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Agreement on the Conservation of Albatrosses and Petrels

Second Meeting of Advisory Committee

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Report of the Breeding Sites Working Group

Author: S. Waugh - New Zealand

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Report of the Breeding Sites Working Group

23 May 2006

Summary

- The Breeding Sites Working Group (BSWG) was successful in engaging with ACAP Parties on the compilation of data on the breeding sites of ACAP species and their management of threats. The BSWG compiled data on over one half of the identified ACAP species breeding sites, with data submissions from six Parties or Range States, at 168 species-colony records and for 19 species.
- The data submitted have allowed testing of the database structure and data entry mechanisms, with some minor revisions required to streamline data entry.
- The BSWG was active in providing views to allow ongoing improvement of the database and data-entry interface.
- Outstanding data will be sought from Parties who have only partially submitted data or have yet to commence data submission to the database.
- The database appears to provide a useful tool to enable a qualitative analysis of threats to ACAP species and management of sites and threats at breeding sites.
- The Terms of Reference for the Working Group, developed from Draft Terms of Reference accepted by the Advisory Committee at AC1, together with a work program, are recommended to the Committee for endorsement.

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1. Introduction

The purpose of the Breeding Sites Working Group (BSWG), established at the 1st ACAP Advisory Committee (AC 1) in 2005 is to collate information about the protection, management, and threats to ACAP species (ACAP Annex 1) at breeding sites, so as to allow a prioritisation of management actions. Initial data submission to the Breeding Sites Working Group was completed on 15 May 2006.

At the 1st meeting of the ACAP Advisory Committee it was agreed that a Working Group on Breeding Sites be established. The Group was tasked with overseeing the collection and collation of the most up to date relevant information on breeding sites of each species of albatross and petrel listed on Annex 1 of the ACAP Agreement, and to produce an assessment of the threats to species from factors associated with the sites. The data for this review were to be sought from Parties and Signatories to ACAP who are Breeding Range States (ie are home to breeding populations) of ACAP listed species.

2. Terms of Reference

The draft Terms of Reference (TOR) adopted for the BSWG at AC1 was circulated to Parties and Signatories for comment. Following a period of consultation, the TOR were adopted by the Working Group in December 2005. No comments were received; therefore it is recommended that the draft Terms of Reference be adopted by the Advisory Committee.

3. Working Group membership

Members were sought from all ACAP Parties and range states with relevant breeding sites. National Contacts and their nominated scientific representatives were contacted from all Parties. Appendix 1 contains a list of key contacts for the BSWG. Responses to working group correspondence were received from Argentina, Australia, Brazil, Chile, Equador, France, New Zealand, Scientific Committee on Antarctic Research (SCAR; for the Antarctic Continent), South Africa and the United Kingdom.

4. Progress towards completion of the work of the Breeding Sites Working Group

The adopted Terms of Reference for the BSWG contained the following work programme:

- 1. Recommend data submission proforma
- 2. Identify suitable database structure
- 3. Collate and submit data and populate database
- 4. Conduct gap analyses to identify requirements for additional data for sites

- 5. Collect additional data to fill gaps and complete review
- 6. Coordinate with the ACAP Status and Trends Working Group; especially with respect to database structure.

The work completed to date has fulfilled items 1, 2, 3 and 6 (wholly or in part). Items 1-2 were addressed with extensive input via email from the Working Group during the period October to December 2005. Members from Australia, New Zealand and the ACAP Secretariat met in December 2005 to formulate a discussion paper on database structure and coverage. This was circulated to members for comment before implementation of the agreed structure and software support (Microsoft Access) in February 2006.

A database was circulated to WG members in March for trialling and limited data entry. Members of the WG were asked to submit data for some of their breeding sites to permit 'road testing' of the developed database and preliminary analysis.

Item 3 of the work programme was partially completed in early May 2006 following 2005-06 data submissions. France submitted their data by 15 May 2006. South Africa's data were received on 23 May 2006, having been sent 15 May and delayed due to problems with email. These were incorporated into the information contained in the report, but more detailed analyses were not possible due to the timing of the submissions. Further work will be required by working group members during 2006-07 to compile and submit outstanding data. Given that data are still outstanding for a significant set of sites at the time the report was formulated, only preliminary gap analyses have been conducted to date (item 4) (see Appendix 5).

5. Data Gaps

Data were submitted for the majority of sites where ACAP species were known to breed. Significant information gaps were identified for Chile and SCAR, whereas a significant number of sites for New Zealand are outstanding. Further detail in the form of sub-divisions of sites or more information on each site is possible for a number of those already submitted.

The set of islands or locations which have been identified as breeding sites for ACAP species by Parties is set out in Appendix 5. The BSWG aimed to have around one half of the available data on breeding sites submitted by the 2nd ACAP Advisory Committee meeting. Data were submitted for 168 of the 287 known breeding locations of ACAP species, achieving this objective. It is anticipated that data submission will be accelerated in the 2006/07 year as the operation of the BSWG database becomes better understood and more streamlined.

The BSWG felt that the data submitted contained a representative set of information, which allowed the testing of the database structure and administrative support. Because data submissions were very close to the closing date for the report (12 May 2006) detailed analyses were not completed. It is significant to note however, that information on a broad range of sites and species are now compiled, and intersessional work will allow the BSWG to advance the work programme considerably over the next year.

The outcome of the testing of the database was positive, with relatively minor issues about the database structure and function identified by data providers (Appendix 4). These related to: a) software applications and user-interface; b) definitions of the data; c) reporting from the database. The BSWG will provide input to help resolve these issues at the meeting of the Working Group meeting prior to the 2nd Advisory Committee Meeting in June 2006. Input from experts unable to attend the meeting is sought via email. Any revision of the database and software interface will be undertaken following the advice of the BSWG at that meeting.

The database was effective in allowing an examination of the range of threats and their severity for submitted species / location combinations, as a test for the system of collating, storing and compiling that set of data about sites. A further analysis of the data will be undertaken in the coming months.

The database allows the BSWG to identify whether there are particular areas or particular species for which threats are relatively elevated, meriting enhanced conservation and management activity. Advice will be sought from the BSWG on the prioritisation of these threats.

6. Recommendations from the Breeding Sites Working Group

- The BSWG recommends that the 2nd Advisory Committee Meeting adopt the Terms of Reference of the Breeding Sites Working Group.
- The BSWG will continue work with members during 2006/07 to encourage and facilitate submission of outstanding data. The BSWG will assess which of these data gaps are of highest priority. High priority data sets will be sought from BSWG members by the end of August 2006.
- The BSWG should decide whether the data contained in the database at this point provides a basis for reporting on threats to ACAP species at breeding sites for presention at the Second Session of the Meeting of Parties to ACAP in November 2006.
- The BSWG will formulate recommendations on analyses that could be conducted using the data contained in the BSWG database and any limitations on inference that could be made given the level of detail of the data and range of sites or species covered by the data submitted.
- The BSWG will work with the other ACAP working groups to examine ways to integrate the information gathered during their work.

Appendix 1: Terms of Reference for the Breeding Sites Working Group

ANNEX 7 TERMS OF REFERENCE FOR THE BREEDING SITES WORKING GROUP

The ACAP Advisory Committee established a Working Group on Breeding Sites at its first meeting.

The aim of this Working Group is to oversee the collection and collation of the most up to date relevant information on breeding sites of each species of albatross and petrel listed on Annex 1 of the ACAP Agreement, and to produce an assessment of the threats to species from factors associated with the sites.

The data for this review will be sought from Parties and Signatories to ACAP who are Breeding Range States (ie are home to breeding populations) of ACAP listed species.

Work Programme for Breeding Sites Working Group

The terms of reference for the group are:

- 1 Recommend data submission proforma
- 2 Identify suitable database structure
- 3 Collate and submit data and populate database
- 4 Conduct gap analyses to identify requirements for additional data for sites
- 5 Collect additional data to fill gaps and complete review
- 6 Coordinate with the ACAP Status and Trends Working Group, especially with respect to database structure.

Note that significant work towards achieving these items has already been carried out by the formation of an ad hoc working group coordinated by the Secretariat prior to the first Advisory Committee meeting.

Membership of Working Group

The group will be chaired by Susan Waugh of New Zealand with a membership comprised of representatives from Breeding Range States for ACAP albatrosses and petrels which are Parties or Signatories to ACAP and invited experts from ACAP observer organisations.

Parties, Signatories and Observers	Contacts for the breeding sites working group
Argentina	Flavio Quintana
	Adrian Schiavini
	Maria Laura Tombesi
	Eugenio Curia
Australia	Barry Baker
	Rosemary Gales
Brazil	Onildo Marini-Filho
Chile	Marcelo Garcia Alvarado
Ecuador	Augusto Corriere
	Gabrielle Montoya
France	Martine Bigan
	Henri Weimerskirch
	Thierry Micol
New Zealand	Simon Banks
	Graeme Taylor
	Stephanie Rowe
	Susan Waugh
Norway	Oystein Storkersen
Peru	INANPE
	Liliana Gomez
South Africa	John Cooper
	Rob Crawford
Spain	Borja Heredia Armada
	Carmen-Paz Marti
	Jose Luis Herranz
Ukraine	Volodymyr Domashlinets
United Kingdom	Colin Summerhayes
	Mark Tasker
	Eric Blencowe
	Oli Yates
	Richard Phillips
United States of America	Kim Rivera
Scientific Committee on Antarctic	Eric Woehler
Research (for Antarctic	
Continent)	
Birdlife International	Ben Sullivan
	John Croxall
	John O'Sullivan
Chair of the Working Group	Susan Waugh

Timeframe for future work:

The following updated timetable has been put forward for consideration by the ACAP Advisory Committee (AC2), and to be confirmed by Parties intersessionally.

Action	To be completed	Responsibility
Advise national coordinators	Completed by	Parties and Signatories
	October 2005	(Breeding Range States)
Adopt terms of reference	Completed by	Parties and Signatories
	December 2005	(Breeding Range States)
Examine options for data storage	30 November	Susan Waugh and Working
and access to information in	2005	Group (WG) members
consultation with Parties		
Dovice profermes	Completed by	WG members
Revise proformas	Completed by March 2006	Susan Waugh
- Submit comments on existing proformas	March 2006	Susan waugn
- Provide revised proformas		
Confirm a database format for	Completed by 15	Susan Waugh and WG
use by ACAP	December 2005	members
Conduct initial gap analysis	Completed by	Susan Waugh and WG
	May 2006	members
Implement population of	Implemented	
database	March 2006	
Data submission from Parties	Completed for	Parties and Signatories
(staged through 3 years)	May 2006	(Breeding Range States)
	1 August 2006	
	1 March 2007	
	1 March 2008	
Meeting of Working Group prior	June 2006	WG members
to AC2 to formulate analyses and		
report		
Provide working group report and	May 2006	Susan Waugh and WG
assessment of data submitted by	May-Dec 2007	members
this date to AC2, and AC3		
Provide working group report	November 2006	Susan Waugh and WG
approved by the AC2 to the MOP2.		members

Information Storage:

The views of Parties and contributors of data will be canvassed regarding options for storage of data, and database formats. A paper will be prepared by the Chair summarising the findings of this review, with recommendations on database structure made to the Secretariat. This will be advanced intersessionally with the aim of establishing populated databases prior to AC2.

Spatial, numerical or text information shall be considered in the development of any database. Protected web–access to submitted information shall be recommended for working group members.

In particular, examination of existing colony registers shall be undertaken, partly to ensure that experience of Parties in best-practice data-management is brought forward, and partly to avoid specifying reformatting of data unnecessarily for the ACAP data compilation in the revision of proformas for data submission.

Presentation of data:

Analyses and summaries of breeding site data will be available with free access on the ACAP web site.

Appendix 2. List of threats used in the ACAP Breeding Sites database.

Data for 151 breeding sites- species combinations were submitted (excluding 17 from South Africa), with threat types indicated for each of the sites. The number of times each threat was used in the database is indicated below in table A2-1.

Threat types listed in the ACAP Breeding Sites Database	Number of times used
Toxins causing direct mortality	0
Browsing on habitat	40
Competition for habitat	6
Contaminants causing chronic illness e.g. affecting viability of young, egg shell thinning	0
Degradation of habitat	22
Ecotourism	6
Erosion e.g. from wave action or from habitat degradation by browsers	2
Fire	21
Fisheries bycatch	27 (should be removed)
Food supply failure	0
Heat stress	0
Human activity in the terrestrial habitat	2
Human disturbance, e.g. visitation causing scattering, invasive research techniques e.g. cannon netting	68
Human exploitation for food or other resources	9
Hurricane	0
Landslide	1
Loss of habitat area	0
Man-made obstacles causing direct mortalities from bird-strike (e.g. birds impacting on buildings, wires or fences)	2
Other (see table A2-2)	24
Pathogen - causes direct mortality or affecting reproductive output	34
Pollution - chemical (e.g oil spill, toxins)	1
Pollution - physical (e.g. plastics)	2
Predation	123
Toxic or Harmful Dinoflagellate or Diatom Blooms	1
Use of habitat for human resource exploitation (e.g. aquaculture)	0
Vegetation encroachment	0
Water level rising, higher tides either through natural or human induced processes	0

Table A2-1. The threat categories and number of times that category was used for 151 breeding sites -
species combinations in the ACAP Breeding Sites Database.

Submitters of data used the 'other' category 24 times during the data submission process (Table A2-1). Some of these times were when a threat had been deleted. For the remaining 4 uses of the 'other' category, new threats were identified. All were identified as low level threats.

The submissions with 'other' threats identified may be either due to a) lack of understanding of which pre-determined category to apply or b) the need to create a new category of threat. Note that vegetation encroachment (the proximate cause of threat) had been identified as a threat in the list provided in the database). The remaining 'new' threats, wave-action and volcanic activity may require new categories of threat to be created.

Table A2-2. Other threats specified for ACAP species for the168 sites submitted.

Other threats	Site	ACAP Species
Breeding colony is exposed and regularly wave-washed. Wave action known to affect gannets, presumed to affect albatrosses at		
certain times in extreme circumstances.	Pedra Branca	Thalassarche cauta
	South Sandwich	
Volcanic activity	Islands Group	Macronectes giganteus
Climate change allows uphill encroachment		
of scrub	Adams	Diomedea epomophora
Climate change Allows uphill encroachment		
of scrub	Enderby	Diomedea epomophora

Appendix 3 – Discussion of data submitted to the Breeding Sites Working Group

This Appendix relates to the detail of the data submitted by ACAP Parties to the BSWG database in 2006. Data for 168 ACAP species breeding sites were submitted, from 6 jurisdictions (Table A3-1).

Number of records	Jurisdiction	Management Authorities
4	Argentina	 Dirección de Fauna y Flora Silvestre, Gobierno de la Provincia de Chubut Gobierno de Tierra del Fuego
11	Australia	1) Director, National Parks and Wildlife, Tasmania
87	France	1) French Southern Territories Administration
36	New Zealand	1) Department of Conservation
17	South Africa	1) Department of Environmental Affairs and Tourism
13	United Kingdom	 Falkland Islands Government Government of South Georgia and South Sandwich Islands Private land owner Tristan da Cunha Government

Table	A3-1	: Six]	Parties or Range States that submitted data covering 19 ACAP species

Data on sites of 19 ACAP species were submitted. These were for four petrels and 15 albatross species (Table A3-2).

Table A3-2: The number of ACAP species represented in data submissions for 168 breeding site-species
combinations for which species level data were submitted.
Number of species-

colony records	Species scientific name	Species common name
1	Diomedea amsterdamensis	Amsterdam albatross
2	Diomedea antipodensis	Antipodean albatross
1	Diomedea dabbenena	Tristan albatross
3	Diomedea gibsoni	Gibson's albatross
3	Diomedea epomophora	Southern royal albatross
1	Diomedea sanfordi	Northern royal albatross
16	Diomedea exulans	Snowy albatross
24	Macronectes halli	Northern giant petrel
17	Macronectes giganteus	Southern giant petrel
11	Procellaria cinerea	Grey petrel
21	Phoebetria palpebrata	Light-mantled albatross
10	Phoebetria fusca	Sooty albatross
22	Procellaria aequinoctialis	White-chinned petrel
3	Thalassarche cauta	Shy albatross
6	Thalassarche carteri	Indian yellow-nosed albatross
11	Thalassarche melanophris	Black-browed albatross
11	Thalassarche chrysostoma	Grey-headed albatross
1	Thalassarche salvini	Salvin's albatross
4	Thalassarche steadi	White-capped albatross

Site protection and management

For the 151 records (excluding17 records for South Africa), 59 had protected area status. Sites without identified protected area status were from the United Kingdom (1 site) and Argentina (4 sites) and France (87 sites) (Table A3-3).

Number of	IUCN Protected	Definition	Jurisdiction
Sites	Area Category		
		Strict Nature Reserve: protected area managed	
10	Category la	mainly for science	Australia
		Strict Nature Reserve: protected area managed	
36	Category la	mainly for science	New Zealand
		Strict Nature Reserve: protected area managed	
1	Category la	mainly for science	United Kingdom
		Wilderness area: protected area managed mainly	
2	Category Ib	for wilderness protection	United Kingdom
		Habitat / Species Management Area: protected area managed mainly for conservation though	
1	Category IV	management intervention	Australia
		Habitat / Species Management Area: protected area managed mainly for conservation though	
9	Category IV	management intervention	United Kingdom
4	No category identified	Protected Area Status unknown or not accorded	Argentina
1	No category identified	Protected Area Status unknown or not accorded	United Kingdom

 Table A3-3. Protected Area Status for ACAP Breeding sites (Total sites for this review = 151).

Management plans were identified for 54 sites at Gough Island, South Georgia, New Zealand sites and Australian sites).

Examination of Threats

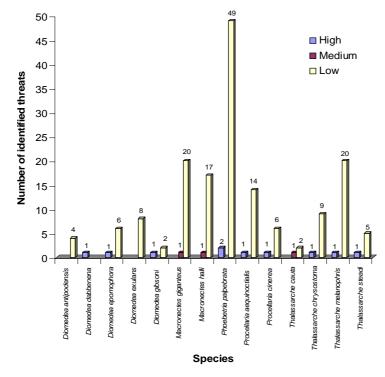
The main focus of the BSWG is to identify threats to ACAP species and prioritise the management of them. This should be facilitated by the BSWG database. Data submitted should allow the BSWG to examine how effective the database is at categorising and prioritising these threats. Late submission of some data precluded a detailed analysis of threats. The remaining sections of this appendix set out the data submitted under different threat levels.

Threat level was determined to be:

- High a threat that is likely to be the main cause of decline to a species and lead to the local extinction of the species from the site within 10 years
- Medium a threat that is likely to be one of many contributing causes of decline of a species breeding numbers at the sites
- Low a threat that has potential to cause decline or localised extinction at a site (including where further information is required)

The database was established with a predetermined set of 27 threats (including a category 'other', see Appendix 2 for details). This list was designed to be comprehensive and mutually exclusive, and was drawn from knowledge of sites in the Oceania region and from a review of threats listed in the ICBP Technical Publication No 11¹.

Threats were examined on a species-by-species basis, to illustrate how the data might be used in future analyses. If, for example, it was of interest to know what severity of threats were identified for which ACAP species, tabulation of the 15 species from 4 jurisdictions shows that the greatest number of threats was identified for Light Mantled Albatross *Phoebetria palpebrata* (49 low, 2 high), whereas Gibson's Wandering Albatross *Diomedea gibsoni* had the fewest threats associated with it (1 high, 2 low) (See Figure A3-1).



Threat levels identified by species

Figure A3-1. Indicative analysis: The number of high, medium and low threats identified for 15 ACAP species of seabird for data submitted for 64 breeding sites in 4 jurisdictions, using data submitted to the ACAP Breeding Sites Working Group in by 8 May 2006.

Feedback received from the BSWG indicates that this list of threats needs to be reviewed. Some members felt the list of options was too long and fewer categories should be used.

Noting that the full range of breeding sites for ACAP species was not submitted at this time, some threats not used may still be required in future data submissions. For

¹ J.P. Croxall (ed) 1991. Seabird Status and Conservation: A supplement. International Council for Bird Preservation. Technical Publication No. 11. ICBP, Cambridge.

example, heat stress is a known threat for Royal Albatross on the New Zealand mainland, but data on the Taiaroa Head site was not submitted in this round.

High level threats are an obvious concern for ACAP members as they have potential to affect considerably the conservation status of species. For the 168 records from 6 jurisdictions submitted to the BSWG in 2006, the following high-level threats were associated with ACAP species (Table A3-4).

	working Group, against the species and the sites at which the threat was named.		
Threat type	Agent of threat	Species to which the threat	Sites at which the
(high level)	(threat species)	was associated	threat was
			identified
Predation	House mouse Mus		
	musculus	Diomedea dabbenena	Gough
Predation	Feral pig Sus scrofa	Diomedea epomophora	Auckland
Predation	Feral pig Sus scrofa	Diomedea gibsoni	Auckland
Predation	Feral pig Sus scrofa	Phoebetria palpebrata	Auckland
Predation	Feral pig Sus scrofa	Procellaria aequinoctialis	Auckland
Predation	Feral pig Sus scrofa	Thalassarche steadi	Auckland
Browsing on habitat	Rabbit Oryctolagus cuniculus	Procellaria cinerea	Macquarie
Browsing on habitat	Rabbit Oryctolagus cuniculus	Phoebetria palpebrata	Macquarie
Browsing on habitat	Rabbit Oryctolagus cuniculus	Thalassarche chrysostoma	Macquarie
Browsing on habitat	Rabbit Oryctolagus cuniculus	Thalassarche melanophris	Macquarie

Table A3-4. High level threats identified for ACAP species in the 2006 data submission to the Breeding
Sites Working Group, against the species and the sites at which the threat was named.

Medium level threats are those for which there is a medium- to long-term concern regarding the threat to the ACAP species at the site. The Medium level threats for the 168 records from 6 jurisdictions identified in the data submitted in 2006 are set out in Table A3-5. (NB, excludes fisheries bycatch as a threat).

Table A3-5. Medium level threats identified for ACAP species in the 2006 data submission to the Breeding Sites Working Group, against the species and the sites at which the threat was named

Threat type	Agent of threat		
(medium level)	(threat species)		Sites at which the
		Species to which the threat was associated	threat was identified
Browsing on habitat	Rabbit Oryctolagus cuniculus	Macronectes giganteus	Macquarie
Browsing on habitat	Rabbit Oryctolagus cuniculus	Macronectes halli	Macquarie
Competition for habitat	Australasian gannet Morus serrator	Thalassarche cauta	Pedra Blanca

Low level threats are those for which there is often active management in place to manage the threat, of for which there is poor information. This category contained potential threats and known threats. The low level threats identified in the data submitted in 2006 are set out in Table A4-6 (NB excludes fisheries bycatch as a threat).

Table A3-6. Low level threats identified for ACAP species in the 2006 data submission to the Breeding Sites Working Group, against the species and the sites at which the threat was named. * Due to late submission of some data these have been combined for all species, agents of threat and sites under each island group.

Threat type (low level)	Agent of threat (threat species)	Species to which the threat was associated	Sites at which the threat was identified
Browsing on habitat	Sheep Ovis aries	Thalassarche melanophris	Falkland Islands
Browsing on habitat	Rabbit Oryctolagus cuniculus	Diomedea exulans	Crozet Islands* Ile aux Cochons
Browsing on habitat	Rabbit Oryctolagus cuniculus Reindeer Rangifer tarandus Sheep Ovis aries Moufflon Ovis ammon	Diomedea exulans Phoebetria palpebrata Thalassarche melanophris Thalassarche chrysostoma	Kerguelen Islands * Baie Larose Baie Larose Péninsule Courbet Péninsule Courbet Foch, St Lanne Gramont & Howe Péninsule Prince de Galles Péninsule Prince de Galles Péninsule Rallier du Baty
Competition for habitat	Antarctic fur seal Arctocephalus gazella	Diomedea exulans Macronectes giganteus Macronectes halli Procellaria aequinoctialis Thalassarche chrysosfoma	South Georgia
Degradation of habitat		Macronestes giganteus	Adelie Land
Degradation of habitat		Thalassarche carteri Phoebetria fusca	St Paul
Degradation of habitat		Thalassarche carteri Phoebetria fusca Procellaria cinerea Diomedea amsterdamensis	Amsterdam
Degradation of habitat		Diomedea exulans Thalassarche chrysostoma	Crozet Islands* Ile aux Cochons Ile de l'Est Ile des Apotres Ile des Pingouins
Degradation of habitat		Thalassarche melanophris Thalassarche chrysostoma Diomedea exulans Phoebetria palpebrata	Kerguelen Islands* Baie Larose Péninsule Courbet Foch, St Lanne Gramont & Howe Golfe du Morbihan Péninsule Jeanne d'Arc Leygues Péninsule du Loranchet Nuageuses & Clugny Péninsule Prince de Galles Péninsule Rallier du Baty Péninsule Ronarc'h:
Ecotourism		Macronectes giganteus	Bleaker Island Isla Arce Isla Gran Robredo Isla Observatorio
Ecotourism		Thalassarche chrysostoma	South Georgia
Ecotourism		Thalassarche melanophris	Falkland Islands
Erosion		Procellaria aequinoctialis	South Georgia

Threat type (low level)	Agent of threat (threat species)	Species to which the threat was associated	Sites at which the threat was identified
Erosion		Thalassarche melanophris	Falkland Islands
Fire		Diomedea antipodensis	Antipodes Bollons
Fire		Diomedea epomophora	Auckland Enderby
Fire		Diomedea gibsoni	Auckland
Fire		Macronectes giganteus	Bleaker Island
Fire		Macronectes halli	Antipodes
Fire		Phoebetria palpebrata	Antipodes Archway Auckland Bollons Enderby Leeward Rose
Fire		Procellaria aequinoctialis	Antipodes Bollons
Fire		Procellaria cinerea	Antipodes
Fire		Thalassarche melanophris	Beauchene
Human activity in the terrestrial habitat		Macronectes giganteus	Falkland Islands Bleaker Island
Human activity in the terrestrial habitat		Thalassarche melanophris	Falkland Islands
Human disturbance		Thalassarche carteri Phoebetria fusca Procellaria cinerea Diomedea amsterdamensis	Amsterdam
Human disturbance		Thalassarche carteri Phoebetria fusca	St Paul
Human disturbance		Diomedea exulans Thalassarche chrysostoma	Crozet Islands:* Ile de la Possession Ile aux Cochons Ile de l'Est Ile des Apotres Ile des Pingouins
Human disturbance		Diomedea exulans Phoebetria palpebrata Thalassarche melanophris Diomedea exulans Thalassarche chrysostoma	Kerguelen Islands*: Baie Larose Péninsule Courbet Foch, St Lanne Gramont & Howe Golfe du Morbihan Péninsule Jeanne d'Arc Leygues Péninsule du Loranchet Nuageuses & Clugny Péninsule Prince de Galles Péninsule Rallier du Baty Péninsule Ronarc'h
Human disturbance		Diomedea antipodensis	Antipodes Bollons
Human disturbance		Diomedea exulans	Macquarie South Georgia
Human disturbance		Macronectes giganteus	Macquarie
Human disturbance		Macronectes halli	Antipodes Auckland Enderby Ewing Macquarie Ocean
Human disturbance		Phoebetria palpebrata	Antipodes Archway Auckland Bollons Enderby

Threat type (low level)	Agent of threat (threat species)	Species to which the threat was associated	Sites at which the threat was identified
			Leeward Macquarie Rose South Georgia
Human disturbance		Procellaria aequinoctialis	Antipodes Auckland Bollons Ewing
Human disturbance		Procellaria cinerea	Antipodes Macquarie
Human disturbance		Thalassarche chrysostoma	Macquarie South Georgia
Human disturbance		Thalassarche melanophris	Macquarie South Georgia
Human disturbance		Thalassarche steadi	Auckland Bollons
Human disturbance		Diomedea exulans Thalassarche chrysostoma	Marion
Human disturbance			
Landslide		Procellaria aequinoctialis	South Georgia
Man-made obstacles causing direct mortalities		Macronestes giganteus	Antarctic Islands
Other	Dracophyllum scrub Dracophyllum spp	Diomedea epomophora	Auckland
Other		Diomedea epomophora	Auckland Enderby
Other		Macronectes giganteus	Falkland - South Sandwich
Other		Thalassarche cauta	Pedra Blanca
Pathogen	Avian cholera Pasteurella multicida	Diomedea exulans	<i>Kerguelen Islands:*</i> Péninsule Courbet Péninsule Prince de Galles
Pathogen		Diomedea exulans	South Georgia
Pathogen		Macronectes giganteus	South Georgia
Pathogen	House mouse Mus musculus	Phoebetria palpebrata	Antipodes Archway
Pathogen	Ticks <i>Ixod</i> es spp	Phoebetria palpebrata	Antipodes Archway Auckland Bollons Enderby Leeward Rose
Pathogen	House mouse Mus musculus	Phoebetria palpebrata	Auckland
Pathogen	House mouse Mus musculus	Phoebetria palpebrata	Bollons
Pathogen	House mouse Mus musculus	Phoebetria palpebrata	Leeward South Georgia
Pathogen		Procellaria aequinoctialis	South Georgia
Pathogen		Thalassarche cauta	Albatross
Pathogen		Thalassarche chrysostoma	South Georgia
Pathogen		Thalassarche melanophris	Falkland Islands South Georgia
Pollution - chemical (e.g oil spill, toxins)		Thalassarche melanophris	Falkland Islands
Pollution - physical (e.g. plastics)		Macronectes giganteus	Bleaker Island
Pollution - physical (e.g. plastics)		Thalassarche melanophris	Falkland Islands
Predation	House mouse Mus musculus	Phoebetria fusca Thalassarche carteri	St Paul
Predation	Cat Felis catus House mouse Mus musculus	Phoebetria fusca Thalassarche carteri Procellaria cinerea	Amsterdam

Threat type (low level)	Agent of threat (threat species)	Species to which the threat was associated	Sites at which the threat was identified
		Diomedea amsterdamensis	
Predation	Cat Felis catus House mouse Mus musculus Ship rat Rattus rattus	Diomedea exulans	<i>Crozet Islands:*</i> Ile de la Possession Ile aux Cochons
Predation	Cat Felis catus House mouse Mus musculus Ship rat Rattus rattus	Diomedea exulans Phoebetria palpebrata Thalassarche melanophris Thalassarche chrysostoma	Kerguelen Islands:* Baie Larose Péninsule Courbet Golfe du Morbihan Péninsule Jeanne d'Arc Péninsule du Loranchet Péninsule Prince de Galles Péninsule Rallier du Baty Péninsule Ronarc'h
Predation	Cat Felis catus	Diomedea epomophora	Auckland
Predation	House mouse Mus musculus	Diomedea exulans	Macquarie
Predation	Ship rat Rattus rattus	Diomedea exulans	Macquarie
Predation	Norwegian rat <i>Rattus</i> norvegicus	Diomedea exulans	South Georgia
Predation	Cat Felis catus	Diomedea gibsoni	Auckland
Predation	Norwegian rat Rattus norvegicus	Macronectes giganteus	Bleaker Island South Georgia
Predation	Ship rat Rattus rattus	Macronectes giganteus	Macquarie
Predation	House mouse Mus musculus	Macronectes giganteus	Macquarie
Predation	Brown skua Catharacta Ionnbergi	Macronectes halli	Antipodes Auckland Ewing Ocean
Predation	Ship rat Rattus rattus	Macronectes halli	Macquarie
Predation	House mouse Mus musculus	Macronectes halli	Macquarie
Predation	Norwegian rat Rattus norvegicus	Macronectes halli	South Georgia
Predation	Brown skua Catharacta Ionnbergi	Phoebetria palpebrata	Antipodes Archway Auckland
Predation	Cat Felis catus	Phoebetria palpebrata	Auckland
Predation	Brown skua <i>Catharacta</i> <i>Ionnbergi</i>	Phoebetria palpebrata	Auckland Bollons Enderby Leeward Rose
Predation	Ship rat Rattus rattus	Phoebetria palpebrata	Macquarie
Predation	House mouse Mus musculus	Phoebetria palpebrata	Macquarie
Predation	Norwegian rat Rattus norvegicus	Phoebetria palpebrata	South Georgia
Predation	Brown skua Catharacta Ionnbergi	Procellaria aequinoctialis	Antipodes Bollons
Predation	Norwegian rat <i>Rattus</i> norvegicus	Procellaria aequinoctialis	South Georgia
Predation	Brown skua Catharacta Ionnbergi	Procellaria cinerea	Antipodes
Predation	Ship rat Rattus rattus	Procellaria cinerea	Macquarie
Predation	House mouse Mus musculus	Procellaria cinerea	Macquarie
Predation	Ship rat Rattus rattus	Thalassarche chrysostoma	Macquarie
Predation	House mouse Mus musculus	Thalassarche chrysostoma	Macquarie
Predation	Norwegian rat <i>Rattus</i> norvegicus	Thalassarche chrysostoma	South Georgia
Predation	Norwegian rat Rattus	Thalassarche melanophris	Falkland Islands

Threat type (low level)	Agent of threat (threat species)	Species to which the threat was associated	Sites at which the threat was identified
	norvegicus		
Predation	Ship rat Rattus rattus	Thalassarche melanophris	Falkland Islands Macquarie
Predation	House mouse Mus musculus	Thalassarche melanophris	Macquarie
Predation	Norwegian rat Rattus norvegicus	Thalassarche melanophris	South Georgia
Predation	Cat Felis catus	Thalassarche steadi	Auckland
Toxic or Harmful Dinoflagellate or Diatom Blooms		Thalassarche melanophris	Falkland Islands

Data on past threats were submitted but these are not reported here.

Appendix 4. Key issues about the BSWG database.

The following issues were identified during the course of the 2005-06 year for consideration by the BSWG. These issues will be discussed at the June 2006 Working Group meeting of the BSWG. Members unable to attend in person should send their comments by email to the WG chair no later than 26 May 2006 (susan.waugh@fish.govt.nz)

Software and interface issues

- a) Use of Microsoft Access as a platform for the BSWG database, or identification and implementation of alternative software applications (e.g. would a webinterface data entry portal be preferable to the current arrangement). If additional resources are required to upgrade the database / software application, where do these come from?
- b) Streamlining the data-entry process (including elaborating the copy function for individual records and delete function for threats forms)
- c) Compatibility and integration with the Status and Trends WG database and with Taxonomy WG database (e.g. additional sites to those indicated in the report of the S&TWG have been listed with data submitted to the BSWG).

Definitions and detail in the database

- d) Review of the range of threats identified in the database
- e) Review of the level of detail required for analyses of spatial and temporal data
- f) Incorporating mechanisms for storing time-series information in the database, to enable updating of information on threats, management, species present, while retaining the ability to review existing entries
- g) Streamlining the description of the sites, jurisdictions, island groups
- h) Review the structure of the database with respect to information on visitor numbers at breeding sites, as this currently relates to island groups (and not to sites or islands within island groups).
- i) Provision of a data-submitters form to identify the number of sites about which data are being submitted, and any new species or islands entered into the database
- j) Consistency of information across different jurisdictions (or providers). For example, do all providers judge the same threats at the same severity?

k) How to weight the information on severity of threats relative to the risk posed to individual species (e.g. in relation to area of a site, or the proportion of the world population of a species breeding at that site).

Reporting

- I) Data accessibility to providers and other authorised users of the database
- m) Advice on ongoing administration and development of the database
- n) Input from the BSWG and AC2 on the format and content of regular reports on the data contained (including who should receive them, and how often, and where they should be available from)

Appendix 5. Information Gaps in the ACAP breeding database

Table A5-1. The sites and species for which data have been submitted to the ACAP Breeding Sites Working Group database. The information on which species breed at different sites is incomplete and may contain errors. No = Known breeding site for the species but where no data has been submitted, Yes = known breeding site for which data have been submitted.

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	D. amsterdamensis	P. fusca	P. palpebrata	T. chrysostoma	T. melanophrys	T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
Antarctic	Antarctic Continent	Antarctic Continent																						No						
Argentina	North Patagonia	Isla Arce																						Yes						
Argentina	North Patagonia	Gran Robredo																						Yes						
Argentina	South Patagonia	Isla Observatorio																						Yes						
Argentina	South Patagonia, Lopez Peninsula	Staten																						Yes						
Australia	Heard and McDonald	Heard	No								No		No											No						
Australia	Heard and McDonald	McDonald									No		No											No						
Australia	Macquarie	Bishop and Clerk											Yes																	
Australia	Macquarie	Macquarie	Yes								Yes	Yes	Yes											Yes	Yes					Yes
Australia	Tasmania	Albatross															Yes													
Australia	Tasmania	Mewstone															Yes													
Australia	Tasmania	Pedra Blanca															Yes													
Chile		Isla Diego de Almagra											No																	
Chile	Diego Ramirez	Diego Ramirez										No	No											No						
Chile	Isla lledefonso	Isla lledefonso										No	No																	
Chile		Isla Noir																						No						
Ecuador	Galapagos	Galapagos Group																					No							
Ecuador	Isla de la Plata	Isla de la Plata																					No							

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	D. amsterdamensis		P. palpebrata	T. chrysostoma		T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
France	Amsterdam and St Paul	Amsterdam, Falaises d'Entrecasteaux								Yes												Yes								Yes
	Amsterdam and St Paul	Amsterdam, Plateau des							Yes																					
	Amsterdam and St Paul									Yes												Yes								
	Crozet	Ile de la Possession	Yes								No													No	No	No				
France	Crozet	Ile aux Cochons	Yes								No																			
France	Crozet	lle de l'Est	Yes							No	No													No	No	No				No
France	Crozet	Ile des Apotres	Yes							No	No	No	No									No		No	No	No				
France	Crozet	lle des Pingouins								No	No	Yes	No								Yes	No		No	No	No				No
France	Kerguelen	Baie Larose	Yes																						No	No				
France	Kerguelen	Peninsule Courbet	Yes																						No	No				
France	Kerguelen	Peninsule Courbet / Baie Inaccessible	No																											
France	Kerguelen	Foch, St Lanne Gramont & Howe	Yes																						No	No				
France	Kerguelen	Golfe du Morbihan									Yes														No	No				No
France	Kerguelen	Peninsule Jeanne d'Arc								No			Yes												No	No				No
France	Kerguelen	Leygues	Yes																											
France	Kerguelen	Peninsule du Loranchet										Yes														No		\square		No
France	Kerguelen	Nuageuses & Clugny	Yes									No	No									No			No	No		\square		No
France	Kerguelen	Peninsule Prince de Galles	Yes																						No	No				
France	Kerguelen	Peninsule Rallier du Baty	Yes																					No	No					
France	Kerguelen	Peninsule Ronarc'h									Yes															No				
France	Kerguelen	Peninsule Joffre																							No					

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	D. amsterdamensis	P. fusca	P. palpebrata	T. chrysostoma	T. melanophrys	T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
France	Terre Adelie	Pointe Geologie																						Yes						
New Zealand	Antipodes	Antipodes			Yes						Yes		No					Yes							Yes	Yes				Yes
New Zealand	Antipodes	Archway									Yes																			
New Zealand	Antipodes	Bollons			Yes						Yes		Yes					Yes								Yes				
New Zealand	Antipodes	Leeward									Yes																			
New Zealand	Auckland	Adams				Yes		Yes			Yes							Yes							Yes					
New Zealand	Auckland	Auckland				Yes	,	Yes			Yes							Yes								Yes				
New Zealand	Auckland	Disappointment				Yes					Yes							Yes							Yes	Yes				
New Zealand	Auckland	Enderby					Yes	Yes			Yes														Yes	Yes				
New Zealand	Auckland	Ewing																							Yes	Yes				
New Zealand	Auckland	Ocean																							Yes					
New Zealand	Auckland	Rose									Yes																			
New Zealand	Bounty	Bounty																	No											
New Zealand	Campbell	Campbell				No		No			No	No	No	No											No	No				No
New Zealand	Campbell	Jeanette Marie												No																
New Zealand	Chatham	Chatham																							No					
New Zealand	Chatham	Forty-fours														No									No					
New Zealand	Chatham	Pitt																												
New Zealand	Chatham	Sisters Group					No									No									No					
New Zealand	Chatham	The Pyramid																		No										
New Zealand	Hauraki Gulf	Great Barrier																										No		
New Zealand	Hauraki Gulf	Little Barrier																										No		
New Zealand	North	Rosemary Rock																												
New Zealand	North	Three Kings														No								L						

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	D. amsterdamensis	P. fusca	P. palpebrata	T. chrysostoma	T. melanophrys	T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
New Zealand	Snares	Alert Stack																												
New Zealand	Snares	Broughton																												
New Zealand	Snares	Daption Rocks																												
New Zealand	Snares	North East (Main)											No		No				No											
New Zealand	Snares	Rima																												
New Zealand	Snares	Toru																												
New Zealand	Solander	Little Solander													No															
New Zealand	Solander	Solander													No															
New Zealand	South	Punakaiki																											No	
New Zealand	South	Taiaroa Head					No	No																						
New Zealand	Stewart	Nelly																							No					
Norway	Bouvet Island	Bouvet																						No						
South Africa	Prince Edward	Marion	Yes							Yes	Yes	Yes												Yes	Yes	Yes				Yes
South Africa	Prince Edward	Prince Edward	Yes						,	Yes	Yes	Yes										Yes		Yes	Yes	Yes				Yes
United Kingdom	Falklands/Malvinas	Falkland Islands Group											Yes											Yes		No				
United Kingdom	Falklands/Malvinas	Barren Island																						No						
United Kingdom	Falklands/Malvinas	Beauchene											Yes																	
United Kingdom	Falklands/Malvinas	Bird											No																	
United Kingdom	Falklands/Malvinas	Bleaker Island																						Yes						
United Kingdom	Falklands/Malvinas	Bottom Island																								No				
United Kingdom	Falklands/Malvinas	Burnt Islet																						No				\square		
United Kingdom	Falklands/Malvinas	Carcass Island																						No						
United Kingdom	Falklands/Malvinas	Dyke Island																						No				\square		
United Kingdom	Falklands/Malvinas	Elephant Jason											No																	

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	D. amsterdamensis	P. fusca	P. palpebrata	T. chrysostoma	T. melanophrys	T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
United Kingdom Fal	Iklands/Malvinas	George Island																						No						
United Kingdom Fal	Iklands/Malvinas	Golden Knob Island																						No						
United Kingdom Fal	Iklands/Malvinas	Governor Island																						No						
United Kingdom Fal	lklands/Malvinas	Grand Jason											No											No						
United Kingdom Fal	Iklands/Malvinas	Grave Cove											No																	
United Kingdom Fal	Iklands/Malvinas	Hutchy's Island																						No						
United Kingdom Fal	Iklands/Malvinas	Jason West Cay																						No						
United Kingdom Fal	Iklands/Malvinas	Kepple											No																	
United Kingdom Fal	lklands/Malvinas	Kidney Island																								No				
United Kingdom Fal	lklands/Malvinas	Lively Island																						No						
United Kingdom Fal	Iklands/Malvinas	Low Island																						No						
United Kingdom Fal	Iklands/Malvinas	New Island											No													No				
United Kingdom Fal	Iklands/Malvinas	North											No																	
United Kingdom Fal	Iklands/Malvinas	NW Passage Island																						No						
United Kingdom Fal	Iklands/Malvinas	Pebble Island																						No						
United Kingdom Fal	Iklands/Malvinas	Penn Island																						No						
United Kingdom Fal	Iklands/Malvinas	Saunders											No																	
United Kingdom Fal	Iklands/Malvinas	Sandy Cay																						No						
United Kingdom Fal	Iklands/Malvinas	Sea Lion Island																						No						
United Kingdom Fal	Iklands/Malvinas	South Jason											No																	
United Kingdom Fal	Iklands/Malvinas	Steeple Jason											No											No						
United Kingdom Fal	Iklands/Malvinas	Swan Island																						No						
United Kingdom Fal	Iklands/Malvinas	Third Passage Island																						No						
United Kingdom Fal	Iklands/Malvinas	West Point											No																\square	

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	D. amsterdamensis	P. fusca	P. palpebrata	T. chrysostoma	T. melanophrys	T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
United Kingdom	Falklands/Malvinas	West Island																						No						
United Kingdom	East Falkland	Black Rincon																						No						
United Kingdom		Cape Dolphin																						No						
United Kingdom	East Falkland	Driftwood Point																						No						
United Kingdom	East Falkland	False Bull Point																						No						
United Kingdom	East Falkland	Fanny Point																						No						
United Kingdom	East Falkland	Rincon Grande																						No						
United Kingdom	East Falkland	Motley Point																						No						
United Kingdom	East Falkland	Mutiny Point																						No					\square	
United Kingdom	East Falkland	Phillip's Point																						No						
United Kingdom	West Falkland	Rookery Point																						No						
United Kingdom	East Falkland	Smylie's Rincon																						No						
United Kingdom	South Georgia	South Georgia Group	Yes								Yes	Yes	Yes											Yes	Yes	Yes				
United Kingdom	South Georgia	Albatross	No																											
United Kingdom	South Georgia	Bird	No								No	No	No											No	No	No				
United Kingdom		Prion	No																											
United Kingdom	South Georgia	South Georgia Elsehul GHA40										Yes																		
United Kingdom		South Sandwich Islands Group																						Yes						
United Kingdom	Tristan da Cunha	Tristan da Cunha Group																									No			No
United Kingdom	Tristan da Cunha	Gough, Goney Dale		Yes						No											No			No						
United Kingdom	Tristan da Cunha	Inaccessible		No						No											No						No			
United Kingdom	Tristan da Cunha	Gough																												No
United Kingdom	Tristan da Cunha	Middle																			No									
United Kingdom	Tristan da Cunha	Nightingale								No											No									

Jurisdiction	Island Group	Island	D. exulans	D. dabbenena	D. antipodensis	D. gibsoni	D. sandfordi	D. epomophora	. an	P. fusca	P. palpebrata	T. chrysostoma	T. melanophrys	T. impavida	T. bulleri	T. nov. sp.	T. cauta	T. steadi	T. salvini	T. eremita	T. chlororhynchos	T. carteri	P. irrorata	M. giganteus	M. halli	P. aequinoctialis	P. conspicullata	P. parkinsoni	P. westlandica	P. cinerea
United Kingdom	Tristan da Cunha	Stoltenhoff								No											No									
United Kingdom	Tristan da Cunha	Tristan da Cunha																			No									