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SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH WORKING GROUP ON BIOLOGY BIRD BIOLOGY SUBCOMMITTEE. MINUTES OF MEETING, 3–6 JULY 2000, TOKYO, JAPAN

1. WELCOME AND APOLOGIES

Members and observers were welcomed to the meeting by the Chair, Mr J. Cooper. Apologies had been received from Drs J.P. Croxall, L.S. Davis, W.R. Fraser, P. Jouventin, G. Robertson, M.A. Sallaberry and H. Weimerskirch. The Chair noted the resignation of Dr J. Moreno from the Subcommittee, and thanked him for his contributions during his membership. The Chair reminded members that he would be stepping down as Chair at the end of the meeting, but would be willing to remain on the Committee. The Chair thanked the host nation and the Director, National Institute of Polar Research, for assistance provided for the meeting.

2. ADOPTION OF AGENDA AND APPOINTMENT OF RAPPORTEURS

The draft agenda was adopted (Doc. 1). All tabled documents are listed in Annex 1, and attendees in Annex 2. Rapporteurs were appointed for agenda items.

3. MATTERS ARISING FROM THE CONÇEPCION MEETING, 1998

The minutes of the previous meeting, held in Conçepcion, Chile in July 1998 had been circulated inter-sessionally, and were adopted. They have been subsequently published in *Marine Ornithology* (2000, 28: 85–92; Doc. 2)

3.1 Central Data Bank (CDB) for Antarctic Bird Banding

The Chair tabled summary tables of banding efforts and a suggested list of species names compiled by the CDB (Docs 3 & 4), for the seventh seabird banding review (1996/97 & 1997/98). Gaps in data submission and countries known to have banded birds but not listed were identified by the Subcommittee. Delegates from these countries will be approached to request that outstanding data be submitted as soon as possible. The Chair noted that the sixth review of Antarctic and sub-Antarctic seabird banding (for 1994/95 to 1995/96) had been published in *Marine Ornithology* (2000, 28: 47–52). The Chair noted the recent retirement of Dr T.B. Oatley, who had been the Officer in Charge of SAFRING and had coordinated the CDB since 1982. The meeting recorded its appreciation of Dr Oatley's efforts.

Attendees were reminded that the SCAR Working Group on Biology contributed funds to support the work of the CDB. The Chair reiterated the long-standing request that banding data, in addition to transponder data, be submitted to the CDB to ensure rapid synthesis of banding efforts. Attendees noted recent studies indicating the adverse effects of banding on penguins, and discussed the need for maintaining a register of bands that had been removed from penguins. A formal request to all SCAR nations to be written by the new SAFRING Officer-in-Charge, Mr D. Oschadleus (dieter@maths.uct.ac.za), would include a request for band removal data.

The meeting noted that implanted transponders were known to have been used by the Australian, French, New Zealand, British, American, Italian and Japanese Antarctic and sub-Antarctic programmes, and noted that data on transponder tags were supplied to the meeting by French workers. Discussion of the tabulated data led to several suggestions for further data to be presented, including summaries for previous banding efforts tabulated in five-year periods.

The Subcommittee discussed a new SAFRING proposal to review and analyse banding recovery data by the CDB. Attendees noted the difficulties in obtaining the data from the numerous banding schemes and believed that recovery data would prove to be even more difficult to obtain. It was noted that satellite telemetry data would provide finer-scale, complementary data to banding recovery data. The Chair noted that high numbers of several species of albatrosses had been banded, notably as part of long-term demographic studies. A collaboration among albatross workers may prove productive in this regard. It was suggested that some other forum, such as the planned Agreement for the Conservation of Albatrosses and Petrels (ACAP), may be appropriate to undertake such a study.

3.2 Recent publications on Antarctic and sub-Antarctic birds

The compilation for 1995 by Ms C.M. Phillips, British Antarctic Survey (BAS) Librarian, was tabled (Doc. 5). The Chair reported that the compilation was in press with *Marine Ornithology* (2000, 28: 53–57), and reiterated the value of these compilations that the Subcommittee had undertaken since 1982. Draft compilations for 1996 (Doc. 6) and 1997 (Doc. 7) were circulated for checking before publication. Attendees were asked to send corrections to either Ms Phillips (cmp@bas.ac.uk) or to the Secretary (eric.woehler@aad.gov.au). They have been subsequently published in *Marine Ornithology* (2000, 28: 101–104, 115–118).

3.3 Compilation of masses of Antarctic and Subantarctic seabirds

The Chair described this long-standing Subcommittee project, and indicated that he would approach Dr W.R. Fraser, who had been unable to attend, for a progress report and an indication of future activity. The meeting indicated interest in continuing this compilation. The Secretary and Dr J.A. van Franeker indicated that they would submit mass data to Dr Fraser.

3.4 Southern Ocean island's conservation status

The meeting noted that the conservation status of several islands and island groups in the Southern Ocean had improved since the Chile meeting. The New Zealand southern islands were now all listed under the World Heritage Convention and a conservation strategy document had been produced. South Africa is planning on nominating the Prince Edward Islands for World Heritage listing, the Gough Island Nature Reserve

now extends seaward for 12 nautical miles, the Macquarie Island Nature Reserve now has a Marine Protected Area that extends seaward for 200 nautical miles, and Inaccessible Island with a 12-nautical mile boundary has been proclaimed a Nature Reserve in the Tristan da Cunha Group.

3.5 Review of bird populations of Protected Areas within the Antarctic Treaty region

The Subcommittee noted the continuing publication of reviews of the status of bird populations of Protected Areas within the Antarctic Treaty (AT) region. The need for further reviews of bird populations within AT Protected Areas was identified to support the Important Bird Areas (IBA) Inventory project (see Agenda Item 7 below). The Secretary was asked to correspond with individuals identified as having knowledge of bird populations in current Protected Areas, requesting that they undertake such reviews.

3.6 Guidelines for approaching Antarctic and sub-Antarctic seabirds

The Secretary reported no progress with this issue, but indicated a willingness to continue with the development of universal guidelines for approaching Antarctic and sub-Antarctic seabirds. The meeting noted that more than 15 000 tourists were reported to have visited the AT region during the 1999/00 season, and in light of the trend for increasing numbers of visitors to the AT, the Subcommittee decided to continue with the development of these guidelines.

3.7 Third International Penguin Conference

The Chair tabled Doc. 8, the Proceedings of the Third International Penguin Conference, published in *Marine Ornithology* (1999, 27: 1–210).

3.8 Seabird/fisheries interactions

The Chair reported on progress on several issues and projects currently under way. A BirdLife International (BLI) campaign will commence in the second half of 2000 entitled *Save the Albatross Campaign: Keeping the World's Seabirds off the Hook* to encourage and facilitate conservation efforts through BLI national partners. The meeting noted that CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) had adopted a Catch Documentation Scheme in an effort to reduce the trade in illegally caught Patagonian Toothfish *Dissostichus eleginoides*.

The Chair tabled the 'FAO International Plan of Action – Seabirds' and 'The incidental catch of seabirds by longline fisheries: worldwide review and technical guidelines for mitigation' (Docs 9 & 10), drafts of which had been tabled at Conçepcion, Chile in 1998. The IPOA-Seabirds has been published in Arabic, English, Chinese, French and Spanish. The Subcommittee noted that the IPOA requests nations to undertake reviews of national fisheries with respect to seabird bycatch, and if bycatch occurs at significant level, a National Plan of Action was required. The Chair stated that reports to the FAO (Food and Agriculture Organization of the United Nations) Committee on Fisheries on national efforts were expected in February 2001. The Chair also drew attention to the Draft Recovery Plan for Albatrosses and Petrels, prepared by the Australian Government (Doc. 11).

3.9 Disease Workshop Report

The Chair tabled the full Report of the Disease Workshop held in August 1998 in Hobart (Doc. 12). A short initial report from this workshop had been presented to the Committee for Environmental Protection (CEP) of the Antarctic Treaty System in Lima, Peru in 1999, and the full report was prepared to satisfy the CEP request for an assessment by SCAR. Dr D.W.H. Walton, Convenor of the SCAR Group of Specialists on Environmental Affairs and Conservation (GOSEAC), was requested to compile a SCAR response to the full report. He had invited input from the Subcommittee and the SCAR Group of Specialists on Seals. Several responses were also submitted directly to the SCAR Working Group on Biology.

Dr J.A. van Franeker spoke to his written submission, and discussed his view that the workshop report was too strong in describing the risks, particularly in overstating the degree of isolation of Antarctica. He also suggested that information provided to managers should provide a more general perspective on the unintended introduction of alien organisms, regardless of type. In this respect the Chair noted that Australia and South Africa, as examples, have quarantine protocols for their Antarctic and sub-Antarctic operations.

For managers to deal effectively with the problems associated with potential introductions, all sources of introductions need to be dealt with simultaneously. As an example, vessels operating in the Antarctic can legally discharge food wastes 12 nautical miles offshore within a Special Area designated under MARPOL Annex V. A potential risk of introductions from baits used in longline fisheries was also noted by the Subcommittee.

The four written submissions critiqued some aspects of the report. They all indicated a concern that the Council of Managers of National Antarctic Programmes (COMNAP) might over-react to the report with a disproportionate redirection of both operational and research funds. The Subcommittee took note of these issues, but was concerned that the criticisms attracted by the report should not hinder adoption of appropriate precautions.

The Subcommittee noted that criticisms of the workshop report should not:

- diminish the fact that bird mortalities have occurred in the AT region and in the sub-Antarctic (e.g. skua *Catharacta* spp. mortalities in the Peninsula region; an unexplained mass death of moulting Macaroni Penguins *Eudyptes chrysolophus* at Marion Island; and an unexplained mortality of Adélie Penguins *Pygoscelis adeliae* at Low Tongue, Mawson). These events were likely to have been due to disease, but were not always fully investigated at the time. The recommendations for preparations for similar situations in the future requiring local awareness, appropriate management response(s), and prescribed data-collection were seen as valuable. Response plans for unusual wildlife mortalities from other regions around the world should be used as models for an Antarctic response plan (e.g. USA Marine Mammal Commission Plan for disease events),

- impede continued reduction of the risk of all unintended introductions (disease-causing agents and other organisms) to the Antarctic and sub-Antarctic. This risk reduction

should be a priority, and should be incorporated into current measures and established quarantine procedures,

- confine measures for reducing risks to operations of national Antarctic programmes, but should extend to all potential sources, including those from shipping (MARPOL), tourism and fisheries, and

- exclude the potential for disease transfer from birds to humans (zoonoses).

The Subcommittee understood that the suggested clearing house was not intended to be more than a system of information exchange that would make use of established structures, and would not have a regulatory function.

4. SPECIES SYNTHESES OF ANTARCTIC AND SUB-ANTARCTIC SEABIRDS

The Chair briefly described the efforts to date by the Subcommittee in compiling all available data on the distribution and abundance of Antarctic and sub-Antarctic seabirds. He noted that the Antarctic Petrel *Thalassoica antarctica* synthesis had been published since the 1998 meeting (van Franeker *et al.* 1999. *Waterbirds* 22: 14–28), that the giant petrel *Macronectes* spp. synthesis is substantially complete but requires updating (Patterson *et al.* ms.) and that substantial progress had been made on most of the remaining species (Pintado or Cape Petrel *Daption capense*: Hodum *et al*. ms.; larids: Woehler & Croxall ms.; and cormorants Phalacrocoracidae: Poncet *et al.* ms.). For all other species (e.g. burrowing petrels), the available data were considered insufficient to undertake any syntheses that would significantly improve on current accounts in handbooks. The Australian Antarctic Data Centre was gratefully thanked for its assistance in establishing and maintaining the population database and producing maps for the species syntheses. The Subcommittee noted that all population data compiled into these syntheses were available via the World Wide Web (see Agenda Item 6.2 below).

4.1 Giant petrels

The giant petrel synthesis, undertaken by Patterson *et al*. was tabled (Doc. 13). It was noted that data from South Georgia had recently been made available by BAS and would be included in the synthesis; and that this would require substantial effort in the revision of the manuscript. Attendees were asked to check localities with which they have knowledge. Any new data up to 1999/00 will be included if made available immediately.

4.2 Wilson's & Black-bellied Storm Petrels

No manuscript had been received from Dr M.A. Sallaberry for Wilson's *Oceanites oceanicus* and Black-bellied *Fregetta tropica* Storm Petrels. It was noted that a preliminary synthesis for Wilson's Storm Petrels was tabled in Chile in 1998. Inter-sessionally, the Secretary had provided Dr Sallaberry with handbook accounts for both species. The committee decided that Dr H-U. Peter would complete the synthesis, with Dr Sallaberry as a co-author.

4.3 Larids

The Secretary tabled the current draft of the larid (gulls, terns and sheathbills) synthesis (Doc. 14). It was noted that data from South Georgia had recently been made available by BAS and would be included in the synthesis; this would require substantial effort in the revision of the manuscript. The larid synthesis will be submitted to *Marine Ornithology*. Attendees were asked to check localities with which they have knowledge. Any new data up to 1999/00 will be included if made available.

4.4 Cormorants

The Secretary reported on progress on the synthesis of cormorants, undertaken by Ms S. Poncet. Should the taxonomy of Southern Ocean cormorants be revised in the future, it was desirable that the synthesis take this into account. The Secretary undertook to prepare the compilation for publication, and to produce the maps for the synthesis.

4.5 Pintado Petrel and Antarctic Fulmar

The draft Pintado Petrel synthesis (Doc. 15), compiled by Dr P.J. Hodum was tabled. It was noted that data from South Georgia had recently been made available by BAS and would be included in the synthesis. This would require minimal effort in the finalization of the manuscript. Attendees were asked to check localities with which they have knowledge. The Secretary will produce the maps for the synthesis. Dr Hodum has commenced work on the Antarctic Fulmar *Fulmarus glacialoides* synthesis and a draft will be tabled at the next meeting of the Subcommittee.

4.6 Antarctic Prion

The Secretary undertook to digitize data for the Antarctic Prion *Pachyptila desolata* from the Antarctic Peninsula and adjacent islands compiled by Dr J.P. Croxall.

4.7 Penguin synthesis update

The current draft of the update to the penguin synthesis was tabled (Doc. 16). It is intended that an update be compiled every four years. The updates are now prepared to a standard format, reporting on new colonies, new data for colonies, and where possible, identify trends in populations. A meeting will be held in conjunction with the 4th International Penguin Conference, to be held in Chile in September 2000, to finalize all the South American data. The manuscript will be submitted to *Marine Ornithology* for publication.

4.8 Other species

Attendees examined the potential for syntheses to be compiled for other species. A decision was made not to compile syntheses on burrowing petrels and non-seabird species (e.g. ducks and passerines) at sub-Antarctic islands. However, it was felt that at the time of the next meeting of the Subcommittee data on *Procellaria* petrels might be of sufficient quality to permit a preliminary synthesis of two burrowing petrels breeding within the SCAR area of interest (White-chinned *Procellaria aequinoctialis* and Grey *P. cinerea* Petrels). Priority should be given to these two syntheses given the high numbers of these species that are taken by longline fisheries. The Chair tabled Doc. 17, an in-press manuscript that reported a survey of the endemic Spectacled Petrel *P. conspicillata* at Inaccessible Island (*Marine Ornithology* 2000, 28: 93–100).

The meeting noted that population data for all species of albatrosses to 1996/97 had been compiled and published (Gales, R. 1998. Albatross populations: status and threats. In:

Robertson, G. & Gales, R. (Eds). Albatross biology and conservation. Chipping Norton: Surrey Beatty & Sons. pp. 20–45). Consideration was then given to the need for an update of these data, but it was noted that many species breed at localities outside of the SCAR area of interest, and thus some other forum may be more appropriate to undertake such an update, such as ACAP. Should another forum take on an update, the Subcommittee would be prepared to provide all new population data available on the southern species to it.

5. SEABIRD POPULATION STATUS & TRENDS WORKSHOP REPORT

The Secretary tabled the draft report from the seabird population status and trends workshop, held near Boseman, Montana, USA in May 1999 (Doc. 18). The workshop had been organized by the Subcommittee following a request from the Scientific Committee of CCAMLR (SC-CAMLR) for a statistical assessment of long-term population data sets. This draft had also been submitted for consideration by the CCAMLR Working Group on Ecosystem Monitoring and Management (WG-EMM) in July 2000. Attendees examined the draft and made extensive suggestions and corrections for incorporation, in addition to those that may be received from WG-EMM, into the draft to be submitted to SC-CAMLR in October 2000. The final workshop report will be published in 2001 using available funds from the USA National Science Foundation. The Subcommittee was pleased to note that a poster will be produced from a selected data set and presented at the Fourth International Penguin Conference later in the year (see Agenda Item 13.3 below).

The Subcommittee considered that the report would be materially improved by the inclusion of a brief assessment examining species of similar taxonomies and comparisons between and within geographic areas. To aid in such an assessment, the Subcommittee identified the following topics, and encouraged the authors of the report to consider their inclusion:

- there are noticeable decreases in the breeding populations of some species of albatrosses and giant petrels. These species are taken by longline fisheries in the Southern Ocean, and

- dramatic changes have occurred in many penguin populations. These changes differed in their degree and direction among species and geographic areas under investigation. These disparities in trends require closer examination before commenting on overall pattern(s) and causative factors. However, it was noted that decreases in all penguin species, other than King Penguins *Aptenodytes patagonicus*, had occurred at sub-Antarctic localities. Regional syntheses for the Ross Sea and the Antarctic Peninsula are required.

The Subcommittee recommended that it continue to provide advice to SC-CAMLR when requested at four-yearly intervals, and after considering the timing of assessments of Southern Ocean seabird population data for SC-CAMLR, suggested the following strategy:

- a detailed statistical assessment, similar to that at the 1999 Montana Workshop, be undertaken every eight years. This time-frame was related to the requests from SC-CAMLR for population assessments at four-yearly intervals, and thus the Subcommittee could provide detailed statistical assessments and interpretation on 'alternate' requests. This timing was also felt appropriate in light of the life expectancies of the species under investigation, and the time required to collect sufficient new data to warrant the considerable effort in their analyses (first due in 2008), and

- the next status and trends assessment would examine a subset of species for which data are available and broaden the terms of reference to examine the role of causative factors in the biotic and abiotic environments. A suggestion was made that the larger procellariiforms and penguins would be two suitable taxonomic groups for such an assessment. Such assessments would alternate with the detailed statistical assessments and would thus also be undertaken at eight-year intervals.

It was noted that the smaller petrels were poorly represented in the analyses. The Subcommittee encouraged those researchers undertaking or considering initiating population studies on these species to do so with a view to broadening the suite of species considered in future analyses and syntheses.

6. DATA MANAGEMENT

6.1 On-line Southern Ocean seabird bibliography

The Secretary described and demonstrated the on-line seabird bibliographic database hosted by the Australian Antarctic Data Centre (AADC). The URL is http://cs-db.aad.gov.au/aadc/bib/search_bib.cfm.

The bibliography is comprised of approximately 10 separate bibliographies, including several compiled on behalf of the Subcommittee, in addition to others compiled by the Australian Antarctic Division. The bibliography is public and searchable via the World Wide Web. Attendees were encouraged to use the bibliography and report any problems to the Secretary. Similarly, suggestions for improvements or additional features would be welcomed.

6.2 On-line Antarctic biodiversity database

The Secretary described and demonstrated the on-line Antarctic biodiversity database funded by SCAR and hosted by the AADC. The URL is http://www-aadc.aad.gov.au/biodiversity/. The database is comprised of numerous components, some of which are products of the Subcommittee, such as the species syntheses on distribution and abundance of breeding populations. Other data in the database include AT Protected Areas, treaties, agreements and conventions that list Antarctic and sub-Antarctic fauna, and distribution of Antarctic and sub-Antarctic flora. The Important Bird Areas (IBAs, see Agenda Item 7 below) identified by the Subcommittee will also be included. The database is still under development, and members were encouraged to make use of the database and to report any errors to the Secretary. Similarly, suggestions for improvements or additional features would be welcomed.

6.3 SCAR Antarctic Data Management Questionnaire

The Secretary and Dr M. Riddle provided some background to the request from SCAR on Antarctic data management. A submission was made on behalf of the Subcommittee by Dr J.P. Croxall, and the results of the Questionnaire will be tabled at the Joint Committee on Antarctic Data Management (JCADM) meeting in July 2000.

7. IMPORTANT BIRD AREAS INVENTORY

7.1 Antarctic IBA inventory

The Secretary and Chair gave a brief description of the background to the joint BirdLife-SCAR project to compile an Important Bird Areas Inventory for the Antarctic Treaty region. The inventory will make extensive use of the species syntheses on distribution and abundance of breeding Antarctic seabird populations compiled by the Subcommittee and now integrated into the on-line SCAR Antarctic Biodiversity database (see Agenda Item 6.2 above).

A preliminary analysis at the meeting was undertaken of the available quantitative data on the breeding populations of five bird species (Emperor *Aptenodytes forsteri,* Adélie, Chinstrap *Pygoscelis antarctica* and Gentoo *P. papua* Penguins and the Antarctic Petrel) of the 19 species that breed within the AT region.

Using a minimum of 1% of the global species population as a criterion, 67 breeding localities were identified as prospective IBAs (Doc. 19). Of these, seven supported two species at the 1% level or greater, and one supported three species. Current data for the remaining 14 species are inadequate for a quantitative analysis. Of the 59 existing protected areas (Specially Protected Areas, SPAs and Sites of Special Scientific Interest, SSSIs), 18 (33%) were identified as prospective IBAs by the >1% criterion. This percentage will increase if existing protected areas that have no breeding bird populations are excluded from the calculation. Of the 67 identified prospective IBAs, 18 (27%) are currently protected and 49 (73%) are not.

These preliminary results suggest that an IBA Inventory for the Antarctic Treaty region will contribute to the development of a systematic environmental–geographical framework for selecting Antarctic protected areas as required under the Madrid Protocol on Environmental Protection (Doc. 20).

7.2 Southern Ocean islands IBA inventory

The Chair tabled preliminary IBA texts for Bouvetøya, the Tristan da Cunha group and the French sub-Antarctic islands (Docs 21–23). These texts had been prepared as chapters for the IBA Inventory for the African Continent (Fishpool, L. (Ed.). in press. Important Bird Areas of Africa and associated islands. *BirdLife International Conservation Series*). It was noted that an IBA Inventory for the Falkland Islands was underway and that an account for the Prince Edward Islands had been published in the South African IBA book (Barnes, K.N. (Ed.). 1998. The Important Bird Areas of southern Africa. Johannesburg: BirdLife South Africa).

The Subcommittee discussed the potential for gaps in IBA Inventories for the SCAR area of interest in the Southern Ocean, and then discussed the possibility that it undertakes an integrated IBA Inventory for all the southern (sub-Antarctic and cool-temperate) islands. The Chair outlined three concerns that would hinder the Subcommittee from undertaking a sub-Antarctic island IBA Inventory: 1) a lack of information and expertise on a number of the species involved, which include land birds, 2) some southern islands had already been assessed (see above), and 3) some IBA Inventories for other islands may already be planned. It was decided that the outgoing Chair would ascertain the situation with regard to these concerns inter-sessionally, and the Subcommittee would revisit the issue at its next meeting in 2002.

8. SPECIALLY PROTECTED SPECIES

A request had been made by the SCAR Executive to its Working Group on Biology to identify species that may qualify as 'Specially Protected Species' under Annex X of the Madrid Protocol on Environmental Protection. The Chair tabled the final list of Southern Ocean seabird species identified under IUCN guidelines (BirdLife International 2000. Threatened birds of the world. Barcelona and Cambridge, Lynx Edicions and BirdLife International, Doc. 24). Three species of breeding seabirds within the AT region were on this list: Gentoo (Near Threatened) and Macaroni (Vulnerable) Penguins and the Southern Giant Petrel *Macronectes giganteus* (Vulnerable). The Antarctic breeding populations of Gentoo Penguins represent approximately 11% of the world population and the Macaroni Penguin Antarctic population is trivial within a global context (<1%). However, the Southern Giant Petrel population in the AT region represents approximately 70% of the global population. None of these three species is endemic to the AT region.

9. AIRCRAFT OPERATIONS NEAR PROTECTED AREAS

The Secretary tabled a review of aircraft operation guidelines for protected areas under the AT System prepared by Dr C.M. Harris (Doc. 25). The review tabulates guidelines applied to aircraft operations by national operators and summarizes data on the impacts of aircraft on Southern Ocean seabirds. The review seeks to reduce the plethora of national guidelines to a single set of guidelines based on aircraft type (fixed or rotary wing) and numbers of engines.

The Subcommittee noted that the Australian Antarctic Division had recently generated detailed maps for helicopter operations at the Australian Antarctic and sub-Antarctic stations, based on the current knowledge on distribution of wildlife concentrations. These maps are available via the Secretary.

The Subcommittee identified several issues regarding aircraft operations and the guidelines associated with these operations:

- aircraft operations of all types were increasing rapidly throughout the Antarctic and sub-Antarctic, for both governmental and non-governmental activities,
- education regarding the impacts of aircraft operations on seabirds was essential for all operators,
- contemporary knowledge on the distribution of breeding populations remains a priority,
- aircraft operations near seabird colonies should be minimized or avoided during sensitive stages of the breeding seasons, and
- the Antarctic Flight Information Manual (AFIM) guideline regarding approaches to concentrations of seabirds should be modified to indicate an approach that is low to the horizon, taking into account other possible animal concentrations on the flight path.

The Subcommittee noted that there is, at present, insufficient knowledge on the effects of disturbance from aircraft operations on Southern Ocean seabirds, and that distinction should be made between:

TABLE 1

Recommended approach distances for aircraft

		Minimum approach distance	
Type	**Engines**	**Vertical**	**Horizontal**
Helicopter	1	750 m (2461 ft)	750 m (2461 ft)
Helicopter	2	1000 m (3281 ft)	1000 m (3281 ft)
Fixed wing	1 or 2	450 m (1476 ft)	450 m (1476 ft)
Fixed wing	4	1000 m (3281 ft)	1000 m (3281 ft)

- disruption (immediate loss associated with a disturbance event, for example birds leaving eggs or chicks at times when they would not normally do so), and

- medium- to long-term disturbance effects in which the frequency of disturbance becomes important. Long-term cumulative effects are especially important to identify, but these will be more difficult to measure. Contradictory results from previous studies reinforce the need for further investigations.

The Subcommittee suggested that the horizontal and vertical approach minima should be the same distance, in effect creating a no-fly dome over seabird colonies (see Table 1). The Subcommittee recommended that the minimum approach distances suggested by the review (Table 4 of Doc. 25), as modified in Table 1, be adopted by all operators of aircraft, and recommended their universal adoption throughout the entire AT region and also at sub-Antarctic and cool temperate islands throughout the Southern Ocean.

The Subcommittee noted that in some cases, the existing guidelines for aircraft operations may be more stringent than these modified Harris guidelines (Table 1). In such instances, the modified Harris guidelines should not result in any reduction of more stringent guidelines. The Subcommittee also suggested that where existing guidelines for aircraft operations were less stringent than these suggestions, the existing guidelines be reviewed in light of the above recommendations. It was acknowledged that at some localities, aircraft operations may already operate within the above recommendations.

The Subcommittee noted that several studies were currently underway or had recently commenced examining the impacts of aircraft operations on Southern Ocean seabirds. It was recognized that these studies had the potential to require a revision of these guidelines in light of the results obtained.

10. PENGUIN BANDING

No report from had been received from Dr W.R. Fraser. The Secretary was asked to correspond with Dr Fraser to ascertain what progress had been made. The Secretary tabled photographs of Gentoo Penguins with poorly applied bands, taken near a Chilean station. The Subcommittee expressed concern with the substandard quality of banding shown in the photographs, and recommended that the Secretary approach the Chilean National Delegate for advice on how to proceed in this particular instance. The Subcommittee also noted with concern the continued use of marking agents that affect the plumage of adults and chicks, and discouraged their use. It was noted that the use of plastic flipper bands for penguins was mooted in a paper in the Proceedings of the Third International Penguin Conference (Stonehouse, B. 1999. *Marine Ornithology* 27: 115–118, Doc. 26) and that plastic bands had been developed for field testing in South Africa as a consequence.

11. REPORTS FROM MEETINGS HELD

11.1 Second International Conference on the Biology and Conservation of Albatrosses and other Petrels

The second international conference on albatrosses, with the other members of the Order Procellariiformes covered for the first time, was held in Honolulu, Hawaii, USA from 8–12 May 2000. The abstracts of oral and poster presentations have been published in *Marine Ornithology* (2000, 28: 125–152), since no proceedings had been planned.

11.2 International Workshop on Albatross and Petrel Mortality from Longline Fishing

Associated with the Albatross and Petrel Conference in Hawaii, a two-day workshop was held immediately afterwards that addressed albatross and petrel mortality from longline fishing. The workshop first heard four invited presentations on the subject which have been published in full as appendices to the workshop report. (Cooper, J. (Ed.). 2000 *Marine Ornithology* 28: 153–190). A concurrently run workshop on burrowing petrels with special attention to the role of introduced predators was also held, but no report is available. Support by the Subcommittee was given to the recommendations of the longlining workshop, especially that regarding the development of the international Agreement on the Conservation of Albatrosses and Petrels (see Agenda Item 13.2 below).

11.3 Workshop on Cumulative Impacts of Tourism

The Subcommittee noted that a workshop that aimed to examine the potential cumulative impacts of Antarctic tourism was held in San Diego, California, in June 2000. The workshop was organized by the National Science Foundation (NSF) and Environmental Protection Agency (EPA) of the USA and the International Association of Antarctica Tour Operators (IAATO). Attendees included scientists and others who have first-hand knowledge of tourist operations and the features of sites commonly visited by tourists in the Antarctic Peninsula area.

11.4 Workshop on the Conservation of South African Albatrosses and Petrels at Risk from Longlining

In June 2000 a one-day workshop was held in Cape Town that brought together role-players in government, industry, academia and NGOs to address the conservation of South African populations of albatrosses and petrels at risk from longlining. Support at this workshop was forthcoming for South Africa to produce its National Plan of Action – Seabirds, to support the Agreement on the Conservation of Albatrosses and Petrels, and to nominate its sub-Antarctic Prince Edward Islands for World Heritage status (Cooper, J. (Ed.). 2000. *Avian Demography Unit Research Report* No. 39. 27 pp.).

12. SCAR REVIEW

The Subcommittee discussed the draft SCAR Review that had been circulated inter-sessionally to SCAR Chief Officers (Doc. 27). The Chair noted that the Subcommittee had not been approached to make representation to the Ad hoc Review Group. In light of Recommendation 9 of the review, the Subcommittee considered its activities and products over the past decade, highlighting those of an inter-disciplinary nature, such as the IBA Inventory undertaken in conjunction with BirdLife International, and its long-standing contribution to SC-CAMLR through its regular assessment of status and trends of Southern Ocean seabird populations. The considerations by the Subcommittee clearly showed the on-going need for the continuation within SCAR of a forum concerned with all aspects of avian biology, and capable of providing the same expertise and advice, products and assessments.

During the Subcommittee meeting, the Secretary attended a briefing by Dr A. Schytte Blix (Norway) who was part of the Ad hoc Review Group. Dr Blix described the history of the review, and offered a suggested strategy for the Subcommittee to respond to the review. The suggested strategy comprised of a small Standing Committee responsible for a variable number of Action or Operating Groups. It was noted that membership of these Groups would be open to all SCAR nations. The Subcommittee prepared a brief submission to the SCAR Working Group on Biology in the light of the strategy suggested by Dr Blix (Annex 4). The submission was also forwarded to national delegates for consideration during discussions on the SCAR Review.

13. NOTIFICATION OF FORTHCOMING MEETINGS OF INTEREST

13.1 Seabird conservation meeting, Japan

The Wild Bird Society of Japan held a one-day workshop on seabird conservation issues in Tokyo on 5 July 2000. The Chair and Dr Akiko Kato attended. J. Cooper presented information on the effects of long-lining mortality on southern seabirds and encouraged Japan to produce its National Plan of Action – Seabirds under the FAO guidelines.

13.2 Agreement on the Conservation of Albatrosses and Petrels

Progress with the development of an Agreement on the Conservation of Albatrosses and Petrels (ACAP) under the auspices of the Bonn Convention on Migratory Species was noted. All albatrosses and all *Procellaria* and *Macronectes* petrels were now listed on the appendices of the Convention. The draft agenda for an inter-governmental ACAP negotiation meeting to be held immediately after the SCAR meetings in Hobart, Australia was tabled. The Subcommittee welcomed this important initiative and requested that J. Cooper (who had been invited to give a keynote address) forward its willingness to help with advice (for reports of the Hobart and a subsequent meeting see http://www.biodiversity.environment.gov.au/wildlife/conventions/albatross. index.html).

13.3 Fourth International Penguin Conference

The Subcommittee noted that the Fourth International Penguin Conference would be held in La Serena, Chile from 4–8 September 2000, immediately followed by a workshop on the conservation of *Spheniscus* penguins, to be organized by the Conservation Breeding Specialist Group of the World Conservation Union's (IUCN) Species Survival Commission. Subcommittee members were encouraged to attend the conference.

13.4 International Fishers' Forum

The intention of New Zealand to host an International Fishers' Forum on Solving the Incidental Capture of Seabirds in Longline Fisheries in Auckland in November 2000 was noted. Several SCAR-BBS members had been invited to attend this important meeting that would bring industry, government and academic researchers together. The forum's final report is at http://www.doc.govt.nz/whats/issues/fishers_forum.htm.

13.5 Eighth SCAR Biology Symposium

Attendees noted that the Eighth SCAR Biology Symposium would be held in Amsterdam in August 2001. The Symposium is to be organized by the SCAR Working Group on Biology.

13.6 Seabird Conservation Symposium, 23rd International Ornithological Congress

The Subcommittee noted that the 23rd International Ornithological Congress (IOC) will be held in Beijing, China in August 2002. The scope for the Subcommittee's involvement through the IOC Scientific Committee to convene a symposium on seabird conservation issues (five speakers) and to convene a round table discussion session was highlighted. A symposium on global seabird conservation issues, to be co-convened by J. Cooper, has since been accepted by the IOC Scientific Committee.

13.7 South American longlining workshop

The intention of BirdLife International partners to host regional workshops in Asia and South America to review seabird mortality from longlining during the course of 2001 was noted. The Subcommittee expressed special interest in the South American workshop, due to take place in Montevideo, Uruguay in September 2001, because many sub-Antarctic albatrosses and petrels at risk from longlining visit South American waters.

14. ANY OTHER BUSINESS

14.1 Proposed workshop on diet study methods

Dr J.A. van Franeker reported on his recent work on diets in four species of Antarctic fulmarine petrels. The study suggests strong influences of methods of sampling and analysis. Not all such aspects of methodological variability are adequately covered by CCAMLR standards for diet studies. Dr H-U. Peter expressed similar concerns derived from the work of his group on storm petrels and skuas. As problems are not specific for the petrel group, but will be similar in all species, it was suggested to organize a diet-study workshop in association with the next Subcommittee meeting. Drs Peter and van Franeker agreed to act as co-convenors for such a workshop.

14.2 Proposed joint workshop on Antarctic IBAs

Based on progress on the identification of candidate Antarctic IBAs (see Agenda Item 7 above) the Chair suggested a workshop be held in conjunction with the next Subcommittee

meeting in 2002 to compile the texts for candidate Antarctic IBAs. Attendance by BirdLife International would contribute materially to the resultant volume. The meeting endorsed the suggestion, and the Chair and Secretary agreed to act as co-convenors for the workshop.

14.3 Future research directions

The Subcommittee followed its usual practice of devoting time to considering opportunities for future research on seabirds in the Southern Ocean, Antarctica and at sub-Antarctic islands. It was agreed that continued developments and interest in both population studies and the use of remote sensing allowed ambitious research programmes to be undertaken. These programmes could link disciplines and lead to findings of significance outside the discipline of avian biology.

Three potential novel research projects were thought to be worthy of future consideration over the next two years with a view to their development as detailed proposals for work to be conducted under the aegis of SCAR. These are, in rank order:

1. long-term implications of climate change on Antarctic and sub-Antarctic penguin populations,
2. population changes in the larger procellariiforms in relation to human-induced effects, and
3. reconciliation of population estimates of fulmarine petrels in the sea-ice zone.

Members of the Subcommittee were requested to give consideration to these and other possible projects during the next two years in preparation for a detailed discussion at its next meeting in 2002. Members were also requested to maintain the population surveys conducted within their regions of interest. These population data sets, in some cases now extending for more than 30 years, are the basis for major contributions by the Subcommittee to the SCAR Working Group on Biology and to CCAMLR.

TABLE 2

Budget requests in US$

	2001	**2002**
Central Data Bank for Antarctic Bird Banding	2000	2000
Completion of seabird population database	10 000	10 000
Workshops on IBA + dietary methods		10 000
Chair & Secretary travel to Subcommittee and WG Biology		6000
Total	**12 000**	**28 000**

15. RECOMMENDATIONS AND FINANCES

15.1 Recommendations

Eight recommendations were adopted by the Subcommittee for presentation to the Working Group on Biology (Annex 3).

15.2 Financial requests for 2001 and 2002

See Table 2 for the budget requests made to the Working Group on Biology.

16. MEMBERSHIP AND ELECTION OF OFFICERS

The Chair reminded the Subcommittee that he would be stepping down as Chair at the end of the meeting, and that Dr J. Moreno had resigned from the Subcommittee inter-sessionally. The Secretary nominated Dr H-U. Peter for membership of the Subcommittee. The Chair nominated Dr E.J. Woehler as Chair-elect of the Subcommittee. These nominations were subsequently approved by the Working Group on Biology. It was agreed that Dr Woehler would approach Subcommittee members for nominations to the post of Secretary inter-sessionally.

17. DATE AND PLACE OF NEXT MEETING

The Subcommittee provisionally accepted with thanks the offer by Dr Peter to host the next meeting of the Subcommittee in Jena, Germany in mid-2002. Attendees noted that the new Chair would also be required to attend the 27th Meeting of SCAR in Shanghai, China in July 2002. It was noted that the Subcommittee intends to hold two workshops in conjunction with its 2002 meeting (see Agenda Item 14 above).

18. CLOSURE AND THANKS

The meeting was closed with a vote of thanks to the Japanese National Committee for SCAR, the Japanese National Institute of Polar Research, the Local Organizing Committee and Professor Yasuhiko Naito for their most enjoyable hospitality and willing help.

ANNEX 1

MEMBERS AND OBSERVERS, SCAR BIRD BIOLOGY SUBCOMMITTEE, 3–6 JULY 2000, TOKYO, JAPAN

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ANNEX 2

DOCUMENTS TABLED AT THE 2000 MEETING OF THE SUBCOMMITTEE

1. Agenda. 2 pp.
2. Scientific Committee on Antarctic Research Working Group on Biology Bird Biology Subcommittee. Minutes of Meeting, 16–18 July 1998, Concepcion, Chile. (*Marine Ornithology* 28: 85–92, 2000).
3. Wanless, R.W. & Oschadleus, D. ms. Tables for the seventh review of data held by the Central Data Bank for Antarctic Bird Banding, July 1996–June 1998. 3 pp.
4. Oschadleus, D. ms. List of suggested species names for the Central Data Bank for Antarctic Bird Banding. 2 pp.
5. Phillips, C.M. 2000. Publications and theses on Antarctic and sub-Antarctic birds, 1995. *Marine Ornithology* 28: 53–57.
6. Phillips, C.M. ms. Draft listing of publications and theses on Antarctic and sub-Antarctic birds, 1996. 7 pp.
7. Phillips, C.M. ms. Draft listing of publications and theses on Antarctic and sub-Antarctic birds, 1997. 7 pp.
8. Proceedings of the Third International Penguin Conference (*Marine Ornithology* 27: 1–210, 1999).
9. FAO. 1999. International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. International Plan of Action for the Conservation and Management of Sharks. International Plan of Action for the Management of Fishing Capacity. Rome: Food and Agriculture Organization of the United Nations. 26 pp.
10. Brothers, N.P., Cooper, J. & Løkkeborg, S. 1999. The incidental catch of seabirds by longline fisheries: worldwide review and technical guidelines for mitigation. *FAO Fisheries Circular* No. 937. 100 pp.
11. Biodiversity Group. 1999. Draft recovery plan for albatrosses and giant petrels. Canberra: Environment Australia. 98 pp.
12. Kerry, K., Riddle, M. & Clarke, J. 1999. Diseases of Antarctic wildlife. A report for the Scientific Committee on Antarctic Research and the Council of Managers of National Antarctic Programs. 104 pp.
13. Patterson, D.L., Woehler, E.J., Croxall, J.P., Cooper, J., Poncet, S. & Fraser, W.R. ms. Breeding distribution and population status of the Northern Giant Petrel *Macronectes halli* and the Southern Giant Petrel *M. giganteus*. 29 pp.
14. Woehler, E.J. ms. Distribution and abundance of Southern Ocean larids. 67 pp.
15. Hodum, P.J., Croxall, J.P. & Poncet, S. ms. Breeding distribution of the Cape Petrel *Daption capense*. 16 pp.
16. Woehler, E.J. ms. Status and trends of Antarctic and sub-Antarctic penguins, 2000. 40 pp.
17. Ryan, P.G. & Moloney, C.L. 2000. The status of Spectacled Petrels *Procellaria conspicillata* and other seabirds at Inaccessible Island. *Marine Ornithology* 28: 93–100.
18. Woehler, E.J., Cooper, J., Croxall, J.P., Fraser, W.R., Kooyman, G.L., Miller, G.D., Nel, D.C., Patterson, D.L., Peter, H-U., Ribic, C.A., Salwicka, K., Trivelpiece, W.Z. & Weimerskirch, H. ms. A statistical assessment of the status and trends of Antarctic and Subantarctic seabirds. 46 pp.
19. Preliminary list of Antarctic Important Bird Areas. 2 pp.
20. Cooper, J., Belbin, L. & Woehler, E.J. 2000. Guest editorial. Selecting Antarctic Specially Protected Areas: Important Birds Areas can help. *Antarctic Science* 12: 129.
21. Huyser, O.A.W. ms. Bouvetøya: an Important Bird Area. 7 pp.
22. Rowlands, B.W. ms. Dependency of Tristan da Cunha, including Gough Island. 23 pp.
23. Catard, A. ms. French Southern Territories. 29 pp.
24. BirdLife International ms. Global status of Antarctic and sub-Antarctic seabirds. 2 pp.
25. Harris, C.M. 2000. Guidelines for the operation of aircraft near concentrations of birds, specifically within Antarctic Specially Protected Areas. SCAR Working Group on Biology Discussion Paper. 12 pp.
26. Stonehouse, B. 1999. Penguin banding: time for reappraisal? *Marine Ornithology* 27: 115–118.
27. Ad hoc Group on SCAR Organization and Strategy 2000. Scientific Committee on Antarctic Research: preparing SCAR for 21st Century science in Antarctica. 37 pp.

ANNEX 3

RECOMMENDATIONS SUBMITTED TO THE SCAR WORKING GROUP ON BIOLOGY

FUNDING AND WORKSHOPS

1. The sum of US$ 2000 a year for 2001 and 2002 to fund the continued operation of the Central Data Bank for Bird Banding at SAFRING, University of Cape Town, South Africa.

2. The sum of US$ 10 000 a year to support the further development of the Antarctic and sub-Antarctic bird data base hosted at the AADC, and to produce an Important Bird Areas (IBA) Inventory for the Antarctic Treaty System.

3. The sum of US$ 10 000 to support the costs of holding two workshops at the time of the 2002 meeting of the SCAR Bird Biology Subcommittee to 1) complete and review the draft text of an Antarctic IBA inventory, and 2) review methods of diet sample collection and analyses in Antarctic and Subantarctic seabirds and develop standard protocols.

4. The sum of US$ 6000 be allocated to allow the Chair and Secretary to attend the next meeting of the Subcommittee in 2002, and to offer partial support to enable the attendance of Subcommittee members who otherwise will be unable to attend.

MEMBERSHIP

5. The Bird Biology Subcommittee requests of the SCAR Working Group on Biology that Dr E.J. Woehler be appointed Chair, and that Dr H-U. Peter be appointed a member of the Subcommittee.

INTERNAL RECOMMENDATIONS

6. Recollecting Rec. XXV-Biol 8 and 9, that the SCAR Working Group on Biology recommends that SCAR requests that National SCAR Committees ensure that records of banded birds and detailed of implanted transponders be submitted promptly on an annual basis to the CDB for Antarctic Bird Banding.

7. Recollecting Rec. XXV-Biol 3, covering threats to Southern Ocean seabirds due to mortality in longline fisheries and noting existing and new international initiatives to address these problems, recommends that SCAR:

   1) requests National Committees to support assessments in their countries of the levels of seabird mortality of Southern Ocean seabirds in their longline fisheries, and where warranted, the production of FAO National Plans of Action – Seabirds, and

   2) requests National Committees which are range states for southern hemisphere albatrosses and petrels, including distant-water fishing nations, to support the development and adoption of an Agreement for the Conservation of Albatrosses and Petrels, under the Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention).

8. The SCAR Bird Biology Subcommittee requests that the Working Group on Biology supports the continuation of an avian biology group within any new structure adopted by SCAR in the next two years.

ANNEX 4

RESPONSE BY THE BIRD BIOLOGY SUBCOMMITTEE OF THE WORKING GROUP ON BIOLOGY TO THE SCAR REVIEW

The Bird Biology Subcommittee of the Working Group on Biology saw opportunities in the proposed new structure of SCAR for the furtherance of high-quality science in the field of avian biology, especially through the emphasis on developing a programmatic structure that allows for projects to be undertaken under the aegis of SCAR. It was further noted that the proposed structure would support research of an interdisciplinary nature. This was particularly welcome, since the Subcommittee did not wish to see research on Antarctic avian biology performed in an isolated manner. Examples of interdisciplinary research include studying the effects of climate change and of human-induced impacts on seabird populations.

The Subcommittee reviewed its present membership and activities in the light of the proposed restructure and wished to offer the following thoughts for further consideration as part of the SCAR Review:

1. Several on-going tasks undertaken by the Subcommittee (e.g. compilation and management of electronic databases, banding records and bibliographies) would not fit easily within a programmatic structure, but were regarded as fundamental to supporting research activities. Consideration needed to be given as to how these tasks could be continued within SCAR,

2. At four-yearly intervals, the Bird Biology Subcommittee has fulfilled a request from the Scientific Committee of CCAMLR for analyses and syntheses of the population status and trends of Antarctic and sub-Antarctic seabirds. It was expected that these requests would continue. The Subcommittee thought that such requests could be accommodated within a programmatic structure. Ongoing collaborations and links with other organizations outside SCAR were seen to be of high value and should be maintained, and

3. Members of the Subcommittee agreed that one of its most significant contributions over the past years had been by way of offering a forum for avian biologists conducting research in the Antarctic and sub-Antarctic to meet at two-yearly intervals to exchange information and ideas, and formulate new initiatives. It was thought that by the prudent selection of new collaborative projects (facilitating the involvement of several nations), coupled with the holding of short workshops on selected themes at regular intervals, such synergy could be maintained into the future. A small Standing Committee would contribute substantially in this regard.