BAT ACTION PLAN - PROGRESS REPORT

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Introduction

At last the Australian Bat Action Plan is reaching it's grand finale, after a very lengthy gestation. With thanks to members who provided feedback at the Naracoorte conference, the second draft was finalised and submitted to the Australian Nature Conservation Agency in July 1996. Copies were then circulated to experts and fauna agencies, and comments are due back for appraisal at the end of this month (September). It will be a great relief to see the document in print as a bible for bat conservation efforts for the next five, probably ten, years. A summary of the pre-review draft is outlined below.

Revision of the national species inventory

The Action Plan reinforced the age-old problem facing bat conservation planning - that there has been a relatively insignificant input into full-time taxonomic research in Australia. As a consequence the list of Australian bat species is today a mixture of named species, undescribed species, and species complexes with taxa awaiting specific recognition. Eighty-seven forms of bats were recognised as conservation units for use in analyses in the Action Plan, fifteen of which are yet to be formally described.

Survey effort and patterns of biodiversity

A database was compiled from distribution information that could be obtained from museums, wildlife authorities, the literature, personal observations, and from the Australian Bat Banding Scheme. Over 60,000 records were available for GIS mapping of survey effort and biodiversity, using as a framework a grid of 3070 mapsheets at the 1:100,000 scale.

The majority of the continent was considered to be inadequately surveyed, with a distinct lack of survey in arid regions. A high proportion of the land mass had no bat records at all (63%) or had less than 25 records (28%), giving a total of 91% of the continent where the bat fauna is poorly known. In terms of land area, nearly 5 million km^2 has minimal observations of bats.

GIS analysis of species richness showed that areas with 21 species or more only covered approximately 60,000 km^2 (0.1%) of the continent, and these areas were primarily in the far north Queensland/Cape York region, the Shoalwater Bay overlap zone in central coastal Queensland, the northeast NSW/southeast Queensland border region, and Kakadu National Park. These areas, and several others, were identified as key conservation zones.

Relative abundance

A factor that emphasised the degree of difficulty of observing each taxon was used to weight the number of observations of each to give an index of ***relative*** rarity in the distribution database. Although some forms may be regionally abundant, at a national level the majority of them fell into the uncommon or rare categories.

Analysis of threatened species

This analysis allocated points for twelve biological variables that were pertinent to the long-term conservation of species, the points for each variable being weighted differently according to the severity of the biological threat to each species. These values were used to rank species within each IUCN category.

Recovery outlines for threatened species

The status of each species was determined by using IUCN criteria, with the Precautionary Principle being applied to take into account the lack of information for many. Of the 87 bat taxa currently known from Australia and external territories, 42 (48%) were allocated to IUCN threat categories : 2 are Extinct, 4 are Critically Endangered, 5 are Endangered, 23 are Vulnerable, 6 are Lower Risk - near threatened, and 2 are Data Deficient.

Analysis of threats

There appeared to be a bias towards certain taxonomic or biological groups being under threat. Of 14 Pteropodidae, 9 species are endangered, with one-third of the order being either Extinct or in the Critically Endangered category. Bats that roost underground appear to be in serious trouble, with 18 out of 27 species

being threatened to some extent. The conservation problem with subterranean roosting bats is emphasised when considered at a family level, where high proportions of the species in the families Rhinolophidae, Hipposideridae and Emballonuridae (*Taphozous*), and especially Megadermatidae, are under threat.

Threats to taxa in all roost categories included habitat loss or modification, colony disturbance, roost destruction, predation, direct killing, isolation of population, starvation, poisoning, environmental pollution, and new parasites.

Recovery outlines

Recovery outlines were prepared for each species. The estimated cost of recovery projects exceeds $1,800,000. However, since many projects centred around ecological surveys, and many were in similar biogeographic provinces, we suggested that regional recovery planning be considered. Costs of recovery projects could be categorised under several research themes, as follows :

Taxonomy :	$ 137,000
Genetic studies	74,000
Field survey	1,242,000
Ecology	371,000
Historical study	12,000

Recovery research priorities

The following generalised procedure for action was recommended :

- ◊ That taxonomic and genetic research be given the highest priority for the initial allocation of funding, prioritised according to the severity of the IUCN classifications of each taxon. This appears to be integral to defining the Australian bat fauna, and in combination with the re-examination of museum specimens, it was envisaged that many species would quickly be removed from the threatened fauna list. A national research project proposed to compile regional field guides would follow this line of research.
- ◊ That field survey in priority biogeographic regions be conducted, after review by a steering committee to identify a preferred strategy. It is apparent that Cape York Peninsula would be the first of these regions, having a high number of species that do not have threats mitigated as yet.

National conservation and recovery research

National projects integral to the conservation of Australian bats that have a national application were proposed, with an estimated cost of $520,000, and included :

1. Taxonomic resolution of bat species of conservation concern
2. Public education of the role of bats in Australia's environment and biodiversity
3. Reference library of echolocation calls for use in ecological surveys
4. Re-assessment of cave bat populations
5. Fine resolution targeting of areas for urgent survey of endangered species distributions
6. Changes in flying-fox distribution patterns in southeast Queensland and northeast New South Wales
7. Assessment of known and potential roosts in caves and abandoned mines
8. Non-destructive displacement of Flying-fox colonies
9. Review of results from the "5 Year Plan" for Australian bat conservation

The priorities for national research projects were set by the consensus of delegates to the Australasian Bat Research Conference, Naracoorte (April 1996)..