



Measure 2 (2003) Annex

Antarctic Specially Protected Area No 114 NORTHERN CORONATION ISLAND, SOUTH ORKNEY ISLANDS

1. Description of values to be protected

Northern Coronation Island (Latitude 60°33' S, Longitude 45°35' W), South Orkney Islands, was originally designated as a Specially Protected Area through Recommendation XIII-10 (1985, SPA No. 18, 88.5 km²) following a proposal by the United Kingdom. It was designated on the grounds that the Area “embraces areas of coastal ice-free terrain (Conception, Prong and Foul Points) with large seabird colonies and lichen-dominated cliffs, and permanent ice rising to the Brisbane Heights plateau which provides an excellent representative area of a pristine ice environment near the northern limit of the maritime Antarctic and the Antarctic Treaty Area, and that the interrelated terrestrial, permanent ice and marine components of this area comprise an integrated example of the coastal, permanent ice and sublittoral ecosystems of the maritime Antarctic environment”.

The Area is difficult to access, few site visits have been made and there is little baseline or up-to-date information available on the ecosystems within the Area. Generally, the original values cited for the Area cannot be reaffirmed, as insufficient information exists for the values to be substantiated. While seabird colonies within the Area were observed in the 1990s, in particular on ice-free ground along the northern coast, detail on the species represented and on numbers remains very limited. The extent and types of lichen-- dominated cliffs referred to in the original plan are largely unknown. The extent to which the ice environment and the ecosystems within the Area are representative is also unknown. It has not proved possible to make a recent inspection of the Area despite numerous attempts.

However, the few records of visits to the Area suggest it has been subjected to minimal direct human disturbance and, as such, is likely to be relatively pristine. In view of this assumed pristine condition, the primary potential value of the Area is as a reference site for use in comparative studies with more heavily impacted sites. Before this value can be realised, baseline studies are required on the nature of the environment and ecosystems present. In order to maintain the site for its potential value as a reference area, all visits to the Area shall be prohibited except for compelling scientific research, including gathering baseline data, or to exploit the value of the site as a reference area, or for site inspection.

The boundaries of the Area have been modified from those originally designated to include all of the catchment of northern Coronation Island draining northward into the sea between Conception Point and Foul Point (total area 92 km²).

2. Aims and objectives

Management at Northern Coronation Island aims to:

- preserve the ecosystem of the Area in a largely undisturbed state for its potential as a reference area;
- avoid degradation of, or substantial risk to, the potential value of the Area as a reference site by prohibiting all visits, except for scientific research within the Area for compelling reasons which cannot be served elsewhere, or for the purpose of acquiring baseline data, or monitoring of the state of the environment, or for inspections;
- ensure that the purpose, nature, methods and conditions of observation and / or sampling are clearly defined before access for scientific research is allowed;
- ensure that visits for management purposes are in support of the aims of the management plan

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- Copies of this management plan, including maps of the Area, shall be made available at Signy (UK) and Orcadas (Arg.) research stations.
- Visits may be made as necessary to assess whether the Area continues to serve the purposes for which it was designated.

4. Period of designation

Designated for a period of five years to allow opportunity for site visits to be made. If access to the site remains unachievable during this time, consideration should be given to terminating the site's status as an ASPA.

5. Maps and photographs

Map 1: Northern Coronation Island, Antarctic Specially Protected Area No. 114: Boundaries and physical features. The location of Signy Research Station (UK) and other nearby protected areas are shown. Map specifications: Projection, UTM Zone 23S; Spheroid, WGS84. Contour interval 250 m. Data source: SCAR Antarctic Digital Database Version 4.0, 2002, 'Scale 0'. Caution: features and distances are approximate and horizontal and vertical accuracy is unknown. Inset: the location of the South Orkney Islands with respect to the northern Antarctic Peninsula and the South Shetland Islands.



6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION AND BOUNDARIES

Coronation Island (Latitude 60°33' S, Longitude 45°35' W, 478 km²) is the largest of the South Orkney Islands, extending approximately 48 km with a west-north-west to east-south-east orientation (Map 1). It is largely ice-covered, and the northern coastline, like that of most of the island, is indented and generally precipitous, with sharp rocky ridges forming bold headlands between ice cliffs. Exposed boulder beaches are present at the base of many of the ice and rock cliffs. The interior of Coronation Island is mountainous and rugged, rising to its maximum height of 1266 m at Mount Nivea (Map 1). The Area includes two glacial catchments draining northwards from Mount Nivea and the Brisbane Heights plateau to the Coronation Island coast. Together with the marine component of Ommanney Bay and a bay of similar size to its west, the Area is approximately 92 km² in size. The majority of land within the Area is dominated by permanent glacial ice, with rocky outcrops and sheer cliffs exposed in a few places. The east face of Conception Point is a spectacular cliff of some 700 m in height. Small areas of ice-free terrain are present on the coast, the largest of which are on Conception, Prong and Foul points. Exposed boulder beaches occur below some of the frequent coastal ice cliffs, and there are a number of small, rocky, ice-free islands close to the shore.

The Area includes the region of northern Coronation Island between Conception Point to the west and Foul Point to the east (Map 1). The eastern boundary follows a ridge from Foul Point approximately 6 km southwards to the summit of Mount Nivea (1266 m), thence west-south-westwards for a distance of 1500 m down the ridge to the col at High Stile. From High Stile, the boundary continues WSW for approximately 6 km following the ridge of the broad plateau of Brisbane Heights to the summit of Wave Peak (960 m). From Wave Peak the boundary extends due north for 1000 m, thence west and in a northwesterly direction for about 6 km following the broad ridge of Brisbane Heights. The boundary then extends due north for approximately 6 km, following the main ridgeline to Conception Point. The glacial catchments draining to the northern coastline of Coronation Island within this boundary are within the Area. The actual summits of Mount Nivea and Wave Peak and the southern side of High Stile are outside of the Area. The northern boundary is defined as a straight line extending 11 km across the sea from Conception Point to Foul Point, including Ommanney Bay and the bay further to the west as within the Area.

CLIMATE

No climate data are available for northern Coronation Island, but conditions are expected to be broadly similar to those at Signy Island, 7 km to the south. Mean summer (November – March) air temperatures at Signy Research Station range from –2°C to +3°C, with an extreme maximum temperature of +19.8°C. In winter, mean monthly temperatures range from –2°C to –17°C, with an extreme minimum of –39.3°C (Shears and Downie 1998). However, compared to Signy Research Station, northern Coronation Island experiences more persistent cloud cover, which often forms fog banks when the prevailing moisture-laden north-westerly winds rise over the ice-covered peaks of the island. Differences in elevation also suggest that temperatures within the Area will be much colder than those recorded at Signy Research Station.

GEOLOGY AND SOILS

Coronation Island is composed predominantly of regionally metamorphosed rocks belonging to the Scotia metamorphic complex (Tanner *et al.* 1982). The rocks were deformed and metamorphosed to albite-epidote-amphibolite-facies grade during or prior to the late Triassic but the true age of the original sedimentary sequences is uncertain. The main rock type within the Area is a grey micaceous schist (quartz rich quartz-mica-schist with albite, biotite and muscovite) (Dalziel *et al.* 1977). Beds are flat-lying and uncontorted (Matthews 1956). The schists on Coronation Island are thought to represent a metamorphosed sandstone-shale sequence in which there were interbedded tuffs and basic lavas and/or basic minor intrusions (Thomson 1974).

STREAMS AND LAKES

No information on streams and lakes in the area is available.

BIOLOGICAL COMMUNITIES

There is little information available on the biological communities in the Area. Breeding chinstrap penguins (*Pygoscelis antarctica*) occupy the few flat and gently sloping parts of the Area at Conception Point, with numbers roughly estimated to be around 5000 in 1997 (Convey 1997). Crags are occupied by nesting cape petrels (*Daption capense*) and snow petrels (*Pagodroma nivea*). Skuas (*Catharacta* sp.) and sheathbills (*Chionis alba*) have been noted at Conception Point, while southern giant petrel (*Macronectes giganteus*), Antarctic fulmar (*Fulmarus glacialisoides*), prions (*Pachyptila* sp.), and Wilson's and blackbellied petrels (*Oceanites oceanicus*, *Fregetta tropica*) have been observed close to the coast (Convey 1997). Guano-stained ground and what appear to be individual birds are evident on ice-free ground at Conception and Prong points, and on other small promontories and islets along the coast, in British Royal Navy aerial photography (RN/9/92) taken in January, 1992. This suggests a number of breeding colonies of birds occupy these areas, although species and numbers could not be determined. Some vegetation appeared to be present on Prong Point, with a number of moss banks also apparent on a promontory 1000 m to its west, although positive identification was hampered by the resolution of the panchromatic photographs. Foul Point was outside of the region of photography.

Seals have not been observed within the Area, and the rough boulder beaches at the foot of ice and rock cliffs are generally unsuitable for breeding fur or elephant seals (*Arctocephalus gazella*, *Mirounga leonina*).

White, yellow and orange encrusting lichens are present, often on ice-free cliffs on the coast, along with patches of the common alga *Prasiola crispa*.

No information is available on the marine environment within the Area.

HUMAN ACTIVITIES AND IMPACTS

There have been few reported visits to Northern Coronation Island and human impacts, while unknown, are considered to be minimal.

6(ii) Restricted and managed zones within the Area

None.



6(iii) Structures within and near the Area

There are no structures known to be present in the Area. The nearest scientific research station is Signy Research Station (United Kingdom) (60°43'S, 45°36'W), 12 km south of the Area on Signy Island.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Northern Coronation Island are Lynch Island (ASPA No. 110), which lies about 5 km to the south of Wave Peak, and Moe Island (ASPA No. 109) which is 15 km SSW (Map 1).

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for compelling scientific research within the Area for reasons which cannot be served elsewhere, or for the purpose of acquiring baseline data, or monitoring of the state of the environment, or for site inspection;
- the purpose, nature, methods and conditions of observation and / or sampling are clearly defined before access for scientific research is allowed;
- the actions permitted will not jeopardise the values of the Area;
- proposed activities are in support of the objectives of the management plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period.

7(i) Access to and movement within the Area

- Access to and movement within the Area shall be on foot, by small boat or by helicopter. Land vehicles are prohibited.
- Access to and movement within the Area on land is exceptionally difficult because of the presence of glaciers, crevasses and icefalls. However, there are no special restrictions on overland access routes because little is known about which routes might be suitable.
- There are no special restrictions on landings from the sea, or that apply to the sea routes used to move to and from the Area. However, the existence and location of suitable landing sites for small boats is unknown, although the most promising sites appear to be Foul, Prong or Conception points. Caution must be exercised when attempting boat landings owing to significant dangers from swell, submerged rocks and concentrations of breeding birds is prohibited. There are few ice-free sites suitable for landing of helicopters, and those that do exist along the coast are generally occupied by breeding colonies of birds throughout the summer period of 1 October – 30 April inclusive.
- Helicopters may land elsewhere within the Area when necessary for purposes consistent with the objectives of the Plan. However, overflight of the Area should be kept to a minimum. The guidelines specified in Table 1 (below) shall be followed to the maximum extent practicable in the period of 1 October – 30 April inclusive, when operating aircraft within one kilometre of the northern coastline.

- Use of helicopter smoke grenades is prohibited within the Area unless absolutely necessary for safety. Expended smoke grenades must be retrieved.
- Pilots, air or boat crew, or other people on helicopters or boats are prohibited from moving on foot beyond the immediate vicinity of their landing site unless specifically authorised by Permit.
- All movement within the Area should be kept to the minimum consistent with the objectives of any permitted activities, and should be undertaken carefully so as to minimise disturbance to animals, soils, geomorphological features and vegetated surfaces.

Table 1: Aircraft overflight guidelines applying 1 October – 30 April inclusive when operating aircraft within one kilometre of the northern coastline.

Aircraft type	Number of engines	Minimum approach distance (m)	
		Vertical (above ground)	
		Feet	Metres
Helicopter	1	2460	750
Helicopter	2	3300	1000
Fixed-wing	1 or 2	1480	450
Fixed-wing	4	3300	1000

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- scientific research for compelling reasons that cannot be served elsewhere;
- collection of baseline information on the Area provided such collection will not jeopardise the potential value of the site as a reference Area;
- essential management activities, including site inspection or monitoring.

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area.

7(iv) Location of field camps

Camping is permitted within the Area for purposes consistent with the objectives of this management plan. No information is available on sites suitable for camping, although they would appear to be few and difficult to access. For this reason, it is not currently possible to designate specific camping sites.



7(v) Restrictions on materials and organisms which can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix) below shall be taken against accidental introductions. In view of the presence of breeding bird colonies on the northern coast of the Area, no poultry products, including products containing uncooked dried eggs, including wastes from such products, shall be released into the Area or into the adjacent sea. No herbicides or pesticides, nor any other chemicals, including radio- nuclides or stable isotopes, shall be brought into the Area. Fuel may be used for essential transport within the Area, although fuel and other materials shall not be stored in the Area except in support of essential activities for which a Permit is granted. All fuel and other materials shall be stored and handled so that risk of any introduction into the environment is minimised and shall be removed when permitted activities cease. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of any materials released and not removed that were not included in the authorised Permit.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora or fauna is prohibited, except by Permit issued in accordance with Annex II to the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica should be used as a minimum standard

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Material may be collected or removed from the Area only in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Permits shall not be granted if there is a reasonable concern that the sampling proposed would take, displace, remove or damage such quantities of rock, soil, water, or native flora or fauna that their distribution or abundance at Northern Coronation Island would be significantly affected. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder or otherwise authorised, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) Measures that are necessary to ensure that the aims and objectives of the Management Plan can continue to be met

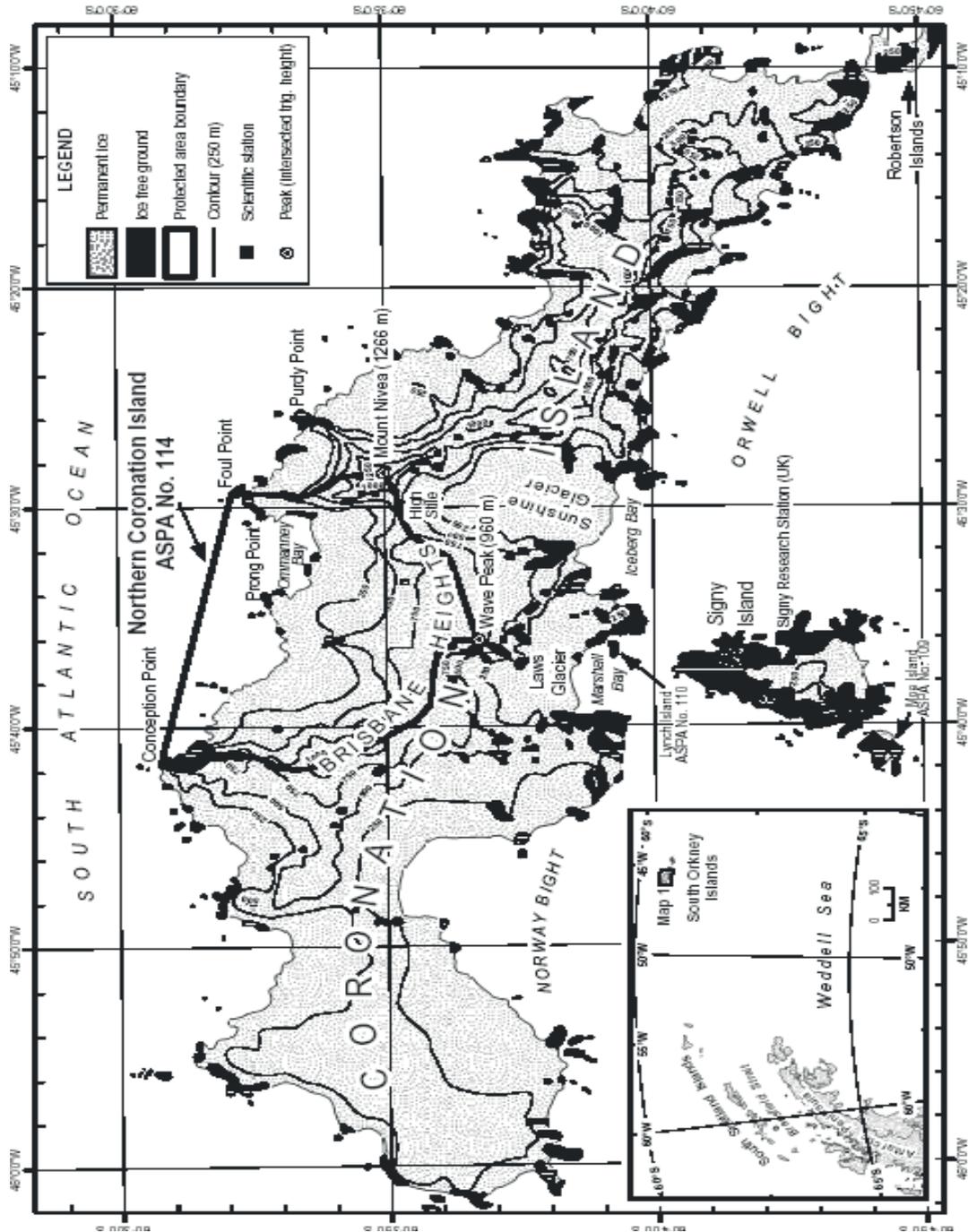
To help maintain the values derived from the historically low level of human impact at Northern Coronation Island special precautions against introductions shall be taken. To the maximum extent practicable, all equipment brought into the Area (including, for example, sampling equipment, and footwear) shall be thoroughly cleaned before entering the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits a report describing the activities undertaken to the appropriate authority. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage.

Bibliography

- Bonner, W.N. and Smith, R.I.L. (eds) 1985. *Conservation areas in the Antarctic*. Cambridge, SCAR: 73-84.
- British Antarctic Survey. 1984. British Antarctic Territory Geological Map (Scale 1:500 000). Series BAS 500G Sheet 1 South Orkney Islands with South Georgia and South Sandwich Islands, Edn 1. Cambridge, British Antarctic Survey.
- Brown, J.W. 1967. The petrology of Signy and Coronation Islands, South Orkney Islands. Unpublished MSc thesis, University of Birmingham.
- Convey, P. 1997. Report on visits to Specially Protected Areas (SPAs) in the South Orkney Islands, January 1997. Cambridge, British Antarctic Survey: unpublished internal report.
- Dalziel, I.W.D., Elliot, D.H., Thomson, J.W., Thomson, M.R.A., Wells, N.A. and Zinsmeister, W.J. 1977. Geologic studies in the South Orkney Islands: RN *Hero* Cruise 77-1, January 1977. *Antarctic Journal of the United States*, 12(4): 98-101.
- Matthews, D.H. 1956. Geological report – Signy Island 1956. Unpublished internal report, BAS Archives ref. AD6/2H/1956/G. Cambridge, British Antarctic Survey:
- Shears, J.R. and Downie, R.H. 1998. *Oil spill contingency plan, Signy Research Station*. 2nd edition. Cambridge, British Antarctic Survey
- Tanner, P.W.G., Pankhurst, R.J. and Hyden, G. 1982. Radiometric evidence for the age of the subduction complex in the South Orkney and South Shetland islands, West Antarctica. *Journal of the Geological Society of London*, 139(6): 683-690.
- Thomson, J.W. 1974. The geology of the South Orkney Islands: III. Coronation Island. *British Antarctic Survey Scientific Reports* 86.



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Map 1: Northern Coronation Island, South Orkney Islands
Boundaries and physical features

Projection: UTM Zone 21S
Spheroid: WGS84
Contour interval: 250 m
Data source: SCAE Antarctic Digital Database V4.0, 2002
Caution: Features and positions approximate