

Management Plan for Antarctic Specially Protected Area No. 120

POINTE-GÉOLOGIE ARCHIPELAGO, TERRE ADÉLIE

Jean Rostand, Le Mauguen (formerly Alexis Carrel),
Lamarck and Claude Bernard Islands, The Good Doctor's Nunatak
And breeding site of Emperor Penguins

Introduction

The Pointe-Géologie Archipelago, in Terre Adélie, comprises 8 principal islands grouped over less than 2.4 km², about 5 km from the Antarctic continent. Petrel Island, the largest of these islands, is the site of the Dumont d'Urville French scientific station ([66°39'46"S 140°0'07"E](#)). In the 1980s, important work was undertaken in order to connect the Buffon, Cuvier and Lion Islands with a view to establishing a runway for large aircraft. This project was never completed, essentially because the sea destroyed part of the platform created.

This archipelago is distinctive in that it hosts breeding grounds for eight of the nine species of birds that breed on the coasts of the Antarctic. Among these eight species of birds, four belong to the Procellariidae family, two to the Spheniscidae family, one to the Stercorariidae family and lastly, one belongs to the Hydrobatidae family. Two species which are emblematic of the Antarctic are noticeably present: giant petrels and emperor penguins; the winter colony of the latter being a few hundred metres from the Dumont d'Urville base.

In 1995, four islands, a nunatak and a breeding ground for emperor penguins were classified as an Antarctic Specially Protected Area (Measure 3 (1995), ATCM XIX) because they were a representative example of terrestrial Antarctic ecosystems from a biological, geological and aesthetics perspective.

Resolution 3 (2008) recommended that "Environment Domains Analysis for the Antarctic Continent" should serve as a dynamic model for the identification of Antarctic Specially Protected Areas (see also Morgan *et al.*, 2007). According to this model, ASPA No. 120 is part of environmental domain L (Continental coastal-zone ice sheet).

Also, Resolution 6 (2012) recommended that "the Antarctic Conservation Biogeographic Regions be used in conjunction with the Environmental Domains Analysis... [to identify] areas that could be designated as ASPAs" and to thereby respond to the idea of the systematic environmental-geographic framework referred to in Article 3 Paragraph 2 of Annex V of the Protocol on Environmental Protection to the Antarctic Treaty. Consequently, Pointe-Géologie is part of Conservation Biogeographic Region n°13, "Terre Adélie" (see Terauds *et al.* 2012), one of the smallest Conservation Biogeographic Regions (178 km²).

1. Description of Values to be Protected

The area contains exceptional environmental and scientific values due to the diversity of the species of birds and marine mammals that breed there:

- The Weddell seal (*Leptonychotes weddellii*)
- The emperor penguin (*Aptenodytes forsteri*)
- The Antarctic skua (*Catharacta maccormicki*)
- The Adélie penguin (*Pygoscelis adeliae*)
- The Wilson's petrel (*Oceanites oceanicus*)
- The Southern giant petrel (*Macronectes giganteus*)
- The snow petrel (*Pagodroma nivea*)
- The cape petrel (*Daption capense*).

Long-term research and monitoring programmes of birds and marine mammals have been going on for a long time already (since 1952 or 1964 according to the species), currently supported by the French *Institut Polaire Français Paul-Emile Victor (IPEV)* and the French *Centre National de la Recherche scientifique (CNRS)*.

This has enabled the implementation of a population database of exceptional value, by time-scale of observation. It is maintained and used by the *Centre d'Etudes Biologiques de Chizé (CEBC-CNRS)*. Within this context, human scientific presence in the protected area is currently estimated at four people for a few hours, three times a month between the 1st November and the 15th February, and, inside the emperor penguin colony itself, at two people for a few hours between the 1st April and the 1st November.

Among the 46 emperor penguin breeding sites on record (Fretwell *et al.* 2012), Pointe-Géologie is one of the only ones, along with that near the Mirny station, located adjacent to a permanent station. It is therefore a providential spot to study this species and its environment.

2. Aims and Objectives

Management of the Pointe-Géologie Specially Protected Area aims at:

- Preventing disturbance in the area due to the proximity of the Dumont d'Urville station;
- Limiting disturbance in the area by preventing any unjustified human intervention;
- Avoiding any major changes to the structure and composition of flora and fauna and in particular the different species of marine vertebrates, birds and mammals harboured in the area, which is one of the most representative for both faunistic and scientific interest on the Adélie Coast;
- Permitting scientific research which can not be undertaken elsewhere, in particular in the life sciences (ethology, ecology, physiology and biochemistry, demographic studies of birds and sea mammals, impact assessment of surrounding human activities etc) and earth sciences (geology, geomorphology etc);
- Controlling logistical operations related to the activities of the nearby Dumont d'Urville station, which may require temporary access to the ASPA.

3. Management Activities

The following management activities will be undertaken to protect the values of the area:

- The present management plan is kept under periodical review to ensure that the values of the ASPA are wholly protected.
- Any activity - be it scientific or management in nature - carried out in the area must undergo an environmental impact assessment before being undertaken, in accordance with the requirements stipulated in Annex 1 of the Protocol on Environmental Protection to the Antarctic Treaty.
- In accordance with Annex 3 of the Protocol on Environmental Protection to the Antarctic Treaty, abandoned material(s) will be removed, as far as possible, provided that this removal does not damage the environment or the values of the area.
- All members of staff staying at or in transit at the Dumont d'Urville base will be duly informed of the existence of the ASPA, of its geographical boundaries, of the entry restrictions in place and, more generally of the current management plan. To this end, a sign displaying a map of the area and listing the restrictions and relevant management measures shall be displayed prominently at the Dumont d'Urville station.
- Copies of this management plan shall also be available in each of the four Treaty languages at the Dumont d'Urville station.
- Information related to each incursion into the ASPA, namely *a minima*: activity undertaken or reason for presence, number of people involved, duration of stay, is recorded by the Head of the Dumont d'Urville station.

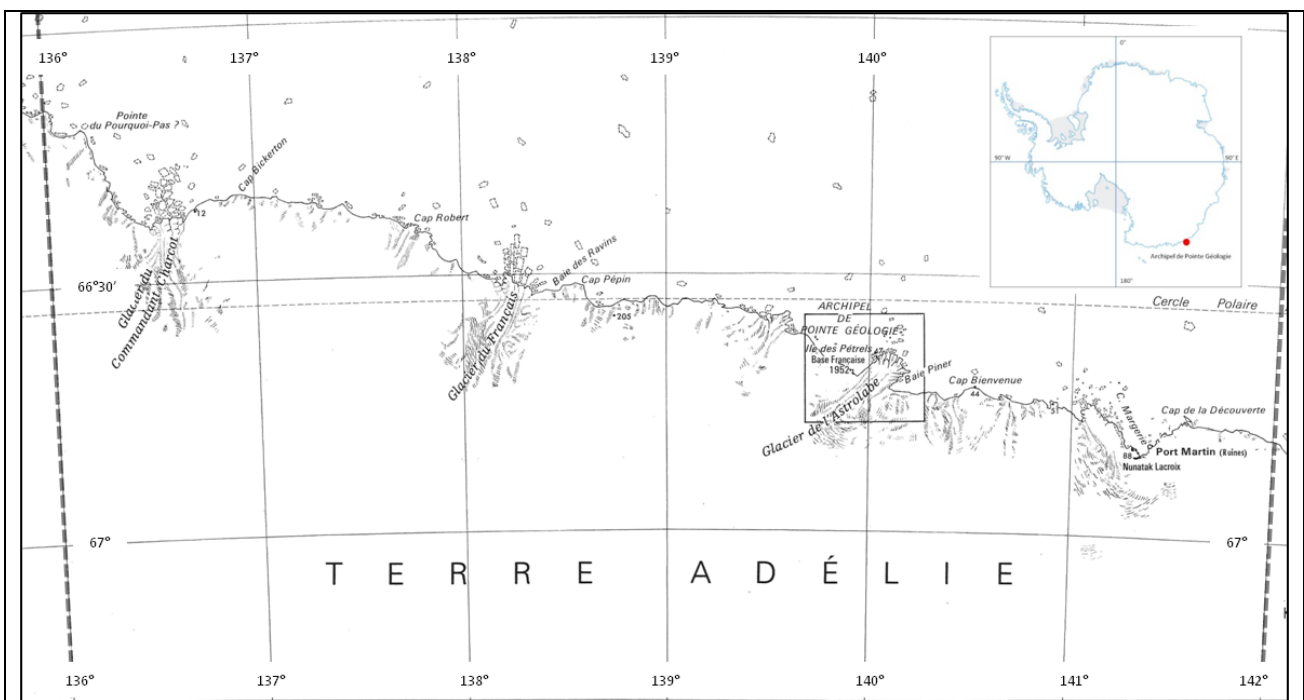
4. Period of Designation

The Area is designated as an Antarctic Specially Protected Area (ASPAs) for an indefinite period.

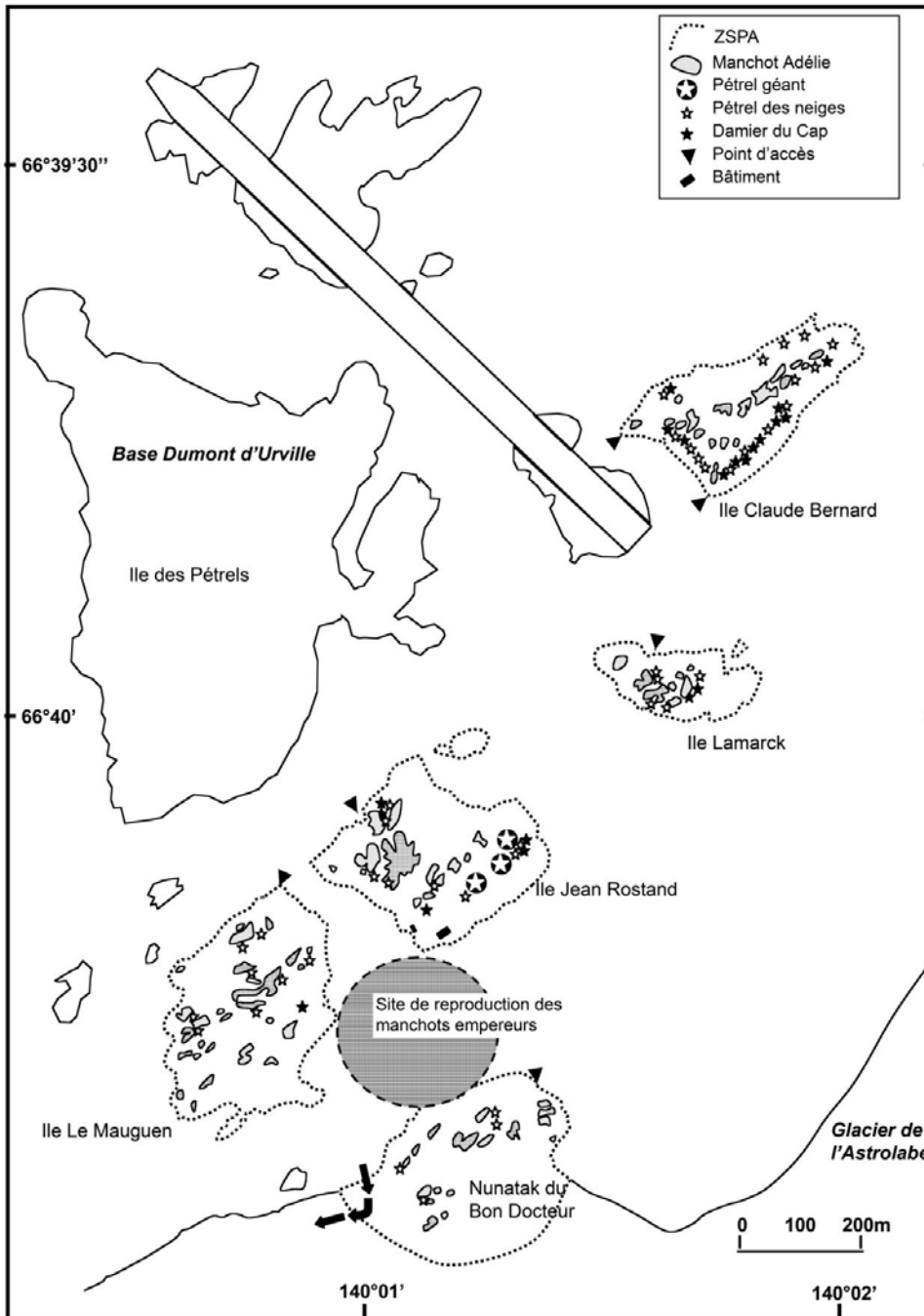
5. Maps

Map 1 shows the geographical location of Terre Adélie in the Antarctic and the location of the Pointe-Géologie Archipelago on the Terre Adélie coast.

Map 2 of the Pointe-Géologie Archipelago shows the location of the main bird colonies and the dotted line indicates the boundary of ASPA No. 120 within the archipelago.



Map 1 - Location of the Pointe-Géologie Archipelago, Terre Adélie (Antarctica).



Map 2 - Location of bird colonies (except skua territories and Wilson's petrels nests) within the Pointe-Géologie Archipelago ASPA. The dotted lines show the ASPA boundary. The emperor penguins, present from March to mid-December, establish their colony on the pack ice between the islands and their location is variable. Possible access of land vehicles to the continent via the Good Doctor's Nunatak is shown by means of arrows.

6. Description of the Area and Identification of Sectors

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

Boundaries and Coordinates

ASPANo. 120 is located along the Terre Adélie coast, in the heart of the Pointe-Géologie Archipelago (140° - 140°02'E; 66°39'30'' - 66°40'30'' S). It comprises the following territories:

- Jean Rostand Island,
- Le Mauguen (formerly Alexis Carrel) Island,
- Lamarck Island,
- Claude Bernard Island,
- the 'Good Doctor' Nunatak,
- and the Emperor penguins breeding grounds, on the pack ice which surrounds the islands in winter.

As a whole, the surface of the rock outcrops does not exceed 2 km². The highest points are distributed along North-East-South-West ridges (C. Bernard Island: 47.6 m; J.Rostand Island: 36.39 m; Le Mauguen (formerly Alexis Carrel) Island: 28.24 m; 'Good Doctor' Nunatak: 28.50 m).

During the summer, the pack ice between the islands disappears, and only the Southern flanks of the islands are still covered by firns. The ASPA is then clearly limited by natural markers (island outlines and rocky outcrops).

No tracks or roads exist in the area.

GENERAL DESCRIPTION OF THE AREA

Geology

Well-marked hills display asymmetrical transverse profiles with gently dipping northern slopes compared to the steeper southern ones. The terrain is affected by numerous cracks and fractures leading to very rough surfaces. The basement rocks consist mainly of sillimanite, cordierite and garnet-rich gneisses which are intruded by abundant dikes of pink anatexites. The lowest parts of the islands are covered by morainic boulders with a heterogeneous granulometry (from a few centimetres to more than a metre across).

Terrestrial biological communities

No vascular plants and no macro-arthropods live in the area. Only the *Prasiola crispa* cosmopolitan algae is present and can have significant coverage locally depending on the supply of bird droppings.

Vertebrate Fauna

Seven species of birds and one marine mammal (the Weddell seal) use the Pointe-Géologie Archipelago. They have all been monitored populations since the 1950s-1960s. Table 1 provides information about the number of seabirds observed, Table 2 about periods of presence of the different species and Table 3 about the estimated sensitivity of each species.

The establishment of the Dumont d'Urville station has resulted in a drastic decrease in the populations of southern giant petrels in the Pointe-Géologie Archipelago. The breeding colony on Petrel Island disappeared completely at the end of the 1950s during the early years when the base was being set up in close proximity to this colony (building extensions, increase in helicopter flights, installation and replacement of fuel storage tanks). Currently, 100% of the southern giant petrels population breeds inside the ASPA, in the South-Eastern part of Rostand Island.

The work undertaken between 1984 and 1993 to connect the Buffon, Cuvier and Lion Islands with a view to establishing a runway resulted in the destruction of the breeding sites of approximately 3,000 Adélie penguin pairs, 210 snow petrel pairs, 170 cape petrel pairs, 180 Wilson's petrel pairs and 3 Antarctic skua pairs (Micol & Jouventin 2001). Quite a significant proportion of the Adélie penguin pairs moved to the ASPA, unlike the other species (Micol & Jouventin 2001, CEBC data not published).

The significant decrease in emperor penguins by the end of the 1970s seems to have been due to long weather anomalies between 1976 and 1982 which caused a significant decrease in the surface area of the pack ice (Barbraud & Weimerskirch 2001, Jenouvrier *et al.* 2012). For the last fifteen years, the emperor penguin breeding population has been slightly increasing in parallel with an increase in pack ice surface area in the Terre Adélie sector (Table 3).

Among the bird species present on the Pointe-Géologie Archipelago, the emperor penguin and the southern giant petrel breed only inside the ASPA. Since the ASPA was established in 1995, the populations of these

two species have been stable or slightly increasing (Table 3). However, long-term forecasts suggest that the high protection status should be maintained through the current management plan.

Table 1 Number of sea bird breeding pairs within ASPA No. 120 (count done during the 2014/2015 breeding cycle). The population breeding within the ASPA compared to that of the Pointe-Géologie (PG) population as a whole is also mentioned (Source: unpublished data CEBC-CNRS on the 2014/2015 breeding cycle except for Wilson’s storm petrels, data from 1986 in Micol & Jouventin 2001)

Site	Emperor penguin	Adélie penguin	South polar skua	Snow petrel	Cape petrel	Wilson's storm petrel*	Southern giant petrel
C. Bernard	--	3,682	4	152	204	178	--
Lamarck	--	1,410	1	31	26	45	--
J. Rostand	--	5,441	8	54	57	35	19
Le Mauguen (formerly Alexis Carrel)	--	4,271	18	14	1	72	
Nunatak	---	1793	1	5	--	41	--
Winter pack ice between islands	3,772	--	--	--	--	--	--
ASPA TOTAL	3,772	16,597	32	256	288	371	19
PG TOTAL	3,772	42,757	74	691	492	1,200	19
ASPA/PG %	100	39	43	37	59	31	100

Table 2 Presence of birds on breeding grounds

	Emperor penguin	Adélie penguin	South Polar skua	Snow petrel	Cape petrel	Wilson's storm petrel	Southern giant petrel
First arrival	March	October	October	September	October	November	July
First egg laying	May	November	November	December	December	December	October
Last departure	End of December	March	March	March	March	March	April

Table 3 Sensitivity to disturbance caused by human beings and changes in populations of the Pointe-Géologie Archipelago (Sources: unpublished CEBC-CNRS data, Thomas 1986, and Micol & Jouventin 2001 for data on Wilson’s storm petrels)

	Emperor penguin	Adélie penguin	South polar skua	Snow petrel	Cape petrel	Wilson's storm petrel	Southern giant petrel
Sensitivity	High	Medium	Medium	Medium	High	High	High
Trend 1952-1984	Diminishing	Stable	Stable	?	?	?	Diminishing
Trend 1984-2000	Stable	Increasing	Increasing	Stable	Stable	?	Stable
Trend 2000/15	Slightly increasing	Increasing	Increasing	Increasing	Stable	?	Slightly increasing

6(ii) Identification of restricted or prohibited zones

- Entry restrictions to different sites within the ASPA are determined according to the distribution of bird species (Table 1), the timing of their presence on breeding grounds (Table 2) and their specific sensitivity (Table 3). The location of breeding colonies and points of access to the islands are shown on map 2. Birds are mainly present during the austral summer, except for the emperor penguins, which breed in winter.

The case of Rostand Island

The Southern giant petrels are present in an area defined by the NE-SW ridge going through the 33.10 m and the 36.39 m marks North West of the colony, marked on the ground with stakes. Access to this breeding area is strictly prohibited, except to ornithologists holding a Permit allowing access once a year when southern giant petrel chicks are being banded. Access to the rest of Rostand Island is authorised throughout the year to Permit Holders.

The case of the emperor penguin colony

The emperor penguin colony is not always at the same site and moves about on the pack ice during winter. The protection zone for these animals is therefore defined by the sites where birds are present (colony or groups of individuals), with an additional 40 m buffer zone.

No one, except Permit Holders, is allowed to approach or to disturb the emperor penguin colony in any manner during the period when they are present at the breeding grounds, from March to mid-December when the chicks fledge. It is recommended that the minimum distance between authorised observers and the colony be 20 m.

6(iii) Structures in the Area

Prévoist hut and a shelter are located on Rostand Island. There are no other buildings anywhere else in the Area.

6 (iv) Location of other protected Areas nearby

The closest protected area to APSA No. 120 is ASPA No. 166, “Port Martin”, located 60 km to the east.

6 (v) Special Areas within the ASPA

None.

7. Permit Conditions

- Entry into the Area is subject to obtaining a Permit issued by an appropriate national authority designated under Article 7 of Annex 5 of the Protocol on Environmental Protection to the Antarctic Treaty. The Head of the Dumont d’Urville station is kept informed regarding Permit-holders.
- Permits can be issued for the activities envisaged in Paragraph 7(ii). Permits will authorise the scope of the tasks to be undertaken, their time-span and the maximum number of people commissioned to enter the Area (Permit Holders and any accompanying persons who may be needed for professional or safety reasons).

7(i) Access to and movement within the Area

- Access to the Area is permitted by foot or by light watercraft (in summer) only.
- No helicopters are authorised within the Area and overflights of the Area by all unauthorised aircraft are prohibited (except in the event of emergency procedures).
- The use of leisure drones within the ASPA is prohibited.
- The use of drones or helicopter overflights for scientific research, population monitoring or logistical purposes, must be specifically requested along with the request to access the ASPA. Access authorisations issued by the appropriate authorities must mention the authorisation, as required, of the use of drones in the area or the helicopter overflight by specifying the flying conditions of these aircraft.
- The transit traffic of land vehicles between the Dumont d'Urville station, on Petrel Island, and the Cap Prudhomme station on the continent, will normally take place in winter, following a straight line across the pack ice. During the very rare occasions when sea-ice conditions do not allow these transits to be made safely, a route along the western edge of the 'Good Doctor' Nunatak can be permitted exceptionally, as indicated on Map 2.
- In any case, terrestrial vehicles obliged to drive close to colonies of emperor penguins must remain outside the ASPA, respecting a minimum distance of 40 m.
- The movement of authorised persons within the Area shall, in any case, be limited, in order to avoid unnecessary disturbance to birds, and to ensure that breeding areas and their access are not damaged or endangered.
- Although the base situated on Petrel Island is not included in the ASPA, particular care should also be taken when the emperor penguins move there (an exceptional circumstance which, in the main, involves only adults or thermally emancipated young). In this case, it is recommended that a minimum approach distance of 20 m be maintained, except for ornithologists who can be brought in, taking all necessary precautions, to move the animals in order to allow essential logistical activities to be undertaken around the base.

7(ii) Activities which are or may be conducted within the Area, including restrictions on time and place

- Compelling scientific activities which cannot be conducted elsewhere.
- Conservation activities pertaining to the species present.
- Essential management and logistical activities.
- Educational and scientific outreach activities (filming, photography, sound recording etc) which cannot be conducted elsewhere.

7(iii) Installation, modification or removal of structures

- No structures are to be erected or scientific equipment installed in the Area except for compelling scientific reasons or management or conservation activities as authorised by an appropriate national authority.
- Permanent structures or facilities are prohibited.
- The possible modification or dismantling of installations currently on Rostand Island can proceed only after authorisation.

7(iv) Location of field camps

Camping in the Area is prohibited. An exception can be made only for security reasons. In such an event, tents should be set up in such a way that they disturb the environment as little as possible.

7(v) Restriction on materials and organisms which may be brought into the Area

- According to the provisions set forth in Annex II to the Protocol on Environmental Protection to the Antarctic Treaty, no living animals or plant materials shall be introduced into the Area.
- Special precautions shall be taken against accidentally introducing microbes, invertebrates or plants from other Antarctic sites, including stations, or from regions outside Antarctica. All sampling equipment or markers brought into the Area shall be cleaned or sterilised. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including bags or backpacks) shall be thoroughly cleaned before entering the Area. The CEP's Non-native Species Manual (current edition published on the website of the Secretariat of the Antarctic Treaty) and the COMNAP/SCAR Checklists for Supply Chain Managers of National Antarctic Programmes for the Reduction in the Risk of Transfer of Non-native Species provide additional guidance on this matter.
- No poultry products, including waste associated with these products and products containing egg powder, shall be introduced into the Area.
- No chemicals shall be brought into the Area, except chemicals which may be introduced for a compelling scientific purpose as specified in the Permit. Any chemical introduced shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted.
- Fuel, food and other materials are not to be stored in the Area, unless required for compelling purposes connected with the activity for which the Permit has been granted. Such materials are to be removed when no longer required. Permanent storage is not permitted.

7(vi) The taking of or harmful interference with flora and fauna

Taking of or harmful interference with native flora and fauna is prohibited except in accordance with a specific Permit. In the case of authorised taking or interference, SCAR's Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica (ATCM XXXIV-CPE XIV IP53) must be used as a minimum standard.

7 (vii) The collection or removal of anything not brought into the Area by the Permit Holder

- Collection or removal of anything not brought into the Area by a Permit Holder is prohibited unless specifically mentioned in the Permit.
- Debris of man-made origin may be removed from the Area and dead or pathological specimens of fauna or flora cannot be removed unless explicitly mentioned in the Permit.

7(viii) Disposal of waste

All waste produced must be removed from the Area after each visit in accordance with Annex II of the Protocol on Environmental Protection to the Antarctic Treaty, which acts as a minimum standard.

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

- Visits to the Area shall be restricted to the activities referred to in paragraph 7 (ii) and duly authorised.
- Scientific activities will be undertaken in accordance with SCAR's Code of Conduct for Terrestrial Scientific Field Research in Antarctica (ATCM XXXII-CPE XII IP004) and SCAR's Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica (ATCM XXXIV-CPE XIV IP53).

7(x) Reports of visits to the Area

Parties should ensure that the principal Holder of each Permit issued submits to the appropriate authority a report describing the activities undertaken in the Area. Such reports, to be submitted no later than six months after the visit to the Area, should include, as appropriate, the information identified in the visit report form contained in the “Guide to the Preparation of Management Plans for Antarctic Specially Protected Areas” (Resolution 2, 2011).

Parties should, wherever possible, deposit original or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be taken into consideration both when reviewing the Management Plan and when organising the scientific manipulation of the Area.

8. References

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- Thomas, T. 1986. L’effectif des oiseaux nicheurs de l’archipel de Pointe Géologie (Terre Adélie) et son évolution au cours des trente dernières années. *L’oiseau RFO*, 56, 349-368.