

Attachment A

Draft Report on the State of the Antarctic Protected Area System

[Prepared by the steering committee established to plan for the Joint SCAR/CEP Workshop on Further Developing the Antarctic Protected Area System, held in Prague, Czech Republic, from 27-28 June 2019, and endorsed by the workshop – see Recommendation 1 arising from the workshop]

Summary

This report describes the series of Antarctic Specially Protected Areas (ASPAs) currently designated under Annex V to the Protocol on Environmental Protection to the Antarctic Treaty (the Environmental Protocol). It is intended to support the role of the Committee for Environmental Protection (CEP) to provide advice to the ATCM on ‘the operation and further elaboration of the Antarctic Protected Area system’, consistent with Article 12(g) of the Environmental Protocol.

Background

Annex V to the Environmental Protocol provides for the designation of areas within the Antarctic Treaty area (south of 60° South latitude), including marine areas, as Antarctic Specially Protected Areas (ASPAs). Annex V was adopted at ATCM XVI (1991), under Recommendation XVI-10, and entered into force on 24 May 2002.

ASPAs may be designated to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research (Annex V, Article 3.1).

Article 3.2 of Annex V to the Environmental Protocol states that ‘Parties shall seek to identify, within a systematic environmental-geographic framework, and to include in the series of Antarctic Specially Protected Areas’ (ASPAs), areas with specified characteristics and values:

- a) areas kept inviolate from human interference so that future comparisons may be possible with localities that have been affected by human activities;
- b) representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems;
- c) areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals;
- d) the type locality or only known habitat of any species;
- e) areas of particular interest to ongoing or planned scientific research;
- f) examples of outstanding geological, glaciological or geomorphological features;
- g) areas of outstanding aesthetic and wilderness value;
- h) sites or monuments of recognised historic value; and
- i) such other areas as may be appropriate to protect the values set out in Article 3.1.

Entry into an ASPA is prohibited without a permit, and activities within in an ASPA must be conducted in accordance with the management plan for the area.

The Environmental Protocol established the Committee for Environmental Protection to provide advice and formulate recommendations to the Parties, including on the operation of the Annexes, and on ‘the operation and further elaboration of the Antarctic Protected Area system’ (Article 12(g)).

This report draws on the comprehensive information about the current series of ASPAs available from the [Antarctic Protected Areas Database](#), which is maintained by the Antarctic Treaty Secretariat, and a significant body of published peer-reviewed literature which has considered aspects of the state of the Antarctic Protected Area system.

State of the Antarctic protected area system

There are currently 72 ASPAs designated in accordance with the provisions of Article 3.1 of Annex V. The locations of these ASPAs are presented in Figure 1. Summary information for each ASPA is presented in Table 1, and Tables 2 to 7 present information consolidated across the series of ASPAs.

Designation of ASPAs over time

- 56 of the current ASPAs were originally designated as Specially Protected Areas (SPAs)¹ and / or Sites of Special Scientific Interest (SSSIs)². In accordance with Article 3.3 of Annex V, those areas were designated as ASPAs following the entry into force of Annex V in 2002, and renamed and renumbered in accordance with ATCM Decision 1 (2002).
- 16 of the current ASPAs were designated since the entry into force of Annex V (see Table 1 and Figure 2).
- 15 Antarctic Treaty Consultative Parties have been the proponent or co-proponent of at least one current ASPA (see Table 1 and Figure 2).
- 7 of the current ASPAs were jointly proposed by two or more Parties and/or have recognised co-management arrangements (see Table 1).

Area within ASPAs³

- The total area contained within ASPAs is approximately 3680 km².
- The area contained within individual ASPAs ranges from a few tens of square meters up to approximately 960 km² (Table 1)⁴.
- 25 ASPAs cover an area of < 1km², 24 ASPAs cover an area of 1-10 km², 14 ASPAs cover an area of 10-100 km² and 9 ASPAs cover an area of >100 km² (Table 2).
- 67 ASPAs contain ice-free area and collectively cover a total ice-free area of approximately 760 km² (Table 3).
- There are 6 wholly marine ASPAs⁵, which cover a total area of approximately 1631 km². A further 14 ASPAs contain a marine component, bringing the total marine area within ASPAs to approximately 1970 km² (Table 4).

¹ The 1964 *Agreed Measures for the Conservation of Antarctic Fauna and Flora* (ATCM Recommendation III-VIII) provided for the designation of sites of 'outstanding scientific interest' as Specially Protected Areas (SPAs), to accord them 'special protection ... in order to preserve their unique natural ecological system'.

² ATCM Recommendation VIII-3 (1975), established a new protected area category, Sites of Special Scientific Interest (SSSIs) to be sites of 'exceptional scientific interest' requiring 'long-term protection from harmful interference'.

³ These areas were calculated using the revised ASPA layer, described in Wauchope et al. (2019) *Nature Communications* 10:946 <https://doi.org/10.1038/s41467-019-08915-6>. The revised ASPA layer is available from the Australian Antarctic Data Centre at <https://doi.org/10.26179/5c1b10c534c19>

⁴ Note that there are several 'multi-site' ASPAs. For example, ASPA 125 Fildes Peninsula, ASPA 140 Deception Island, and ASPA 175 High Altitude Geothermal sites of the Ross Sea region.

⁵ The management plans for these 6 ASPAs were considered and approved by CCAMLR in accordance with ATCM [Decision 9 \(2005\)](#). Five of the partly marine ASPAs have also been considered and approved by CCAMLR. Other ASPAs with small marine components have not triggered the requirements under Decision 9 (2005) for referral to CCAMLR.

Representation of criteria in Annex V, Article 3.2^{3,6}

- The greatest number of ASPAs are designated primarily to protect ‘areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals’ (Annex V, Article 3.2(c)) (37 ASPAs), ‘representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems’ (Article 3.2(b)) (9 ASPAs), and ‘areas of particular interest to ongoing or planned scientific research’ (Article 3.2(e)) (9 ASPAs) – see Table 1 and Table 5).
- No ASPAs are designed primarily to protect ‘the type locality or only known habitat of any species’ (Article 3.2(d)) (See Table 1 and Table 5).
- The greatest area (approximately 1650 km²) is contained within ASPAs primarily designated to protect ‘areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals’ (Article 3.2(c)) (see Table 5).

Distance from ASPAs to key sites of human activity^{3,7,8}

- The distance between an ASPA and the nearest National Antarctic Program facility ranges from 0 km to approximately 590 km, with the mean distance being approximately 50 km (see Figure 3 and Table 1).
- The distance between an ASPA and the nearest tourist landing site ranges from 0 km to 1376 km (see Figure 3 and Table 1).
- Shaw et al. (2014) provided analyses that showed ASPAs are significantly closer to sites of human activity than would be expected by chance.

Representation of areas / regions identified in continent-wide classifications of the Antarctic environment

The ATCM/CEP have recognised several classifications / analyses as being dynamic tools relevant to the identification of ASPAs within a systematic environmental-geographic framework, including:

- Environmental Domains Analysis for the Antarctic Continent (Resolution 3 (2008))^{3,9}: The Antarctic continent was classified into 21 distinct Environmental Domains based on environmental and geographic characteristics such as climate, slope, land cover and geological data.
 - The greatest number of ASPAs are located partially or completely within Domain S McMurdo – South Victoria Land geologic (15 ASPAs) and Domain G Antarctic Peninsula and Alexander Island main ice fields (16 ASPAs). There are no ASPAs within Domain: Q East Antarctic high interior ice sheet. (See Table 1, Table 6 and Figure 4a).
- Antarctic Conservation Biogeographic Regions (ACBR) (Resolution 3 (2017))^{3,10}: The use of quantitative analyses to combine spatially explicit Antarctic terrestrial biodiversity data with other relevant spatial frameworks identified 16 biologically distinct ice-free regions encompassing the Antarctic continent and close-lying islands within the Antarctic Treaty area (Terauds and Lee (2016)), Terauds et al. (2012)).
 - The greatest number of ASPAs are located partially or completely within ACBR 3 (22 ASPAs) and ACBR 9 (16 ASPAs). (See Table 1, Table 7 and Figure 4b). Note, however, that not all ASPAs located within ACBRs were designated to protect biodiversity values (see Wauchope et al. (2019) and Table 7).
 - An overview of the representativeness of ASPAs in the context of the ACBRs is provided in Shaw et al. (2014) and Terauds and Lee (2016).
- Important Bird Areas in Antarctica (Resolution 5 (2015))¹¹: 204 Important Bird Areas (IBAs) in Antarctica were defined on the basis of a consistent set of global criteria developed by BirdLife

⁶ Antarctic Treaty Secretariat Protected Areas Database - https://ats.aq/devPH/apa/ep_protected.aspx?lang=e

⁷ COMNAP Antarctic Facilities layer v3.2.0 - <https://github.com/PolarGeospatialCenter/comnap-antarctic-facilities>

⁸ IAATO data from 2016/17, 2017/18, 2018/19 – requested via <https://iaato.org/tourism-statistics>

⁹ See Morgan et al. (2007) for description of the Environmental Domains Analysis

¹⁰ See Terauds and Lee (2016) for the most recent update of the Antarctic Conservation Biogeographic Regions

¹¹ Important Bird Areas in Antarctica – Summary. https://documents.ats.aq/ATCM38/att/ATCM38_att097_e.pdf

International and global population assessments for bird species that breed in Antarctica, combined with available scientific data on colony populations and locations.¹²

- 26 Antarctic IBAs are designated as ASPAs (see Table 1 and Figure 4c).

Protection of values within Antarctic Specially Protected Areas

Several papers to the CEP and peer-reviewed articles have considered the protection of particular values within of the Antarctic Protected Area system. For example:

- Terrestrial species – Wauchope et al. (2019) identified that, based on the most comprehensive terrestrial biodiversity dataset available:
 - Continent wide, 44 % of species (birds, plants, lichens and invertebrates, but not microbes or marine species), occur within ASPAs and that for species occurring in ASPAs, 52% only occur in one ASPA (Figure 5).
 - One-third of plants and lichens species occur within ASPAs while just over half of invertebrate species are found in at least one ASPA.
 - The protection of terrestrial species within ASPAs is uneven across the 16 ACBRs. In those ACBRs where ASPAs are present, the proportion of species occurring in at least one ASPA ranges from 8-95%.
- Geological values – ATCM XXXVII/IP22 identified that:
 - 6 ASPA management plans list geological, palaeontological or geomorphological values as the primary value protected within the ASPA (8% of all ASPAs), and geological, geomorphological and palaeontological values are identified in a further 22 ASPA management plans.
- Vegetation – Hughes et al. (2016) identified that:
 - 33 ASPAs are designated with the explicit purpose of protecting macroscopic terrestrial flora. Vegetation within these Areas covers 16.1 km² (Table 8), with over half contained within a single ASPA (ASPAs 126 Byers Peninsula).
 - Over 96% of ASPAs protecting vegetation are located within ACBR 2 South Orkney Islands (8.8%) and ACBR 3 North-west Antarctic Peninsula (87.3%).
 - Terrestrial plant communities are not specifically protected in 7 ACBRs, and in a further 6 ACBRs, less than 0.4% of the ACBR is included within an ASPA protecting vegetation.
- Micro-organisms – Hughes et al. (2015) identified that microbial groups are protected to different degrees within the ASPAs (Table 9).

Guidelines relevant to the development and management of the Antarctic protected area system

The CEP has developed several documents that provide guidance for the further development and management of the Antarctic protected area system, including:

- Guidelines: A prior assessment process for the designation of ASPAs and ASMAAs: Proponents of potential new ASPAs are encouraged to engage the CEP in a prior assessment discussion, as outlined in the Guidelines, to allow for feedback and comments from other Members earlier in the process, to facilitate consideration of the further systematic development of the protected areas system in accordance with Article 3 of Annex V to the Protocol, and to support consideration of climate change implications.
- Guidelines for CEP Consideration of New and Revised Draft ASPA and ASMA Management Plans: The Guidelines outline the process for CEP consideration of new and revised draft ASPA management plans, including consideration as appropriate by Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and/or the CEP Subsidiary Group on Management Plans (SGMP).
- Revised Guide to the Preparation of Management Plans for Antarctic Specially Protected Areas: The Guide aims to assist Parties in their efforts to prepare ASPA management plans that meet the

¹² In 2018 BirdLife International recognised a further (205th) Antarctic IBA at [Ryder Bay Islands](#).

requirements of the Environmental Protocol, and to help achieve clear content, clarity, consistency (with other management plans) and effectiveness.

- [Guidelines for Implementation of the Framework for Protected Areas Set Forth in Article 3, Annex V of the Environmental Protocol](#): The aim of the Guidelines is to assist the Parties, SCAR, CCAMLR, COMNAP and the CEP to apply Article 3 of Annex V for the designation of ASPAs. The guidelines provide a set of tools to enable more systematic assessment, selection, definition and proposal of areas that might require greater protection in accordance with the provisions of Annex V.
- [Procedures for Forwarding Draft Antarctic Specially Protected Area Management Plans to CCAMLR](#): Specifies the requirements and procedures for the prior approval by the Commission on the Conservation of Antarctic Marine Living Resources (CCAMLR) of proposals for ASPAs which contain marine components.
- [Checklist for Inspection of ASPAs and ASMAs](#): The checklist provides a guideline to observers conducting inspections of ASPAs in accordance with Article VII of the Antarctic Treaty and Article 14 of the Environment Protocol.

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Acknowledgments

The Steering Committee for the *Joint SCAR/CEP Workshop on Further Developing the Antarctic Protected Area System* thanks Dr Jasmine Lee (Monash University) for her assistance in developing the figures, compiling tables and calculating many of the statistics presented in this report.

Figures

Figure 1. Locations of Antarctic Specially Protected Areas (ASPAs)

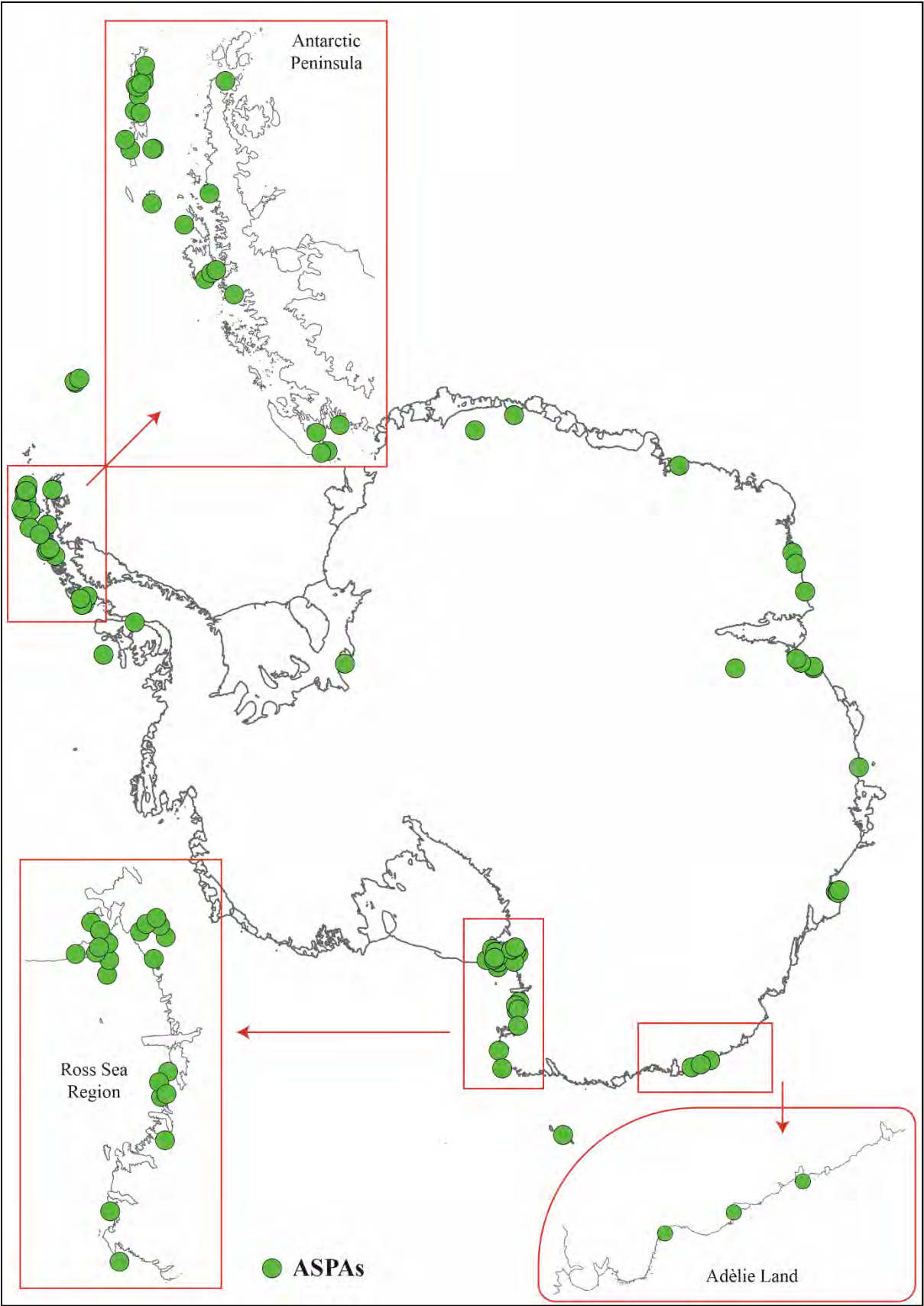


Figure 2. Designation of Antarctic Specially Protected Areas (or the earlier equivalents) between 1966 and 2015 and number of ASPAs proposed by each Consultative Party (Source: Hughes & Grant (2017)) Note: No new ASPAs have been designated since 2014. This figure does not reflect subsequently established co-management arrangements for ASPA 126 (co-management by Spain recognised in 2016) and ASPA 148 (co-management by Argentina recognised in 2015).

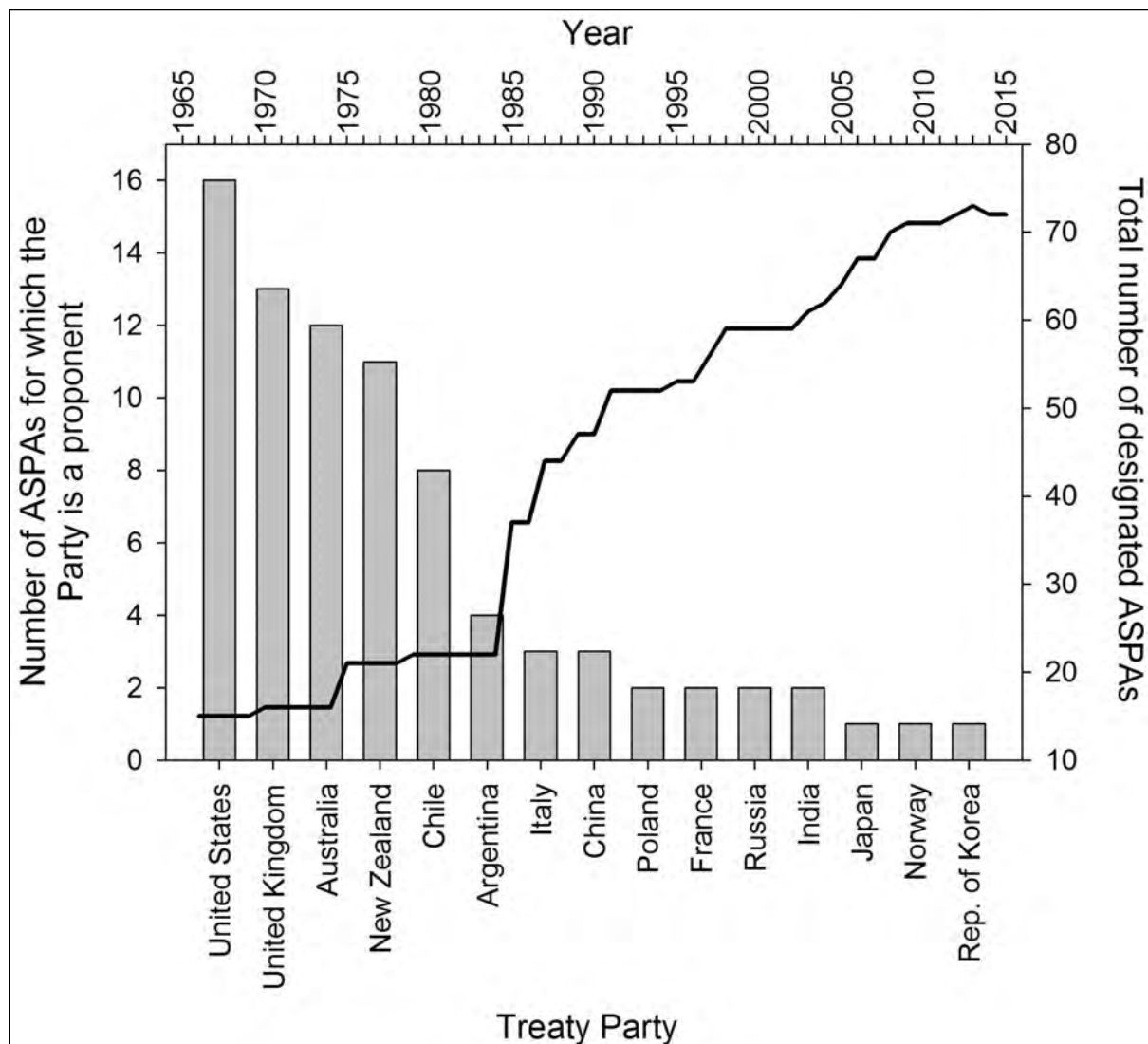


Figure 3. Locations of Antarctic Specially Protected Areas (ASPAs) and key sites of human activities
 (Sources: updated ASPA layer³, COMNAP Facilities Layer⁷, IAATO landing data⁸)

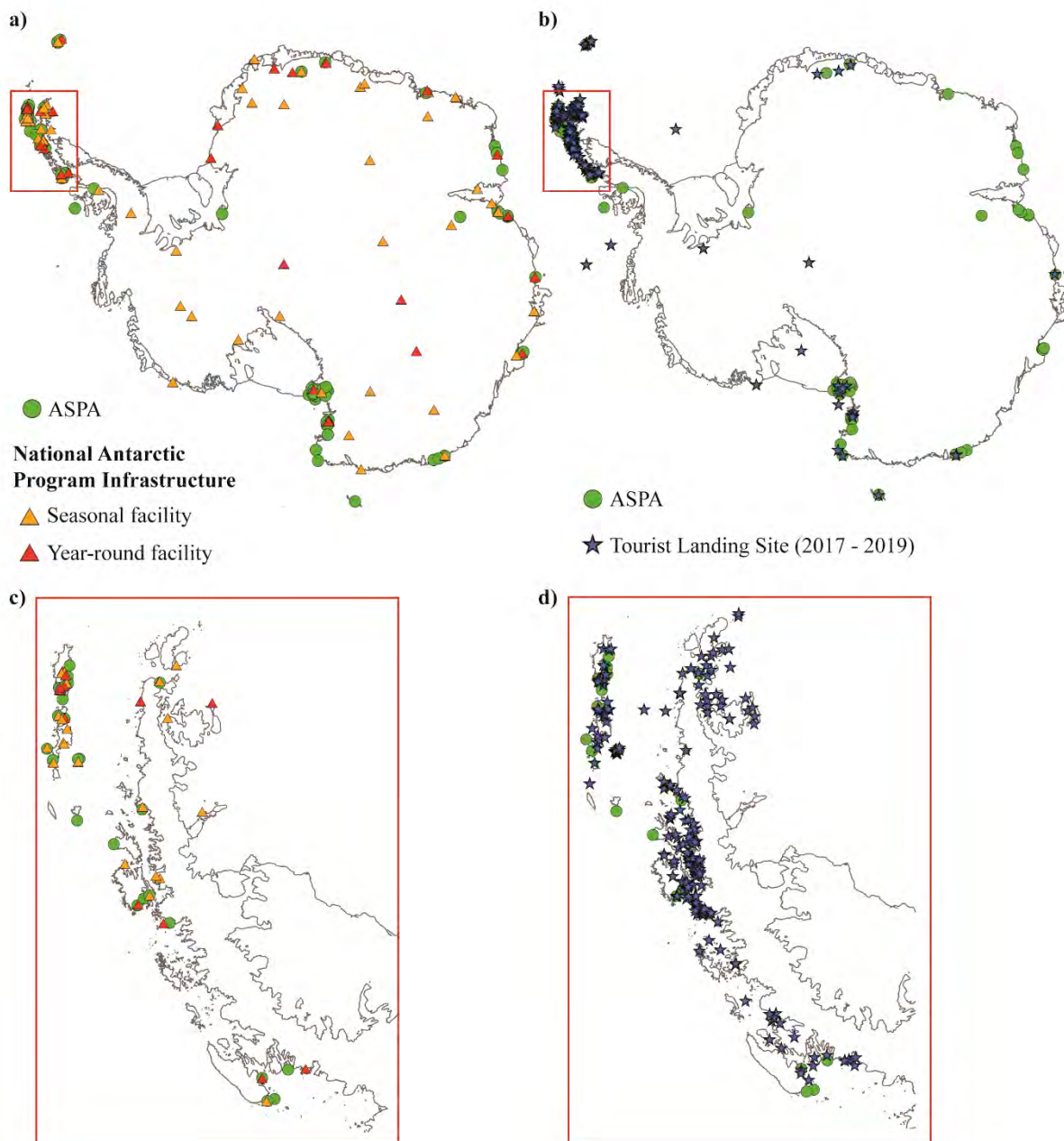


Figure 4. Location of Antarctic Specially Protected Areas (ASPAs) and: (a) Environmental Domains (b) Antarctic Conservation Biogeographic Regions; (c)(d) Important Bird Areas (Sources: Updated ASPA layer³, Environmental Domains⁹, ACBRs¹⁰, IBAs¹¹)

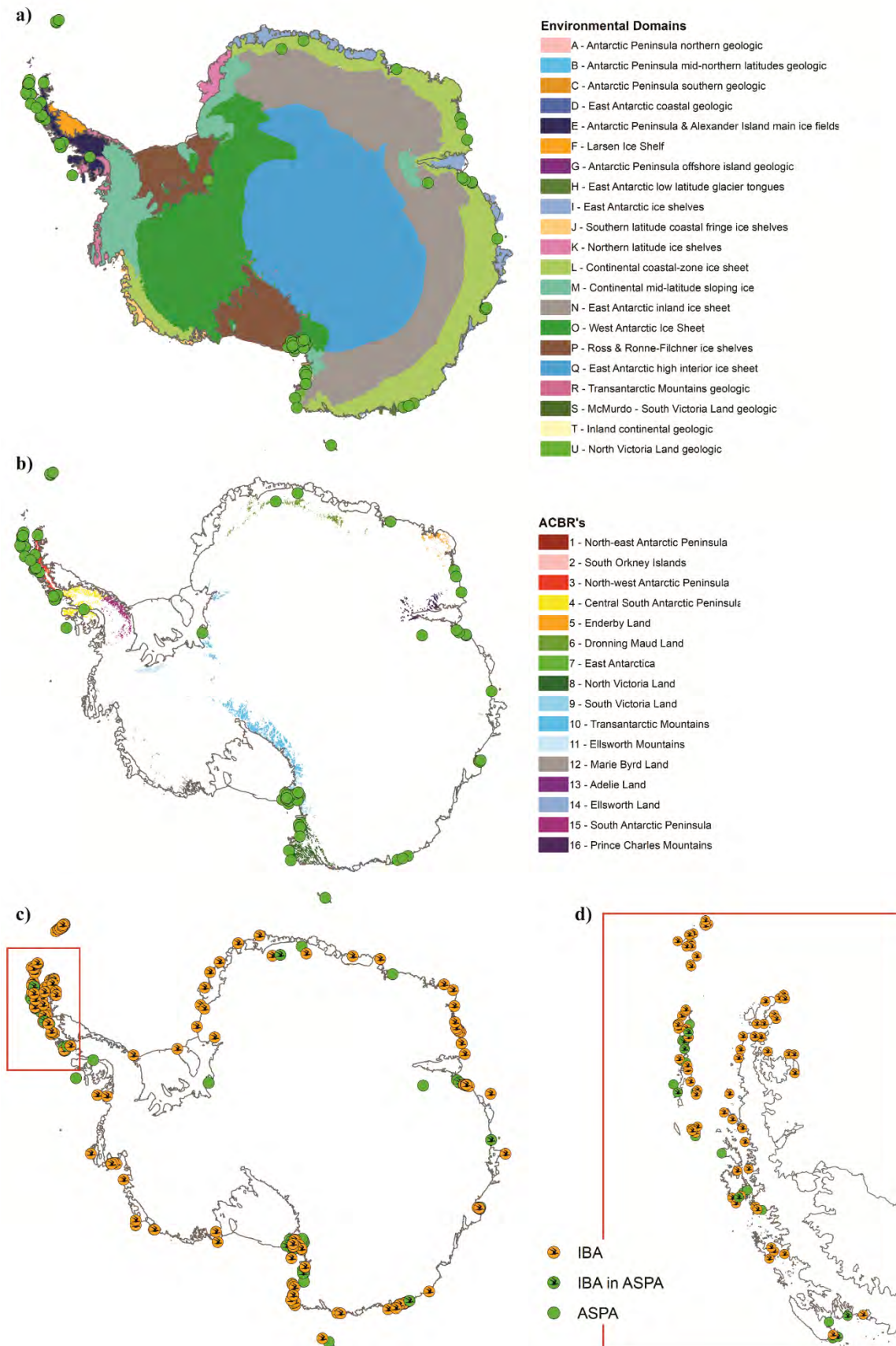
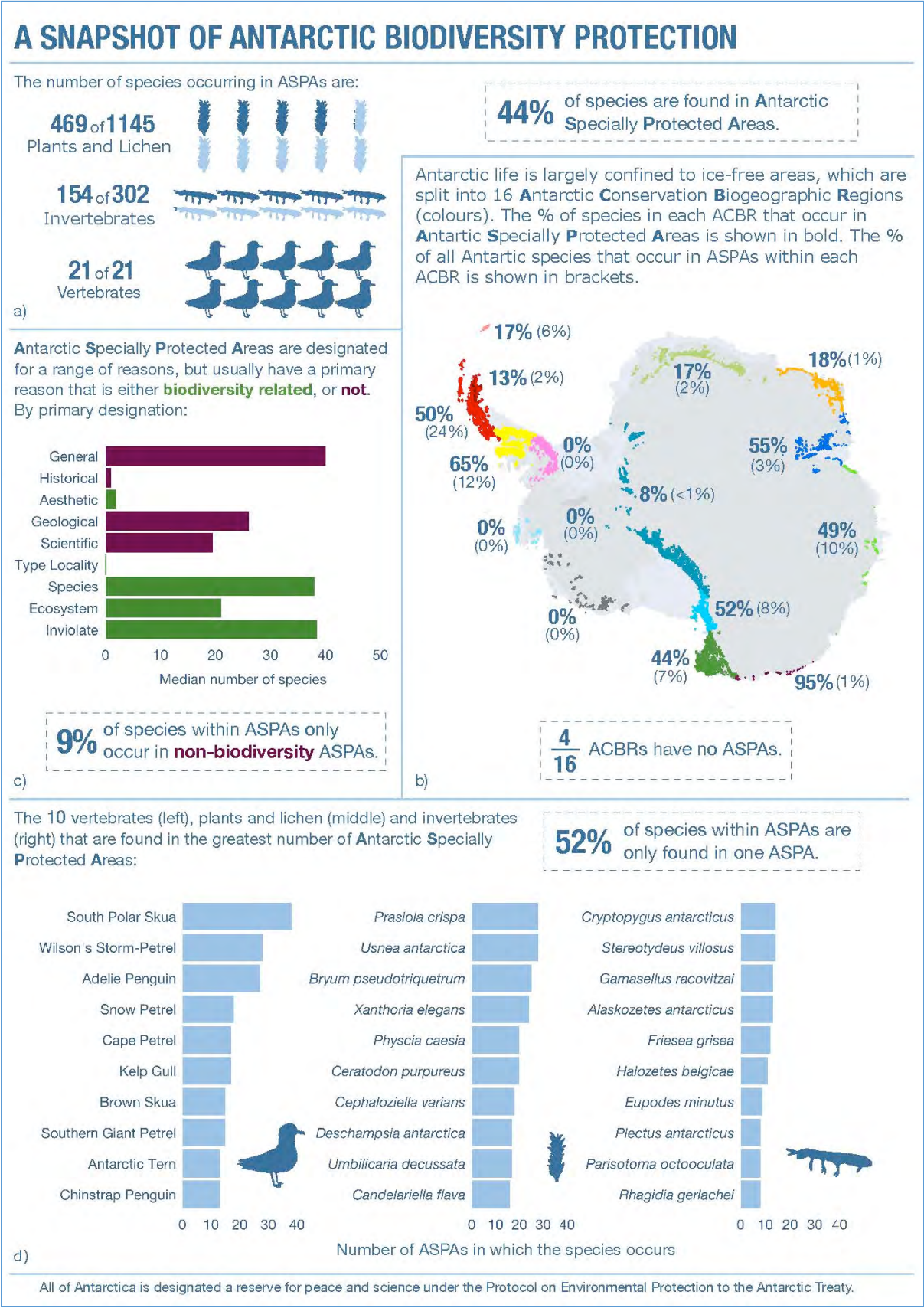


Figure 5. A snapshot of Antarctic biodiversity protection (summarised from figures in Wauchope et al. 2019 *Nature Communications*)



Tables

Table 1. Summary information for current Antarctic Specially Protected Areas (ASPAs)

ASPA #	Name	Proponent(s) ⁱ	Year designated ⁱⁱ	Primary reason for designation ^{iii,iv}	Main Environmental Domain ^{v,vi}	Main Antarctic Conservation Biogeographic Region ^{vii,viii}	Important Bird Area ^{ix}	Area (km ²) ^x	Distance to nearest National Antarctic Program infrastructure (km) ^{xi}	Distance to nearest tourist landing site (km) ^{xii}
101	Taylor Rookery, Mac. Robertson Land	Australia	1996 (as SPA 1)	C	D	16	119	0.27	86.02	1375.88
102	Rookery Islands, Holme Bay, Mac. Robertson Land	Australia	1966 (as SPA 2)	C	NA	16	121	0.85	13.43	1302.78
103	Ardery Island and Odber Island, Budd Coast	Australia	1966 (as SPA 3)	C	NA	7	145	2.51	9.66	785.67
104	Sabrina Island, Balleny Islands	New Zealand	1966 (as SPA 4)	B	NA	NA		0.42	331.46	1.13
105	Beaufort Island, Ross Sea	New Zealand	1966 (SPA 5)	C	S	9	188	13.76	93.76	22.25
106	Cape Hallett, Victoria Land	United States	1966 (as SPA 7)	C	U	8	170	0.53	319.39	60.17
107	Emperor Island, Dion Islands, Marguerite Bay, Antarctic Peninsula	United Kingdom	1966 (as SPA 8)	C	NA	3	97	4.77	13.17	18.35
108	Green Island, Berthelot Islands,	United Kingdom	1966 (as SPA 9)	C	NA	3		0.18	9.78	0.84

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	Antarctic Peninsula									
109	Moe Island, South Orkney Islands	United Kingdom	1966 (as SPA 13)	B	NA	2	20	1.35	4.87	4.23
110	Lynch Island, South Orkney Islands	United Kingdom	1966 (as SPA 14)	B	G	2		0.13	6.04	2.85
111	Southern Powell Island and adjacent islands, South Orkney Islands	United Kingdom	1966 (as SPA 15)	C	A & G	2	15	5.74	12.80	12.20
112	Coppermine Peninsula, Robert Island, South Shetland Islands	Chile	1970 (as SPA 16)	B	G	3		0.71	0.05	3.37
113	Litchfield Is., Arthur Harbour, Anvers Is., Palmer Archipelago	United States	1975 (as SPA 17)	C	NA	3	86	0.38	1.49	0.21
114	Northern Coronation Island, South Orkney Islands [De-designated under Measure 16 (2014)]									
115	Lagotellerie Island, Marguerite Bay,	United Kingdom	1985 (as SPA 19)	B	NA	3	98	1.65	29.02	8.40

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	Antarctic Peninsula									
116	New College Valley, Caughley Beach, Cape Bird, Ross Island	New Zealand	1985 (as SPA 20 and SSSI 10)	C	O	9		0.33	69.60	8.32
117	Avian Island, off Adelaide Island, Antarctic Peninsula	United Kingdom	1989 (as SSSI 30)	C	E	3	95	1.26	1.07	20.40
118	Summit of Mount Melbourne, Victoria Land [De-designated under Measure 13 (2014)]									
119	Forlidas Pond and Davis Valley ponds, Dufek Massif	United States	1991 (as SPA 23)	C	R	10		53.68	592.45	604.95
120	Pointe-Geologie Archipelago, Terre Adélie	France	1995 (as SPA 25)	B	H	13	150	0.38	0.61	114.95
121	Cape Royds, Ross Island	United States	1975 (as SSSI 1)	C	P	9		0.64	34.26	0.36
122	Arrival Heights, Hut Point Peninsula, Ross Island	United States	1975 (as SSSI 2)	I	S	9		0.71	1.40	1.40

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123	Barwick and Balham Valleys, Southern Victoria Land	United States	1975 (as SSSI 3)	G	S	9		410.80	49.01	43.75
124	Cape Crozier, Ross Island	United States	1966 (as SPA 6)	C	S	9	187	67.65	68.63	68.31
125	Fildes Peninsula, King George Island, South Shetland Islands	Chile	1966 (as SPA 12)	F	G	3		2.45	0.32	0.32
126	Byers Peninsula, Livingston Island, South Shetland Islands	Chile, Spain, United Kingdom	1966 (as SPA 1)	C	G	3	54	92.96	0.00	1.84
127	Haswell Island	Russian Federation	1975 (as SSSI 7)	E	L	7	141	6.07	1.03	12.77
128	Western shore of Admiralty Bay, King George Island	Poland	1979 (as SSSI 8)	C	G	3	46	18.38	0.54	0.54
129	Rothera Point, Adelaide Island	United Kingdom	1985 (as SSSI 5)	A	E	3		0.04	0.28	0.35
130	‘Tramway Ridge’, Mount Erebus, Ross Island [De-designated under Measure 13 (2014)]									

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131	Canada Glacier, Lake Fryxell, Taylor Valley, Victoria Land	New Zealand	1985 (as SSSI 12)	C	S	9		1.45	26.23	0.94
132	Potter Peninsula, King George Island, South Shetland Islands	Argentina	1985 (as SSSI 13)	B	G	3	47	1.79	0.51	0.51
133	Harmony Point, Nelson Island, South Shetland Islands	Argentina, Chile	1985 (as SSSI 14)	C	E	3	49	46.36	10.10	4.84
134	Cierva Point and offshore islands, Danco Coast, Antarctic Peninsula	Argentina	1985 (as SSSI 15)	C	B	3	81	18.19	0.00	1.48
135	North-East Bailey Peninsula, Budd Coast, Wilkes Land	Australia	1985 (as SSSI 16)	C	D	7		0.29	0.36	791.65
136	Clark Peninsula, Budd Coast, Wilkes Land	Australia	1985 (as SSSI 17)	C	L	7	147	9.68	3.02	791.89
137	North-west White Island, McMurdo Sound	United States	1985 (as SSSI 18)	C	P	9		136.96	18.48	18.48
138	Linneaus Terrace, Asgard Range,	United States	1985 (as	C	S	9		0.76	65.25	46.64

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	Victoria Land		SSSI 19)							
139	Biscoe Point, Anvers Island	United States	1985 (as SSSI 20)	C	E	3		0.62	10.97	0.22
140	Parts of Deception Island, South Shetland Islands	United Kingdom	1985 (as SSSI 21)	E	G	3		2.92	0.46	0.40
141	‘Yukidori Valley’, Langhovde, Lützow-Holmbukta	Japan	1987 (as SSSI 22)	B	D	5		5.22	25.68	1066.87
142	Svarthamaren, Mühlig-Hofmannfjella, Dronning Maud Land	Norway	1987 (as SSSI 23)	C	T	6	112	7.61	0.00	90.53
143	Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land	Australia	1987 (as SSSI 25)	B	D	7		20.75	6.38	656.37
144	Chile Bay (Discovery Bay), Greenwich Island, South Shetland Islands	Chile	1987 (as SSSI 26)	E	G	NA		0.72	0.39	6.76
145	Port Foster, Deception Island, South Shetland	Chile	1987 (as SSSI 27)	E	G	NA		2.33	3.04	0.68

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	Islands									
146	South Bay, Doumer Island, Palmer Archipelago	Chile	1987 (as SSSI 28)	E	E	NA		1.00	0.18	0.64
147	Ablation Point-Ganymede Heights, Alexander Island	United Kingdom	1989 (as SSSI 29)	F	C	4		102.08	44.18	280.35
148	Mount Flora, Hope Bay, Antarctic Peninsula	United Kingdom, Argentina	1989 (as SSSI 31)	F	A	1		0.21	1.58	1.50
149	Cape Shirreff and San Telmo Island, Livingston Island, South Shetland Islands	United States	1966 (as SPA 11)	E	G	3		11.22	0.00	16.89
150	Ardley Island, Maxwell Bay, King George Island	Chile	1991 (as SSSI 33)	C	NA	3	48	1.26	0.00	0.00
151	Lions Rump, King George Island, South Shetland Islands	Poland	1991 (as SSSI 34)	C	A	3		1.54	12.71	10.21
152	Western Bransfield Strait off Low Island, South Shetland Islands	United States	1991 (as SSSI 35)	E	E	NA		960.63	77.62	47.66

ASPA #	Name	Proponent(s) ⁱ	Year designated ⁱⁱ	Primary reason for designation ^{iii,iv}	Main Environmental Domain ^{v,vi}	Main Antarctic Conservation Biogeographic Region ^{vii,viii}	Important Bird Area ^{ix}	Area (km ²) ^x	Distance to nearest National Antarctic Program infrastructure (km) ^{xi}	Distance to nearest tourist landing site (km) ^{xii}
153	Eastern Dallmann Bay off Brabant Island, Palmer Archipelago	United States	1991 (as SSSI 36)	C	B	NA		636.57	14.98	6.62
154	Botany Bay, Cape Geology, Victoria Land	New Zealand	1997 (as SSSI 37)	C	S	9		1.92	51.68	68.67
155	Cape Evans, Ross Island	New Zealand	1997 (as SPA 25)	H	S	9		0.05	24.20	0.48
156	Lewis Bay, Mount Erebus, Ross Island	New Zealand	1997 (as SPA 26)	I	O	9		13.97	47.82	31.59
157	Backdoor Bay, Cape Royds, Ross Island	New Zealand	1998 (as SPA 27)	H	P	9		0.04	34.89	0.25
158	Hut Point, Ross Island	New Zealand	1998 (as SPA 28)	H	S	9		0.00	0.68	0.51
159	Cape Adare, Borchgrevink Coast	New Zealand	1998 (as SPA 29)	H	U	8		0.02	413.45	4.28
160	Frazier Islands, Windmill Islands, Wilkes Land	Australia	2003	C	NA	7		0.62	15.95	775.76
161	Terra Nova Bay, Ross Sea	Italy	2003	E	S	NA		29.41	2.34	2.34
162	Mawson's Hut, Commonwealth	Australia	2004	H	L	13	157	1.05	122.56	4.16

ASPA #	Name	Proponent(s) ⁱ	Year designated ⁱⁱ	Primary reason for designation ^{iii,iv}	Main Environmental Domain ^{v,vi}	Main Antarctic Conservation Biogeographic Region ^{vii,viii}	Important Bird Area ^{ix}	Area (km ²) ^x	Distance to nearest National Antarctic Program infrastructure (km) ^{xi}	Distance to nearest tourist landing site (km) ^{xii}
	Bay, George V Land, East Antarctica									
163	Dakshin Gangotri Glacier	India	2005	E	D	6		4.57	4.60	9.58
164	Scullin and Murray Monoliths, Mac Robertson Land, East Antarctica	Australia	2005	C	D	16	126	10.29	162.34	1118.00
165	Edmonson Point, Wood Bay, Ross Sea	Italy	2006	A	T & U	8	175	5.51	40.64	41.63
166	Port-Martin, Terre Adélie	France	2006	H	L	13		0.17	63.35	52.14
167	Hawker Island, Vestfold Hills, Ingrid Christensen Coast, Princess Elizabeth Land, East Antarctica	Australia	2006	C	D	7		2.21	6.97	669.59
168	Mount Harding, Grove Mountains, East Antarctica	China	2008	F	N	16		101.70	115.69	967.76
169	Amanda Bay, Ingrid Christensen Coast, Princess Elizabeth Land,	Australia, China	2008	C	L	7	128	17.14	20.13	724.56

ASPA #	Name	Proponent(s) ⁱ	Year designated ⁱⁱ	Primary reason for designation ^{iii,iv}	Main Environmental Domain ^{v,vi}	Main Antarctic Conservation Biogeographic Region ^{vii,viii}	Important Bird Area ^{ix}	Area (km ²) ^x	Distance to nearest National Antarctic Program infrastructure (km) ^{xi}	Distance to nearest tourist landing site (km) ^{xii}
	East Antarctica									
170	Marion Nunataks, Charcot Island, Antarctic Peninsula	United Kingdom	2008	C	E	4		106.40	301.52	346.84
171	Narębski Point, Barton Peninsula, King George Island	Korea (RoK)	2009	C	G	3		1.04	0.87	2.90
172	Lower Taylor Glacier and Blood Falls	United States	2012	F	O	9		421.64	48.10	21.29
173	Cape Washington and Silverfish Bay	Italy, United States	2013	C	U	8	176	279.99	8.31	8.96
174	Stornes	Australia, China, India, Russian Federation	2014	F	D	7		21.31	1.86	758.21
175	High Altitude Geothermal sites of the Ross Sea region	New Zealand, United States	2014	C	U	8		0.26	33.03	21.22
								Total 3678.11	Avg. 49.91	Avg. 193.74

ⁱ The proponent(s) was drawn from the Antarctic Protected Areas Database maintained by the Secretariat of the Antarctic Treaty:

https://www.ats.aq/devPH/apa/ep_protected.aspx?lang=e&lang=e.

ⁱⁱ The year designated was drawn from the Antarctic Protected Areas Database maintained by the Secretariat of the Antarctic Treaty:

https://www.ats.aq/devPH/apa/ep_protected.aspx?lang=e&lang=e.

ⁱⁱⁱ From Article 3.2 of Annex V to the Environmental Protocol: A – areas kept inviolate from human interference so that future comparisons may be possible with localities that have been affected by human activities; B – representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems; C – areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals; D – the type locality or only known habitat of any species; E – areas of particular interest to on-going or planned scientific research; F – examples of outstanding geological, glaciological or geomorphological features; G – areas of outstanding aesthetic and wilderness value; H – sites or monuments of recognised historic value; I – such other areas as may be appropriate to protect the values set out in Article 3 Paragraph 1 ("to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values or on-going or planned scientific research").

^{iv} The primary reason for designation was drawn from the Antarctic Protected Areas Database maintained by the Secretariat of the Antarctic Treaty:

https://www.ats.aq/devPH/apa/ep_protected.aspx?lang=e&lang=e.

^v See Figure 1. The Environmental Domains are described in Morgan et al. (2007). Environmental Domains of Antarctica Version 2.0 Final Report, Manaaki Whenua Landcare Research New Zealand Ltd, 89 pages. See also Resolution 3 (2008).

^{vi} Main Environmental Domain was calculated using the revised ASPA layer, describe in Wauchope et al. (2019) *Nature Communications* 10:946

<https://doi.org/10.1038/s41467-019-08915-6>. The revised ASPA layer is available from the Australian Antarctic Data Centre at <https://doi.org/10.26179/5c1b10c534c19>

^{vii} See Terauds and Lee (2016) for the most recent update of the Antarctic Conservation Biogeographic Regions

^{viii} Main ACBR was calculated using the revised ASPA layer, describe in Wauchope et al. (2019) *Nature Communications* 10:946 <https://doi.org/10.1038/s41467-019-08915-6>. The revised ASPA layer is available from the Australian Antarctic Data Centre at <https://doi.org/10.26179/5c1b10c534c19>

^{ix} Important Bird Areas in Antarctic – Summary. https://documents.ats.aq/ATCM38/att/ATCM38_att097_e.pdf

^x ASPA areas were calculated using the revised ASPA layer, describe in Wauchope et al. (2019) *Nature Communications* 10:946 <https://doi.org/10.1038/s41467-019-08915-6>. The revised ASPA layer is available from the Australian Antarctic Data Centre at <https://doi.org/10.26179/5c1b10c534c19>

^{xi} Distance to nearest NAP infrastructure was calculated using the updated ASPA layer (<https://doi.org/10.26179/5c1b10c534c19>) and COMNAP Antarctic Facilities layer v3.2.0 - <https://github.com/PolarGeospatialCenter/comnap-antarctic-facilities>.

^{xii} Distance to nearest tourist landing site was calculated using updated ASPA layer (<https://doi.org/10.26179/5c1b10c534c19>) and IAATO data from 2016/17, 2017/18, 2018/19 – requested via <https://iaato.org/tourism-statistics>.

Table 2. Number and total area of Antarctic Specially Protected Areas (ASPAs) according to size class

ASPA size group (km ²)	# ASPAs	Total Area (km ²)
<1	25	9.34
1 - 10	24	76.90
10 - 100	14	435.08
>100	9	3156.78

Table 3. Amount of ice-free area (IFA) in each Antarctic Specially Protected Area (ASPA), based on the Antarctic Digital Database medium resolution rock outcrop layer (v7 medium resolution). (Source: updated ASPA layer³)

ASPA #	Name	Current IFA (v7 med) km ²
101	Taylor Rookery	0.25
102	Rookery Islands	0.02
103	Arderly Island and Odberth Island	2.20
104	Sabrina Island	0.00
105	Beaufort Island	5.79
106	Cape Hallett	0.52
107	Emperor Island	0.00
108	Green Island	0.11
109	Moe Island	1.11
110	Lynch Island	0.005
111	Southern Powell Island and adjacent islands	1.05
112	Coppermine Peninsula	0.46
113	Litchfield Island	0.30
115	Lagotellerie Island	1.50
116	New College Valley	0.02
117	Avian Island	0.53
119	Davis Valley and Forlidas Pond	41.80
120	Pointe-Geologie Archipelago	0.05
121	Cape Royds	0.20
122	Arrival Heights	0.71
123	Barwick and Balham Valleys	359.03
124	Cape Crozier	29.53
125	Fildes Peninsula	2.29
126	Byers Peninsula	57.22
127	Haswell Island	0.65
128	Western shores of Admiralty Bay	10.11
129	Rothera Point	0.04
131	Canada Glacier	1.45
132	Potter Peninsula	1.59
133	Harmony Point	4.09
134	Cierva Point and offshore islands	6.24
135	North-east Bailey Peninsula	0.03
136	Clark Peninsula	3.72
137	North-West White Island	1.51
138	Linnaeus Terrace	0.76
139	Biscoe Point	0.19
140	Parts of Deception Island	2.29
141	Yukidori Valley	5.01
142	Svarthamaren	7.40

ASPA #	Name	Current IFA (v7 med) km ²
143	Marine Plain	18.86
144	Chile Bay (Discovery Bay)	0.00
145	Port Foster	0.01
146	South Bay	0.002
147	Ablation Valley And Ganymede Heights	70.35
148	Mount Flora	0.21
149	Cape Shirreff and San Telmo Island	3.96
150	Ardley Island	1.17
151	Lions Rump	0.94
152	Western Bransfield Strait	0.37
153	Eastern Dallman Bay	0.69
154	Botany Bay	1.86
155	Cape Evans	0.05
156	Lewis Bay	0.72
157	Backdoor Bay	0.04
158	Hut Point	0.0001
159	Cape Adare	0.02
160	Frazier Islands	0.23
161	Terra Nova Bay	0.50
162	Mawson's Huts	0.00
163	Dakshin Gangotri Glacier	2.88
164	Scullin and Murray Monoliths	4.78
165	Edmonson Point	2.47
166	Port-Martin	0.00
167	Hawker Island	1.91
168	Mount Harding	20.59
169	Amanda Bay	0.50
170	Marion Nunataks	4.60
171	Narebski Point	1.03
172	Lower Taylor Glacier and Blood Falls	50.94
173	Cape Washington and Silverfish Bay	5.10
174	Stornes	15.52
175	High Altitude Geothermal Sites of the Ross Sea region	0.23
TOTAL IFA (km²)		760.32
# ASPAs containing IFA		67

Table 4. Amount and percentage of marine area covered by Antarctic Specially Protected Areas (ASPAs) with a marine component (Source: updated ASPA layer³)

ASPA #	Name	Area (km ²)	% ASPA marine
106	Cape Hallett	0.05	10.26
107	Emperor Island	4.59	96.18
117	Avian Island	0.61	48.50
120	Pointe-Geologie Archipelago	0.10	25.03
121	Cape Royds	0.48	74.01
124	Cape Crozier	8.25	12.20
127	Haswell Island	5.22	86.00
133	Harmony Point	19.57	42.21
144	Chile Bay (Discovery Bay)	0.72	100.00
145	Port Foster	2.33	100.00
146	South Bay	0.97	97.18
149	Cape Shirreff and San Telmo Island	5.66	50.40
151	Lions Rump	0.67	43.29
152	Western Bransfield Strait	960.63	100.00
153	Eastern Dallman Bay	636.57	100.00
161	Terra Nova Bay	29.41	100.00
165	Edmonson Point	2.54	46.01
166	Port-Martin	0.09	53.00
169	Amanda Bay	16.11	93.98
173	Cape Washington and Silverfish Bay	273.47	97.67
TOTAL		1968.04	

Table 5. Primary reason for designation of Antarctic Specially Protected Areas (ASPAs)

Primary reason for designation (Annex V, Art. 3.2) ¹	A	B	C	D	E	F	G	H	I
Number of ASPAs:	2	9	37	0	9	6	1	6	2
Total area (km ²) ²	5.55	32.40	1545.05	0	1018.87	649.39	410.80	1.33	14.68

¹ From the Antarctic Protected Areas Database maintained by the Secretariat of the Antarctic Treaty:
https://www.ats.aq/devPH/apa/ep_protected.aspx?lang=e&lang=e

Table 6. Number of Antarctic Specially Protected Areas (ASPAs) within each Environmental Domain (ED) and the amount of area covered by ASPAs within Environmental Domains. As appropriate, ASPAs are listed in multiple EDs and the area is split across multiple EDs. (Source: Updated ASPA layer³, Environmental Domains⁹)

ED Code	ED Name	# ASPAs	ASPA area (km ²)	% Covered by ASPAs
A	Antarctic Peninsula northern geologic	4	10.27	0.37
B	Antarctic Peninsula mid-northern latitudes geologic	3	36.08	0.22
C	Antarctic Peninsula southern geologic	2	86.86	0.60
D	East Antarctic coastal geologic	9	58.85	0.96
E	Antarctic Peninsula and Alexander Island main ice fields	14	177.51	0.10
F	Larsen Ice Shelf	1	3.45	0.01
G	Antarctic Peninsula offshore island geologic	16	87.27	9.03
H	East Antarctic low latitude glacier tongues	1	0.16	0.00
I	East Antarctic ice shelves	1	0.37	0.00
J	Southern latitude coastal fringe ice shelves	1	3.93	0.01
K	Northern latitude ice shelves	3	6.08	0.00
L	Continental coastal-zone ice sheet	10	14.43	0.00
M	Continental mid-latitude sloping ice	2	0.43	0.00
N	East Antarctic inland ice sheet	2	61.02	0.00
O	West Antarctic Ice Sheet	6	370.02	0.02
P	Ross and Ronne-Filchner ice shelves	6	152.37	0.02
Q	East Antarctic high interior ice sheet	0	0	0.00
R	Transantarctic Mountains geologic	1	41.02	0.13
S	McMurdo – South Victoria Land geologic	15	554.48	1.96
T	Inland continental geologic	5	39.42	0.16
U	North Victoria Land geologic	6	8.50	0.03
NA	NA	10	1965.59	NA
TOTAL			3678.11	

Table 7. Number of Antarctic Specially Protected Areas (ASPAs) within each Antarctic Conservation Biogeographic Region (ACBR) and the amount of area covered by ASPAs within bioregions. As appropriate, ASPAs are listed in multiple ACBRs and the area is split across multiple ACBRs (Source: Updated ASPA layer³, ACBRs¹⁰)

ACBR	# ASPAs	# ASPAs designated to protect biological values ¹⁵	ASPA area (km ²)	% ACBR within ASPA
1	1	0	0.21	0.02
2	3	3	2.16	1.35
3	22	18	95.14	1.84
4	2	1	74.95	1.51
5	1	1	5.01	0.23
6	2	2	10.29	0.19
7	9	8	43.61	3.93
8	6	4	8.79	0.09
9	16	9	452.65	4.51
10	1	1	41.80	0.23
11	0	0	0.00	0.00
12	0	0	0.00	0.00
13	1	1	0.05	0.03
14	0	0	0.00	0.00
15	0	0	0.00	0.00
16	4	3	25.65	0.43
NA	7		2917.79	NA
TOTAL			3678.10	

Table 8. Area of green vegetated ground protected within Antarctic Specially Protected Areas (Hughes et al., 2016)

Category	Area	As a percentage of Antarctica	As a percentage of Antarctic ice-free ground
All of Antarctica	14,000,000 km ²	100%	-
Antarctic ice-free ground	44,000 km ²	0.3143%	100%
ASPAs protecting terrestrial vegetation	605.7 km ²	0.0043%	1.38%
Ice-free ground in ASPAs protecting terrestrial vegetation	214.5 km ²	0.0015%	0.49%
Vegetation cover within ASPAs	16.1 km ²	0.0001%	0.04%

Table 9. Number of ASPAs protecting different microbial groups. NB: Some ASPAs may protect more than one microbial group (Hughes et al., 2015)

Microbial group or microbial community	No. of ASPAs
Lichens	28
Algae	16
Cyanobacteria	7
Snow algae	3
Microbial habitats/microbial communities/soil and lake microflora	8