

Agenda Item:	ATCM 13 CEP 8(b)
Presented by:	SCAR
Original:	English

Addendum to XXXI ATCM WP10

Status of the Regional, Antarctic Population of the Southern Giant Petrel – Workshop Outcome and Recommendations

Addendum to XXXI ATCM WP10

Status of the Regional, Antarctic Population of the Southern Giant Petrel – Workshop Outcome and Recommendations

Introduction

1. At XXV ATCM Resolution 1 (2002) noted that the CEP had decided to adopt the IUCN Criteria on endangerment to establish the degree of threat to species, and requested SCAR to assist in reviewing those species which were classed as “vulnerable”, “endangered” or “critically endangered” (taking into consideration regional assessments of populations), as well as reviewing those species classed as “data deficient” or “near threatened” which occurred in the Antarctic Treaty Area. Working Paper XXVIII ATCM WP34 proposed how the IUCN Criteria for assessing endangerment could be applied to Antarctic bird species and provided a classification of threat for endangered bird species. The paper then suggested a procedure and provided a format, using data for the Southern Giant Petrel as an example, for the process by which future proposals could be made to the Committee for Environmental Protection for listing species as Specially Protected Species.
2. Following various changes to the nature, extent and availability of population level data for Southern Giant Petrel, and discussions at several ATCMs (reviewed in XXXI ATCM WP10), in Resolution 2 of XXX ATCM, SCAR was requested to “*complete a review as soon as practical of the population status and trends of the southern giant petrel in the Antarctic Treaty area including an assessment of:*
 - (1) *whether this species fulfils the criteria for designation as a Specially Protected Species under Annex II of the Protocol at a regional scale (the Antarctic Treaty area), and;*
 - (2) *the demographic mechanisms underlying any changes in the population size.”*
3. SCAR undertook to hold a workshop to consider the status of the Antarctic population (south of 60°S) of the Southern Giant Petrel and to make recommendations concerning the degree of endangerment of this regional population, in keeping with the IUCN approach to regional assessments as adopted at ATCM XXX and based on ATCM XXX WP26.
4. The nature, scope and timing of the workshop were advertised to all SCAR National Committees, directly to experts in the field, to other interested parties via directed e-mails, and onwards to others via several other mechanisms. SCAR also made requests to experts working on Southern Giant Petrel, to SCAR National Committees, and to potential data custodians, that any information or data on the species be made available to SCAR so that it might utilize these data during the workshop assessing the current status and trend of the species population found south of 60°S. Similar calls were made by the CEP to Parties.
5. The workshop was held in Cambridge U.K., on 19 and 20 May 2008, and included Stuart Butchart (BirdLife International), Steven Chown (SCAR, Chair), Jeroen Creuwels (Netherlands), Harry Keys (New Zealand), Donna Patterson (U.S.A.), Hans-Ulrich Peter (Germany), Richard Phillips (U.K.), and Flavio Quintana (ACAP).
6. For the purposes of the workshop, an extensive database on abundance and abundance trends of the species at all known breeding sites was compiled, based on the thorough compilation of Patterson et al. (ms. in press with data up to 1999/2000), and updated both with data made available for the present assessment, and with unpublished data made available to Donna Patterson (i.e. up to and including the 2007/2008 season where such data were made available). Owing to data propriety, neither the full original nor the summary data are presently available for public scrutiny, but negotiation to make at least the summary data and assessment spreadsheets available is underway.
7. These data were then thoroughly scrutinized during the workshop in the context of the IUCN Red List Criteria: A (Declining population), B (Range size, fragmentation, etc.), C (Small population size, decline, fragmentation, etc.), D (extremely restricted population size or distribution) – E (Quantitative analysis of extinction probability), and recommendations made on the status of the Southern Giant Petrel south of 60°S.
8. The workshop participants also considered several of the problems encountered when considering these data, and made recommendations concerning methods for future population estimates.

Outcomes – Status and data for IUCN Criteria B to E

9. The best estimate of the current global population of the Southern Giant Petrel includes approximately 54 086 breeding pairs, acknowledging that data are unavailable for a few sites, and that the most recent population estimates for a number of others might be as much as 70 years old.
10. Of these pairs, *c.* 21% are found south of 60°S, that is a total of *c.* 11 012 pairs. The large majority of these pairs are found in the Antarctic Peninsula region, with a much smaller population in East Antarctica. The pairs are distributed across a very large area (Extent of Occurrence (EOO) >20 000 km²; Area of Occupancy (AOO) > 2000 km²) in more than 10 discrete and spatially well-separated locations (as defined by IUCN).
11. Present data suggest that populations north and south of 60°S are not genetically distinct. In several instances, banding of many birds and ongoing monitoring for band resightings have not revealed the interchange in adult birds that might be expected if birds regularly moved between distant sites, such as between sites north and south of 60°S.
12. Irrespective of whether demographic exchange occurs between populations of birds north or south of 60°S, the nature of the Antarctic Treaty System means that a powerful mechanism exists to give effect to special protection at a regional level should this be required, and therefore a regional assessment is justified.
13. For the Southern Giant Petrel the following data are relevant to assessments for IUCN Criteria B to E:
 - (1) For Criterion B, the species has an EOO > 20 000 km² (includes at sea range), an AOO > 2000 km² (includes breeding range only), and more than 10 spatially separated breeding locations;
 - (2) For Criterion C, it has a regional population of > 10 000 individuals;
 - (3) For Criterion D, it has a regional population > 1000 individuals and an AOO > 20 km² and occurs at more than five spatially separated locations;
 - (4) For Criterion E, the species has not been the subject of any quantitative modelling assessments of extinction risk.
14. Current data show that known breeding sites of the species in East Antarctica have low abundances, that these sites are separated in some instances by large distances (> 1000 km), and that together the East Antarctic sites are far removed from the closest other breeding colonies (> 1000 km).

Outcomes – Trend data for IUCN Criterion A

15. Current data show that considerable complexity exists in trend assessments for several reasons. These include the tendency for birds at some sites to move colony if persistently disturbed, usually to nearby sites; the lack of distinction between Northern and Southern Giant Petrel in early counts (pre 1960s); unreliability of early counts (apparent rounding to thousands can be indicative that early counts were approximations), the absence of reliable, comparable time series from many sites; data incompatibilities because of different methods and the timing of counts (discussed in detail by Creuwels *et al.* 2005, *Polar Biology* 28: 483-493); and apparent confusion resulting from different site names.
16. Reliable trend data show that different breeding colonies may show completely different trends even though they may not be especially distant (e.g. Neble Point and the islands of the Fildes Strait).
17. At those sites where data have been collected consistently over the long-term, some years may show substantial reductions in numbers of breeding pairs. However, what appears to be the case is that birds have often elected not to breed for some reason and the number of breeding pairs returns to previous levels in the years thereafter. The 2007-2008 season was characterized by such a low breeding pair event at several sites owing to heavy snowfall.
18. For the application of Criterion A, an assumption was made of a mean generation length of 21.3 years (calculated as $1/\text{mean annual mortality} + \text{age at first breeding} = 1/0.07 + 7 = 21.3$ years – based on data provided by Schreiber & Burger 2002 – *Biology of Marine Birds*, CRC Press, Boca Raton), and assessments were made over three generations (64 years), in keeping with the IUCN procedure (see the Red List Guidelines available at: http://www.iucnredlist.org/info/categories_criteria). For sites that did not have appropriate time series data (e.g. counts for a single year only) rates of change were extrapolated from nearby sites. For those sites with good time series data an exponential model was applied to the data and the population value for the start year was estimated from the model, with the value for the final year of the census time series used as it was given. Outlying values were rejected based on examination of the data. Where doubts existed about very early counts these were excluded from the time series. In all cases, model outcomes for each site were scrutinized by experts at the meeting and a decision taken about the reliability of the outcome based on

experience of the sites. Where considerable doubt existed about population trend data and the reliability thereof, stability was assumed (5 of 53 sites).

19. For the regional population south of 60°S two approaches were applied for the assessment of trends based on IUCN Criterion A2 (i.e. change over the past 64 years or three generations). First, for a 'best estimate' scenario, the rates of change calculated for all sites based on (a) time series data and exponential models; (b) two data points (where only two estimates were available); (c) a single data point (where only one estimate was available) plus an extrapolated value for 1944 (the start of the three-generation period) based on trends from the nearest suitable site(s); or (d) an assumption of stability given concerns over data and uncertainty over direction of trend. These were applied to all 53 breeding sites for which at least a single count was available (ten sites for which the species had been recorded as 'present' at some point, but without any quantitative estimate, were excluded; these are not expected to bias or change the overall result). A mean rate of change across all sites was then calculated based on the assumption of a constant exponential rate of population change. Second, in all instances where population growth was indicated based on extrapolation from nearby sites, a 'worst case' scenario was taken by assuming such populations were stable (i.e. no population increase or decline). The overall population trend was then recalculated as described above.
20. Because a regional population assessment requires knowledge of what is happening to populations outside the region of interest, the procedures described in points 18 and 19 above were also applied to population data from all sites north of 60°S for which data were available. Data for all sites were then combined to produce estimates of the global population trend for the species.

Outcomes of the assessment against IUCN Criteria A to E

21. For Criterion A2, the best estimate of the population trend is a 30.7% increase in the Southern Giant Petrel population south of 60°S over the past three generations (1944 – 2008). The worst case scenario indicates a 7.1% increase in the Southern Giant Petrel population south of 60°S over the past three generations (1944 – 2008). In consequence, and according to the IUCN global criteria (which must be applied to a regional population as the first step in a regional assessment), the regional population south of 60°S is of Least Concern. That is, it does not qualify as Critically Endangered, Endangered, Vulnerable or Near Threatened.
22. For populations north of 60°S, the best estimate of the population trend is a 13.8% increase in the Southern Giant Petrel population over the past three generations (1944 – 2008). The worst case scenario indicates a 10.2% decline north of 60°S over the past three generations (1944 – 2008). Both of these scenarios indicate that the population north of 60°S is of Least Concern according to the IUCN Criterion A2.
23. Combining the trend data for both regions gives a best estimate of a 17% increase, and a worst case scenario of -7.2% decline. Again, the outcome of a global assessment against Criterion A2 is Least Concern.
24. Based on the present data (see points 10 and 13 above), the Southern Giant Petrel also qualifies as Least Concern under the IUCN Red List Criteria B to E, for populations south of 60°S, north of 60°S, and for all populations combined.
25. **Hence the overall assessment for populations south of 60°S is Least Concern.** Given the lack of immigration from north of 60° (see point 11 above), no adjustment has to be made to the outcome of the assessment based on the approach recommended by the IUCN for regional assessments. It is worth noting that even if such immigration was demonstrated, the increasing trends north of 60°S also means that no adjustment has to be made based on the approach recommended by the IUCN for regional assessments. Hence the regional extinction risk of Southern Giant-petrel populations south of 60°S is categorised as Least Concern.
26. **The present assessment indicates that the global Red List category for Southern Giant-petrel should also be Least Concern.** In the 2008 IUCN Red List (released by BirdLife International on 19 May 2008), the species is listed as Near Threatened (having been downlisted from Vulnerable in 2007). However, given the outcome of the assessment reported here, BirdLife International will now re-assess the species for the 2009 IUCN Red List, and will invite comments on a proposal for downlisting to Least Concern at www.birdlifeforums.org in due course.

Caveats and further considerations

27. Although considerable confidence can be placed on the fact that the most comprehensive data have been used for a rigorous and quantitative scrutiny, several caveats should be raised. First, all estimates are subject to some uncertainty and in this case considerable intrinsic variability in populations means that variances were high for some models. Second, for many sites data are not current. That is, counts may have been made more than 10 years ago and in a few instances as much as 70 years ago. Nonetheless, by comparison with

assessments for other bird species globally, the data are extensive. Third, data on fledging success, juvenile and adult survival, and breeding frequency are available for only a few breeding sites, and much variation exists between these site-specific data. In consequence, demographic modelling for assessments of likely future change cannot readily be undertaken for the species as a whole, or indeed for the population south of 60°S. It is clear, therefore, that additional studies of the species are required.

28. Although the Southern Giant Petrel varies regionally in its sensitivity to human disturbance, at several breeding sites disturbance by National Operators and by unmanaged tourism/visitation has caused either emigration or breeding failure, and may continue doing so in the absence of any change in current procedures or in the absence of adherence to guidelines for particular areas (e.g. management plans for ASMAs, or extant guidelines for the operation of aircraft near concentrations of birds).
29. Sensitivity of this species to disturbance means that a careful trade-off is needed between the requirements of data collection for the assessment of population trends, and disturbance as a consequence of such work. However it is clear that experienced observers using appropriate methodology can collect suitable data without affecting survival and/or fledging rates.
30. Current population and population trend data do not allow easy assessment of the reasons for population declines away from breeding sites (i.e. at sea).

Requirements for censuses

31. To obtain trend estimates for Southern Giant Petrel, when observers experienced with the species are available, breeding sites should be censused in the following way
 - (1) As soon as possible after all pairs at a site have laid eggs (*c.* November 25th for the Peninsula area) or as close as possible to that date (keeping to the same date each year a census is done) ACTIVE NESTS should be counted.
 - (2) Active nests are nests observed to contain an egg or chick (see Creuwels *et al.* 2005, *Polar Biology* 28: 483-493).
 - (3) Because of the approach distance required to ensure that birds incubating eggs or brooding young chicks do not desert their eggs only observers experienced with the species should undertake the counts.
 - (4) The required information for such a census is:
 - i. Locality name and position to the nearest decimal minute, or second.
 - ii. Date (day, month, year) of census.
 - iii. Name and employing institution of observer(s).
 - iv. Weather conditions with wind speed, snow cover and visibility given as a minimum.
 - v. A description of the observation procedure used and approach distance to the breeding birds.
 - vi. The approximate area covered by the breeding birds (state the units used).
 - vii. The number of active nests.
32. If observers experienced with the species are not available, the following census method should be applied:
 - (1) As soon as possible after all pairs at a site have laid eggs (*c.* November 25th for the Peninsula area) or as close as possible to that date (keeping to the same date each year a census is done) APPARENTLY OCCUPIED NESTS should be counted at a distance from the breeding site that does not disturb the birds.
 - (2) Apparently occupied nests are well-constructed nests occupied by at least one, apparently breeding, bird (see Creuwels *et al.* 2005, *Polar Biology* 28: 483-493).
 - (3) The required information for such a census is:
 - i. Locality name and position to the nearest decimal minute, or second.
 - ii. Date (day, month, year) of census.
 - iii. Name and employing institution of observer(s).
 - iv. Weather conditions with wind speed, snow cover and visibility given as a minimum.
 - v. A description of the observation procedure used and approach distance to the breeding birds.
 - vi. The approximate area covered by the breeding birds (state the units used).
 - vii. The number of apparently occupied nests.
 - (4) If at all possible the apparently occupied nest count should be done on several different days under different conditions. The minimum number of apparently occupied nests should then be recorded.
33. The above methods of observation should be undertaken on an annual basis if the aim is to collect data on population trends. Data on a less frequent basis may not enable assessment of inter-annual variability and could make trend assessments more difficult.

34. Additional data on fledging success, breeding frequency, and juvenile and adult mortality can ensure that a better understanding of likely future trends in the population can be obtained and may help identify potential causes of population change. To estimate fledging success on an annual basis the following approach should be adopted only by observers experienced with this species:
- (1) Undertake a census of active nests as in Point 31 above.
 - (2) Undertake a chick count when the chicks are unguarded, but have not yet fledged, *c.* mid-February at the earliest, and preferably later (early April).
 - (3) Do not attempt to census the numbers of young chicks because of the high risks of nest desertion.
35. If sites are unlikely to be visited annually, and only an estimate of the number of birds present can be made, then this should be made by counting the apparently occupied nests. If the birds are not nesting provide all the data that are usually reported for nest counts, but then give a count of the number of birds present, stating clearly that no birds appeared to be nesting.
36. For areas that are not frequently visited, stating that no Southern Giant Petrels are present is important. Modern distribution and abundance modelling techniques are improved considerably if real absence (rather than presumed absence) data are available.
37. Observers are encouraged to send count data to the Secretariat of the Agreement on the Conservation of Albatrosses and Petrels (www.acap.aq).

Recommendations

38. According to the IUCN Red List Categories and Criteria, the Southern Giant Petrel population south of 60°S is of Least Concern, and does not qualify as Critically Endangered, Endangered, Vulnerable or Near Threatened. Therefore, the present data and analysis do not support the designation of the Southern Giant Petrel as a Specially Protected Species under Annex II to the Protocol on Environmental Protection.
39. Additional censuses of breeding sites and of fledging success should be undertaken in a consistent manner on a regular basis to enable better estimates to be made of current trends in the Southern Giant Petrel population (north and south of 60°S). Should such work indicate a change in the status of the species, it should be re-assessed.
40. Further quantitative work should be undertaken, using both current and new data, so that quantitative demographic models can be applied to the species. Because these models rely on carefully collected, time series information, the collection of such information is encouraged.
41. Sites that have been censused more than 10 years ago should be revisited at an appropriate time so that an assessment of the status of the species at these sites can be made.
42. The lessons learned from this process should be applied to other species. Most significantly, conservation decision-making at the species level is most effective when good, comprehensively analyzed time series data on population size, trends and demographic rates are readily available for the focal species across a range of sites throughout its distribution. The collection of such data is frequently not considered a high priority by science funding agencies, despite the need for such data and analysis thereof by those organizations charged with environmental protection.