



Secretariat provided by the Australian Government

Science Meeting

Hobart, Australia, 8-9 November 2004

Agenda Item No. 5
ACAP/ScM1/Doc.9
Australian Delegation

Towards a Global Review of Population Trends of Albatrosses and Petrels as a Basis for Identifying Gaps in Knowledge and Priorities

Towards a Global Review of Population Trends in Albatrosses and Petrels as a Basis for Identifying Gaps in Knowledge and Priorities

Rosemary Gales

Purpose of paper

This paper:

1. Notes that robust information on the status and trends of albatross and petrel populations is fundamental to detect changes that may require, and set priorities for, more detailed investigation and/or management action
2. Urges ACAP to recognise the value of long-term monitoring programmes and to provide support for these.
3. Recommends:
 - a. that a global review of the status of ACAP species (required under Action Plan 5.1(a)) is carried out at the island population level and includes a consideration of adult and juvenile survival rates as these have been identified as critical in terms of influence on population trends and trajectories;
 - b. the establishment of a global population database as an international conservation tool to maintain detailed information on population trends and parameters for albatrosses and petrels covered by the Agreement
 - c. that a working group or committee be established to develop the database described above

The importance of population monitoring

Determining the status and trends of albatross populations is important for many research objectives and fundamental to detecting changes that may require more detailed investigation and/or management action (Croxall and Gales 1998). The status of albatross breeding populations has been reviewed in various documents and as such albatrosses have become recognised as the bird family most threatened with extinction. Similarly, many petrel populations are also globally threatened (Birdlife 2004).

Previous reviews of the status and trends of albatrosses and petrels

Previous taxonomic assessments suggested that there were 14 species of albatrosses. A global review of the conservation status of these species was undertaken by Gales (1993). This assessment highlighted the paucity of information on trends that existed for most populations. The review concluded that additional long term monitoring programs were required to detect changes in population status.

Following the major revision of albatross systematics by Nunn *et al.* (1996) and Robertson and Nunn (1997), a revision of the population data and assessments was undertaken in light of the revised taxonomy. The most recent available estimates of the size of breeding populations (pairs) at all known localities of each of the 24 proposed species were presented by Gales (1998 – ACAP/ScM1/Inf.9), and the population trends were assessed where sufficient data were available. Despite the initiation of several studies since the 1993 global review, the population trends of two thirds of the world's ca 150 albatross populations remained unknown. For those for which information was available, almost half were decreasing. The 1998 assessment also recognised the dynamic state of Procellariiform taxonomy and highlighted the importance of reviewing the status of albatrosses and petrels at the island population level. Consideration at the population level improves our understanding of the status of albatrosses and the threats they face, and is of particular importance in relation to management and conservation issues.

Gales (1998) concluded that the future prospects for most albatross populations are clouded by uncertainty. Currently, with so many populations of albatrosses decreasing, the continued existence of some species is threatened by the diminished size of many of the populations. One third of all populations comprise fewer than 100 breeding pairs each year, and so are extremely vulnerable to stochastic events. Further, the life history characteristics (high adult survival, late onset of breeding, long breeding cycle and low productivity) of these birds exacerbate their vulnerability to elevated levels of mortality.

Proposals for a global assessment of ACAP species

The increasing focus on the plights faced by albatrosses and petrels has resulted in renewed interest and support of population monitoring studies. The ACAP Action Plan (subsection 5.1 (a)) requires the Advisory Committee to undertake, among other reviews, an assessment of the status and trends of albatrosses and petrels, especially those in poorly known areas and of species for which few data are available. It is timely that ACAP actions recognise the value of long term monitoring of threatened populations, and urge their continuation. Recent surveys have tracked an improvement in the status of some populations, whilst others have detected rates of decline of some populations that exceed previously reported values.

It is timely that a global review of ACAP listed albatrosses and petrels be undertaken to both broaden and update the reviews previously published. It is recommended that the reviews include the full range of ACAP species, and that the review occurs at the island population level. A global review should also encompass a more comprehensive range of indicators of population status than has occurred in the past. In terms of influence on population trends and trajectories, rates of adult and juvenile survival have been identified as the most critical (Croxall and Gales 1998). It is recommended that these parameters should be included in a review of Procellariiform status for populations where they exist.

A suggested initial template for compiling these parameters, using data for the Macquarie Island populations of albatrosses and giant petrels, is attached in Table 1.

Proposal for development of an ACAP database

It is recommended that ACAP establish a database on the status and trends of albatrosses and petrels covered by the agreement. The aims of such an ACAP Global Albatross and Petrel Population Database would include:

1. To compile all available information on population numbers, trends and survival rates;
2. To identify populations at highest risk in terms of population trends and trajectories;
3. To identify gaps in the information by highlighting populations whose status is uncertain or unknown;
4. To assist in prioritising/supporting inception of new monitoring programs or continuation of existing programs;
5. To establish global population database to maintain detailed information on population trends and parameters, as an international conservation tool.

Recommendation for Working Group

It is further recommended that ACAP should establish a working group or committee with the specific aim of developing a database as described above.

References

- BirdLife, 2004. Threatened birds of the world 2004. CD-ROM. Cambridge, U.K: BirdLife International.
- Croxall, J. P. 1998 Research and Conservation: a future for albatrosses? *In* Robertson, G., and Gales, R. (Eds.). *Albatross Biology and Conservation*. Surrey Beatty and Sons, Australia. pp. 269-290.
- Gales, R. 1993. *Co-operative Mechanisms for the Conservation of Albatrosses*. ANCA, 132 pp
- Gales, R. 1998. Albatross Populations: Status and Threats *In* Robertson, G., and Gales, R. (Eds.). *Albatross Biology and Conservation*. Surrey Beatty and Sons, Australia. pp. 20-45.

Nunn, G. B., Cooper, J., Jouventin, P., Robertson, C.J.R., and Robertson, G.G. 1996. Evolutionary relationships among extant albatrosses (Procellariiformes: Diomededeida) established from complete cytochrome-b gene sequences. *Auk* 113: 784-801.

Robertson, C.J.R. and Nunn, G.B. 1998. Towards a new taxonomy for albatrosses? *In* Robertson, G., and Gales, R. (Eds.). *Albatross Biology and Conservation*. Surrey Beatty and Sons, Australia. pp. 13-19.

TABLE 1 STATUS AND TRENDS IN POPULATIONS OF MACQUARIE ISLAND ALBATOSSES

This table is intended to summarise the years in which estimates of (breeding) population size (annual breeding pairs) of albatrosses and giant petrels at Macquarie Island

Species	Site	Years monitored	Method	Annual breeding pairs (year)	Survey reliability	Population trend	Source of information/ (Data custodian)
<i>Wandering albatross</i>	Macquarie	1963-2004	B,C	13 (2004)	High	Recovering – currently stable	DPIWE
Black-browed albatross	Macquarie	1995-2004	B, C	45 (2004)	High	stable	DPIWE
Grey headed albatross	Macquarie	1995-2004	B, C	95 (2004)	High	stable	DPIWE
Light mantled albatross	Macquarie	1995-2004	B ¹ , C	1000-1500 (2004)	Medium	stable	DPIWE
Northern giant petrel	Macquarie	1995-2004	B ¹ , C	1300-1600 (2004)	High	Stable	DPIWE
Southern giant petrel	Macquarie	1995-2004	B, C	2150 (2004)	Medium	Stable following previous decrease	DPIWE
Grey petrel	Macquarie	2002-2003	B, C	80 (2003)	Medium	Increasing following previous likely extirpation	DPIWE

Species	Site	Method	Production		Adult Survival		Juvenile survival (1)		Citation/Publications (Data Custodian)
			years	Mean +/- s.d (range)	years	survival est	years	survival est	
Wandering	Macquarie	B	1964-2003	64±17 (29-100)	1955-2001	95.3±0.6 (s.e)	1995-2001	45.9±3.5 (s.e)	1 (DPIWE)
Black-browed	Macquarie	B	1995-2004	48±8 (33-58)	1977-2001	95.1±1.1	1977-2001	58.5±5.8	2 (DPIWE)
Grey-headed	Macquarie	B	1995-2004	54±11 (41-74)	1977-2001	96.7±1.1	1977-2001	33.6±4.6	2 (DPIWE)
Light mantled	Macquarie	B ¹	1995-2004	48±6 (41-58)	unknown		unknown		DPIWE, Tas
Northern GP	Macquarie	B	2004	66%	unknown		unknown		DPIWE, Tas
Southern GP	Macquarie	B	2004	61%	unknown		unknown		DPIWE, Tas
Grey petrel	Macquarie	B ¹	2000-2003	42-80%	unknown		unknown		DPIWE, Tas

1. Direct counts of sub-sample (~25%) of total population

Notes

(i) Years.

Please use a “split-year” system. That is any count (whether breeding pairs or fledglings) chicks) made in the austral summer (e.g. of 1993/94) should be reported as the second half of this split year (i.e. 1994).

The only species which present potential problems in this respect are *Diomedea* albatrosses, which lay in December-January, but whose fledglings do not depart until the following October-December. In order to keep records of each breeding season together, it is suggested that breeding counts from e.g. December 1993-January 1994 and productivity counts (of chicks/fledglings) of October-December 1994 should both be reported as 1994.

(ii) Methods

A: Population estimates.

B: Counts of breeding pairs during incubation.

C: Counts of chicks.

If counts are other than direct visual counts of breeding birds/chicks please indicate.

Alternatives might be counts from aerial photographs (B^A) or of pre-breeding birds attending nests prior to laying (B^B) or representing counts of mature, but not necessarily breeding, birds (M) or simply be counts/estimates of total populations (T) or even of nests/nest sites (N).

(iii) Productivity

Define as proportion of eggs that survive to chicks at/near time of fledging

Please indicate if other than counts of chicks at/near time of fledging.

Juvenile survival needs defining as:

1. Survival to first return;
2. Survival to x age (x will need to be specified), or
3. Survival to recruitment into breeding population

(iv) Citation/Publication

Research can be cited as “Unpublished” or, if published, a reference be given by numbers (1.2.3) which will correspond to a list of publications given in a footnote to the Table. If unpublished please cite the custodian of the data.