Management Plan

for Antarctic Specially Protected Area No127 HASWELL ISLAND (HASWELL ISLAND AND ADJACENT EMPEROR PENGUIN ROOKERY ON FAST ICE)

1. Description of values to be protected

The area includes Haswell Island with its littoral zone and adjacent fast ice when present.

Haswell Island was discovered in 1912 by the Australian Antarctic Expedition led by D.Mawson. It was named after William Haswell, professor of biology who rendered assistance to the expedition. Haswell is the biggest island of the same-name archipelago, with a height of 93 meters and 0,82 sq.meters in area. The island is at 2,5 km distance from Russian Mirny station operational from 1956.

At East and South-East of the island, there is a large colony of Emperor penguins (*Aptenodytes forsteri*) on fast ice.

The Haswell Island is a unique breeding site for almost all breeding bird species in East Antarctica including the: Antarctic petrel (*Talassoica antarctica*), Antarctic fulmar (*Fulmarus glacioloides*), Cape petrel (*Daption capense*), Snow petrel (*Pagodroma nivea*), Wilson's storm petrel (*Oceanites oceanicus*), South polar skua (*Catharacta maccormicki*), Lonnberg skua *Catharacta antarctica lonnbergi* and Adelie penguin (*Pygoscelis adeliae*).

The Area supports five species of pinnipeds, including the Ross seal (Ommatophoca rossii) which falls to protected species category.

ATCM VIII (Oslo, 1975) approved its designation as SSSI 7 on the aforementioned grounds after a proposal by the USSR. Map 1 shows the location of the Haswell Islands (except Vkhodnoy Island), Mirny station, and logistic activity sites. It was renamed and renumbered as ASPA No. 127 by Decision 1 (2002).

The boundaries of the A S P A No 127 embrace Haswell Island (66°31'S, 93°00'E), of 0,82 km² in area and the adjacent section of Davis Sea fast ice (when present) of approximately 5 km², that supports a colony of Emperor penguins (Map 2). It is one of a few Emperor penguin colonies in the vicinity of a permanent Antarctic station, and therefore it has advantages for the study of the species and its habitat.

Described by biologists during the first Soviet expeditions, the Area was studied in the 1970s and recent years, providing valuable materials for comparative analyses and monitoring of the long-term environmental impact of a large Antarctic station.

2. Aims and Objectives

Research in the ASPA is conducted to provide a better understanding of how natural and anthropogenic environmental changes affect the status and dynamics of local populations of flora and fauna, and how these changes affect the interaction between key species of the Antarctic ecosystem.

Management at Haswell Island aims to:

- Avoid direct impact of logistic activities on the Area;
- Regulate access to the Area;
- Avoid anthropogenic changes in the structure and abundance of local populations of flora and fauna;
- Allow scientific research, provided it is for compelling scientific reasons that cannot be served elsewhere;
- Facilitate scientific research on the environment in the context of monitoring and assessment of human impact on populations:
- Encourage environmental education and awareness.

3. Management Activities

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

- When the vessel is approaching Mirny station and upon arrival at the station, all persons arriving shall be informed of the existence and location of the ASPA and the relevant provisions of the Management Plan.
- Copies of the Management Plan and maps of the Area showing its location shall be available at all units engaged in logistic and scientific activities on the Haswell Islands.
- A sign showing directions of the Area boundaries, with clear statements of entry restrictions ("No entry! Antarctic Specially Protected Area"), shall be placed at the crossing point of lines Gorev Island – Fulmar Island and Cape Mabus – eastern extremity of Haswell Island to help avoid inadvertent entry into the Area following the formation of fast ice which is safe for pedestrian and vehicle traffic.
- Information signs shall be installed at the top of Cape Mabus slope, and at station activity sites in the direct vicinity of the Area.

- Markers and signs erected within the Area shall be secured, maintained in good condition, and have no impact on the environment.
- Overflight shall only be allowed under those conditions as set out under *7. Permit Conditions*
- The Management Plan shall be revised periodically to ensure that the values of the Antarctic Specially Protected Area are adequately protected. Any activity in the Area shall be preceded by the environmental impact assessment.

4. Period of Designation

Designated for an indefinite period.

5. Maps

Map 1: Location of the Haswell Islands, Mirny Station, and logistic activity sites.

Map 2: Boundaries of Antarctic Specially Protected Area 127, Haswell Island.

Map 3: Location of breeding seabird colonies.

Map 4: Topographic map of Haswell Island.

6. Description of the Area

6(i) Geographical co-ordinates, boundary markers and natural features

The Area occupies a territory inside polygon ABFEDC (66° 31'10" S, 92° 59'20" E; 66° 31'10" S, 93° 03' E; 66° 32'30" S, 93° 03' E; 66° 32'30" S, 93° 01'E; 66° 31'45" S, 93° 01'E; 66° 31'45" S, 92° 59'20" E) (Map 2). The marked section of fast ice in the Davis Sea encompasses the most likely routes taken by Emperor penguins during the breeding season.

Topography

The Area boundaries on fast ice closer to the station can be broadly (visually) identified on site as directions EF (Vkhodnoy Island – Fulmar Island) and ED (Cape Mabus – eastern extremity of Haswell Island). A sign showing the directions of the Area boundaries, with clear statements of entry restrictions ("No entry! Antarctic Specially Protected Area"), shall be placed in point E. Information signs showing distance to the Area boundary shall be installed at station activity sites in the direct vicinity of the Area (at the top of Cape Mabus slope, and on Buromsky, Zykov, Fulmar, and Tokarev Islands).

It is highly unlikely that the outlying marine boundaries of the Area will be crossed inadvertently, as presently there is no any station activity . These boundaries have no visual features and shall be identified by the map.

There are no paths or roads within the Area.

Ice conditions

The Area comprises Haswell Island (the largest island in the archipelago), its littoral zone, and the adjacent section of fast ice in the Davis Sea. Russia's Mirny Observatory (now station) on Mirny Peninsula located in coastal nunataks south of the ASPA has been operational since 1956.

For the larger part of the year, the sea within the Area is covered with fast ice, whose width reaches 30-40 km by the end of winter. Fast ice breaks up between December 17 and March 9 (February 3, on average) and freezes between March 18 and May 5 (April 6, on average). The probability that the ice-free period off Mirny station will last more than 1 month is 85%, more than 2 months 45%, and more than 3 months 25%. The Area is always full of icebergs. In summer, when fast ice disappears, icebergs drift westward along the coast. Seawater temperature is always below zero. The tide has an irregular daily pattern.

Environmental domains analysis

Based on the Environmental Domains Analysis for Antarctica (Resolution 3(2008)) Haswell Island is located within Environment L *Continental coastal-zone ice sheet*.

Biological Features

Coastal waters support a rich benthic fauna. Fish fauna in the Area is dominated by various icefish species, while Antarctic toothfish (*Dissostichus mawsoni*) and Antarctic silverfish (*Pleuragramma antarcticum*) are less abundant. An ample forage base and the availability of suitable nesting sites create a favorable environment for numerous seabirds. According to the records, there are 14 bird species in the vicinity of Mirny station(Table 1).

The coastal fauna is mainly represented by pinnipeds, among which Weddell seals (*Leptonychotes weddelli*) are most abundant. Other Antarctic seal species can be seen occasionally in very small numbers. Minke whales (*Balaenoptera acutorostrata*) and killer whales (*Orcinus orca*) have frequently been observed near Mirny station.

Table 1: The avifauna of the Haswell Islands (ASPA 127).

1	Emperor penguin (Aptenodytes forsteri)	B, M
2	Adelie penguin (Pygoscelis adeliae)	B, M
3	Chinstrap penguin (Pygoscelis antarctica)	V
4	Macaroni penguin (Eudyptes chrysolophus)	V
5	Southern fulmar (Fulmarus glacioloides)	B
6	Antarctic petrel (Thalassoica antarctica)	B
7	Cape petrel (Daption capense)	B
8	Snow petrel (Pagodroma nivea)	B
9	Southern giant petrel (Macronectes giganteus)	V
10	Wilson's storm petrel (Oceanites oceanicus)	B
11	Pomarine skua (Stercorarius pomarinus)	V
12	South-polar skua (Catharacta maccormicki)	B
13	Lonnberg skua (Catharacta Antarctica lonnbergi)	B
14	Kelp gull (Larus dominicanus)	V

Notes: B – breeding species; M – molting sites in the vicinity of the station; V – vagrant species.

At present, seabirds nest on ten out of seventeen archipelago islands. Seven species breed directly on the islands, and one species – the Emperor penguin (Aptenodytes forsteri) – on fast ice. A few vagrant species have also been observed in the Area. In general, core species composition of the aviafauna remains stable during past 60 years, and is characteristic of the East Antarctica coastal areas.

Updates of vagrants to the species list are explained by more extensive ornithological observations. All new species are recorded as vagrants only. At the same time, the Southern giant petrel observed in 2006 for the first time at Mirny, seems to become rare but regular visitor to the Area, and the traced quartering of Lonnberg skua and their recorded breeding at the archipelago suggest the natural expansion of the breeding areas.

Starting from 2012 the cases of hybrid pair nesting by South-polar skua (Catharacta maccormicki) and Lonnberg skua (Catharacta Antarctica) came to be observed.

Emperor penguin (Aptenodytes forsteri)

The Emperor penguin colony of the Haswell Islands is located on fast ice in the Davis Sea 2 to 3 km north-east of the Mirny station and usually within 1 km of Haswell Island. The colony was discovered and described by the Western Party of the Australasian Antarctic Expedition on November 25, 1912. However, a detailed study of the colony was initiated only after the establishment ofe Mirny Observatory. Since its foundation in 1956, the Observatory has been conducting periodic monitoring of the size of the breeding population. The first round-the-year observation of the colony was initiated by E.S. Korotkevich in 1956 (Korotkevich, 1958), continued until 1962 (Makushok, 1959; Korotkevich, 1960; Prior, 1968), and was then resumed by V.M. Kamenev in the late 1960s-early 1970s (Kamenev, 1977). After a long break, observations of the avifauna in the area were resumed in 1999-2011 (Gavrilo, Mizin, 2007, Gavrilo, Mizin, 2011, Neelov 2007 et al).

Table 2 shows a schedule of various phenological events in the Emperor penguin colony of the Haswell Islands.

Table 2: Dates of phenological events in the Emperor penguin colony, Haswell Islands.

Penguins arrive at the colony site	Last 10 days in March
Peak of the mating period	Late April – first ten days in May
Commencement of egg laying	First 5 days in May
Commencement of hatching	July 5–15
Chicks start leaving brood pouches	Last 10 days in August
Chicks start getting together in creches	First 10 days in September
Chicks start molting	Late October – early November
Adult birds start molting	Last 10 days in November – first 5 days in December
The colony starts disintegrating	Last 10 days in November – mid-December
Birds abandon the colony site	Last 5 days in December – first 10 days in January

According to the census data obtained during 1956 to 1966 the total population of the emperor penguin colony varied between 14 to 20 thousands (Korotkevich, 1958, Makushok, 1959,Prior, 1964, Kamenev, 1977). After that, during 1970s to 1980s a population declined by one third, but in 2000s has been gradually recovered. At present the colony population is stable with tendency for decrease. The observations of 2010/2011 summer season during egg laying period with maximum concentration of adult birds revealed that the colony population reached 13 thousands and according to chick census in 2015 it could be assumed that the colony population was more than 14 thousands (RAE, unpublished)

Comparative analysis of the emperor penguin population dynamics in two colonies located in the same ecoregion (80°E - 140°E), i.e. Haswell and Pointe Géologie, revealed similar trends during past 50 years (Barbraud et al., 2011). Before 1970-s penguin population at Pointe-Geologie Archipelago,Terre Adelie (ASPA 120) was stable, and at Haswell it was also stable or slightly decreasing. Population growth rate notably decreased and population numbers declined in both colonies during climatic regime shift in 1970-1980. Magnitude of decline was similar as well, and the numbers of breeding pairs correlated. Given that, one could suggest common large-scale environmental/climatic changes and related ecosystem shifts observed widely over the Southern Ocean might affect penguin populations.

The same string negative factor is likely to impact both populations. The ice cover, which is known to effect emperor penguin ecology, is suggested to be such a factor. In particular, decrease in iced cover and earlier onset of the fast-ice break-up dates negatively impacted penguin survival and further breeding population numbers via changes in food availability as shown previously Barbraud, Weimerskirch, 2001, Jenouvrier et al., 2009). During past 20 years both colonies demonstrated positive population dynamics under conditions of increasing extent of the ice cover and shift of fast-ice break-up onset to the later dates.

Table 3: Factors affecting the population of Emperor penguins on the Haswell Islands and relevant mitigation actions.

		Actions to mitigate the impact of anthropogenic factors
Anthropogenic factors	Disturbance by visitors	Visits to the colony should be strictly regulated
	Collection of eggs	The collection of eggs is prohibited, except in accordance with a permit for research issued by a national authority.
	Disturbance by flights	Flight route and height should be selected in accordance with this Management Plan
Natural factors	Climate changes and related changes in food resources. Ice conditions affect food availability and survival of adults and chicks. (Decrease in sea ice extent in April – June leads to decline in population growth rate and population numbers decline. An early break-up of fast ice increases chick mortality).	

Data on changes in the size of other populations are less complete (Table 4). Long-term changes may show a negative trend. However, it's not possible to make well-grounded conclusions based just on the three surveys with not full coverage of the populations and which are several decades apart.

Table 4: Long-term changes in the size of bird populations on the Haswell Islands.
Trend: 0 = uncertain, -1 = negative, ? = supposed.

Species	1960s-1970s, adults in individuals	1999/2001	2009/10, adults in individuals	Trend
Adelie penguin	41,000-44,500	Ca. 31,000 adults	Ca. 27,000	-1
Southern fulmar	9,500-10000	2300 nests with clutches	Ca. 5,000	-1
Antarctic petrel	900-1050	150-200 nests with clutches	Ca. 500	-1
Cape petrel	750	150 nests with clutches	Ca. 300	-1
Snow petrel	600-700	60-75 nests with clutches	No data	-1 ?
Wilson's storm-petrel	400-500	Min 30 occupied nests	Over 80	-1 ?
South-polar skua	48 (24 pairs)	Min. 38 (19 pairs)	170 (62 pairs)	1

The data from Haswell Island area show possible long-term negative trends in different seabird species including both penguins and flying birds. It is possible that the root cause which determined the population dynamics of not only emperor penguins but other sea birds in the Haswell Island area as well, are climate changes. However no data on population dynamics in the last 10 to 15 years is available.. The one exception is represented by the south polar skua which population tripled during the whole observation period.

More research and further monitoring are needed to reveal population trends in the birds of Haswell Island and to understand their causes.

6(ii) Definition of seasons; restricted and prohibited zones within the Area

Entry into any part of the Area is allowed only for holders of a Permit issued by an appropriate National Authority.

Activity in the Area shall be subject to special restrictions during the bird breeding season:

From mid-April to December in the vicinity of the Emperor penguin colony; and

From October to March in the vicinity of the nesting sites on Haswell Island.

The location of the breeding colonies is shown in Map 3. Emperor penguins, which are especially sensitive to disturbance, shall also be protected outside the designated breeding site as the breeding site may vary in location.

6(iii) Structures within the Area

A beacon – a metal pole whose base is secured by stones – is located on Haswell Island. There are no other structures on the island.

A heated shack containing an emergency food supply may be located on one of the neighboring islands (but not on Haswell Island).

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

HSM No 9 Cemetery on Buromskiy Island is located in 200 m to boundary of the Area.

7. Permit Conditions

7(i) Permit conditions

Entry into the Area is prohibited unless in accordance with a Permit issued by an appropriate national authority. Issue of a Permit to enter the Area must satisfy the following conditions:

- A Permit is issued only for purposes specified in para. 2 of the Management Plan;
- Permits shall be issued for a stated period;
- The actions permitted will not jeopardize the ecosystems of the Area or interfere with existing scientific research;
- Visits to the Area under a Permit shall be allowed to organized groups accompanied by a authorized person. Relevant information shall be entered in the Visit Logbook specifying the date and purpose of the visit and the number of visitors. The leader of the Mirny station keeps the Logbook.
- The authorized person is appointed in accordance with national procedure; and
- A visit report shall be supplied to the authority named in the Permit by the end of stated period or annually.

Permits shall be issued for scientific research, monitoring studies, or inspections that do not require collection of biological materials or fauna samples, or that require collecting in small quantities. A Permit for a visit to or stay in the Area shall specify the scope of tasks to be implemented, the implementation period, and the maximum number of staff allowed to visit the Area.

7(ii) Access to and movement within the Area

Vehicles other than skidoos are prohibited within the Area.

When approaching or moving within the Area, care shall be taken to avoid any disturbance to birds and seals, especially during the breeding season. Deterioration of the conditions of or approaches to the bird nesting sites, or seal haulouts shall be prohibited at all times.

Haswell Island. The western or south-western slopes are most suitable for access (Map 4). Movement shall only be on foot.

Fast ice section. During the formation of fast ice which provides pedestrian and vehicle safety, entry into the section shall be at any suitable place from the Mirny station. The use of any vehicles in the Area shall be prohibited during the nest sitting season (May-July). When using skidoos, visitors shall not approach the Emperor penguin colony closer than 500 m (irrespective of its location).

Overflight of the Area is prohibited during the most sensitive period of the Emperor penguin breeding cycle, from April 15 to August 31.

During the remainder of the year, overflight of the Area shall be conducted according to the following restrictions (Table 5). Direct overflights of the seabird breeding colonies should be avoided whenever it is possible.

Table 5: Minimum overflight heights within the Area according to aircraft type.

Aircraft type	Number of engines	Minimum height above ground	
		Feet	Meters
Helicopter	1	2,460	750
Helicopter	2	3,300	1,000
Fixed-wing	1 or 2	2,460	750
Fixed-wing	4	3,300	1,000

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

- Research on avifauna and other environmental studies that cannot be conducted elsewhere;
- Management activities, including monitoring.
- Education visits to the Emperor penguins colony except of the early nesting period (May – July)

7(iv) Installation, modification, or removal of structures

Structures or scientific equipment may be installed in the Area only for compelling scientific or management purposes approved by an appropriate authority pursuant to the effective regulations.

7(v) Location of field camps

Camping shall be allowed only for safety reasons, and every precaution shall be taken to avoid damage to the local ecosystem and disturbance to the local fauna.

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

No living organisms or chemicals other than chemicals required for scientific purposes specified in the Permit shall be introduced into the Area (chemicals introduced for scientific purposes shall be removed from the Area before the Permit expiry).

Fuel is not to be stored in the Area unless it is required for essential needs relating to the permitted activity. Anything introduced shall be for a stated period only, handled so that the risk to the ecosystem is minimized, and removed at the conclusion of the stated period. No permanent storage facilities shall be established in the Area.

7(vii) Taking of or harmful interference with native flora or fauna

Taking of or harmful interference with native flora or fauna is prohibited, except by Permit. In the case the activity is determined to have less than a minor or transitory impact, it should be conducted in accordance with the *SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica*, to be used as a minimum standard.

7(viii) 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 the Permit holder shall only be for scientific or management purposes specified in the Permit.

However, human waste may be removed from the Area, and dead or pathological samples of fauna and flora may be removed for laboratory analysis.

7(ix) Disposal of waste

All waste shall be removed from the Area.

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

Permits to enter the Area may be granted to carry out scientific observation, monitoring, and site inspection activities, which may involve limited collection of fauna samples, eggs, and other biological materials for scientific purposes.

To help maintain the environmental and scientific values of the Area, visitors shall take every precaution against the introduction of alien materials and organisms.

Any long-term monitoring sites shall be appropriately marked on a map and on site. A map showing the boundary of the ASPA shall be displayed at Mirny station. A copy of the Management Plan shall be displayed at Mirny station. A copy of the Management Plan shall be freely available at Mirny station.

Visits to the Area shall be limited to scientific, management and educational purposes.

7(xi) Requirements for reports

Parties should ensure that the principal holder of each Permit issued submits to the appropriate authority a report describing the activities undertaken. 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, to be used both in any review of the management plan and in organizing the scientific use of the Area.

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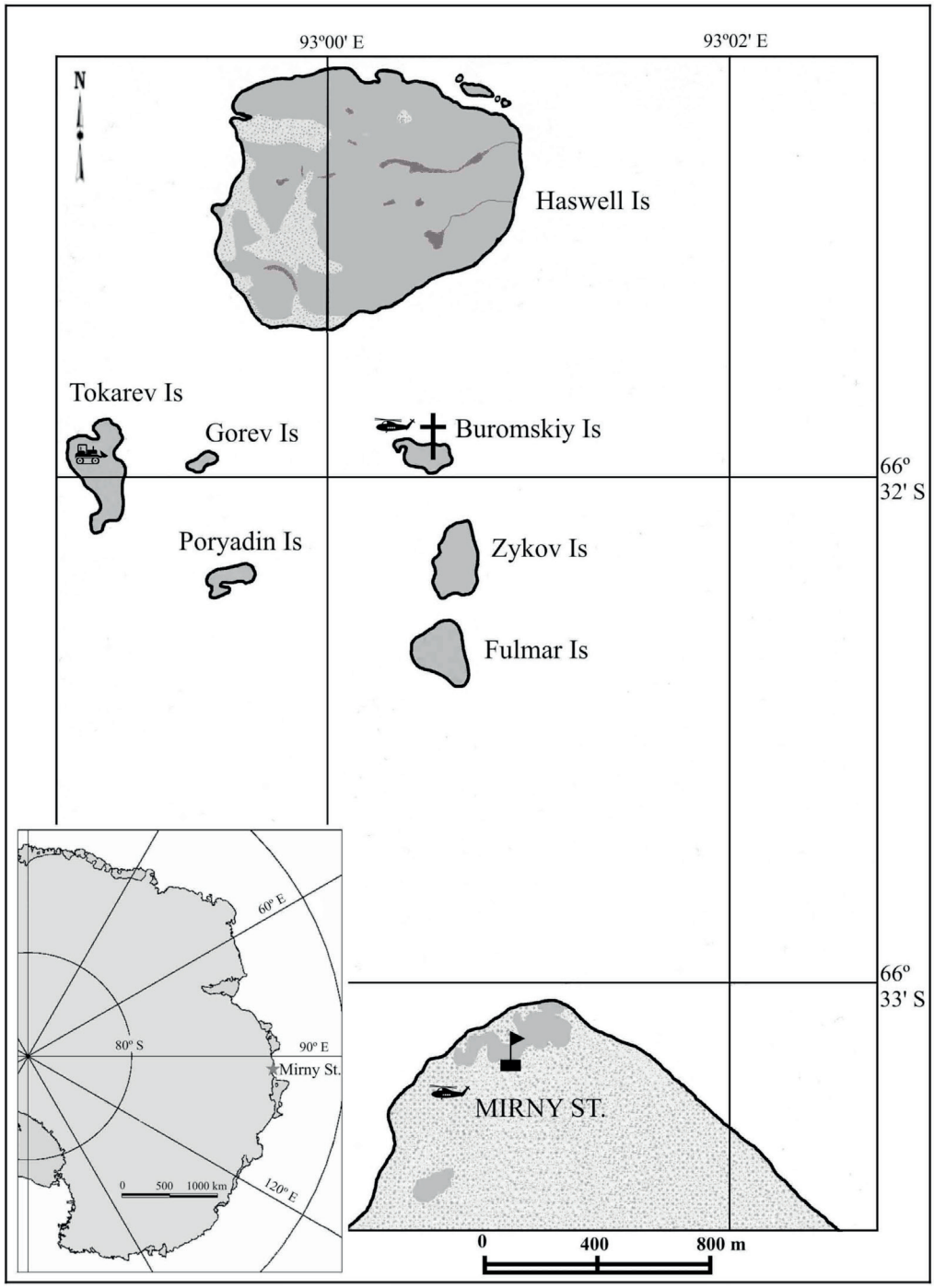
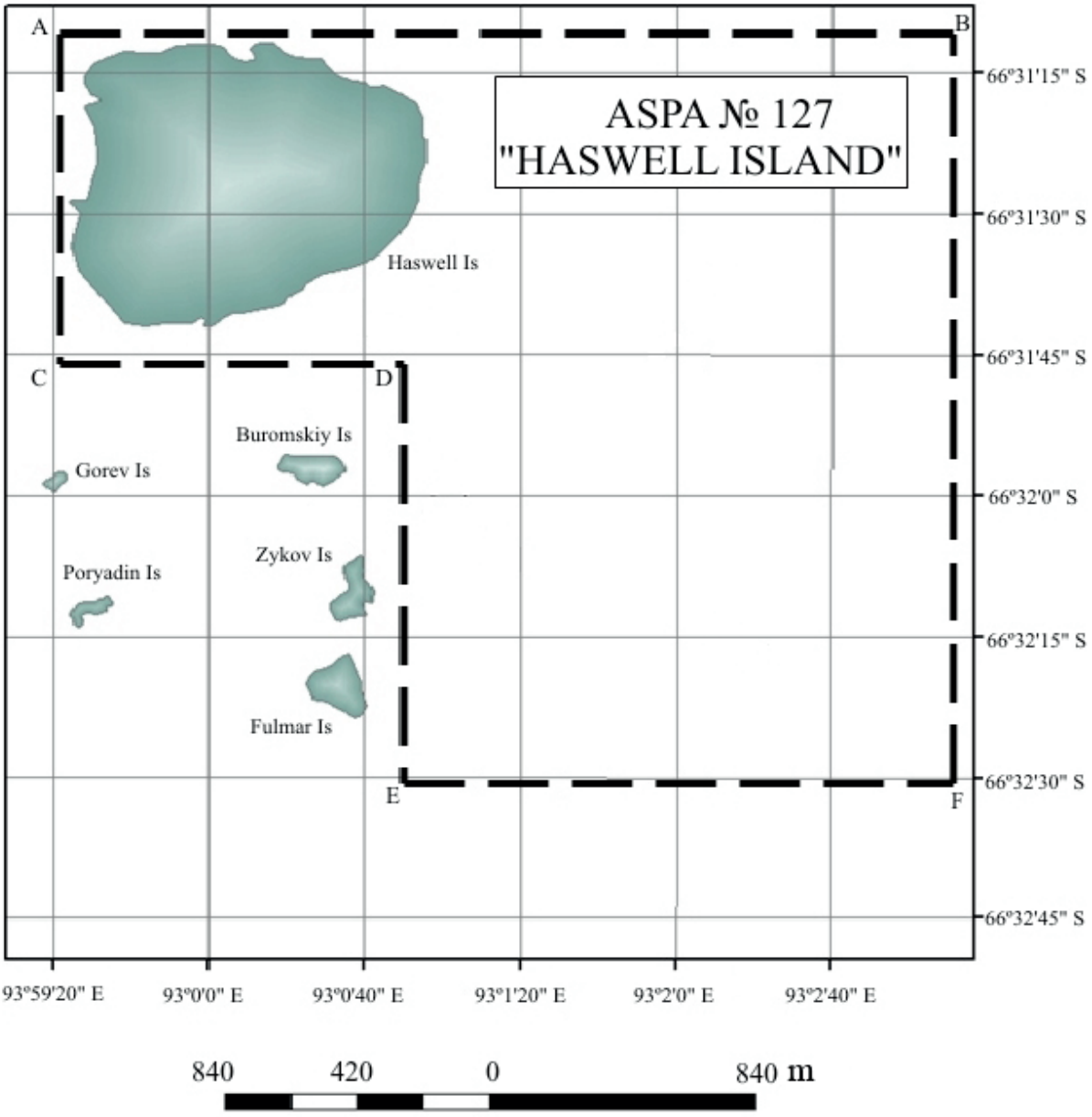
Map 1: Location of the Haswell Islands, Mirny Station, and logistic activity sites.

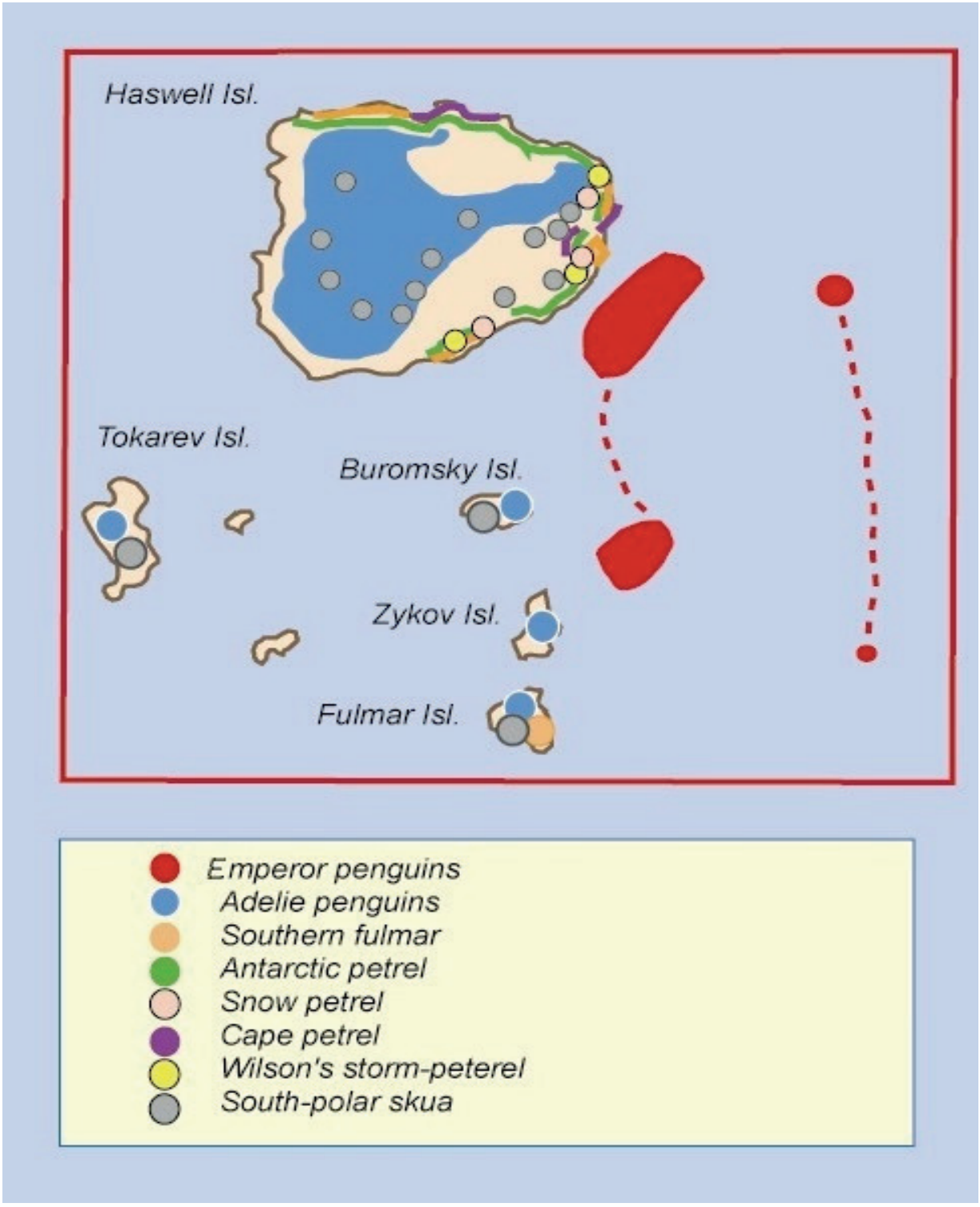


soil, rocks	glacier	lakes	station	cemetery	helicopter pad	vehicle debarkation site

Map 2: Boundaries of Antarctic Specially Protected Area 127, Haswell Island.



Map 3: Location of breeding seabird colonies.



Map 4: Topographic map of Haswell Island.