Hucke-Gaete, R, Torres, D. & Vallejos, V. 1997c. Entanglement of Antarctic fur seals, *Arctocephalus gazella*, by marine debris at Cape Shirreff and San Telmo Islets, Livingston Island, Antarctica: 1998-1997. *Serie Científica Instituto Antártico Chileno* **47**: 123-135.

Hucke-Gaete, R., Osman, L.P., Moreno, C.A. & Torres, D. 2004. Examining natural population growth from near extinction: the case of the Antarctic fur seal at the South Shetlands, Antarctica. *Polar Biology* **27** (5): 304–311

Huckstadt, L., Costa, D. P., McDonald, B. I., Tremblay, Y., Crocker, D. E., Goebel, M. E. & Fedak, M. E. 2006. Habitat Selection and Foraging Behavior of Southern Elephant Seals in the Western Antarctic Peninsula. American Geophysical Union, Fall Meeting 2006, abstract #OS33A-1684.

INACH (Instituto Antártico Chileno) 2010. Chilean Antarctic Program of Scientific Research 2009-2010. Chilean Antarctic Institute Research Projects Department. Santiago, Chile.

Kawaguchi, S., Nicol, S., Taki, K. & Naganobu, M. 2006. Fishing ground selection in the Antarctic krill fishery: Trends in patterns across years, seasons and nations. *CCAMLR Science*, **13**: 117–141.

Krause, D. J., Goebel, M. E., Marshall, G. J., & Abernathy, K. (2015). Novel foraging strategies observed in a growing leopard seal (*Hydrurga leptonyx*) population at Livingston Island, Antarctic Peninsula. *Animal Biotelemetry*, ***3***:24.

Krause, D.J., Goebel, M.E., Marshall. G.J. & Abernathy, K. *In Press*. Summer diving and haul-out behavior of leopard seals (*Hydrurga leptonyx*) near mesopredator breeding colonies at Livingston Island, Antarctic Peninsula. *Marine Mammal Science*.Leppe, M., Fernandoy, F., Palma-Heldt, S. & Moisan, P 2004. Flora mesozoica en los depósitos morrénicos de cabo Shirreff, isla Livingston, Shetland del Sur, Península Antártica, in Actas del 10º Congreso Geológico Chileno. CD-ROM. Resumen Expandido, 4pp. Universidad de Concepción. Concepción. Chile.

Leung, E.S.W., Orben, R.A. & Trivelpiece, W.Z. 2006. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2005-2006. In Lipsky, J. (ed.) AMLR (Antarctic Marine Living Resources) 2005-2006 Field Season Report, Ch. 9. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

McDonald, B.I., Goebel, M.E., Crocker, D.E., & Costa, D.P. 2012a. Dynamic influence of maternal and pup traits on maternal care during lactation in an income breeder, the Antarctic fur seal. *Physiological and Biochemical Zoology* **85**(3):000-000.

McDonald, B.I., Goebel, M.E., Crocker, D.E. & Costa, D.P. 2012. Biological and environmental drivers of energy allocation in a dependent mammal, the Antarctic fur seal. *Physiological and Biochemical Zoology* **85**(2):134-47.

Miller, A.K., Leung, E.S.W. & Trivelpiece, W.Z. 2005. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2004-2005. In Lipsky, J. (ed.) AMLR (Antarctic Marine Living Resources) 2004-2005 Field Season Report, Ch. 7. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

Miller, A.K. & Trivelpiece, W.Z. 2007. Cycles of *Euphausia superba* recruitment evident in the diet of Pygoscelid penguins and net trawls in the South Shetland Islands, Antarctica. *Polar Biology* **30** (12):1615–1623.

Miller, A.K. & Trivelpiece, W.Z. 2008. Chinstrap penguins alter foraging and diving behavior in response to the size of their principle prey, Antarctic krill. *Marine Biology* **154**: 201-208.

Miller, A.K., Karnovsky, N.J. & Trivelpiece, W.Z. 2008. Flexible foraging strategies of gentoo penguins *Pygoscelis papua* over 5 years in the South Shetland Islands, Antarctica. *Marine Biology* **156**: 2527-2537.

Mudge, M.L., Larned, A., Hinke, J. & Trivelpiece, W.Z. 2014. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2010-2011. In Walsh, J.G. (ed.) AMLR (Antarctic Marine Living Resources) 2010-2011 Field Season Report, Ch. 7. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

O'Gorman, F.A. 1961. Fur seals breeding in the Falkland Islands Dependencies. *Nature* **192**: 914-16.

O'Gorman, F.A. 1963. The return of the Antarctic fur seal. *New Scientist* **20**: 374-76.

Olavarría, C., Coria, N., Schlatter, R., Hucke-Gaete, R., Vallejos, V., Godoy, C., Torres D. & Aguayo, A. 1999. Cisnes de cuello negro, *Cygnus melanocoripha* (Molina, 1782) en el área de las islas Shetland del Sur y península Antártica. *Serie Científica Instituto Antártico Chileno* **49**: 79-87.

Oliva, D., Durán, R, Gajardo, M. & Torres, D. 1987. Numerical changes in the population of the Antarctic fur seal *Arctocephalus gazella* at two localities of the South Shetland Islands. *Serie Científica Instituto Antártico Chileno* **36**: 135-144.

Oliva, D., Durán, R, Gajardo, M. & Torres, D. 1988. Population structure and harem size groups of the Antarctic fur seal *Arctocephalus gazella* Cape Shirreff, Livingston Island, South Shetland Islands. Meeting of the SCAR Group of Specialists on Seals, Hobart, Tasmania, Australia. *Biomass Report Series 59*: 39.

Orben, R.A., Chisholm, S.E., Miller, S.K. & Trivelpiece, W.Z. 2007. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2006-2007. In Lipsky, J. (ed.) AMLR (Antarctic Marine Living Resources) 2006-2007 Field Season Report, Ch. 7. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

Osman, L.P., Hucke-Gaete, R., Moreno, C.A., & Torres, D. 2004. Feeding ecology of Antarctic fur seals at Cape Shirreff, South Shetlands, Antarctica. *Polar Biology* **27**(2): 92–98.

Palma-Heldt, S., Fernandoy, F., Quezada, I. & Leppe, M 2004. Registro Palinológico de cabo Shirreff, isla Livingston, nueva localidad para el Mesozoico de Las Shetland del Sur, in V Simposio Argentino y I Latinoamericano sobre Investigaciones Antárticas CD-ROM. Resumen Expandido N° 104GP. Buenos Aires, Argentina.

Palma-Heldt, S., Fernandoy, F., Henríquez, G. & Leppe, M 2007. Palynoflora of Livingston Island, South Shetland Islands: Contribution to the understanding of the evolution of the southern Pacific Gondwana margin. U.S. Geological Survey and The National Academies; USGS OF-2007-1047, Extended Abstract 100.

Pietrzak, K.W., Breeden, J.H, Miller, A.K. & Trivelpiece, W.Z. 2009. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2008-2009. In Van Cise, A.M. (ed.) AMLR (Antarctic Marine Living Resources) 2008-2009 Field Season Report, Ch. 6. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

Pietrzak, K.W., Mudge, M.L. & Trivelpiece, W.Z. 2011. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2009-2010. In Van Cise, A.M. (ed.) AMLR (Antarctic Marine Living Resources) 2009-2010 Field Season Report, Ch. 5. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.Pinochet de la Barra, O. 1991. El misterio del "San Telmo". ¿Náufragos españoles pisaron por primera vez la Antártida? *Revista Historia* (Madrid), **16** (18): 31-36.

Polito, M.J., Trivelpiece, W.Z., Patterson, W.P., Karnovsky, N.J., Reiss, C.S., & Emslie, S.D. 2015. Contrasting specialist and generalist patterns facilitate foraging niche partitioning in sympatric populations of Pygoscelis penguins. *Marine Ecology Progress Series* **519***:* 221–37.

Reid, K., Jessop, M.J., Barrett, M.S., Kawaguchi, S., Siegel, V. & Goebel, M.E. 2004. Widening the net: spatio-temporal variability in the krill population structure across the Scotia Sea. *Deep-Sea Research* II **51**: 1275–1287

Reiss, C. S., Cossio, A. M., Loeb, V. & Demer, D. A. 2008. Variations in the biomass of Antarctic krill (Euphausia superba) around the South Shetland Islands, 1996–2006. *ICES Journal of Marine Science* **65**: 497–508.

Sallaberry, M. & Schlatter, R. 1983. Estimacíon del número de pingüinos en el Archipiélago de las Shetland del Sur. *Serie Científica Instituto Antártico Chileno* **30**: 87-91.

Saxer, I.M., Scheffler, D.A. & Trivelpiece, W.Z. 2003. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2001-2002. In Lipsky, J. (ed.) AMLR (Antarctic Marine Living Resources) 2001-2002 Field Season Report, Ch. 6. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

Schwarz, L.K., Goebel, M.E., Costa, D.P., & Kilpatrick, A.M. 2013. Top-down and bottom-up influences on demographic rates of Antarctic fur seals Arctocephalus gazella. *Journal of Animal Ecology* **82**(4): 903–11.

Shill, L.F., Antolos, M. & Trivelpiece, W.Z. 2003. Seabird research at Cape Shirreff, Livingston Island, Antarctica 2002-2003. In Lipsky, J. (ed.) AMLR (Antarctic Marine Living Resources) 2002-2003 Field Season Report, Ch. 8. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

Smellie, J.L., Pallàs, R.M., Sàbata, F. & Zheng, X. 1996. Age and correlation of volcanism in central Livingston Island, South Shetland Islands: K-Ar and geochemical constraints. *Journal of South American Earth Sciences* **9** (3/4): 265-272.

Smith, R.I.L. & Simpson, H.W. 1987. Early Nineteenth Century sealers' refuges on Livingston Island, South Shetland Islands. *British Antarctic Survey Bulletin* 74: 49-72.

Stehberg, R. & V. Lucero, 1996. Excavaciones arqueológicas en playa Yámana, cabo Shirreff, isla Livingston, Shetland del Sur, Antártica. *Serie Científica Instituto Antártico Chileno* 46: 59-81.

Taft, M.R., Saxer, I.M. & Trivelpiece W.Z 2001. Seabird research at Cape Shirreff, Livingston Island, Antarctica, 2000/2001. In Lipsky, J. (ed.) AMLR (Antarctic Marine Living Resources) 2000-01 Field Season Report, Ch. 7. Antarctic Ecosystem Research Division, Southwest Fisheries Science Center, La Jolla, California.

Torres, D. 1984. Síntesis de actividades, resultados y proyecciones de las investigaciones chilenas sobre pinípedos antarcticos. *Boletín Antártico Chileno* **4**(1): 33-34.

Torres, D. 1990. Collares plásticos en lobos finos antárticos: Otra evidencia de contaminación. *Boletín Antártico Chileno* **10** (1): 20-22.

Torres, D. 1992. ¿Cráneo indígena en cabo Shirreff? Un estudio en desarrollo. *Boletín Antártico Chileno* **11** (2): 2-6.

Torres, D. 1994. Synthesis of CEMP activities carried out at Cape Shirreff. Report to CCAMLR WG-CEMP 94/28.

Torres, D. 1995. Antecedentes y proyecciones científicas de los estudios en el SEIC No. 32 y Sitio CEMP «Cabo Shirreff e islotes San Telmo», isla Livingston, Antártica. *Serie Científica Instituto Antártico Chileno* **45**: 143-169.

Torres, D. 1999. Observations on ca. 175-Year Old Human Remains from Antarctica (Cape Shirreff, Livingston Island, South Shetlands). *International Journal of Circumpolar Health* **58**: 72-83.

Torres. D. 2007. Evidencias del uso de armas de fuego en cabo Shirreff. *Boletín Antártico Chileno*, **26** (2): 22.

Torres, D. & Aguayo, A. 1993. Impacto antrópico en cabo Shirreff, isla Livingston, Antártica. *Serie Científica Instituto Antártico Chileno* **43**: 93-108.

Torres, D. & Gajardo, M. 1985. Información preliminar sobre desechos plásticos hallados en cabo Shirreff, isla Livingston, Shetland del Sur, Chile. *Boletín Antártico Chileno* **5**(2): 12-13.

Torres, D. & Jorquera, D. 1992. Analysis of Marine Debris found at Cape Shirreff, Livingston Island, South Shetlands, Antarctica. SC-CAMLR/BG/7, 12 pp. CCAMLR, Hobart, Australia.

Torres, D. & Jorquera, D. 1994. Marine Debris Collected at Cape Shirreff, Livingston Island, during the Antarctic Season 1993/94. CCMALR-XIII/BG/17, 10 pp. 18 October 1994. Hobart, Australia.

Torres, D. & Jorquera, D. 1995. Línea de base para el seguimiento de los desechos marinos en cabo Shirreff, isla Livingston, Antártica. *Serie Científica Instituto Antártico Chileno* **45**: 131-141.

Torres, D., Jaña, R., Encina, L. & Vicuña, P. 2001. Cartografía digital de cabo Shirreff, isla Livingston, Antártica: un avance importante. *Boletín Antártico Chileno* **20** (2): 4-6.

Torres, D.E. & Valdenegro V. 2004. Nuevos registros de mortalidad y necropsias de cachorros de lobo fino antártico, Arctocephalus gazella, en cabo Shirreff, Isla Livingston, Antártica. *Boletín Antártico Chileno* **23** (1).

Torres, D., Vallejos, V., Acevedo, J., Hucke-Gaete, R. & Zarate, S. 1998. Registros biologicos atípico en cabo Shirreff, isla Livingston, Antártica. *Boletín Antártico Chileno* **17** (1): 17-19.

Torres, D., Vallejos, V., Acevedo, J., Blank, O., Hucke-Gaete, R. & Tirado, S. 1999. Actividades realizadas en cabo Shirreff, isla Livingston, en temporada 1998/99. *Boletín Antártico Chileno* **18** (1): 29-32.

Torres, T. 1993. Primer hallazgo de madera fósil en cabo Shirreff, isla Livingston, Antártica. *Serie Científica Instituto Antártico Chileno* **43**: 31-39.

Torres, D., Acevedo, J., Torres, D.E., Vargas, R., & Aguayo-Lobo, A. 2012. Vagrant Subantarctic fur seal at Cape Shirreff, Livingston Island, Antarctica. *Polar Biology* **35** (3): 469–473.

Tufft, R. 1958. Preliminary biology report Livingston Island summer survey. Unpublished British Antarctic Survey report, BAS Archives Ref. AD6/2D/1957/N2.

U.S. AMLR 2008. AMLR 2007-2008 field season report. Objectives, Accomplishments and Tentative Conclusions. Southwest Fisheries Science Center Antarctic Ecosystem Research Group. October 2008.

U.S. AMLR 2009. AMLR 2008-2009 field season report. Objectives, Accomplishments and Tentative Conclusions. Southwest Fisheries Science Center Antarctic Ecosystem Research Group. May 2009.

Vargas, R., Osman, L.P. & Torres, D. 2009. Inter-sexual differences in Antarctic fur seal pup growth rates: evidence of environmental regulation? *Polar Biology* **32** (8):1177–86

Vallejos, V., Acevedo, J., Blank, O., Osman, L. & Torres, D. 2000. Informe científico - logístico. ECA XXXVI (1999/2000). Proyecto 018 "Estudios ecológicos sobre el lobo fino antártico, Arctocephalus gazella", cabo Shirreff, archipiélago de las Shetland del Sur, Antártica. Ministerio de Relaciones Exteriores, Instituto Antártico Chileno. Nº Ingreso 642/712, 19 ABR.2000.

Vallejos, V., Osman, L., Vargas, R., Vera, C. & Torres, D. 2003. Informe científico. ECA XXXIX (2002/2003). Proyecto INACH 018 "Estudios ecológicos sobre el lobo fino antártico, Arctocephalus gazella", cabo Shirreff, isla Livingston, Shetland del Sur, Antártica. Ministerio de Relaciones Exteriores, Instituto Antártico Chileno.

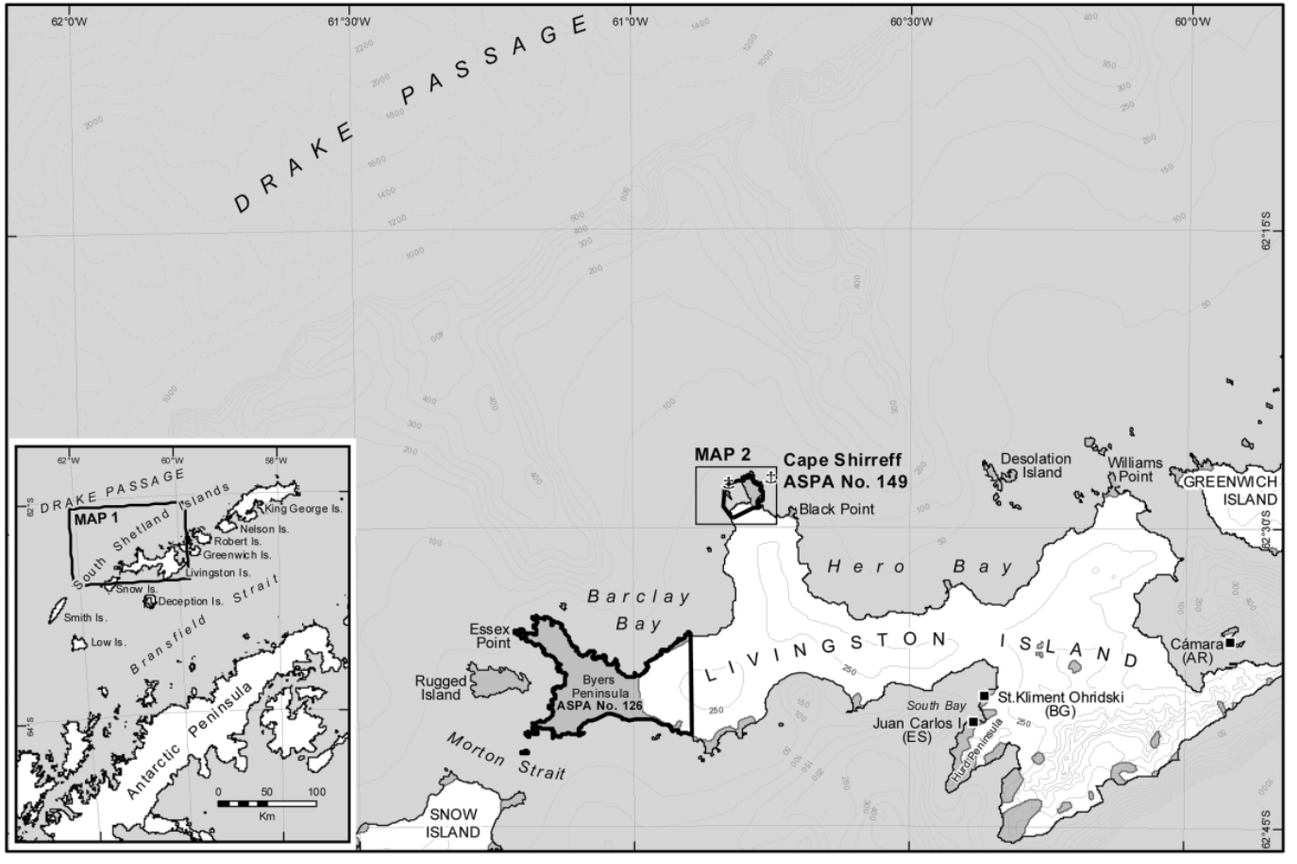
Vera, C., Vargas, R. & Torres, D. 2004. El impacto de la foca leopardo en la población de cachorros de lobo fino antártico en cabo Shirreff, Antártica, durante la temporada 2003/2004. *Boletín Antártico Chileno* **23** (1).

Warren, J., Sessions, S., Patterson, M. Jenkins, A., Needham, D. & Demer, D. 2005. Nearshore Survey. In AMLR 2004-2005 field season report. Objectives, Accomplishments and Tentative Conclusions. Southwest Fisheries Science Center Antarctic Ecosystem Research Group. La Jolla, California.

Warren, J., Cox, M., Sessions, S. Jenkins, A., Needham, D. & Demer, D. 2006. Nearshore acoustical survey near Cape Shirreff, Livingston Island. In AMLR 2005-2006 field season report. Objectives, Accomplishments and Tentative Conclusions. Southwest Fisheries Science Center Antarctic Ecosystem Research Group. La Jolla, California.

Warren, J., Cox, M., Sessions, S. Jenkins, A., Needham, D. & Demer, D. 2007. Nearshore acoustical survey near Cape Shirreff, Livingston Island. In AMLR 2006-2007 field season report. Objectives, Accomplishments and Tentative Conclusions. Southwest Fisheries Science Center Antarctic Ecosystem Research Group. La Jolla, California.

Woehler, E.J. (ed.) 1993. *The distribution and abundance of Antarctic and sub-Antarctic penguins*. SCAR, Cambridge.



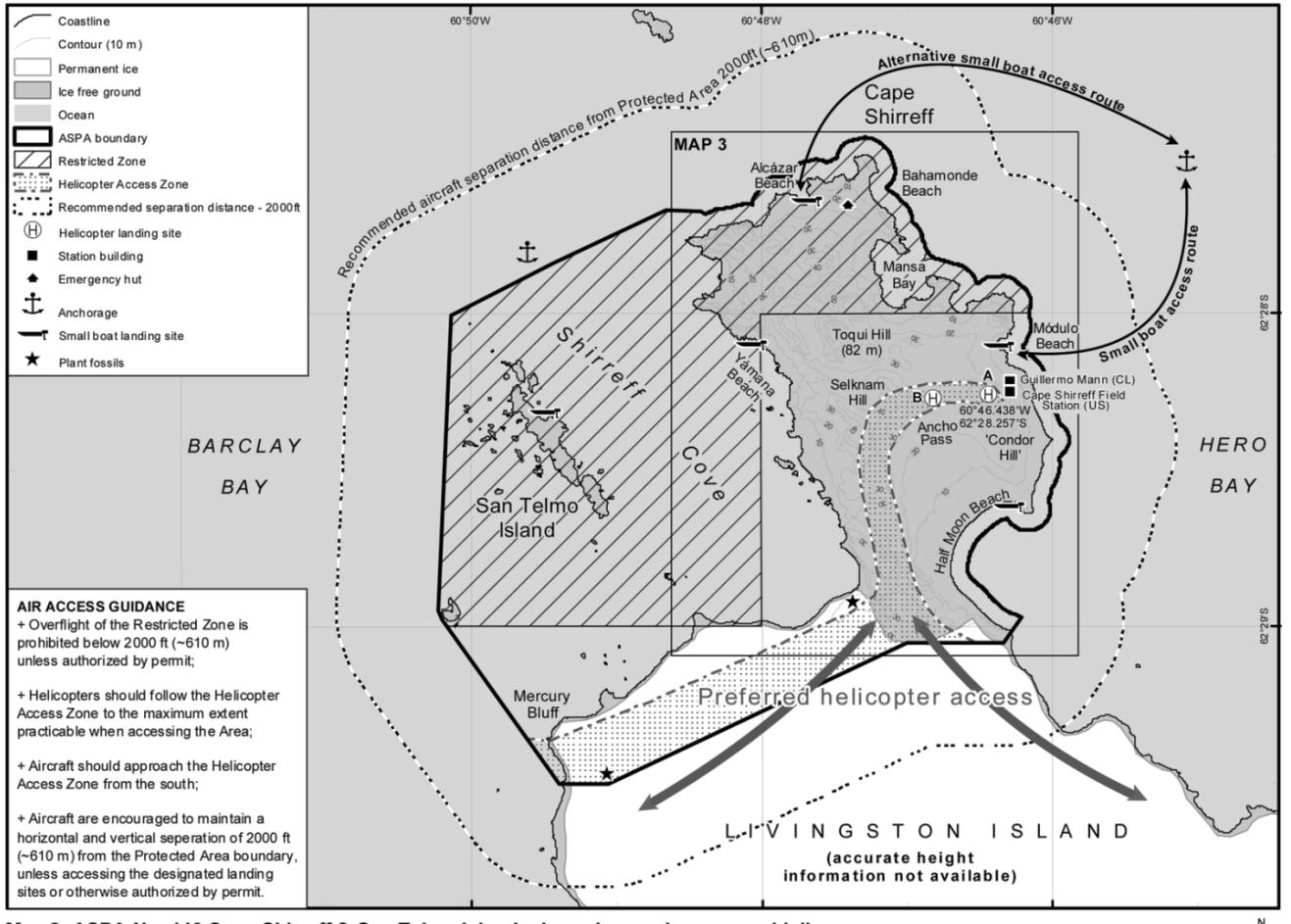

**Map 1: ASPA No. 149 - Cape Shirreff & San Telmo Island - Regional overview**

*04 Mar 2016 (Map ID: 10069.0003.04)*
*United States Antarctic Program / INACH*
*Environmental Research & Assessment*

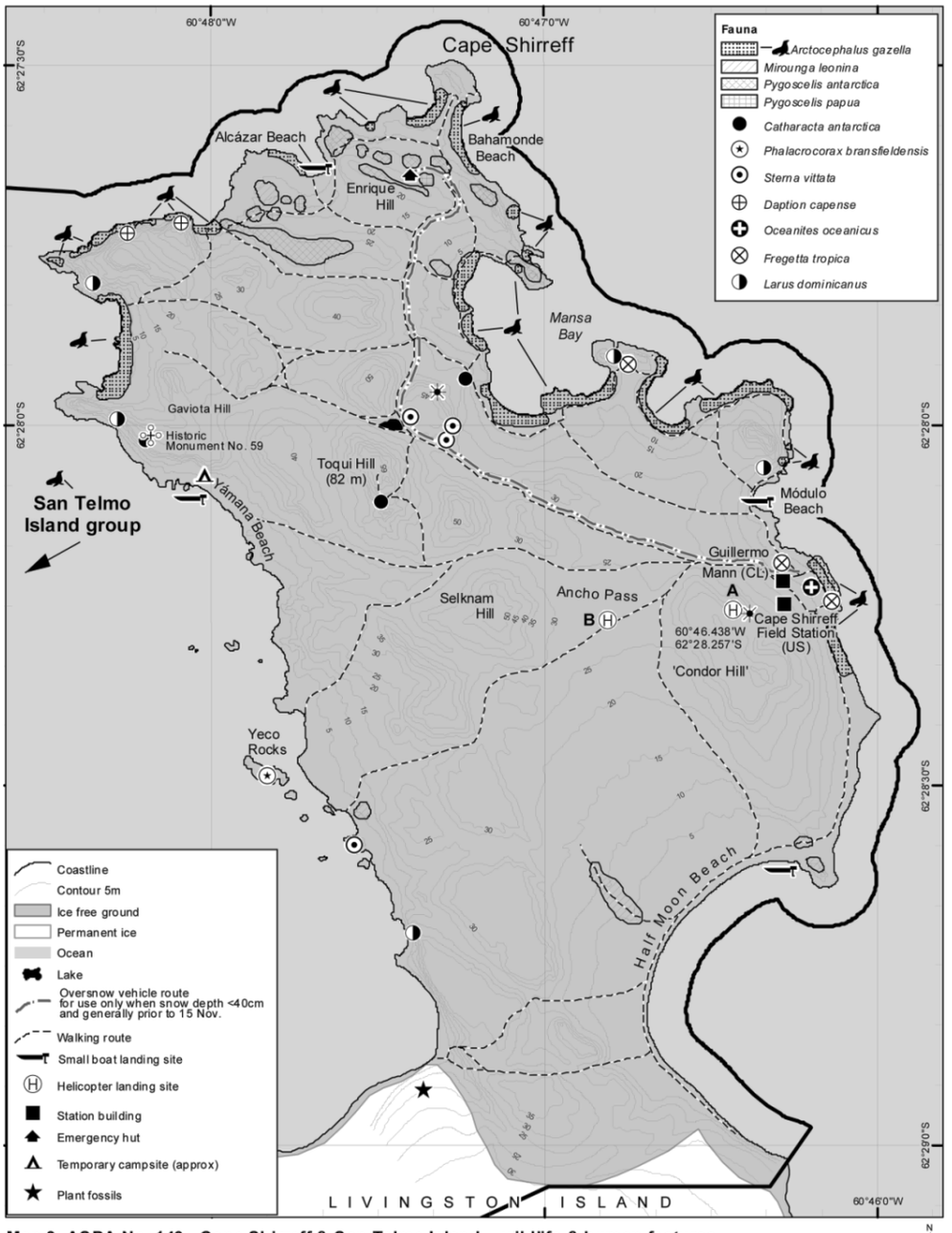
Coastline
Contour (250 m)
Bathymetry (50 m)
Bathymetry (200 m)
Ice free ground
Permanent ice
Ocean
Antarctic Specially Protected Area (ASPA) boundary
Permanent Station
Anchorage

0 10 20 N
Kilometers

Projection: Lambert Conic Conformal
Spheroid and horizontal datum: WGS84
Data sources:
Facilities: COMNAP (2014), revised by ERA;
Coastline & topography: SCAR Antarctic Digital Database (v6, 2012);
Bathymetry: supplied by D. Demer & U.S. AMLR, NOAA, 2002 & IBCSO (v12013).




**Map 2: ASPA No. 149 Cape Shirreff & San Telmo Island - boundary and access guidelines**




**Map 3: ASPA No. 149 - Cape Shirreff & San Telmo Island - wildlife & human features**

# Antarctic Specially Protected Area No 167 (Hawker Island, Princess Elizabeth Land): Revised Management Plan

**The Representatives**,

*Recalling* Articles 3, 5 and 6 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty providing for the designation of Antarctic Specially Protected Areas ("ASPA") and approval of Management Plans for those Areas;

*Recalling*
Measure 1 (2006), which designated Hawker Island, Vestfold Hills, Ingrid Christensen Coast, Princess Elizabeth Land, East Antarctica as ASPA 167 and annexed a Management Plan for the Area;
Measure 9 (2011), which adopted a revised Management Plan for ASPA 167;

*Noting* that the Committee for Environmental Protection has endorsed a revised Management Plan for ASPA 167;

*Desiring* to replace the existing Management Plan for ASPA 167 with the revised Management Plan;

**Recommend** to their Governments the following Measure for approval in accordance with paragraph 1 of Article 6 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty:
That:

1. the revised Management Plan for Antarctic Specially Protected Area No 167 (Hawker Island, Princess Elizabeth Land), which is annexed to this Measure, be approved; and
2. the Management Plan for Antarctic Specially Protected Area No 167 annexed to Measure 9 (2011) be revoked.

## Management Plan for Antarctic Specially Protected Area No. 167

## HAWKER ISLAND, PRINCESS ELIZABETH LAND

### Introduction

Hawker Island (68°38'S, 77°51'E, Map A) is located 7 km south-west from Davis station off the Vestfold Hills on the Ingrid Christensen Coast, Princess Elizabeth Land, East Antarctica. The island was designated as Antarctic Specially Protected Area (ASPA) No. 167 under Measure 1 (2006), following a proposal by Australia, primarily to protect the southernmost breeding colony of southern giant petrels (*Macronectes giganteus*) (Map B). A revised management plan for the Area was adopted under Measure 9 (2011). The Area is one of only four known breeding locations for southern giant petrels on the coast of East Antarctica, all of which have been designated as ASPAs: ASPA 102, Rookery Islands, Holme Bay, Mac.Robertson Land (67º36'S, 62º53'E) – near Mawson Station; ASPA 160, Frazier Islands, Wilkes Land (66°13'S, 110°11'E) – near Casey station; and ASPA 120, Pointe Géologie, Terre Adélie (66º40'S, 140º01'E) – near Dumont d'Urville. Hawker Island also supports breeding colonies of Adélie penguins (*Pygocelis adeliae*), south polar skuas (*Catharacta maccormicki*), Cape petrels (*Daption capense*) and occasionally southern elephant seals (*Mirounga leonina*) haul out there.

### 1. Description of values to be protected

The total population of southern giant petrels in East Antarctica represents less than one per cent of the global breeding population. Estimates of breeding populations are problematic, as birds may be occupying a nest site when monitoring occurs, but not breeding that season. There are currently about 280 occupied nests in East Antarctica, comprising about 40 occupied nests on Hawker Island (2014), 2 occupied nests on Giganteus Island (Rookery Islands group) (2015), about 230 occupied nests on the Frazier Islands (2013) and about 8 occupied nests at Pointe Géologie (2005). Southern giant petrels also breed on islands in the southern Indian and Atlantic oceans and at the Antarctic Peninsula.

The southern giant petrel colony at Hawker Island was discovered in December 1963; at that time there were 40-50 nests present, "some with eggs" but it is unclear how many nests were occupied. From 1963 to 2007, intermittent counts of adults, eggs or chicks were undertaken at various stages of the breeding cycle. Because of the variability in the timing of counts and the inconsistency of count units it is not possible to establish a long term trend for this population. Low numbers were previously reported for this colony because only the numbers of chicks banded in a given year were recorded rather than total chick numbers.

Southern giant petrels are sensitive to disturbance at the nest. Restrictions in activities permitted at breeding sites near Australian stations, including a prohibition of banding, were introduced in the mid-1980s.

At the South Shetland Islands and South Orkney Islands, the incidental bycatch of southern giant petrels in longline fisheries operating in the Southern Ocean is likely to have contributed to observed population decreases. Similar observations have not been made in East Antarctica.

Southern giant petrels are listed as Least Concern by the International Union for Conservation of Nature (IUCN, 2016). However, census data from a number of locations are decades old and the size and trend of the global population is not entirely certain. Hawker Island also supports breeding colonies of Adélie penguins, south polar skuas and Cape petrels. Occasionally southern elephant seals haul out on the southern beaches.

## 2. Aims and objectives

Management of the Hawker Island ASPA aims to:

- protect the breeding colony of southern giant petrels and other wildlife;
- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance;
- allow scientific research on the ecosystem, particularly on the avifauna, and physical environment, provided it is for compelling reasons which cannot be served elsewhere;
- minimise the possibility of introduction of pathogens which may cause disease in bird populations within the Area;
- minimise human disturbance to southern giant petrels in the Area;
- allow the Area to be used as a reference area for future comparative studies with other breeding populations of southern giant petrels;
- protect the values of Hawker Island as a reference area for future comparative studies with other breeding populations of southern giant petrels;
- minimise the possibility of the introduction of alien plants, animals and microbes to Hawker Island;
- allow for the gathering of data on the population status and related demography of the bird species on a regular basis; and
- allow visits for management purposes in support of the aims of the management plan.

## 3. Management activities

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

- research visits to assess population status and trends of the southern giant petrel colony and/or other wildlife shall be permitted. Wherever feasible, preference shall be given to activities and methodologies which minimise disturbance to the breeding colony (e.g. use of automated cameras);
- visits shall be made to the Area as necessary (preferably not less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure that management activities are adequate;
- if practicable the Area shall be visited outside the breeding season of southern giant petrels (i.e. during the period mid-April to mid-September), to assess whether it continues to serve the purposes for which it was designated and to ensure that management activities are adequate;
- information on the location of Hawker Island ASPA (stating the restrictions that apply) shall be produced and copies of this management plan shall be available at nearby stations. Informative material and the management plan should be provided to ships visiting the vicinity; and
- the management plan shall be reviewed at least every five years.

## 4. Period of designation

Designation is for an indefinite period.

## 5. Maps

Map A: Antarctic Specially Protected Area No 167, Hawker Island Vestfold Hills, Ingrid Christensen Coast, East Antarctica.

Map B: Antarctic Specially Protected Area No 167, Hawker Island Vestfold Hills, Ingrid Christensen Coast, East Antarctica, Topography and Fauna Distribution.

Specifications for maps:
Projection: UTM Zone 49
Horizontal Datum: WGS84

## 6. Description of the Area

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

Hawker Island is located at 68°38'S, 77°51'E, approximately 300 m offshore from the Vestfold Hills. The Vestfold Hills are a roughly triangular ice-free area of

approximately 512 km$^2$ of bedrock, glacial debris, lakes and ponds. The Vestfold Hills are bound by the ice plateau to the east, the Sørsdal Glacier to the south, and Prydz Bay to the west. They contain low hills (maximum height 158 m at Boulder Hill) and valleys, and are penetrated deeply by fjords and lakes. Numerous islands fringe the coast of the Vestfold Hills, and Hawker Island lies in the south-west, between Mule Island and Mule Peninsula.

Hawker Island is an irregularly shaped island of low elevation (maximum elevation of nearly 40 m), with two parallel ranges running in a north south direction terminating in two small southern peninsulas. A third peninsula lies directly west and terminates with a 40 m hill with steep cliffs to the sea on the western and southerly aspects. A number of small freshwater lakes lie between the ranges of hills on the northern part of the island, with a number of small lakes lying on the flatter terrain on the eastern sector of the island. At its maximum extent the island is 2 km north to south and 1.7 km east to west.

The Hawker Island ASPA comprises the entire terrestrial area of Hawker Island, with the seaward boundary at the low water mark (Map B). The total area of the Hawker Island ASPA is approximately 1.9 km$^2$. There are no boundary markers.

- *Environmental Domains and Antarctic Conservation Biogeographic Regions*

Based on the Environmental Domains Analysis for Antarctica (Resolution 3 (2008)) Hawker Island is located within Environment T *Inland continental geologic*.

Based on the Antarctic Conservation Biogeographic Regions (Resolution 6 (2012)), Hawker Island is located within Biogeographic Region 7 *East Antarctica*.

- *Human History*

The first recorded sighting of the Vestfold Hills was on 9 February 1931 by Douglas Mawson on the BANZARE voyage of the '*Discovery*'. Four years later, on 20 February 1935, Captain Klarius Mikkelsen of the tanker *Thorshavn* (Lars Christensen Company), sighted the hills and landed in the area. He named many features in the area and in the Vestfold Hills after his home province in Norway. The Vestfold Hills were again visited by Mikkelsen in early 1937, while undertaking an aerial survey of the coast.

In January 1939, the American explorer, Lincoln Ellsworth, and his Australian adviser, Sir Hubert Wilkins were the next recorded visitors to the area in the motor ship *Wyatt Earp*. Ellsworth flew some 400 km inland. In early 1947, the *USS Currituck* visited the Ingrid Christensen Coast as part of Operation Highjump. Photographic flights were conducted to survey the coastline.

The first Australian National Antarctic Research Expedition (ANARE) to the area was led by Dr Phillip Law on *Kista Dan* and reached the Vestfold Hills on 1 March 1954. During January 1956, members of the Soviet Antarctic Expedition landed on

the Ingrid Christensen Coast in preparation for the International Geophysical Year and established Mirny Station 595 km to the east. Australia established Davis station in the Vestfold Hills in 1957. Hawker Island was named for A.C. Hawker, radio supervisor at Davis station in 1957.

- *Climate*

Meteorological data for the Area are confined almost entirely to observations at Davis station, 7 km northwest of Hawker Island. The Vestfold Hills area has a polar maritime climate that is cold, dry and windy. In summer, average temperatures range from -1°C to +3 °C and from -14°C to -21°C in winter. From 1957 to 2015, the maximum temperature recorded at Davis station was +13°C, while the lowest temperature was -41.8°C recorded on 27 April 1998. Long periods of relatively calm, fine conditions occur throughout the year. Winds are generally light. The yearly average is around 20 km/h. Violent winds and blizzards can commence with little warning at any time of the year, and gusts of over 200 km/h were recorded in 1972. Snowfall averages 78 mm/yr, with the greater proportion of annual accumulation resulting from windblown drift. Apart from several permanent ice banks, the Vestfold Hills are virtually snow free in summer and lightly covered in winter. The highest rainfall recorded at Davis was 55.6 mm in 2013. The record illustrates the seasonal climate expected for high latitudes, but on average Davis station is warmer than other Antarctic stations at similar latitudes. This has been attributed to the "rocky oasis" which results from the lower albedo of rock surfaces compared to ice, hence more solar energy is absorbed and re-radiated.

- *Geology*

The Vestfold Hills consist of Archaean gneiss, upon which thin and often fossiliferous Pliocene and Quaternary sediments occupy depressions. The oldest known Cenozoic strata in the Vestfold Hills are the mid-Pliocene Sørsdal Formation, which contains a diverse marine fossil flora and fauna. Other younger Cenozoic strata attest to repeated glaciation, and several marine transgressions and regressions. The three major lithologies forming the Vestfold Hills are (in order of age) Chelnock Paragneiss, Mossel Gneiss and Crooked Lake Gneiss. This is repeated in units from east-north-east to west-south-west. Intruded into these, are groups of mafic dykes in a rough north-south orientation. The dykes are a major feature of the Vestfold Hills. Hawker Island comprises an extension of the Crooked Lake Gneiss of the northern portion of Mule Peninsula above Laternula Inlet. In common with the Archaean gneisses in the Vestfold Hills, the Hawker Island Crooked Lake Gneiss is cut by very distinctive, middle to early Proterozoic dolerite dykes.

- *Southern Giant Petrels*

At Hawker Island, the colony of southern giant petrels is situated on slightly sloping ground about 20 m above sea-level at the northern end of the island (Map B). The same area has been used for breeding since its discovery in 1963/64.

The breeding season for southern giant petrels on Hawker Island commences in late September/early October and eggs are laid during the second half of October. Following an incubation period of about 60 days, hatching starts in the second half of December. Hatching continues over a period of three to four weeks until mid-January. About 14 – 16 weeks after hatching, the fledglings leave the colony from late March to early May. Images taken year round by automated cameras show that a small number of birds are present outside the breeding season; hence the requirement that visits to the Area at any time of the year be conducted in a manner that ensures minimal disturbance.

In the mid 1980s, a management strategy was implemented for all three southern giant petrels breeding localities in the vicinity of the Australian stations, to minimise human disturbance. Previously the Australian Antarctic Division restricted visits to one in every three to five year period and implemented tight administrative controls over all other visits. At this time, this level of visitation was considered an appropriate compromise between the risk of disturbing the birds and the need to obtain meaningful population data. However, this management regime impacted on the level of visitation needed to assess population status and trends and did not appear to significantly benefit the breeding success of the southern giant petrels. With the development of new technology (automated cameras), some detailed information can now be obtained with little or no human presence during the breeding period.

During the 2013/14 breeding season, 43 nests were occupied at some stage but not all adults attending them attempted to breed. In February 2014, at least 23 well advanced chicks were present. Some nests are not in the field of view of the automated cameras so the number of chicks may have been slightly higher.

- *Other Birds*

Adélie penguins breed along the Vestfold Hills coastline and on 27 offshore islands, including Hawker Island. The total number of Adélie penguins in the Vestfold Hills coast and offshore islands was most recently estimated to be 330 000 pairs in 2009/10. The Hawker Island Adélie penguin colony is currently located in the vicinity of a small hill midway on the western side of the island and was estimated to be 5000 pairs in 2009/10. There has been an historical shift in the occupation of sub-colony areas. Some areas which were previously occupied are no longer occupied. This is common at Adélie penguin populations in the Davis region. As with other breeding sites in the Davis region, the first Adélie penguins usually appear in the area by the middle of October and eggs are laid about four weeks later. The laying interval between the first and second egg is 2 to 4 days, and the incubation period ranges from 32 to 35 days. The last moulted adults usually depart Hawker Island by the end of March.

A small colony of Cape petrels has been recorded on Hawker Island on the southern tip of the south western peninsula. Cape petrels are absent from the Area in winter; they return to their nesting sites during October, lay eggs from late November to early December and chicks fledge in late February and early March.

- *Seals*

Weddell seals breed in the fjords of the Vestfold Hills and occasionally near the south-east part of Hawker Island. The seals start to appear in late September and early October, and pupping occurs from mid-October until late November. Throughout summer, moulting Weddell seals continue to frequent firm sea-ice and occasionally haul out onto land. Most of the local population remains in the sea ice region close to the Vestfold Hills throughout the summer. Non-breeding groups of southern elephant seals (*Mirounga leonina*) haul out during the summer months in the vicinity of the south-western peninsula on Hawker Island. Their moulting areas contain deposits of hair and excrement that have accumulated over several thousand years, and could be considered as sensitive areas.

- *Vegetation*

The flora of the Vestfold Hills comprises at least 82 species of terrestrial algae, six moss species and at least 23 lichen species. The lichens and mosses are distributed chiefly in the eastern or inland sector and their distribution patterns reflect the availability of drift snow, time since exposure of the substrate from the ice plateau, time since the last glaciation, elevation and proximity to saline waters. Very few occurrences of lichens or mosses have been noted towards the salt-affected coastal margin including Hawker Island where the low terrain is densely covered with extensive sand and moraine deposits.

Terrestrial algae are widespread and are major primary producers in the Vestfold Hills. Sublithic (or hypolithic) algae have been reported from Hawker Island, developing on the undersurfaces of translucent quartz stones that are partially buried in soil. The dominant algae, Cyanobacteria, particularly oscillatoriacean species, *Chroococidiopsis sp*., and *Aphanothece sp*. occur with the greatest frequency together with the Chlorophyta species, *cf. Desmococcus sp. A* and *Prasiococcus calcarius*. The endaphic alga *Prasiola crispa* occurs as green crumpled sheet-like strands at melt flushes, usually associated with the diatom *Navicula muticopsis* and oscillatoriacean algae. The ornithocophilous lichen *Candelariella flava* has been reported from Hawker Island, associated with seabird nesting sites.

- *Invertebrates*

An extensive survey of terrestrial tardigrades (water dwelling, eight legged, segmented invertebrates) was undertaken in the Vestfold Hills in 1981 from which four genera and four species of tardigrade were recovered. Although no tardigrades were recovered from the Hawker Island sample site it has been suggested that, as two species of tardigrade, *Hypsibius allisonii* and *Macrobiotus fuciger (?)* were recovered from Walkabout Rocks, they may be found in other coastal areas of similar ecology, associated with *Prasiola crispa*. The mite, *Tydeus erebus* is associated with breeding sites of Adélie penguins on the island.

*6(ii) Access to the Area*

Depending on sea ice conditions, the Area can be approached by vehicle, small boat or aircraft, all of which must remain outside the Area. There are no designated landing sites within the Area.

Access by small boat should be via a site that exceeds minimum wildlife separation distance and that, as far as possible, is separated by a geographic feature such as a low ridge line to minimise disturbance on approach.

*6(iii) Location of structures within and adjacent to the Area*

There are no permanent structures within or adjacent to the Area. Three automated cameras are temporarily located in close proximity to the southern giant petrel colony, for the purposes of ongoing population monitoring.

*6(iv) Location of other protected areas in the vicinity*

Antarctic Specially Protected Area No. 143 Marine Plain (68°36'S, 78°07'E) is located approximately 8 km to the east.

*6(v) Special zones within the Area*

There are no special zones within the Area.

## 7. Terms and conditions for entry permits

*7(i) General 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 reasons that cannot be served elsewhere, in particular for scientific study of the avifauna and ecosystem of the Area, or for essential management purposes consistent with plan objectives, such as inspection, management or review;
- the actions permitted will not jeopardise the values of the Area;
- the actions permitted are in accordance with 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 finite period; and
- the appropriate national authority shall be notified of any activities or measures undertaken that were not included in the authorised permit.

*7(ii) Access to, and movement within or over the Area*

- Vehicles are prohibited within the Area. Movement within the Area is by foot only.
- Access to the Hawker Island ASPA boundary may be by watercraft or vehicle depending upon seasonal conditions. Boats used to visit the islands must be left at the shoreline. Only personnel who are required to carry out scientific/management work in the Area are to leave the landing/parking site. Quad-bikes or other land vehicles used to reach the Area shall not be taken into the Area. Vehicles shall remain on the sea-ice at least 200 m from the edge of the southern giant petrel colony (see Table 1);
- The minimum (closest) approach distances to wildlife are set out in Table 1. If disturbance of wildlife is observed, separation distance should be increased or the activity modified until there is no visible disturbance. Exceptions to this are only allowed when a closer approach distance is authorised in a permit.
- Persons authorised in a permit to approach southern giant petrels to obtain census data or biological data, should maintain the greatest practical separation distance. Persons shall not approach closer than is necessary to obtain census data or biological data from any nesting southern giant petrels, and in no case closer than 20m;
- Disturbance can be minimised by leaving vehicles as far from the site as possible, approaching slowly and quietly, and using topography to screen your approach.
- To reduce disturbance to wildlife, noise levels, including verbal communication are to be kept to a minimum. The use of motor-driven tools and any other activity likely to generate significant noise (thereby risking disturbance to nesting southern giant petrels and other nesting birds) is prohibited within the Area during the breeding period for southern giant petrels (mid-September to mid-April);
- Overflights of the island during the southern giant petrel breeding season are prohibited, except where essential for scientific or management purposes and authorised in a permit. Such overflights are to be at an altitude of no less than 930 m (3050 ft) for single-engine helicopters and fixed-wing aircraft, and no less than 1500 m (5000 ft) for twin-engine helicopters;
- Landing of aircraft within 930 m of a wildlife concentration for single-engine helicopters and fixed-wing aircraft, and within 1500 m (5000 ft) of a wildlife concentration for twin-engine helicopters is prohibited;
- Overflight of the Area, including by unmanned aerial vehicles, is prohibited (except where essential for scientific or management purposes as authorised in a Permit).
- Clothing (particularly all footwear and outer clothing) and field equipment shall be thoroughly cleaned before entering the Area.

Table 1: Minimum distances to maintain when approaching wildlife at Hawker Island

| **Species** | **Distances (m)** | | |
|---|---|---|---|
| | **People on foot / ski** (unless a closer approach distance is authorised in a permit) | **All vehicles Quad/ Skidoo Hagglunds, etc.** | **Small watercraft** |
| Giant petrels | 100 m | Not permitted inside the Area. Parking shall be on the sea-ice and no closer than 200 m from wildlife colonies. | Watercraft should maintain 200 m from wildlife during transit and should not be landed within 50 m of wildlife; in particular, the Adélie penguin colony on the eastern shore. Care shall be taken when in close proximity to the island. |
| Breeding/moulting emperor penguin | 50 m | | |
| All other breeding animals and birds | 15 m | | |
| Non-breeding seal or bird | 5 m | | |

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

Activities undertaken within the breeding period of the southern giant petrel (16 September to 14 April) shall only be permitted if the activity is non-invasive and cannot reasonably be undertaken during the non-breeding period. Where practical, activities not relating to southern giant petrels shall be restricted to areas outside the visual catchment of the southern giant petrel breeding site.

The following activities may be conducted within the Area as authorised in a permit:

- scientific research consistent with the provisions of this management plan which cannot be undertaken elsewhere;
- essential management activities, including monitoring; and
- sampling which should be the minimum required for approved research programs.

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

- Permanent structures or installations are prohibited.
- Temporary structures or equipment, including cameras, shall only be erected within the Area in accordance with in a permit.
- Small temporary refuges, hides, blinds or screens may be constructed for the purpose of scientific study.
- Installation (including site selection), removal, modification or maintenance of structures or equipment shall be undertaken in a manner that minimises disturbance to breeding birds and the surrounding environment.
- All scientific equipment or markers installed within the Area must be clearly identified by country, name of the principal investigator or national agency, year of installation and date of expected removal.
- Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition and removed under permit when no longer required. All such items should be made of materials that pose minimal risk of harm to wildlife or of contamination of the Area.

*7(v) Location of field camps*

Camping is prohibited within the Area except in an emergency. Any emergency camp should avoid areas of wildlife concentrations, if feasible.

*7(vi) Restrictions on materials and organisms that may be brought into the Area*

- Fuel is not to be stored in the Area. Boat refuelling is permitted at landing sites. A small amount of fuel may be taken into the Area for an emergency stove and must be handled in a way that minimises the risk of accidental introduction into the environment.
- No depots of food or other supplies are to be left within the Area beyond the season for which they are required.
- No poultry products, including dried food containing egg powder, are to be taken into the Area.
- No herbicides or pesticides are to be brought into the Area.
- Any chemical which may be introduced for compelling scientific purposes as authorised in a permit shall be removed from the Area, at or before the conclusion of the activity for which the permit was granted. The use of radio-nuclides or stable isotopes is prohibited.
- No animals, plant material or microorganisms shall be deliberately introduced into the Area and precautions shall be taken against accidental introductions; all equipment and clothing (particularly footwear) should be thoroughly cleaned before entering the Area.
- All material introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so as to minimise the risk of environmental impact.

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

- Taking of, or harmful interference with, native flora and fauna is prohibited unless specifically authorised by permit. Any such permit shall clearly state the limits and conditions for such activities which, except in an emergency, shall only occur following approval by an appropriate animal ethics committee. Where taking or harmful interference with animals is involved this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.
- Ornithological research shall be limited to activities that are non-invasive and non-disruptive to the breeding seabirds present within the Area. Surveys, including aerial photographs for the purposes of population census, shall have a high priority.
- Disturbance of southern giant petrels or other wildlife shall be avoided at all times. Visitors should be alert to changes in wildlife behaviour, especially changes in posture or vocalisation. If birds are showing signs of wanting to leave the nest, all persons shall retreat immediately.

*7(viii) Collection or removal of anything not brought into the Area by the permit holder*

- Material may only be collected or removed from the Area as authorised in a permit and should be limited to the minimum necessary to meet scientific or management needs.
- 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 the removal is likely to be greater than leaving the material *in situ*. If such material is found, the appropriate national authority must be notified and approval obtained prior to removal.

*7(ix) Disposal of Waste*

All wastes, including human wastes, shall be removed from the Area.

*7(x) Measures that may be necessary to continue to meet the aims of the management plan*

- GPS data shall be obtained for specific sites of long-term monitoring for lodgement with the Australian Antarctic Data Centre or the Antarctic Data Directory System through the appropriate national authority.
- Permits may be granted to enter the Area to carry out biological monitoring, Area inspection and management activities, which may involve the collection of samples for analysis or review; the erection or maintenance of temporary scientific equipment and structures, and signposts; or for other protective measures.

- Where practical, a census of southern giant petrels in the Area shall be conducted at least once in every five year period. Censuses of other species may be undertaken provided no additional disturbance is caused to the southern giant petrels.
- Where practical, activities not relating to southern giant petrels shall be restricted to areas outside the visual catchment of the southern giant petrel breeding site.
- Visitors shall take special precautions against introductions of non-indigenous organisms. Of particular concern are pathogenic, microbial or vegetation introductions sourced from soils, flora and fauna at other Antarctic sites, including research stations, or from regions outside Antarctica. To minimise the risk of introductions, before entering the Area visitors shall thoroughly clean footwear and any equipment, particularly sampling equipment and markers to be used in the Area.

*7(xi) Requirement for reports*

Visit reports shall provide detailed information on all census data; locations of any new colonies or nests not previously recorded, as texts and maps, a brief summary of research findings; copies of relevant photographs taken of the Area; and comments indicating measures taken to ensure compliance with permit conditions.

The report may make recommendations relevant to the management of the Area, in particular as to whether the values for which the Area was designated are being adequately protected and whether management measures are effective.

The report shall be submitted as soon as practicable after the visit to the ASPA has been completed to the appropriate national permitting authority who issue the permit, but no later than six months after the visit has occurred. A copy of the report shall be made available to the permit issuing authority and the Party responsible for development of the Management Plan (Australia - Australian Antarctic Division) (if different) for the purposes of reviewing the management plan. Such reports 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. 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.

## 8. Supporting documentation

Some or all of the data used within this paper were obtained from the **Australian Antarctic Data Centre (IDN Node AMD/AU)**, a part of the Australian Antarctic Division (Commonwealth of Australia).


Adamson, D.A. and Pickard, J. (1986): Cainozoic history of the Vestfold Hills, In Pickard, J., ed. *Antarctic Oasis, Terrestrial environments and history of the Vestfold Hills*. Sydney, Academic Press, 63–97.

Adamson, D.A. and Pickard, J. (1986): Physiology and geomorphology of the Vestfold Hills, In Pickard, J., ed. *Antarctic oasis: terrestrial environments and history of the Vestfold Hills*. Sydney, Academic Press, 99–139.

ACAP (Agreement on the Conservation of Albatrosses and Petrels) (2012) *Species assessments: southern giant petrel Macronectes giganteus*. <www.acap.aq/en/acap-species/288-southern-giant-petrel/file>, downloaded 19 September 2012.

ANARE (1968): Unpublished data.

Australian Antarctic Division (2010): Environmental Code of Conduct for Australian Field Activities, Territories, Environment and Treaties Section, Australian Antarctic Division.

Birdlife International (2000): *Threatened birds of the world*. Barcelona and Cambridge U. K, Lynx Edicions and Birdlife International.

BirdLife International (2011): *Macronectes giganteus*, In: IUCN 2011, 2011 IUCN Red List of Threatened Species, <http://www.iucnredlist.org/>, Downloaded on 17 January2011.

BirdLife International (2011): Species fact sheet: *Macronectes giganteus*, <http://www.birdlife.org/> Downloaded on 17 January 2011.

Cooper, J., Woehler, E., Belbin, L. (2000): Guest editorial, Selecting Antarctic Specially Protected Areas: Important Bird Areas can help, *Antarctic Science* 12: 129.

DSEWPC (Department of Sustainability, Environment, Water, Population and Communities) (2011a): *Background Paper: Population status and threats to albatrosses and giant petrels listed as threatened under Environment Protection and Biodiversity Conservation Act 1999*<http://www.environment.gov.au/resource/national-recovery-plan-threatened-albatrosses-and-giant-petrels-2011%E2%80%942016> Downloaded on 10 February 2016.

DSEWPC (Department of Sustainability, Environment, Water, Population and Communities) (2011b): *National recovery plan for threatened albatrosses and giant petrels: 2011-2016*, <http://www.environment.gov.au/biodiversity/threatened/publications/recovery/albatrosses-and-giant-petrels.html>, Downloaded on 10 February 2016.

Fabel, D., Stone, J., Fifield, L.K. and Cresswell, R.G. (1997): Deglaciation of the Vestfold Hills, East Antarctica; preliminary evidence from exposure dating of three subglacial erratics. In RICCI, C.A., ed. *The Antarctic region: geological evolution and processe*s, Siena: Museo Nazionale dell'Antartide, 829–834.

Garnett ST, Szabo JK and Dutson G (2011). *The action plan for Australian birds 2010*. CSIRO Publishing.

Gore, D.B. (1997): Last glaciation of Vestfold Hills; extension of the East Antarctic ice sheet or lateral expansion of Sørsdal Glacier. *Polar Record*, 33: 5–12.

Hirvas, H., Nenonen, K. and Quilty, P. (1993): Till stratigraphy and glacial history of the Vestfold Hills area, East Antarctica, *Quaternary International*, 18: 81–95.

IUCN (International Union for Conservation of Nature) (2001): *IUCN Red List Categories: Version 3.1*, IUCN Species Survival Commission, <www.iucnredlist.org>. Downloaded on 25 January 2016.

IUCN (International Union for Conservation of Nature) (2015): *IUCN Red List of Threatened Species*. Version 2015.4<www.iucnredlist.org>. Downloaded on 25 January 2016.

Jouventin, P., Weimerskirch, H. (1991): Changes in the population size and demography of southern seabirds: management implications, in: Perrins, C.M., Lebreton, J.D. and Hirons, G.J.M. *Bird population studies: Relevance to conservation and management*. Oxford University Press: 297-314.

Johnstone, Gavin W.; Lugg, Desmond J., and Brown, D.A. (1973): The biology of the Vestfold Hills, Antarctica. Melbourne, Department of Science, Antarctic Division, *ANARE Scientific Reports*, Series B(1) Zoology, Publication No. 123.

Law P. (1958): Australian Coastal Exploration in Antarctica, *The Geographical Journal CXXIV*, 151-162.

Leishman, M.R. and Wild, C. (2001): Vegetation abundance and diversity in relation to soil nutrients and soil water content in Vestfold Hills, East, *Antarctic Science*, 13(2): 126-134

Micol, T., Jouventin, P. (2001): Long-term population trends in seven Antarctic seabirds at Point Géologie (Terre Adélie), Human impact compared with environmental change, *Polar Biology* 24: 175-185.

Miller, J.D. et al. (1984): A survey of the terrestrial Tardigrada of the Vestfold Hills, Antarctica, In Pickard, J., ed. *Antarctic Oasis, Terrestrial environments and history of the Vestfold Hills*. Sydney, Academic Press, 197-208.

Orton, M.N. (1963): Movements of young Giant Petrels bred in Antarctica, *Emu* 63: 260.

Patterson D.L., Woehler, E.J., Croxall, J.P., Cooper, J., Poncet, S., Fraser, W.R. (2008): Breeding distribution and population status of the Northern Giant Petrel *Macronectes halli* and the southern giant petrel *M. Giganteus*, *Marine Ornithology* 36: 115-124.

Pickard, J. ed., (1986): *Antarctic oasis: terrestrial environments and history of the Vestfold Hills*. Sydney, Academic Press.

Puddicombe, R.A.; and Johnstone, G.W. (1988): Breeding season diet of Adélie penguins at Vestfold Hills, East Antarctica, In *Biology of the Vestfold Hills*, Antarctica, edited by J.M. Ferris, H.R. Burton, G.W. Johnstone, and I.A.E. Bayly.

Rounsevell, D.E., and Horne, P.A. (1986): Terrestrial, parasitic and introduced invertebrates of the Vestfold Hills. *Antarctic oasis; terrestrial environments and history of the Vestfold Hills*, Sydney: Academic Press, 309-331.

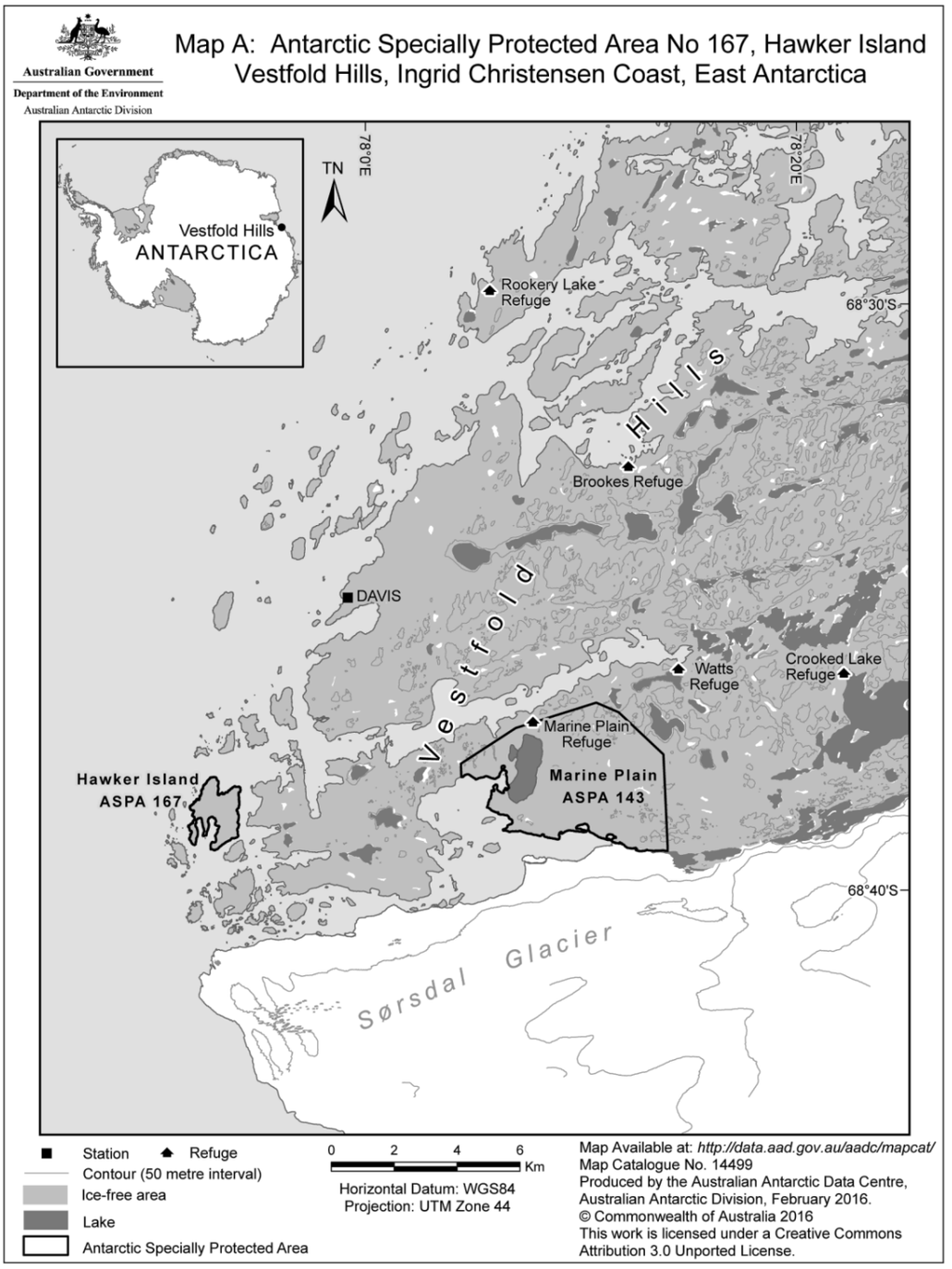
Southwell C., Emmerson L., McKinlay J., Newberry K., Takahashi A., Kato A., Barbraud C., DeLord K., Weimerskirch H. (2015) Spatially extensive standardized surveys reveal widespread, multi-decadal increase in East Antarctic Adélie penguin populations. PLoS ONE 10(10): e0139877. doi:10.1371/journal.pone.0139877

Stattersfield, A.J., Capper, D.R. (eds.) (2000): Threatened Birds of the World. Lynx Editions, Barcelona.

Terauds, A., Chown, S.L., Morgan, F., Peat, H.J., Watts, D.J., Keys, H., Convey, P., and Bergstrom, D.M. (2012): Conservation biogeography of the Antarctic, *Diversity and Distributions* Vol. 18. 726-741.

Wienecke, B., Leaper, R., Hay, I., van den Hoff, J. (2009): Retrofitting historical data in population studies: southern giant petrels in the Australian Antarctic Territory, *Endangered Species Research* Vol. 8: 157-164.

Woehler, E.J., Cooper, J., Croxall, J.P., Fraser, W.R., Kooyman, G.L., Miller, G.D., Nel, D.C., Patterson, D.L., Peter, H-U, Ribic, C.A., Salwicka, K., Trivelpiece, W.Z., Wiemerskirch, H. (2001): *A Statistical Assessment of the Status and Trends of Antarctic and Subantarctic Seabirds*, SCAR/CCAMLR/NSF, 43 pp.


Australian Government
Department of the Environment
Australian Antarctic Division
Map A: Antarctic Specially Protected Area No 167, Hawker Island
Vestfold Hills, Ingrid Christensen Coast, East Antarctica
Vestfold Hills
ANTARCTICA
TN
78°0'E
78°20'E
68°30'S
68°40'S
Rookery Lake Refuge
Brookes Refuge
DAVIS
Watts Refuge
Crooked Lake Refuge
Marine Plain Refuge
Marine Plain ASPA 143
Hawker Island ASPA 167
Vestfold Hills
Sørsdal Glacier
Station
Refuge
Contour (50 metre interval)
Ice-free area
Lake
Antarctic Specially Protected Area
0 2 4 6 Km
Horizontal Datum: WGS84
Projection: UTM Zone 44
Map Available at: http://data.aad.gov.au/aadc/mapcat/
Map Catalogue No. 14499
Produced by the Australian Antarctic Data Centre,
Australian Antarctic Division, February 2016.
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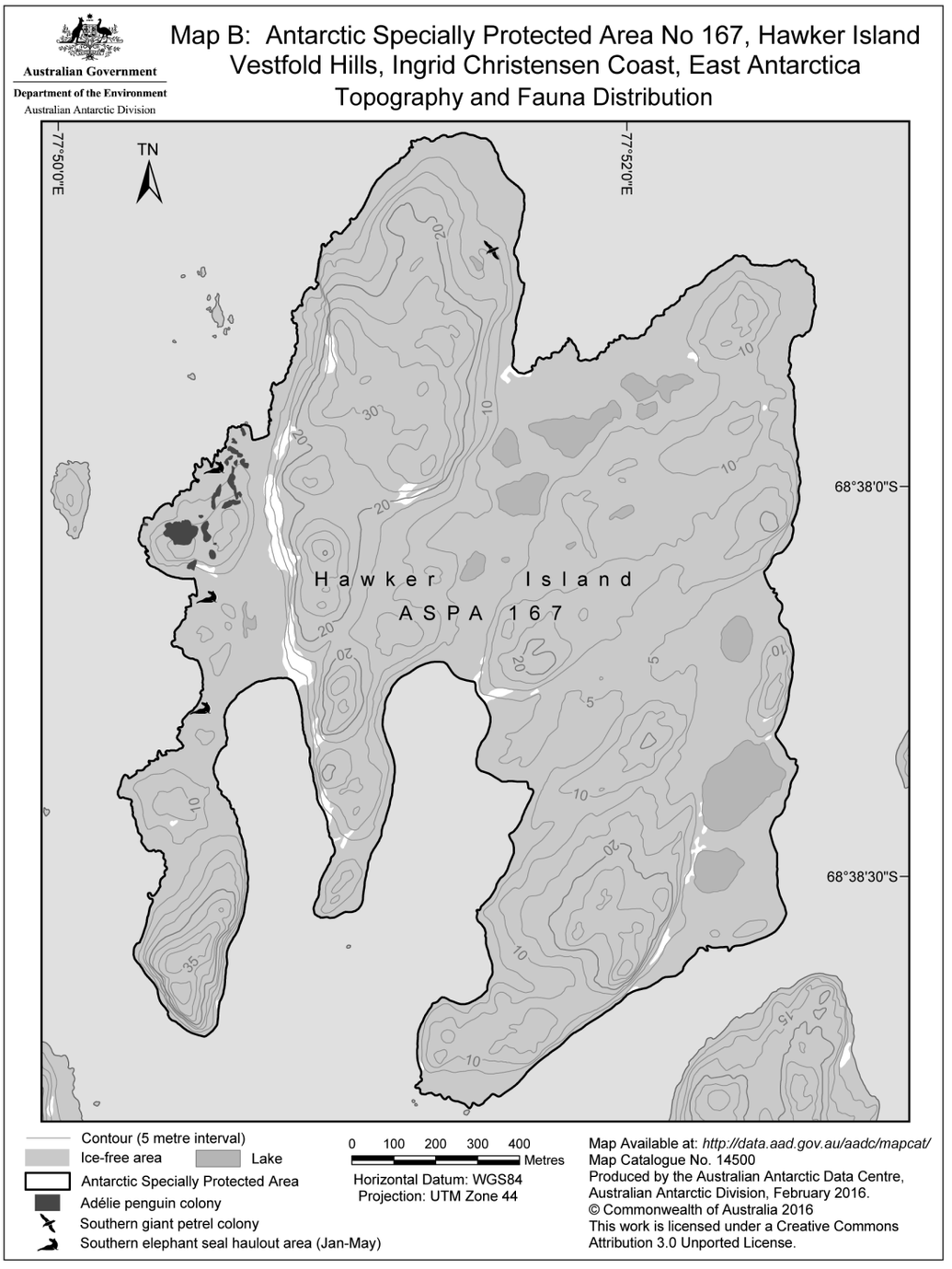
Australian Government
Department of the Environment
Australian Antarctic Division
Map B: Antarctic Specially Protected Area No 167, Hawker Island
Vestfold Hills, Ingrid Christensen Coast, East Antarctica
Topography and Fauna Distribution
TN
77°50'0"E
77°52'0"E
68°38'0"S
68°38'30"S
Hawker Island
ASPA 167
Contour (5 metre interval)
Ice-free area
Lake
Antarctic Specially Protected Area
Adélie penguin colony
Southern giant petrel colony
Southern elephant seal haulout area (Jan-May)
0 100 200 300 400
Metres
Horizontal Datum: WGS84
Projection: UTM Zone 44
Map Available at: http://data.aad.gov.au/aadc/mapcat/
Map Catalogue No. 14500
Produced by the Australian Antarctic Data Centre,
Australian Antarctic Division, February 2016.
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**Measure 9 (2016)**

# Revised List of Antarctic Historic Sites and Monuments: Incorporation of a historic wooden pole to Historic Site and Monument No 60 (Corvette Uruguay Cairn), in Seymour Island (Marambio), Antarctic Peninsula

**The Representatives,**

*Recalling* the requirements of Article 8 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty to maintain a list of current Historic Sites and Monuments ("HSM"), and that such sites shall not be damaged, removed or destroyed;

*Recalling*
Recommendation XVII-3 (1992), which designated HSM 60 (Corvette Uruguay Cairn);
Measure 19 (2015), which revised and updated the List of HSM;

*Desiring* to modify the description of HSM 60;

**Recommend** to their Governments the following Measure for approval in accordance with Paragraph 2 of Article 8 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty:
That:

1. the description of Historic Site and Monument No 60 (Corvette Uruguay Cairn) be modified in order to read as follows:

"Wooden pole and cairn (I), and wooden plaque and cairn (II), both located at Penguins Bay, southern coast of Seymour Island (Marambio), James Ross Archipelago. The wooden pole and a cairn (I) were installed in 1902 during the Swedish South Polar Expedition led by Dr. Otto Nordenskjöld. This cairn used to have attached a 4 m high wooden pole – nowadays only 44 cm high –, guy-lines and a flag, and was installed to signal the location of a well stocked deposit, composed of few wooden boxes containing food supplies, notes and letters saved inside bottles. The deposit was to be used in case the Swedish South Polar Expedition was forced to retreat on its way to the south.
The wooden plaque (II) was placed on 10 November 1903 by the crew of a rescue mission of the Argentinean Corvette Uruguay in the site where they met the members of the Swedish expedition led by Dr Otto Nordenskjöld. The text of the wooden plaque reads as follows:
"10.XI.1903 Uruguay (Argentine Navy) in its journey to give assistance to the Swedish Antarctic expedition."
In January 1990, a rock cairn (II) was erected by Argentina in memory of this event in the place where the plaque is located."
Location:
(I): 64º 17' 47.2" S, 56º 41' 30.7" W
(II): 64 º 16' S, 56º 39' W
Original proposing Parties: Argentina and Sweden
Parties undertaking management: Argentina and Sweden

2. the revised and updated List of Historic Sites and Monuments be annexed to this Measure.

## Revised List of Historic Sites and Monuments

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 1. | Flag mast erected in December 1965 at the South Geographical Pole by the First Argentine Overland Polar Expedition.<br><br>Original proposing Party: Argentina<br>Party undertaking management: Argentina | 90°S | Rec. VII-9 |
| 2. | Rock cairn and plaques at Syowa Station in memory of Shin Fukushima, a member of the 4th Japanese Antarctic Research Expedition, who died in October 1960 while performing official duties. The cairn was erected on 11 January 1961, by his colleagues. Some of his ashes repose in the cairn.<br><br>Original proposing Party: Japan<br>Party undertaking management: Japan | 69°00'S, 39°35'E | Rec. VII-9 |
| 3. | Rock cairn and plaque on Proclamation Island, Enderby Land, erected in January 1930 by Sir Douglas Mawson. The cairn and plaque commemorate the landing on Proclamation Island of Sir Douglas Mawson with a party from the British, Australian and New Zealand Antarctic Research Expedition of 1929-31.<br><br>Original proposing Party: Australia<br>Party undertaking management: Australia | 65°51'S, 53°41'E | Rec.VII-9 |
| 4. | Pole of Inaccessibility Station building. Station building to which a bust of V.I. Lenin is fixed, together with a plaque in memory of the conquest of the Pole of Inaccessibility by Soviet Antarctic explorers in 1958. As of 2007 the station building was covered by snow. The bust of Lenin is erected on the wooden stand mounted on the building roof at about 1.5 m high above the snow surface.<br><br>Original proposing Party: Russia<br>Party undertaking management: Russia | 82°06'42" S, 55°01'57" E | Rec. VII-9<br>Measure 11(2012) |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 5. | Rock cairn and plaque at Cape Bruce, Mac. Robertson Land, erected in February 1931 by Sir Douglas Mawson. The cairn and plaque commemorate the landing on Cape Bruce of Sir Douglas Mawson with a party from the British, Australian and New Zealand Antarctic Research Expedition of 1929-31.<br>Original proposing Party: Australia<br>Party undertaking management: Australia | 67°25'S, 60°47'E | Rec. VII-9 |
| 6. | Rock cairn at Walkabout Rocks, Vestfold Hills, Princess Elizabeth Land, erected in 1939 by Sir Hubert Wilkins. The cairn houses a canister containing a record of his visit.<br>Original proposing Party: Australia [1]<br>Party undertaking management: Australia | 68°22'S, 78°33'E | Rec. VII-9 |
| 7. | Ivan Khmara's Stone. Stone with inscribed plaque erected at Buromsky island in memory of Ivan Khmara, driver-mechanic, the member of the 1st Complex Antarctic Expedition of the USSR (1st Soviet Antarctic Expedition) who perished on fast ice in the performance of duties on 21.01.1956. Initially the stone was erected at Mabus Point, Mirny observatory. In 1974, 19th SAE, the stone was moved to Buromsky Island because of construction activity<br>Original proposing Party: Russia<br>Party undertaking management: Russia | 66°32'04" S, 92°59'57" E | Rec. VII-9<br>Measure 11(2012) |
| 8. | Anatoly Shcheglov's Monument. Metal stele with plaque in memory of Anatoly Shcheglov, driver-mechanic who perished in the performance of duties, erected on sledge on the Mirny – Vostok route, at 2 km from Mirny station.<br>Original proposing Party: Russia<br>Party undertaking management: Russia | 66°34'43" S, 92°58'23" E | Rec. VII-9<br>Measure 11(2012) |
| 9. | Buromsky Island Cemetery. Cemetery on Buromsky Island, near Mirny Observatory in which are buried citizens of the USSR (Russian Federation), Czechoslovakia, GDR and Switzerland (members of the Soviet and Russian Antarctic Expeditions) who perished in the performance of their duties.<br>Original proposing Party: Russia<br>Party undertaking management: Russia | 66°32'04" S, 93°00'E | Rec. VII-9<br>Measure 11(2012) |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 10. | Soviet Oasis Station Observatory. Magnetic observatory building at Dobrowolsky station (a part of the former Soviet station Oasis transferred to Poland) at Bunger Hills with a plaque in memory of the opening of Oasis station in 1956.<br><br>Original proposing Party: Russia<br>Party undertaking management: Russia | 66°16'30" S, 100°45'03 "E | Rec. VII-9<br>Measure 11(2012) |
| 11. | Vostok Station Tractor. Heavy tractor ATT 11 at Vostok station which participated in the first traverse to the Earth Geomagnetic Pole, with plaque in memory of the opening of the Station in 1957.<br><br>Original proposing Party: Russia<br>Party undertaking management: Russia | 78°27'48" S, 106°50'06 "E | Rec. VII-9<br>Measure 11(2012) |
| 12. | *Cross and plaque at Cape Denison, George V Land. (Removed from the Antarctic Treaty list of Historic Sites and Monuments subsumed with HSM 13 into HSM 77)* | | |
| 13. | *Hut at Cape Denison, George V Land, (Removed from the Antarctic Treaty list of Historic Sites and Monuments subsumed with HSM 12 into HSM 77)* | | |
| 14. | Site of ice cave at Inexpressible Island, Terra Nova Bay, constructed in March 1912 by Victor Campbell's Northern Party, British Antarctic Expedition, 1910-13. The party spent the winter of 1912 in this ice cave. A wooden sign, plaque and seal bones remain at the site.<br><br>Original proposing Party: New Zealand<br>Parties undertaking management: New Zealand/Italy/UK | 74°54'S, 163°43'E | Rec. VII-9<br>Measure 5(1995) |
| 15. | Hut at Cape Royds, Ross Island, built in February 1908 by the British Antarctic Expedition of 1907-09, led by Sir Ernest Shackleton. Restored in January 1961 by the Antarctic Division of New Zealand Department of Scientific and Industrial Research.<br><br>Site incorporated within ASPA 157<br><br>Original proposing Parties: New Zealand/UK<br>Parties undertaking management: New Zealand/UK | 77°33'S, 166°10'E | Rec. VII-9 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 16. | Hut at Cape Evans, Ross Island, built in January 1911 by the British Antarctic Expedition of 1910-1913, led by Captain Robert F. Scott. Restored in January 1961 by the Antarctic Division of New Zealand Department of Scientific and Industrial Research.<br><br>Site incorporated within ASPA 155<br><br>Original proposing Parties: New Zealand /UK<br>Parties undertaking management: New Zealand/UK | 77°38'S, 166°24'E | Rec. VII-9 |
| 17. | Cross on Wind Vane Hill, Cape Evans, Ross Island, erected by the Ross Sea Party, led by Captain Aeneas Mackintosh, of Sir Ernest Shackleton's Imperial Trans-Antarctic Expedition of 1914-1916, in memory of three members of the party who died in the vicinity in 1916.<br><br>Site incorporated within ASPA 155<br><br>Original proposing Parties: New Zealand/UK<br>Parties undertaking management: New Zealand/UK | 77°38'S, 166°24'E | Rec. VII-9 |
| 18. | Hut at Hut Point, Ross Island, built in February 1902 by the British Antarctic Expedition of 1901-04, led by Captain Robert F. Scott. Partially restored in January 1964 by the New Zealand Antarctic Society, with assistance from the United States Government. Site incorporated within ASPA 158<br><br>Original proposing Parties: New Zealand/UK<br>Parties undertaking management: New Zealand/UK | 77°50'S, 166°37'E | Rec. VII-9 |
| 19. | Cross at Hut Point, Ross Island, erected in February 1904 by the British Antarctic Expedition of 1901-04, in memory of George Vince, a member of the expedition, who died in the vicinity.<br><br>Original proposing Parties: New Zealand/UK<br>Parties undertaking management: New Zealand/UK | 77°50'S, 166°37'E | Rec. VII-9 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 20. | Cross on Observation Hill, Ross Island, erected in January 1913 by the British Antarctic Expedition of 1910-13, in memory of Captain Robert F. Scott's party which perished on the return journey from the South Pole in March 1912.<br><br>Original proposing Parties: New Zealand/UK<br>Parties undertaking management: New Zealand/UK | 77°51'S, 166°41'E | Rec. VII-9 |
| 21. | Remains of stone hut at Cape Crozier, Ross Island, constructed in July 1911 by Edward Wilson's party of the British Antarctic Expedition (1910-13) during the winter journey to collect Emperor penguin eggs.<br><br>Original proposing Party: New Zealand<br>Parties undertaking management: New Zealand/UK | 77°31'S, 169°22'E | Rec. VII-9 |
| 22. | Three huts and associated historic relics at Cape Adare. Two were built in February 1899 during the British Antarctic (*Southern Cross*) Expedition, 1898-1900, led by Carsten E. Borchgrevink. The third was built in February 1911 by Robert F. Scott's Northern Party, led by Victor L.A.Campbell.<br><br>Scott's Northern Party hut has largely collapsed with only the porch standing in 2002.<br><br>Site incorporated within ASPA 159.<br><br>Original proposing Parties: New Zealand/UK<br>Parties undertaking management: New Zealand/UK | 71°18'S, 170°12'E | Rec. VII-9 |
| 23. | Grave at Cape Adare of Norwegian biologist Nicolai Hanson, a member of the British Antarctic (*Southern Cross*) Expedition, 1898-1900, led by Carsten E. Borchgrevink. A large boulder marks the head of the grave with the grave itself outlined in white quartz stones. A cross and plaque are attached to the boulder.<br><br>Original proposing Parties: New Zealand/ UK<br>Parties undertaking management: New Zealand/Norway | 71°17'S, 170°13'E | Rec. VII-9 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 24. | Rock cairn, known as 'Amundsen's cairn', on Mount Betty, Queen Maud Range erected by Roald Amundsen on 6 January 1912, on his way back to *Framheim* from the South Pole.<br><br>Original proposing Party: Norway<br>Party undertaking management: Norway | 85°11'S, 163°45'W | Rec. VII-9 |
| 25. | *De-listed* | | |
| 26. | Abandoned installations of Argentine Station 'General San Martin' on Barry Island, Debenham Islands, Marguerite Bay, with cross, flag mast, and monolith built in 1951.<br><br>Original proposing Party: Argentina<br>Party undertaking management: Argentina | 68°08'S, 67°08'W | Rec. VII-9 |
| 27. | Cairn with a replica of a lead plaque erected on Megalestris Hill, Petermann Island, in 1909 by the second French expedition led by Jean-Baptiste E. A. Charcot. The original plaque is in the reserves of the Museum National d'Histoire Naturelle (Paris).<br><br>Original proposing Parties: Argentina/France/UK<br>Parties undertaking management: France /UK | 65°10'S, 64°09'W | Rec. VII-9 |
| 28. | Rock cairn at Port Charcot, Booth Island, with wooden pillar and plaque inscribed with the names of the first French expedition led by Jean-Baptiste E. A. Charcot which wintered here in 1904 aboard *Le Français*.<br><br>Original proposing Party: Argentina<br>Parties undertaking management: Argentina/France | 65°03'S, 64°01'W | Rec. VII-9 |
| 29. | Lighthouse named 'Primero de Mayo' erected on Lambda Island, Melchior Islands, by Argentina in 1942. This was the first Argentine lighthouse in the Antarctic.<br><br>Original proposing Party: Argentina<br>Party undertaking management: Argentina | 64°18'S, 62°59'W | Rec. VII-9 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 30. | Shelter at Paradise Harbour erected in 1950 near the Chilean Base 'Gabriel Gonzalez Videla' to honour Gabriel Gonzalez Videla, the first Head of State to visit the Antarctic. The shelter is a representative example of pre-IGY activity and constitutes an important national commemoration.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 64°49'S, 62°51'W | Rec. VII-9 |
| 31. | *De-listed*. | | |
| 32. | Concrete monolith erected in 1947, near Capitán Arturo Prat Base on Greenwich Island, South Shetland Islands. Point of reference for Chilean Antarctic hydrographic surveys. The monolith is representative of an important pre-IGY activity and is currently preserved and maintained by personnel from Prat Base.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 62°28'S, 59°40'W | Rec. VII-9 |
| 33. | Shelter and cross with plaque near Capitán Arturo Prat Base (Chile), Greenwich Island, South Shetland Islands. Named in memory of Lieutenant-Commander González Pacheco, who died in 1960 while in charge of the station. The monument commemorates events related to a person whose role and the circumstances of his death have a symbolic value and the potential to educate people about significant human activities in Antarctica.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 62°29'S, 59°40'W | Rec. VII-9 |
| 34. | Bust at Capitán Arturo Prat Base (Chile), Greenwich Island, South Shetland Islands, of the Chilean naval hero Arturo Prat, erected in 1947. The monument is representative of pre-IGY activities and has symbolic value in the context of Chilean presence in Antarctica.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 62°50'S, 59°41'W | Rec. VII-9 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 35. | Wooden cross and statue of the Virgin of Carmen erected in 1947 near Capitán Arturo Prat Base (Chile), Greenwich Island, South Shetland Islands. The monument is representative of pre-IGY activities and has a particularly symbolic and architectural value.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 62°29'S, 59°40'W | Rec. VII-9 |
| 36. | Replica of a metal plaque erected by Eduard Dallmann at Potter Cove, King George Island, to commemorate the visit of his German expedition on 1 March, 1874 on board *Grönland*.<br><br>Original proposing Parties: Argentina/UK<br>Parties undertaking management: Argentina/Germany | 62°14'S, 58°39'W | Rec. VII-9 |
| 37. | O'Higgins Historic Site located on Cape Legoupil, Antarctic Peninsula and comprising the following structures of historical value:<br><br>• "Capitán General Bernardo O´Higgins Riquelme" Bust, erected in 1948 opposite the Base known under the same name. General O´Higgins was the first ruler of Chile to recognise the importance of Antarctica. It has a symbolic meaning in the history of Antarctic exploration since it was during his government that the vessel Dragon landed on the coast of the Antarctic Peninsula in 1820. This monument is also representative of pre-IGY activities in Antarctica. (63°19'14.3" S / 57°53'53.9"W)<br><br>• Former "Capitán General Bernardo O'Higgins Riquelme" Antarctic Base, unveiled on 18th February, 1948 by the President of the Republic of Chile, Gabriel González Videla, the first President in the world to visit Antarctica. It is considered as a model pioneering base in the modern period of Antarctic exploration. (63°19' S, 57°54'W)<br><br>• Plaque in memory of Lieutenants Oscar Inostroza Contreras and Sergio Ponce Torrealba, who perished in the Antarctic Continent for the sake of peace and science, on 12th August, 1957. (63°19'15.4" S / 57°53'52.9"W) | 63°19'S, 57°54'W | Rec. VII-9<br>Measure 11(2012) |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| | Virgen del Carmen Grotto, located in the surroundings of the base, built approximately forty years ago. It has served as a place of spiritual withdrawal for the staff of the different Antarctic stations and expeditions. (63°19'15.9" S / 57°54'03.2"W).<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | | |
| 38. | Wooden hut on Snow Hill Island built in February 1902 by the main party of the Swedish South Polar Expedition led by Otto Nordenskjöld.<br><br>Original proposing Parties: Argentina/ UK<br>Parties undertaking management: Argentina/Sweden | 64°22'S, 56°59'W | Rec. VII-9 |
| 39. | Stone hut at Hope Bay, Trinity Peninsula, built in January 1903 by a party of the Swedish South Polar Expedition.<br><br>Original proposing Parties: Argentina/UK<br>Parties undertaking management: Argentina/Sweden | 63°24'S, 56°59' W | Rec. VII-9 |
| 40. | Bust of General San Martin, grotto with a statue of the Virgin of Lujan, and a flag mast at Base 'Esperanza', Hope Bay, erected by Argentina in 1955; together with a graveyard with stele in memory of members of Argentine expeditions who died in the area.<br><br>Original proposing Party: Argentina<br>Party undertaking management: Argentina | 63°24'S, 56°59'W | Rec. VII-9 |
| 41. | Stone hut on Paulet Island built in February 1903 by survivors of the wrecked vessel *Antarctic* under Captain Carl A. Larsen, members of the Swedish South Polar Expedition led by Otto Nordenskjöld, together with a grave of a member of the expedition and the rock cairn built by the survivors of the wreck at the highest point of the island to draw the attention of rescue expeditions.<br><br>Original proposing Parties: Argentina/UK<br>Parties undertaking management: Argentina/Sweden/Norway | 63°34'S, 55°45'W | Rec. VII-9<br>Measure 5 (1997) |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 42. | Area of Scotia Bay, Laurie Island, South Orkney Island, in which are found: stone hut built in 1903 by the Scottish Antarctic Expedition led by William S. Bruce; the Argentine meteorological hut and magnetic observatory, built in 1905 and known as Moneta House; and a graveyard with twelve graves, the earliest of which dates from 1903.<br><br>Original proposing Party: Argentina<br>Parties undertaking management: Argentina/UK | 60°46'S, 44°40'W | Rec. VII-9 |
| 43. | Cross erected in 1955, at a distance of 1,300 metres north-east of the Argentine General Belgrano I Station (Argentina) and subsequently moved to Belgrano II Station (Argentina), Nunatak Bertrab, Confin Coast, Coats Land in 1979.<br><br>Original proposing Party: Argentina<br>Party undertaking management: Argentina | 77°52'S, 34°37'W | Rec. VII-9 |
| 44. | Plaque erected at the temporary Indian station 'Dakshin Gangotri', Princess Astrid Kyst, Dronning Maud Land, listing the names of the First Indian Antarctic Expedition which landed nearby on 9 January 1982.<br><br>Original proposing Party: India<br>Party undertaking management: India | 70°45'S, 11°38'E | Rec. XII-7 |
| 45. | Plaque on Brabant Island, on Metchnikoff Point, mounted at a height of 70 m on the crest of the moraine separating this point from the glacier and bearing the following inscription:<br><br>This monument was built by François de Gerlache and other members of the Joint Services Expedition 1983-85 to commemorate the first landing on Brabant Island by the Belgian Antarctic Expedition, 1897-99: Adrien de Gerlache (Belgium) leader, Roald Amundsen (Norway), Henryk Arctowski (Poland), Frederick Cook (USA) and Emile Danco (Belgium) camped nearby from 30 January to 6 February 1898.<br><br>Original proposing Party: Belgium<br>Party undertaking management: Belgium | 64°02'S, 62°34'W | Rec. XIII-16 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 46. | All the buildings and installations of Port-Martin base, Terre Adélie constructed in 1950 by the 3rd French expedition in Terre Adélie and partly destroyed by fire during the night of 23 to 24 January 1952.<br><br>Original proposing Party: France<br>Party undertaking management: France | 66°49'S, 141°24'E | Rec. XIII-16 |
| 47. | Wooden building called 'Base Marret' on the Ile des Pétrels, Terre Adélie, where seven men under the command of Mario Marret overwintered in 1952 following the fire at Port Martin Base.<br><br>Original proposing Party: France<br>Party undertaking management: France | 66°40'S, 140°01'E | Rec. XIII-16 |
| 48. | Iron cross on the North-East headland of the Ile des Pétrels, Terre Adélie, dedicated as a memorial to André Prudhomme, head meteorologist in the 3rd International Geophysical Year expedition who disappeared during a blizzard on 7 January 1959.<br><br>Original proposing Party: France<br>Party undertaking management: France | 66°40'S, 140°01'E | Rec. XIII-16 |
| 49. | The concrete pillar erected by the First Polish Antarctic Expedition at Dobrolowski Station on the Bunger Hill to measure acceleration due to gravity g = 982,439.4 mgal ±0.4 mgal in relation to Warsaw, according to the Potsdam system, in January 1959.<br><br>Original proposing Party: Poland<br>Party undertaking management: Poland | 66°16'S, 100°45'E | Rec. XIII-16 |
| 50. | A brass plaque bearing the Polish Eagle, the national emblem of Poland, the dates 1975 and 1976, and the following text in Polish, English and Russian:<br><br>In memory of the landing of members of the first Polish Antarctic marine research expedition on the vessels 'Profesor Siedlecki' and 'Tazar' in February 1976.<br><br>This plaque, south-west of the Chilean and Soviet stations, is mounted on a cliff facing Maxwell Bay, Fildes Peninsula, King George Island.<br><br>Original proposing Party: Poland<br>Party undertaking management: Poland | 62°12'S, 59°01'W | Rec. XIII-16 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 51. | The grave of Wlodzimierz Puchalski, surmounted by an iron cross, on a hill to the south of Arctowski station on King George Island. W. Puchalski was an artist and a producer of documentary nature films, who died on 19 January 1979 whilst working at the station.<br><br>Original proposing Party: Poland<br>Party undertaking management: Poland | 62°13'S, 58°28'W | Rec. XIII-16 |
| 52. | Monolith erected to commemorate the establishment on 20 February 1985 by the Peoples Republic of China of the 'Great Wall Station' on Fildes Peninsula, King George Island, in the South Shetland Islands. Engraved on the monolith is the following inscription in Chinese: 'Great Wall Station, First Chinese Antarctic Research Expedition, 20 February 1985'.<br><br>Original proposing Party: China<br>Party undertaking management: China | 62°13'S, 58°58'W | Rec. XIII-16 |
| 53. | Bust of Captain Luis Alberto Pardo, monolith and plaques on Point Wild, Elephant Island, south Shetland Islands, celebrating the rescue of the survivors of the British ship *Endurance* by the Chilean Navy cutter *Yelcho* displaying the following words:<br><br>" Here on August 30th, 1916, the Chilean Navy cutter *Yelcho* commanded by Pilot Luis Pardo Villalón rescued the 22 men from the Shackleton Expedition who survived the wreck of the 'Endurance' living for four and one half months in this Island".<br><br>The Monolith and the plaques have been placed on Elephant Island and their replicas on the Chilean bases Capitan Arturo Prat (62º30'S, 59º49'W) and President Eduardo Frei (62º12'S, 62º12'W). Bronze busts of the pilot Luis Pardo Villalon were placed on the three above-mentioned monoliths during the XXIVth Chilean Antarctic Scientific Expedition in 1987-88.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 61°03'S, 54°50'W | Rec. XIV-8<br>Rec. XV-13 |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 54. | Richard E. Byrd Historic Monument, McMurdo Station, Antarctica. Bronze bust on black marble, 5ft high x 2ft square, on wood platform, bearing inscriptions describing the polar achievements of Richard Evelyn Byrd. Erected at McMurdo Station in 1965.<br><br>Original proposing Party: USA<br>Party undertaking management: USA | 77°51'S, 166°40'E | Rec. XV-12 |
| 55. | East Base, Antarctica, Stonington Island. Buildings and artefacts at East Base, Stonington Island and their immediate environs. These structures were erected and used during two U.S. wintering expeditions: the Antarctic Service Expedition (1939-1941) and the Ronne Antarctic Research Expedition (1947-1948). The size of the historic area is approximately 1,000 metres in the north-south direction (from the beach to Northeast Glacier adjacent to Back Bay) and approximately 500 metres in the east-west direction.<br><br>Original proposing Party: USA<br>Party undertaking management: USA | 68°11'S, 67°00'W | Rec. XIV-8 |
| 56. | Waterboat Point, Danco Coast, Antarctic Peninsula. The remains and immediate environs of the Waterboat Point hut. It was occupied by the UK two-man expedition of Thomas W. Bagshawe and Maxime C. Lester in 1921-22. Only the base of the boat, foundations of doorposts and an outline of the hut and extension still exist. It is situated close to the Chilean station 'President Gabriel Gonzáles Videla'.<br>Original proposing Party: Chile/UK<br>Parties undertaking management: Chile/UK | 64°49'S, 62°51'W | Rec. XVI-11 |
| 57. | Commemorative plaque at 'Yankee Bay' (Yankee Harbour), MacFarlane Strait, Greenwich Island, South Shetland Islands. Near a Chilean refuge. Erected to the memory of Captain Andrew MacFarlane, who in 1820 explored the Antarctic Peninsula area in the brigantine *Dragon*.<br><br>Original proposing Parties: Chile/UK<br>Parties undertaking management: Chile/UK | 62°32'S, 59°45'W | Rec. XVI-11 |
| 58. | *De-listed*. | | |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 59. | A cairn on Half Moon Beach, Cape Shirreff, Livingston Island, South Shetland Islands and a plaque on 'Cerro Gaviota' opposite San Telmo Islets commemorating the officers, soldiers and seamen aboard the Spanish vessel *San Telmo,* which sank in September 1819; possibly the first people to live and die in Antarctica.<br>Site incorporated within ASPA 149.<br><br>Original proposing Parties: Chile/Spain/Peru<br>Parties undertaking management: Chile/Spain/Peru | 62°28'S, 60°46'W | Rec. XVI-11 |
| 60. | "Wooden pole and cairn (I), and wooden plaque and cairn (II), both located at Penguins Bay, southern coast of Seymour Island (Marambio), James Ross Archipelago. The wooden pole and a cairn (I) were installed in 1902 during the Swedish South Polar Expedition led by Dr. Otto Nordenskjöld. This cairn used to have attached a 4 m high wooden pole – nowadays only 44 cm high –, guy-lines and a flag, and was installed to signal the location of a well stocked deposit, composed of few wooden boxes containing food supplies, notes and letters saved inside bottles. The deposit was to be used in case the Swedish South Polar Expedition was forced to retreat on its way to the south.<br>The wooden plaque (II) was placed on 10 November 1903 by the crew of a rescue mission of the Argentinean Corvette Uruguay in the site where they met the members of the Swedish expedition led by Dr Otto Nordenskjöld. The text of the wooden plaque reads as follows:<br>"10.XI.1903 Uruguay (Argentine Navy) in its journey to give assistance to the Swedish Antarctic expedition."<br><br>In January 1990, a rock cairn (II) was erected by Argentina in memory of this event in the place where the plaque is located.<br><br>Original proposing Parties: Argentina/Sweden<br>Parties undertaking management: Argentina/Sweden | (I): 64º 17' 47.2" S, 56º 41' 30.7" W<br><br>(II): 64 º 16' S, 56º 39' W | Rec. XVII-3<br>Measure I (2016) |

| No. | Description | Location | Designation/ Amendment |
|---|---|---|---|
| 61. | 'Base A' at Port Lockroy, Goudier Island, off Wiencke Island, Antarctic Peninsula. Of historic importance as an Operation Tabarin base from 1944 and for scientific research, including the first measurements of the ionosphere, and the first recording of an atmospheric whistler, from Antarctica. Port Lockroy was a key monitoring site during the International Geophysical Year of 1957/58.<br><br>Original Proposing Party: UK<br>Party undertaking management: UK | 64°49'S, 63°29'W | Measure 4 (1995) |
| 62. | 'Base F (Wordie House)' on Winter Island, Argentine Islands. Of historic importance as an example of an early British scientific base.<br><br>Original proposing Party: UK<br>Parties undertaking management: UK/Ukraine | 65°15'S, 64°16'W | Measure 4 (1995) |
| 63. | 'Base Y' on Horseshoe Island, Marguerite Bay, western Graham Land. Noteworthy as a relatively unaltered and completely equipped British scientific base of the late 1950s. 'Blaiklock', the refuge hut nearby, is considered an integral part of the base.<br><br>Original proposing Party: UK<br>Party undertaking management: UK | 67°48'S, 67°18'W | Measure 4 (1995) |
| 64. | 'Base E' on Stonington Island, Marguerite Bay, western Graham Land. Of historical importance in the early period of exploration and later British Antarctic Survey (BAS) history of the 1960s and 1970s.<br><br>Original proposing Party: UK<br>Party undertaking management: UK | 68°11'S, 67°00'W | Measure 4 (1995) |

| No. | Description | Location | Designation/ Amendment |
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| 65. | Message post, Svend Foyn Island, Possession Islands. A pole with a box attached was placed on the island on 16 January 1895 during the whaling expedition of Henryk Bull and Captain Leonard Kristensen of the ship *Antarctic*. It was examined and found intact by the British Antarctic Expedition of 1898-1900 and then sighted from the beach by the USS *Edisto* in 1956 and USCGS *Glacier* in 1965.<br><br>Original proposing Parties: New Zealand/Norway/UK<br>Parties undertaking management: New Zealand/ Norway | 71°56'S, 171°05'W | Measure 4 (1995) |
| 66. | Prestrud's Cairn, Scott Nunataks, Alexandra Mountains, Edward VII Peninsula. The small rock cairn was erected at the foot of the main bluff on the north side of the nunataks by Lieutenant K. Prestrud on 3 December 1911 during the Norwegian Antarctic Expedition of 1910-1912.<br><br>Original proposing Parties: New Zealand/ Norway/ UK<br>Parties undertaking management: New Zealand/Norway | 77°11'S, 154°32'W | Measure 4 (1995) |
| 67. | Rock shelter, 'Granite House', Cape Geology, Granite Harbour. This shelter was constructed in 1911 for use as a field kitchen by Griffith Taylor's second geological excursion during the British Antarctic Expedition of 1910-1913. It was enclosed on three sides with granite boulder walls and used a sledge to support a seal-skin roof. The stone walls of the shelter have partially collapsed. The shelter contains corroded remnants of tins, a seal skin and some cord. The sledge is now located 50 m seaward of the shelter and consists of a few scattered pieces of wood, straps and buckles.<br>Site incorporated within ASPA 154.<br><br>Original proposing Parties: New Zealand/Norway/UK<br>Parties undertaking management: New Zealand/UK | 77°00'S, 162°32'E | Measure 4 (1995) |

| No. | Description | Location | Designation/ Amendment |
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| 68. | Site of depot at Hells Gate Moraine, Inexpressible Island, Terra Nova Bay.This emergency depot consisted of a sledge loaded with supplies and equipment which was placed on 25 January 1913 by the British Antarctic Expedition, 1910-1913. The sledge and supplies were removed in 1994 in order to stabilize their deteriorating condition.<br><br>Original proposing Parties: New Zealand/Norway/UK<br>Parties undertaking management: New Zealand/UK | 74°52'S, 163°50'E | Measure 4 (1995) |
| 69. | Message post at Cape Crozier, Ross Island, erected on 22 January 1902 by Captain Robert F. Scott's *Discovery* Expedition of 1901-04. It was to provide information for the expedition's relief ships, and held a metal message cylinder, which has since been removed.<br><br>Site incorporated within ASPA 124<br><br>Original proposing Parties: New Zealand/Norway/UK<br>Parties undertaking management: New Zealand/UK | 77°27'S, 169°16'E | Measure 4 (1995) |
| 70. | Message post at Cape Wadworth, Coulman Island. A metal cylinder nailed to a red pole<br>8 m above sea level placed by Captain Robert F. Scott on 15 January 1902. He painted the rocks behind the post red and white to make it more conspicuous.<br><br>Original proposing Parties: New Zealand/Norway/UK<br>Parties undertaking management: New Zealand/UK | 73°19'S, 169°47'E | Measure 4 (1995) |
| 71. | Whalers Bay, Deception Island, South Shetland Islands. The site comprises all pre-1970 remains on the shore of Whalers Bay, including those from the early whaling period (1906-12) initiated by Captain Adolfus Andresen of the Sociedad Ballenera de Magallanes, Chile; the remains of the Norwegian Hektor Whaling Station established in 1912 and all artefacts associated with its operation until 1931; the site of a cemetery with 35 burials and a memorial to ten men lost at sea; and the remains from the period of British scientific and mapping activity (1944-1969). The site also acknowledges and commemorates the historic value of other events that occurred there, from which nothing remains.<br><br>Original proposing Parties: Chile/ Norway<br>Parties undertaking management: Chile/Norway/UK | 62°59'S, 60°34'W | Measure 4 (1995) |

| No. | Description | Location | Designation/ Amendment |
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| 72. | Mikkelsen Cairn, Tryne Islands, Vestfold Hills. A rock cairn and a wooden mast erected by the landing party led by Captain Klarius Mikkelsen of the Norwegian whaling ship *Thorshavn* and including Caroline Mikkelsen, Captain Mikkelsen's wife, the first woman to set foot on East Antarctica. The cairn was discovered by Australian National Antarctic Research Expedition field parties in 1957 and again in 1995.<br><br>Original proposing Parties: Australia/Norway<br>Parties undertaking management: Australia/Norway | 68°22'S 78°24'E | Measure 2 (1996) |
| 73. | Memorial Cross for the 1979 Mount Erebus crash victims, Lewis Bay, Ross Island. A cross of stainless steel which was erected in January 1987 on a rocky promontory three kilometers from the Mount Erebus crash site in memory of the 257 people of different nationalities who lost their lives when the aircraft in which they were travelling crashed into the lower slopes of Mount Erebus, Ross Island. The cross was erected as a mark of respect and in remembrance of those who died in the tragedy.<br>Original proposing Party: New Zealand<br>Party undertaking management: New Zealand | 77°25'S, 167°27'E | Measure 4 (1997) |
| 74. | The un-named cove on the south-west coast of Elephant Island, including the foreshore and the intertidal area, in which the wreckage of a large wooden sailing vessel is located.<br><br>Original proposing Party: UK<br>Party undertaking management: UK | 61°14'S, 55°22'W | Measure 2 (1998) |
| 75. | The A Hut of Scott Base, being the only existing Trans Antarctic Expedition 1956/1957 building in Antarctica sited at Pram Point, Ross Island, Ross Sea Region, Antarctica.<br><br>Original proposing Party: New Zealand<br>Party undertaking management: New Zealand | 77°51'S, 166°46'E | Measure 1 (2001) |
| 76. | The ruins of the Base Pedro Aguirre Cerda Station, being a Chilean meteorological and volcanological center situated at Pendulum Cove, Deception Island, Antarctica, that was destroyed by volcanic eruptions in 1967 and 1969.<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 62°59'S, 60°40'W | Measure 2 (2001) |

| No. | Description | Location | Designation/ Amendment |
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| 77 | Cape Denison, Commonwealth Bay, George V Land, including Boat Harbour and the historic artefacts contained within its waters. This Site is contained within ASMA No. 3, designated by Measure 1 (2004). Part of this site is also contained within ASPA No. 162, designated by Measure 2 (2004).<br><br>Original proposing Party: Australia<br>Party undertaking management: Australia | 67°00'30"S , 142°39'40" | Measure 3 (2004) |
| 78 | Memorial plaque at India Point, Humboldt Mountains, Wohlthat Massif, central Dronning Maud Land erected in memory of three scientists of the Geological Survey of India (GSI) and a communication technician from the Indian Navy - all members of the ninth Indian Expedition to Antarctica, who sacrificed their lives in this mountain camp in an accident on 8th January 1990.<br><br>Original proposing Party: India<br>Party undertaking management: India. | 71°45'08"S , 11°12'30" E | Measure 3 (2004) |
| 79 | Lillie Marleen Hut, Mt. Dockery, Everett Range, Northern Victoria Land.<br>The hut was erected to support the work of the German Antarctic Northern Victoria Land Expedition (GANOVEX I) of 1979/1980. The hut, a bivouac container made of prefabricated fiberglass units insulated with polyurethane foam, was named after the Lillie Glacier and the song "Lillie Marleen". The hut is closely associated with the dramatic sinking of the expedition ship "Gotland II" during GANOVEX II in December 1981.<br>Original proposing Party: Germany<br>Party undertaking management: Germany | 71°12'S, 164°31'E | Measure 5 (2005) |
| 80 | Amundsen's Tent. The tent was erected at 90° by the Norwegian group of explorers led by Roald Amundsen on their arrival at the South Pole on 14 December 1911. The tent is currently buried underneath the snow and ice in the vicinity of the South Pole.<br><br>Original proposing Party: Norway<br>Party undertaking management: Norway | 90°S | Measure 5 (2005) |

| No. | Description | Location | Designation/ Amendment |
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| 81 | Rocher du Débarquement (Landing Rock), being a small island where Admiral Dumont D'Urville and his crew landed on 21 January 1840 when he discovered Terre Adélie.<br><br>Original proposing Party: France<br>Party undertaking management: France | 66° 36.30'S, 140° 03.85'E | Measure 3 (2006) |
| 82 | Monument to the Antarctic Treaty and Plaque. This Monument is located near the Frei, Bellingshausen and Escudero bases, Fildes Peninsula, King George Island. The plaque at the foot of the monument commemorates the signatories of the Antarctic Treaty. This Monument has 4 plaques in the official languages of the Antarctic Treaty. The plaques were installed in February 2011 and read as follows: "This historic monument, dedicated to the memory of the signatories of the Antarctic Treaty, Washington D.C., 1959, is also a reminder of the legacy of the First and Second International Polar Years (1882-1883 and 1932-1933) and of the International Geophysical Year (1957-1958) that preceded the Antarctic Treaty, and recalls the heritage of International Cooperation that led to the International Polar Year 2007-2008." This monument was designed and built by the American Joseph W. Pearson, who offered it to Chile. It was unveiled in 1999, on the occasion of the 40th anniversary of the signature of the Antarctic Treaty."[22]<br><br>Original proposing Party: Chile<br>Party undertaking management: Chile | 62º 12' 01" S; 58º 57' 41" W | Measure 3 (2007)<br>Measure 11 (2011) |
| 83 | Base "W", Detaille Island, Lallemande Fjord, Loubert Coast. Base "W" is situated on a narrow isthmus at the northern end of Detaille Island, Lallemand Fjord, Loubet Coast. The site consists of a hut and a range of associated structures and outbuildings including a small emergency storage building, bitch and pup pens, anemometer tower and two standard tubular steel radio masts (one to the south west of the main hut and the other to the east). Base "W" was established in 1956 as a British science base primarily for survey, geology and meteorology and to contribute to the IGY in 1957. As a relatively unaltered base from the late 1950s, Base "W" provides an important reminder of the science and living conditions that existed when the Antarctic Treaty was signed 50 years ago.<br><br>Original proposing Party: United Kingdom<br>Party undertaking management: United Kingdom | 66°52'S; 66°48'W | Measure 14 (2009) |

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| 84 | Hut at Damoy Point, Dorian Bay, Wiencke Island, Palmer Archipelago. The site consists of a well-preserved hut and the scientific equipment and other artefacts inside it. It is located at Damoy Point on Dorian Bay, Wiencke Island, Palmer Archipelago. The hut was erected in 1973 and used for a number of years as a British summer air facility and transit station for scientific personnel. It was last occupied in 1993.<br><br>Original proposing Party: United Kingdom<br>Party undertaking management: United Kingdom | 64° 49'S; 63°31'W | Measure 14 (2009) |
| 85 | Plaque Commemorating the PM-3A Nuclear Power Plant at McMurdo Station. The plaque is approximately 18 x 24 inches, made of bronze and secured to a large vertical rock at McMurdo Station, the former site of the PM-3A nuclear power reactor. It is approximately half way up the west side of Observation Hill. The plaque text details achievements of PM-3A, Antarctica's first nuclear power plant.<br><br>Original proposing Party: United States<br>Party Undertaking Management: United States | 77º 51' S, 166º 41' E | Measure 15 (2010) |
| 86 | No.1 Building at Great Wall Station. The No.1 Building, built in 1985 with a total floor space of 175 square meters, is located at the centre of the Chinese Antarctic Great Wall Station which is situated in Fildes Peninsula, King George Island, South Shetlands, West Antarctica. The Building marked the commencement of China devoting to Antarctic research in the 1980s, and thus it is of great significance in commemorating China's Antarctic expedition.<br><br>Original proposing Party: China<br>Party undertaking management: China | 62°13′ 4″ S, 58°57′ 44 ″ W | Measure 12 (2011) |

| No. | Description | Location | Designation/ Amendment |
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| 87 | Location of the first permanently occupied German Antarctic research station "Georg Forster" at the Schirmacher Oasis, Dronning Maud Land. The original site is situated by the Schirmacher Oasis and marked by a commemorative bronze plaque with the label in German language:<br>Antarktisstation<br>Georg Forster<br>70° 46' 39'' S<br>11° 51' 03'' E<br>von 1976 bis 1996<br>The plaque is well preserved and affixed to a rock wall at the southern edge of the location. This Antarctic research station was opened on 21 April 1976 and closed down in 1993. The entire site has been completely cleaned up after the dismantling of the station was successfully terminated on 12 February 1996. The site is located about 1.5 km east of the current Russian Antarctic research station Novolazarevskaya.<br><br>Original proposing Party: Germany<br>Party undertaking management: Germany | 70°46'39'' S,<br>11°51'03'' E<br><br>Elevation: 141 meters above sea level | Measure 18 (2013) |
| 88 | Professor Kudryashov's Drilling Complex Building. The drilling complex building was constructed in the summer season of 1983-84. Under the leadership of Professor Boris Kudryashov, ancient mainland ice samples were obtained.<br><br>Original proposing Party: Russian Federation<br>Party undertaking management: Russian Federation | 78°28' S,<br>106° 48' E<br><br>Height above sea level 3488 m. | Measure 19 (2013) |
| 89 | Terra Nova Expedition 1910-12, Upper "Summit Camp" used during survey of Mount Erebus in December 1912. Camp Site location includes part of a circle of rocks, which were likely used to weight the tent valences. The camp site was used by a science party on Captain Scott's Terra Nova Expedition, who undertook mapping and collected geological specimens on Mount Erebus in December 1912.<br><br>Original proposing Parties: United Kingdom, New Zealand and United States<br><br>Parties undertaking management: United Kingdom, New Zealand and United States | 77°30.348' S,<br>167°10.223'E<br><br>Circa 3,410m above sea level | Measure 20 (2013) |

| No. | Description | Location | Designation/ Amendment |
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| 90 | Terra Nova Expedition 1910-12, Lower "Camp E" Site used during survey of Mount Erebus in December 1912. Camp Site location consists of a slightly elevated area of gravel and includes some aligned rocks, which may have been used to weight the tent valences. The camp site was used by a science party on Captain Scott's Terra Nova Expedition, who undertook mapping and collected geological specimens on Mount Erebus in December 1912.<br><br>Original proposing Parties: United Kingdom, New Zealand and United States<br><br>Parties undertaking management: United Kingdom, New Zealand and United States | 77$^0$ 30.348' S, 167$^0$ 9.246'E<br><br>Circa 3,410 m above sea level | Measure 21 (2013) |
| 91 | Lame Dog Hut at the Bulgarian base St. Kliment Ohridski, Livingston Island<br>The Lame Dog Hut was erected in April 1988, and had been the main building of St. Kliment Ohridski base until 1998. It is presently the oldest preserved building on Livingston Island, used as radio shack and post office, and hosting a museum exhibition of associated artefacts from the early Bulgarian science and logistic operations in Antarctica<br><br>Original proposing Party: Bulgaria<br>Party undertaking management: Bulgaria | 62 degrees 38' 29" S, 60 degrees 21' 53" W | Measure 19 (2015) |
| 92 | Oversnow heavy tractor "Kharkovchanka" that was used in Antarctica from 1959 to 2010.<br><br>The oversnow heavy tractor "Kharkovchanka" was designed and produced at the Malyshev Transport Machine-Building Plant in Kharkov specially for organizing inland sledge-tractor traverses in Antarctica. This was the first non-serial transport vehicle of the Soviet machine-building produced exclusively for operations in Antarctica. This tractor was not used outside Antarctica. Thus, the STT "Kharkovchanka" is a unique historical sample of engineering-technical developments made for exploration of Antarctica.<br><br>Original proposing Party: the Russian Federation<br>Party undertaking management: the Russian Federation | 69°22′ 41, 0″ S, 76°22′ 59, 1″ E. | Measure 19 (2015) |