

IN THE PAST, species conservation in New Zealand has concentrated on birds and some reptiles, with some work on plants and the occasional marine mammal and invertebrate. There has been no systematic way of working out which conservation work should have priority.

One of the main factors in determining priorities has been the interests and expertise of scientists and managers rather than the needs of threatened species. There has been extensive work, for example, on the Cook Strait and northern tuatara populations which each number more than 50,000 animals. Scientific interest in this species is high but should this interest dictate our conservation priorities especially when their population is far larger than that of the Chatham Island oystercatcher or the Mokohinau skink?

More recently, the Department of Conservation, which has primary responsibility for protecting native plants and animals, has made a conscious effort to work on a wider range of species. However, this has been difficult given that the expertise of DoC staff has remained based on particular groups such as birds and some reptiles.

Another problem is that once you have identified the species under threat which ones do you work on? In the Northland conservancy, for example, there are more than 40 endangered species, many endemic to the region, while there are few threatened species in Hawke's Bay. There was an obvious need for a method to identify the priorities for species conservation and the factors affecting the survival of those species.

In the past two years DoC has helped develop a more systematic approach. This has evolved into the Species Priority Ranking System (SPRS) which is applied to indigenous vascular plants, terrestrial insects, spiders, land snails, amphibians, reptiles, birds, bats, marine mammals and a separate list of plants important to Maori. At present it excludes other marine fauna, other invertebrates and non-vascular plants (mosses, liverworts and algae).

The SPRS was developed along the lines of existing US, Australian and World Conservation Union species ranking systems. Most of these use a number of common criteria based on taxonomy, threat of extinction and natural and cultural values. This was refined so the system could be used to compare New Zealand ferns with fish, or penguins with palms rather than the traditional approach of only comparing species within a group, such as different species of birds.

The criteria used in the SPRS are:

WHO GOES INTO THE ARK?

how to decide which species are the most threatened

- taxonomic distinctiveness: i.e. the absence of close relatives
- population features: number of populations, mean population size, largest population, distribution, condition of largest population, decline of wild populations
- vulnerability: whether a habitat is under legal protection, the extent of habitat loss, the impact of predators and harvest, competition, habitat or diets specific to that species, reproductive and behavioural specialisations
- potential for recovery through propagation or protection away from the species' natural habitat
- cultural value to both pakeha and Maori

The species were grouped into taxa, which are taxonomic units that include both species and subspecies. Taxa were scored against each of the criteria and, rather than ranked linearly, were assigned to three categories of urgency. Category A are the threatened taxa requiring urgent recovery work to prevent possible extinction. Category B are those taxa requiring recovery work in the short term and category C are those requiring recovery work in the medium term.



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The dilemma faced by all conservation managers and scientists is how to set priorities for different threatened species. How threatened is each species? When do we have to act to save a species? How much of the limited conservation budget should go into a particular species as opposed to another? ALISON DAVIS, MARK BELLINGHAM and JANICE MOLLOY look at some recent advances.

Above: The population of the Chatham Island oystercatcher is less than 90 and still falling. Cats and introduced wekas are the likely causes of this decline.

THE PRINCIPAL REASON for developing the ranking system, was to aid DoC in setting species conservation priorities, and to identify taxa needing urgent recovery and protection work. Since the ranking system has been developed there has been better targeting of funds, a process helped by the formation of the Threatened Species Unit of DoC which co-ordinates this work.

In developing the ranking system we accumulated a considerable amount of information on New Zealand plants and animals. This has enabled us to build up conservation profiles of 284 plants and animals (85 in category A and 199 in categories B and C). These profiles were previously not available for most species, particularly insects. The profiles will be extremely useful for managers and conservationists working on threatened species as they give information on the state of a population and pinpoint the main factors affecting its survival.

Figure 1 shows the proportion of threatened taxa within each group. Using the groups covered by the SPRS the estimate of the total biota of New Zealand is 23,000 taxa, of which 20,000 are insects. 284 of these taxa are endangered and vulnerable.

There is some justification for the concentration on bird protection and