the country's biodiversity and of a national conservation ethos. The New Zealand Wildlife Service was radically changed by the experience and ultimately became today's Department of Conservation. Exotic species control and establishment of island populations became a cornerstone of threatened and endangered species management. New Zealand conservation professionals have become world renowned for the skill and resourcefulness with which these two techniques are used to prevent the extinction of native birds. The island populations also literally brought the country's endangered birds to the people in that several of the island refuges are open to visitors.

These latter concepts are developed in two chapters. One by editor W. G. Lee is essentially the title paper touching on the decisions that had to be made each step of the way in Takahe management and how the fossil and settlement history have driven the strategies employed on the mainland and on islands. It indicates that there has been plenty of controversy during efforts to save the Takahe. In the acknowledgments section of the final chapter, author J. L. Craig thanks the symposium conveners for giving him "free rein" to express his personal views, and clearly Craig takes the view that a lot has been learned in the Takahe experience and the birds are the better for it, but this has been achieved through a certain amount of luck rather than a rigorous scientific approach. He is critical of a conservation approach that he suggests has been more like trial and error than one characterized by comparative trials that permit informed decision making. I found Craig's views somewhat surprising after an other-

wise glowing story. However, they make a fitting end to the book, taking the reader beyond what was done to what could be done better. There have been genuine successes, but the biodiversity crisis is ongoing. In addition to maintaining an experimental structure, Craig also suggests that more opportunities need to be provided to give access to the birds to New Zealanders to enhance their connection with wildlife and to emphasize their role in biodiversity conservation. This process of bringing the people into the species conservation process needs to extend to the economics of conservation as well, presumably by having a greater proportion of the funding supplied by citizens and nongovernmental organizations, and making private lands a greater part of the country's "conservation estate." Very important too is the divorcing of conservation management decisions from political constraints.

All together, this book makes a nice package, blending history, natural history, scientific results, and opinion. My only criticism is that the first few chapters begin, to lesser and greater degrees, with a retelling of the rediscovery story, so that one has a recurring feeling of *déjà vu*. However, this is a minor criticism. On the physical level, the book was carefully edited and I found only one typographical error. Print, figure, and photograph quality are good. This book is certainly a must for anyone with an interest in New Zealand birds, but as a concise and informative account of the conservation and management of a critically endangered species, it should be on the bookshelf of anyone directly involved in, or interested in, threatened and endangered species.—
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