Information Sheet on Ramsar Wetlands (RIS) – 2006-2008 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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1. Name and address of the compiler of this form:

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DD MM YY

Designation date | Site Reference Number

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2. Date this sheet was completed/updated:

30 November 2006

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3. Country:

SOUTH AFRICA

4. Name of the Ramsar site:
The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

PRINCE EDWARD ISLANDS

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only)**:**
a) Designation of a new Ramsar site ☑; or
b) Updated information on an existing Ramsar site ❑

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: ❑

or
If the site boundary has changed:
i) the boundary has been delineated more accurately ❑; or
ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

If the site area has changed:
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:
i**) a hard copy** (required for inclusion of site in the Ramsar List): ☑✓;

ii**) an electronic format** (e.g. a JPEG or ArcView image) ❑×;

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ❑×.

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The two islands, Marion and Prince Edward, that together form the Prince Edward Island group, are designated in their entirety. The boundaries of the site are placed 500 m seawards of low water mark around each island's coastline so as to encompass the inshore kelp beds which extend up to this distance offshore.

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8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Marion Island: 46° 54'S, 37° 45'E
Prince Edward Island: 46° 38'S, 37° 57'E

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9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Southern Indian Ocean, *c*. 2180 km south-east of Cape Town, Western Cape Province. South Africa and *c*. 2300 km north of the Antarctic Continent. The French sub-Antarctic Crozet Islands are the nearest land, *c*. 950 km to the east.

The only habitation is the meteorological station at Transvaal Cove on the south-eastern coast of Marion Island, as well as seven four-person field huts distributed around the island's coast (with one in the mountainous interior). There are no permanent structures on Prince Edward Island. The station on Marion Island is currently being replaced by a new suite of buildings.

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10. Elevation: (in metres: average and/or maximum & minimum)

Marion Island. Maximum elevation: 1230 m a.s.l.
Prince Edward Island. Maximum elevation: 672 a.s.l.

11. Area: (in hectares)

Marion Island: 29 000 ha
Prince Edward Island: 4500 ha
Inshore kelp beds: *c*. 4000 ha

Approximate total area of the Ramsar site: **37 500 ha**

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12. General overview of the site:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Prince Edward Islands comprise two islands, the larger Marion and the smaller Prince Edward, and a few offshore rocks and stacks. Biogeographically, the islands are classified as sub-Antarctic, by, *inter alia*, the absence of woody plants. The islands are volcanic in origin and exposed lava flows and scoria cones are noticeable features. Three major terrestrial habitats exist:

1. unvegetated upland (Marion Island only),
2. well-drained vegetated slopes, and

3. poorly-drained vegetated coastal plains.

The islands support large numbers of breeding seabirds and seals. The most significant wetland is non-forested peatland (much of which made up of swamps and bogs) on the coastal plains, which support numerous breeding seabirds, notably Wandering Albatrosses *Diomedea exulans*, giant petrels *Macronectes* spp., burrowing petrels (Procellariidae) of a number of species, and fur seals *Arctocephalus* spp. Intermittent streams with waterfalls and numerous small fresh-water ponds are present, especially on Marion Island. Some scoria cones contain small crater lakes. Kelp beds border both islands which have rocky marine shores with sea cliffs and offshore rocky stacks. A few sand shores are comprised of black volcanic sand.

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13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1	2	3	4	5	6	7	8	9
☑	☑	☑	☑	☑	☑	❑	❑	❑

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14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1

There are few sub-Antarctic islands, with a total area that is dwarfed by the Southern Ocean in which they occur. They support a form of peatland that is restricted to the sub-Antarctic biogeographical region, with a high level of endemicity of plants. These peatlands, with the exception of a few species of introduced plants, are unaltered by past or current human activities - such as farming, mining or construction. The Prince Edward Islands support a representative example of sub-Antarctic non-forested peatlands in near-pristine condition, especially on Prince Edward Island, where only three species of alien plants have been recorded.

Criterion 2

The Prince Edward Islands support a number of IUCN-threatened species of breeding seabirds as set out below:

Gentoo Penguin *Pygoscelis papua*, Lower Risk/Near Threatened
Rockhopper Penguin *Eudyptes chrysocome*, Vulnerable
Macaroni Penguin *E. chrysolophus*, Vulnerable
Wandering Albatross *Diomedea exulans*, Vulnerable
Grey-headed Albatross *Thalassarche chrysostoma*, Vulnerable
Indian Yellow-nosed Albatross *T. carteri*, Endangered
Sooty Albatross *Phoebetria fusca*, Endangered
Light-mantled Albatross *P. palpebrata*, Lower Risk/Near Threatened
Southern Giant Petrel *Macronectes giganteus*, Vulnerable
Northern Giant Petrel *M. halli*, Lower risk/Near threatened
White-chinned Petrel *Procellaria aequinoctialis*, Vulnerable
Grey Petrel *P. cinerea*, Lower Risk/Near threatened

Criterion 3

The peatlands of the coastal plains of the Prince Edward Islands are maintained by organic fertilization from avian and marine mammal products, most especially guano from seabirds, but also moulted feathers and fur, egg shells and from corpses of adults and young. Burrowing petrels, especially Blue Petrels *Halobaena caerulea*, support lush growths of tussock grass *Poa cookii*., as do Wandering Albatrosses *Diomedea exulans* and Southern Giant Petrels *Macronectes giganteus* on the boggy plains. On vegetated slopes burrowing petrels of the genera *Procellaria* and *Pterodroma* and *Pachyptila* manure the vegetation and aerate the peat.

The kelp beds surrounding the islands calm wave action and support a rich benthic flora and fauna that include many species endemic to the biogeographical region. Noteworthy species include nototheniid fish (such as juveniles of the Patagonian Toothfish *Dissostichus eleginoides* which is fished commercially in the islands' Exclusive Economic Zone (but not within territorial waters which are currently a non-fishing zone proposed for inclusion within a Marine Protected Area)) and the benthic shrimp *Nauticaris marionis*, which is important in the diets of the inshore-foraging Gentoo Penguin *Pygoscelis papua* and the Crozet Cormorant *Phalacrocorax [atriceps] melanogenis.*

Criterion 4

The coastal peatlands of the Prince Edward Islands support seabirds and marine mammals during their breeding and (for penguins and seals) moulting periods and thus offers an essential refuge to these species. Species utilizing this habitat include Wandering Albatrosses (the Prince Edward Islands support a large proportion (44%; see Annex 1) of the species' global population), two species of giant petrels *Macronectes* spp., the Gentoo Penguin, a suite of burrowing petrels and two species of fur seal, the Subantarctic *Arctocephalus tropicalis* and the Antarctic *A. gazella*. The three other species of penguins that occur at the islands breed and moult on rocky areas along the coastline immediately adjacent to the coastal peatlands. Names of these penguins are given in Annex 1.

Criterion 5

The Prince Edward Islands support several million waterbirds. These include 1.4 million penguins of four species and 45 000 albatrosses of five species (annual breeding adults, see Table in Criterion 6 below and Annex 1). Seven other species of surface-nesting seabirds number about 5000 breeding adults. In addition, populations of burrowing petrels, although not clearly known, number in the tens if not hundreds of thousands for some species.

Criterion 6

Thirteen of the 16 taxa of surface-nesting seabirds breeding at the Prince Edward Islands have populations that exceed 1% of their global populations at either the specific or subspecific level (see table below and Annex 1). Because nearly all the taxa are endemic to the sub-Antarctic region, these percentages may be regarded as applying to the biogeographical population as well. It is most likely that populations of burrow-nesting seabirds also exceed the 1% biogeographical and/or global levels for most species, but accurate census information is lacking to be certain.

Table 1: Seabirds breeding in the Prince Edward Islands with populations greater than 1% of the global populations

Taxon	Population (annual breeding pairs)	Percentage of global population
King Penguin *Aptenodytes patagonicus*	221 000	13.4
Macaroni Penguin *Eudyptes chrysolophus*	372 000	4.1
Eastern Rockhopper Penguin *E. c. filholi*	112 000	16.8
Wandering Albatross *Diomedea exulans*	3719	43.8
Grey-headed Albatross *Thalassarche chrysostoma*	9229	10.0
Indian Yellow-nosed Albatross *T. carteri*	7500	20.5
Sooty Albatross *Phoebetria fusca*	1564	10.0
Light-mantled Albatross *P. palpebrata*	329	1.5
Southern Giant Petrel *Macronectes giganteus*	2830	9.1
Northern Giant Petrel *M. halli*	595	5.2
Crozet Cormorant *Phalacrocorax [atriceps] melanogenis*	394	32.8
Subantarctic Skua *Catharacta antarctica*	796	10.6
Kerguelen Tern *Sterna virgata*	60	3.0

Data source: Crawford, R.J.M. & Cooper, J. 2003. Conserving surface-nesting seabirds at the Prince Edward Islands: the roles of research, monitoring and legislation. *African Journal of Marine Science* 25: 415-426 (and references therein). Counts are from the 2001/02 breeding season (see Annex 1).

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):
Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Kerguelen Province, Sub-Antarctic Realm

b) biogeographic regionalisation scheme (include reference citation):

Udvardy, M.D.F. 1975. A classification of the biogeographical provinces of the World. *IUCN Occasional Paper* No. 18. 48 pp.

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16. Physical features of the site:
Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The Prince Edward Islands comprise two islands, the larger Marion and the smaller Prince Edward, and a few offshore rocks and stacks. The site includes the surrounding kelp beds out to 500 m offshore from low-water mark.

Geology and Geomorphology: The islands are volcanic in origin and exposed lava flows and scoria cones are noticeable features. They are considered to be at last 500 000 years old. Marion Island has been subjected to three glacial episodes in the last 300 000 years. Marion

has a small central ice sheet which is currently shrinking due to global warming. Minor volcanic eruptions occurred on Marion Island in 1980 and 2004. Two stages of past volcanic activity are discernable: older, smoother "grey lavas", often vegetated and showing signs of glaciation and the more recent "black lavas" which are unglaciated and have an uneven topography, associated with many red scoria cones with crater lakes.

Soil type: Soils are immature with poorly developed horizons. They are heavily mineralized and contain little organic material.

Hydrology: Both islands support mainly intermittent-flowing streams (with small waterfalls as features on the larger streams), small ponds, crater lakes and extensive swampy peatlands on their coastal plains. The surrounding sea is described as Sub-Antarctic Surface Water with a temperature range of 3-7°C, which shows signs of increase due to global warming.

Climate: Meteorological data exist for Marion Island continuously since 1948. Average annual air temperature is low at 5°C with small diel and annual variations. Precipitation is high (>2500 mm/year), but has lessened in recent years, thought due to global warming. There are high levels of cloudiness and relative humidity. Strong, predominantly westerly winds prevail. Snow and sleet may fall at any time of year but snow does not accumulate on the coastal plain throughout the winter, being associated with passing low-pressure weather fronts.

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17. Physical features of the catchment area:
Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

Catchment physical features are described above. Because of small size of islands, catchments are small, leading to intermittent streams, which rise in spate rapidly, and equally rapidly subside. Only one river (Soft Plume) on Marion Island is perennial, although a second (Van den Boogaard) only rarely stops flowing at the surface (but probably always has some sub-surface flow). Prince Edward Island is little known but all its streams are thought to be non-perennial, as they have even smaller catchments.

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18. Hydrological values:
Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Sub-Antarctic ecosystems are maintained by copious supplies of fresh water which maintain the extensive swampy peatlands by replenishing groundwater and supporting the lush and continuous vegetation growth.

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19. Wetland Types

a) presence:
Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines.*

Marine/coastal: **A** • **B** • **C** • **D** • **E** • **F** • **G** • **H** • **I** • **J** • **K** • **Zk(a)**

Inland: **L** • **M** • **N** • **O** • **P** • **Q** • **R** • **Sp** • **Ss** • **Tp** **Ts** • **U** • **Va** • **Vt** • **W** • **Xf** • **Xp** • **Y** • **Zg** • **Zk(b)**

Human-made: **1** • **2** • **3** • **4** • **5** • **6** • **7** • **8** • **9** • **Zk(c)**

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

U, B, N, Tp, D, A, E, M, 2

Note: Accurate measurements of the areas of the various wetland types identified are not available.

The vegetated coastal plains and lower slopes (<200 m a.s.l.; dominated by Wetland Type U, Non-forested Peatlands, by far the largest wetland type) cover 138 km² (47.5%) of Marion Island, and about two-thirds of lower-lying Prince Edward Island. The many small lakes (Wetland Type Tp, Permanent Freshwater Pools) mainly found on the coastal plains on both islands, inland "lava lakes" and crater lakes within scoria cones rarely exceed one or two ha in area and nearly all are under 5 ha. The largest, Prinsloo Meer on Marion Island, is about 10 ha in area (largest dimensions *c.* 300 x 400 m). In total, lakes and ponds do not exceed 100 ha in area for both islands combined. Streams are narrow (up to only a few metres wide even when is spate) and are up to 7 km long on Marion Island (but most do not exceed 5 km in length) and up to 2 km in length on Prince Edward Island.

Both islands are surrounded by extensive Marine Subtidal Beds, Wetland Type B (kelp beds – *Durvillea antarctica*) extending a few hundred metres offshore (estimated area of the two 500-m island fringes included within the site: 4000 ha). Nearly all of the islands' coastlines can be classified as Rocky Marine Shores (Wetland Type D), with a few, short (<500 m) volcanic Sand Shores (Wetland Type E) occurring on both islands.

The only human-made wetland (Pond, Wetland Type 2) is a very small pond behind a small concrete dam wall on the van den Boogaard River on Marion Island, with a surface area estimated (not accurately measured) as less than 250 m². No artificial water bodies exist on Prince Edward Island.

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20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Essentially, the terrestrial components of the Prince Edward Islands consist of two habitat types: vegetated areas (coastal plains and slopes) and unvegetated areas (uplands and scoria cones, most noticeable on Marion Island).

A comprehensive vegetation study of Marion Island has identified 41 plant communities. These may be grouped into six "community complexes", based on species composition and structural and ecological considerations. These six communities are found on both islands.

1. Salt-spray complex. Occurs close to the coastline in areas affected by wind-blown sea spray. Characterized by the herbs *Crassula moschata* and *Cotula plumosa*.
2. Biotic complex. Caused by manuring and trampling by animals, especially fur and Southern Elephant *Mirounga leonina* seals, penguins and some species of burrowing petrels. Characterized by *Callitriche antarctica* and tussock grass *Poa cookii*. Found close to the coast on relatively flat areas but also on steep slopes where Blue Petrels *Halobaena caerulea* burrow at high density.
3. Lowland slope complex. Characterized by relatively well-drained soils and dominated by the rosaceous plant *Aceana magellanica*.

4. Mire and bog complex. Occurs on swampy peatlands at low altitude, characterized by sedges (*Juncus scheuchzerioides*), grasses and bryophytes.
5. Fernbrake complex. Dominated by the fern *Blechnum penna-marina*, often in monospecific stands. Found on well-drained slopes which often support large numbers of burrowing petrels.
6. Feldmark complex. Made up of lichens, bryophytes and the cushion-forming *Azorella selago*. It is the dominant vegetation above 300 m, but occurs at lower levels in exposed wind-swept areas such grey lava ridges covered by large boulders with little soil.

Low-lying ponds support little vegetation.

There are no (and never have been) areas of cultivation on either island. However, a few invasive alien plants have affected the species composition and appearance of several lowland habitats, most noticeably on Marion Island.

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21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Noteworthy plants include the Kerguelen Cabbage *Pringlea antiscorbutica*, endemic to the Kerguelen sub-Province and famed for its use by 19th century sealers to avoid scurvy. No vascular plants are endemic to the Prince Edward Islands, but a few endemic bryophytes and lichens have been identified.

Floristically, the islands are species-poor (only 24 species of native vascular plants), although there are more species of non-vascular plants (mosses: 72 species, liverworts: 35, lichens: *c.* 100). Because there are no woody plants, trees and shrubs do not occur: a defining biogeographical feature of the sub-Antarctic islands.

Twelve alien introduced vascular plants have become naturalized on the islands (but only three on Prince Edward Island). These notably include the grass *Agrostis stolonifera*, which has spread along most stream valleys in the eastern side of Marion Island, the Procumbent Pearlwort *Sagina procumbens*, which can form monotypic stands in suitable areas, and the near-ubiquitous grass *Poa annua*, which occurs in disturbed and well-manured areas, such as around albatross nests and on along paths and around areas utilized by penguins and seals. The other introduced plants have more restricted occurrences. New species of alien plants continue to be discovered on Marion Island, and eradication programmes for some of them are underway or are planned.

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22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

The Prince Edward Islands support often large populations of 28 species of seabirds (see Section 14 above and Annex 1) and of three species of seals (Southern Elephant Seal and

Sub-Antarctic and Antarctic Fur Seals). The huge colonies (up to 100 000 pairs) of Macaroni *Eudyptes chrysolophus* and King *Aptenodytes patagonicus* Penguins that breed *en masse* at Bullard Beach and Kildalkey Bay on Marion Island are particularly noteworthy, as are the large numbers and high densities of Wandering Albatrosses breeding in Albatross Valley on Prince Edward Island.

Killer whales *Orca orca* are regular visitors to the kelp beds surrounding the islands, where they hunt seals and penguins, and several other cetacean species occur within territorial waters, notably pilot whales *Globicephala* sp.

Invertebrate populations, including insects, weevils and mites, are mainly restricted to vegetated areas, although invertebrates of the "epilithic biotype" are found away from habitats supporting vascular plants and ferns. Highest densities of invertebrates are found in manured habitats among the low-lying peatland of the coastal plains (see Section 20). Few invertebrates (and no vertebrates) are found in rivers and ponds. Higher densities of some species of invertebrates occur on Prince Edward Island, which is free of the introduced House Mice *Mus musculus*, which is largely insectivorous at Marion Island.

Several species of animals have been inadvertently or deliberately introduced to the islands. Feral cats *Felis catus* killed many thousands of burrowing petrels annually on Marion Island until they were eradicated after a long campaign in 1992. House Mice still occur on Marion Island, where they are thought to have a serious effect on invertebrates and vegetation, and indirectly on the Lesser Sheathbill *Chionis minor marionis*, an endemic subspecies, whose numbers have decreased on Marion Island, but not on mouse-free Prince Edward Island.

A number of introduced invertebrates has been recorded, including insects, spiders, an earthworm and a slug. Most records are for Marion Island. Prince Edward Island is relatively free of introduced invertebrates, although it is far less studied in this regard.

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23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The Prince Edward Islands, as protected natural habitats, do not support any consumptive or exploitative activities. Commercial tourism is not allowed, and has never taken place. A small amount of water is extracted from the artificial pond on the Van den Boogaard River to service the meteorological station at Transvaal Cove on Marion Island. Commercial fishing is not permitted within territorial waters (out to 12 nautical miles) surrounding the islands as a conservation measure to protect seabirds from incidental mortality from longlining.

A few archaeological sites, mainly remnants of camps and field huts with associated sealing equipment, notably trypots, exist from the sealing era in the 19th and early 20th centuries on both islands. One known and two possible sealers' grave sites on Marion Island remain largely unstudied and as yet no detailed archaeological study has been undertaken on either island. Sites on Prince Edward Island are in a less disturbed state than at Marion Island, where "souveniring" has taken place in the past (but is no longer allowed).
The main activities at the Prince Edward Islands since their annexation by South Africa in 1948 have been meteorological observations, scientific research and the logistic support of

such research and conservation management activities. Most activities take place on Marion Island (which has been continuously manned since 1948). Prince Edward Island has no station or field huts and is only rarely visited by small camping parties of scientists at no less than yearly intervals.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box ❑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:

a) within the Ramsar site:

The Prince Edward Islands are a wholly state-owned Special Nature Reserve in terms of the National Environmental Management: Protected Areas Act No. 57 of 2003. The Special Nature Reserve extends to low-water mark and includes all terrestrial parts of the island group. The annexation of the islands by South Africa in 1948 was formally incorporated into national law by the Prince Edward Islands Act of 1948.

b) in the surrounding area:

The surrounding territorial waters (out to 12 nautical miles) are state-owned. South Africa also claims a 200-nautical mile Exclusive Economic Zone (EEZ) around the islands in terms of the Maritime Zones Act of 1994.

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25. Current land (including water) use:

a) within the Ramsar site:

See information on land use given in Section 23 above. Marion Island is zoned in terms of the islands' 1996 management plan (about to be replaced by a new plan with similar zoning) , with all but a small logistic zone surrounding the station restricted to research activities only. All of Prince Edward is zoned at the most protected level, with entry only allowed under special permit for research activities that cannot be undertaken at Marion Island.

The human population of Marion Island is a transient one, with a permanently manned meteorological station supporting from 12 to 80 personnel. Numbers peak during the annual relief voyage in April, when scientists and maintenance teams arrive at the island for a stay lasting from three to four weeks. Currently, construction crews of 25-40 personnel are present for some months of the year engaged in constructing a new meteorological/research station at Transvaal Cove over a five-year period (2003-2007).

Prince Edward Island has no permanent population and humans are only very occasionally present for periods of up to six days once a year in terms of the islands' current management plan (see Section 23 above).

b) in the surroundings/catchment:

The surrounding waters of the Prince Edward Islands are visited by the government relief vessel at least once a year, occasionally by ocean-going yachts, naval and fisheries patrol vessels and by both legal and illegal fishing vessels. Legal fishing vessels may not fish within 12 nautical miles (equal to territorial waters) of the islands. There are no landing facilities for ocean-going vessels at either island. Landings (by small boar of by helicopter) are only allowed under permit. Small-boat landings are restricted to Transvaal Cove on Marion Island and to Cave Bay on Prince Edward Island.

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26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Air and sea temperature rises and reduced precipitation caused by global warming are subtly altering the islands, although the effects are ongoing and are not yet completely studied. A certain amount of drying out of peatland is likely to lead to changes in the vegetation and invertebrate populations, both in terms of numbers/biomass and species composition. Changes in oceanic regimes affecting prey availability close to the islands, again caused by climate change, are thought to have caused a reduction in numbers of some species of inshore-foraging seabirds, especially Gentoo and Eastern Rockhopper *Eudyptes c. filholi* Penguins and the Crozet Cormorant.

Introduced alien flora and fauna have caused, and continue to cause for some species, deleterious effects on both islands, especially Marion Island (see Sections 21 and 22 above). House Mice have been present on Marion Island since the early 19th century, when they were inadvertently introduced by sealers. Their numbers have increased in recent years, probably in response to global warming effects ameliorating the local climate, in turn leading to improved winter survival. Most introduced plants and invertebrates arrived after annexation in 1948, many assumed with fodder and bedding imported for domestic stock (primarily chickens and sheep – no longer present). New species of invertebrates and plants continue to be recorded at Marion Island despite the ever-increasing stringency of quarantine measures imposed. It is thought that the warmer and dryer climate at the islands is exacerbating this, by making it more likely that aliens will become established ashore.

b) in the surrounding area:

Illegal, Unreported and Unregulated (IUU) fishing for Patagonian Toothfish in the waters surrounding the islands since the late 1990s has both reduced the fish stocks and caused high levels of incidental mortality of seabirds, especially of mollymawk albatrosses *Thalassarche* spp, giant petrels and White-chinned Petrels *Procellaria aequinoctialis*. Levels of IUU fishing appear to have declined in recent years, no doubt due to overfishing making it less economic.

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27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The Prince Edward Islands (complete terrestrial area, see Section 11 above to the low-water mark on each island) were proclaimed a Special Nature Reserve on 3 November 1995. In terms of the current enabling legislation, the National Environmental Management: Protected Areas Act No. 5 of 2003, a special nature reserve is the highest level of protection that can be promulgated in South Africa. Commercial tourism is not allowed within a special nature reserve, as entry is permitted only for scientific and environmental management research, educational purposes (such as nature filming) and logistic activities in their support.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ❑;Ib ❑; II ❑; III ❑; IV ❑; V ❑; VI ❑

c) Does an officially approved management plan exist; and is it being implemented?

Yes;
The islands have a management plan, formally adopted in 1996. This plan was revised during 2005/06 and is currently awaiting formal adoption. In terms of the 1996 management plan the islands are zoned for activities (see Section 25 above). Permits to enter and conduct research and logistic activities in the various zones are issued by the Department of Environmental Affairs & Tourism, acting on the advice of its Prince Edward Islands Management Committee (PEIMC). This committee is made up of specialist scientists, conservationists and logisticians appointed for two-year terms. The PEIMC offers advice on all matters pertaining to the conservation management of the islands, including being responsible for the revision of the management plan.

d) Describe any other current management practices:

The seabird and seals of the Prince Edward Islands are formally protected by the Sea Birds and Seals Protection Act of 1973. This act protects listed taxa from wilful disturbance, killing and capture without permit and specifically lists the Prince Edward Islands as areas that may not be entered without permit. This Act is in the process of being replaced by a new Act, currently in draft form (see Section 28 below).

South Africa is a founding Party to the Agreement on the Conservation of Albatrosses and Petrels (ACAP), which came into force in early 2004. In terms of ACAP, South Africa conducts research and management and monitoring activities required to conserve its populations of ACAP-listed species (albatrosses and larger petrels of the genera *Macronectes* and *Procellaria*, nine of which breed at the Prince Edward Islands (see Section 14 above for species' names).

Commercial fishing around the islands within the EEZ is permitted in terms of the Marine Living Resources Act of 1998. Conservation measures adopted to reduce seabird mortality from longline fishing by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), of which South Africa is a member, are largely followed. Naval, and from 2005 a new ocean-going fisheries patrol vessel, visit the waters around the Prince Edward Islands at irregular intervals, with a view to deterring IUU fishing.

The South African Minister of Environmental Affairs & Tourism has announced his intention of declaring a large Marine Protected Area around the Prince Edward Islands. The proposed design of this MPA includes all of the territorial waters as a strictly protected zone, and large parts of the EEZ (see Section 28 below).

Archaeological sites (including ship wrecks) are protected both by the islands' management plan (zoned as no entry without special permit) and in terms of the National Heritage Resources Act of 1999.

Over the last five years much effort has been put into clearing sites (e.g. of old field huts) on Marion Island of rubble and redundant structures. An estimated 20 tonnes of assorted materials (e.g. stone chips, concrete blocks, metal and plastic piping, asbestos sheeting, redundant aerials, roofing materials, etc.) have been removed from the island to continental South Africa in this way. Treatment of wastes generated at the meteorological station and field huts means that all except biodegradable human and kitchen wastes and burnable paper, cardboard and wood are removed from the island and returned to South Africa for recycling or disposal at registered waste-treatment sites. This also applies to waste materials generated by the new building operations. Waste materials removed are made mainly of glass, metals and plastic, but include waste photographic and scientific chemicals, batteries and used lubricating and cooking oils.

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28. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

The islands' management plan has been completely revised, with the new version waiting formal adoption by the government (see Section 27 above).

The Sea Birds and Seals Protection Act is to be replaced by a new act, following the development of a national policy for seals, seabirds and shorebirds in 2003. This policy was published in the Government Gazette for public comment in 2004. The new act is in draft form and remains under consideration by the government.

The territorial and EEZ waters surrounding the Prince Edward Islands are covered by the Marine Living Resources Act No. 18 of 1998, which makes allowance for the declaration of Marine Protected Areas (MPAs). The Minister of Environmental Affairs & Tourism announced publicly in 2004 his intention to declare a large MPA around the Prince Edward Islands, expected to include both territorial waters and parts of the EEZ. This will result in the creation of one of the World's largest MPAs. An extension of the no-fishing zone from eight to 12 nautical miles (limit of territorial waters) has already taken place as a first step in declaring an MPA. Reviews of the characteristics and biota of both territorial waters and the EEZ have been undertaken, along with recommended conservation measures, to support the declaration of an MPA. A public consultation process, which included several stakeholder meetings, has been undertaken, to decide on the exact boundaries and zonation of the proposed MPA.

South Africa nominated the Prince Edward Islands, including all of their surrounding territorial waters out to 12 nautical miles, as a Natural Site to the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention; WHC) in January 2006. The nomination document has been revised and expanded following initial comment received from the UNESCO World Heritage Centre in March 2006. An evaluation

mission was carried out on site by a World Conservation Union (IUCN)-appointed expert in November 2006. IUCN has also called for confidential reports from international experts on the nomination to form part of its evaluation process on behalf of the UNESCO World Heritage Committee. A decision by the World Heritage Committee on the nomination will follow the presentation of the IUCN World Heritage Panel's final evaluation report in June 2007.

In terms of the National Environmental Management Biodiversity Act No. 10 of 2004, species may be listed as "threatened or in need of national protection". The PEIMC has given consideration to which species of flora and fauna occurring at the Prince Edward Islands might fall within, and benefit by, this status, with a view to recommending them for listing within the Act.

South Africa has drafted its National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (NPOA-Seabirds) in terms of guidelines set out by the Committee on Fisheries of the Food and Agriculture Organization of the United Nations (FAO), which has as its ultimate aim the reduction of seabird mortality from longlining around the Prince Edward Islands to zero. The NPOA-Seabirds is currently awaiting departmental and parliamentary approval before being formally adopted.

Actions are being taken both to reduce the risks of new alien species arriving at the islands (by the adoption of strict quarantine measures at home port, aboard vessels and at the islands) and by initiating eradication programme ashore. Currently efforts are being made to eradicate three invasive plant species on Marion Island and a literature review and a feasibility study for the eradication of the House Mouse are being undertaken in 2006/07. In the past several species have been eradicated from Marion Island by active management, including the domestic cat, two species of trout *Salmo* spp. and several plant species. Domestic stock (such as sheep and poultry) are no longer kept at the islands.

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29. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

The main activity that is undertaken at the Prince Edward Islands is scientific research (see selected bibliographical references in Section 34 below). This is taken here as including daily meteorological observations made for weather forecasting and monitoring of trends in flora and fauna for conservation management purposes and to fulfil the requirements of international bodies to which South Africa belongs (e.g. ACAP, CCAMLR and the Scientific Committee on Antarctic Research).

Currently research takes place on geophysical and biological aspects of the islands, as well as physical, chemical and biological oceanographic research conducted in the surrounding waters. Long-standing programmes address aspects of the ecology and physiology of marine mammals (especially seals), birds, invertebrates and plants. More applied programmes address the roles of introduced species, including house mice, invertebrates and plants, and on aspects relating to human disturbance and pollution. Geophysical studies have included vulcanology, geology and geomorphology.

Long-term monitoring of bird and seals is undertaken on behalf of ACAP and CCAMLR and is reported to those international bodies on an annual basis.

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30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

From time to time, film crew and reporters accompany relief voyages to the Prince Edward Islands to produce films for TV and video and for articles in the daily press and in popular magazines. Several such products are listed in a bibliography by Hänel & Chown (1999). An introductory guide to the islands for the benefit of visitors has been produced by the same authors (see Section 34 below) and is made available aboard the relief ship and at the meteorological station.

Since commercial tourism is not allowed, there are no visitors' facilities ashore, such as observation hides and interpretative centres. However, a small on-site museum is planned for inclusion in the new meteorological station, currently being built. Additionally, the South African Maritime Museum in Cape Town serves as a repository for historical and archaeological materials about and previously removed from the islands. Currently, there is no South African museum dedicated to the islands, or that contains a display about them. This may change as plans exist for an "Antarctic Centre" in Cape Town that would include coverage of the Prince Edward Islands. Information on the islands may be found on several web sites, but so far there is none specifically dedicated to them.

Research conducted at the islands regularly results in scientists earning higher degrees from South African universities.

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31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

No land-based commercial tourism takes place or is allowed (see Section 25 above). Ship-based scientists, officers and crew on the government relief vessel are from time to time taken on guided tours during daylight hours by island-based personnel within Zone 2 (Natural Zone) on Marion Island only during relief voyages. Party size is restricted to small numbers (not usually more than 12) and all conservation guidelines as set out in the islands' management plan are followed. These visits usually take place in April each year, and numbers going ashore do not normally exceed 25-30 persons a year. This practice is set to halt in terms of the new management plan in order to reduce non-essential visits.

Non-scientific personnel based on Marion Island for year-long periods are allowed to undertake recreational trips within the Wilderness Zone (Zone 3) and overnight in the field huts erected to facilitate scientific research. Such excursions are controlled by permit and are logged by a Conservation Officer based on the island for a year. Party size does not exceed four persons (capacity of the field huts), and the number of field days spent in the Wilderness Zone by non-scientists does not exceed 100 a year.

Because Prince Edward Island is a Special Entry Area (Protected Zone 4) no recreational visits are allowed and none take place.

Non-government vessels, such as yachts and fishing boats, are not accorded landing rights except under *force majeure* situations. On one occasion in the past the government relief vessel was hired by a commercial enterprise to undertake a bird-watching cruise in the Southern Ocean. Permission was given to enter the islands' territorial waters, but not to undertake landings.

There are no visitor facilities at the meteorological station on Marion Island.

32. Jurisdiction:
Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

For purposes of administering justice and general application of South African law, the islands are deemed to be part of the Magisterial District of Cape Town, which falls within the Western Cape Province of South Africa.

Functional jurisdiction is held by the Department of Environmental Affairs & Tourism (DEAT) through its Directorate: Antarctica and Islands (terrestrial area) and Branch: Marine and Coastal Management (marine area), as vested by the DEAT's Director-General acting on behalf of the Minister of Environmental Affairs & Tourism (see Section 33 below for full address).

33. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Chair
Prince Edward Islands Management Committee
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Note: The PEIMC is currently chaired by Mr Valentine, who is also designated as Manager of the South African National Antarctic Programme. A new management structure will be set up in terms of the new management plan that will include a management body with more powers and authority.

34. Bibliographical references:
Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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ANNEX 1

Table I: Estimates of the population (pairs) of surface-nesting seabirds at Marion Island and Prince Edward Island in 2001/02 and their contribution to the world populations of these species. Information for Marion Island from Crawford *et al.* (2003d) and Prince Edward Island from Ryan *et al.* (2003a). For king penguins at Marion Island the estimate is the mid point between lower (Crawford *et al.* 2003d) and upper (van Heezik *et al.* 1995) estimates of overall numbers breeding at the island. For albatrosses the annual breeding population is indicated. For terns at Marion Island the estimates are the mean numbers reported breeding between 1996/97 and 2002/03 (excluding 1997/98 for Kerguelen tern). The international (BirdLife International 2000) and South African (Barnes 2000) classifications of conservation status are indicated, as well as the trend over the most recent decade (1992/93–2002/03): D – decreasing; I – increasing; S – stable

Species	Population (pairs)			World annual breeding population	Source	Proportion of world population	Status BirdLife International	Status South Africa	Trend 1992/93 to 2002/03
	Marion Island	Prince Edward Island	Combined breeding population						
King penguin	218 000	3 000	221 000	1 650 000	a	0.13			S/I
Gentoo penguin	844	475	1 319	317 000	a	<0.01	Near Threatened	Near Threatened	D
Macaroni penguin	363 000	9 000	372 000	9 000 000	a	0.04	Vulnerable	Near Threatened	D
Eastern rockhopper penguin	67 000	45 000	112 000	665 000	a	0.17	Vulnerable	Near Threatened	D
Wandering albatross	1 869	1 850	3 719	8 500	b	0.44	Vulnerable	Vulnerable	S
Grey-headed albatross	6 229	3 000	9 229	92 300	b	0.10	Vulnerable	Vulnerable	S
Indian yellow-nosed albatross	0	7 500	7 500	36 500	b	0.21	Vulnerable	Vulnerable	S
Dark-mantled sooty albatross	564	1 000	1 564	15 655	b	0.10	Vulnerable	Near Threatened	D
Light-mantled sooty albatross	179	150	329	21 600	b	0.02	Near Threatened	Near Threatened	D
Northern giant petrel	295	300	595	11 500	c	0.05	Near Threatened	Near Threatened	S/D
Southern giant petrel	1 430	1 400	2 830	31 000	c	0.09	Vulnerable	Near Threatened	D
Crozet shag	344	50	394	1 200	d	0.33		Vulnerable	D
Subantarctic skua	546	250	796	7 500	e	0.11			D
Kelp gull	24	30	54	>1 000 000	e	<0.01			D
Antarctic tern	6	<5	<15	42 000	e	<0.01			S/D
Kerguelen tern	19	<5	ca 60	2 000	e	0.03	Near Threatened	Endangered	S

a = Ellis *et al.* (1998) modified for Prince Edward Islands
b = Gales (1998)
c = BirdLife International (2000)
d = Jouventin *et al.* (1984), Crawford *et al.* (2003e)
e = Higgins and Davies (1996), Delany and Scott (2002)

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