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# Antarctic Protected Areas Workshop

Compiled by Birgit Njåstad



Svarthamaren, Dronning Maud Land (NARE 1997/98). Photo: Torkild Tveraa

## Workshop Report

Tromsø, Norway 23 May, 1998

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## Report No.110

# Antarctic Protected Areas Workshop

Compiled by Birgit Njåstad

## Workshop Report

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*Norsk Polarinstitt er Norges sentrale statsinstitusjon for kartlegging, miljøovervåking og forvaltningsrettet forskning i Arktis og Antarktis. Instituttet er faglig og strategisk rådgiver i miljøvernsaker i disse områdene og forvaltningsmyndighet i Norsk del av Antarktis.*

*The Norwegian Polar Institute is Norway's main institution for research and topographic mapping in the Norwegian polar regions. The Institute also advises the Norwegian authorities on matters concerning polar environmental management*

Norsk Polarinstitt  
Tromsø 1998

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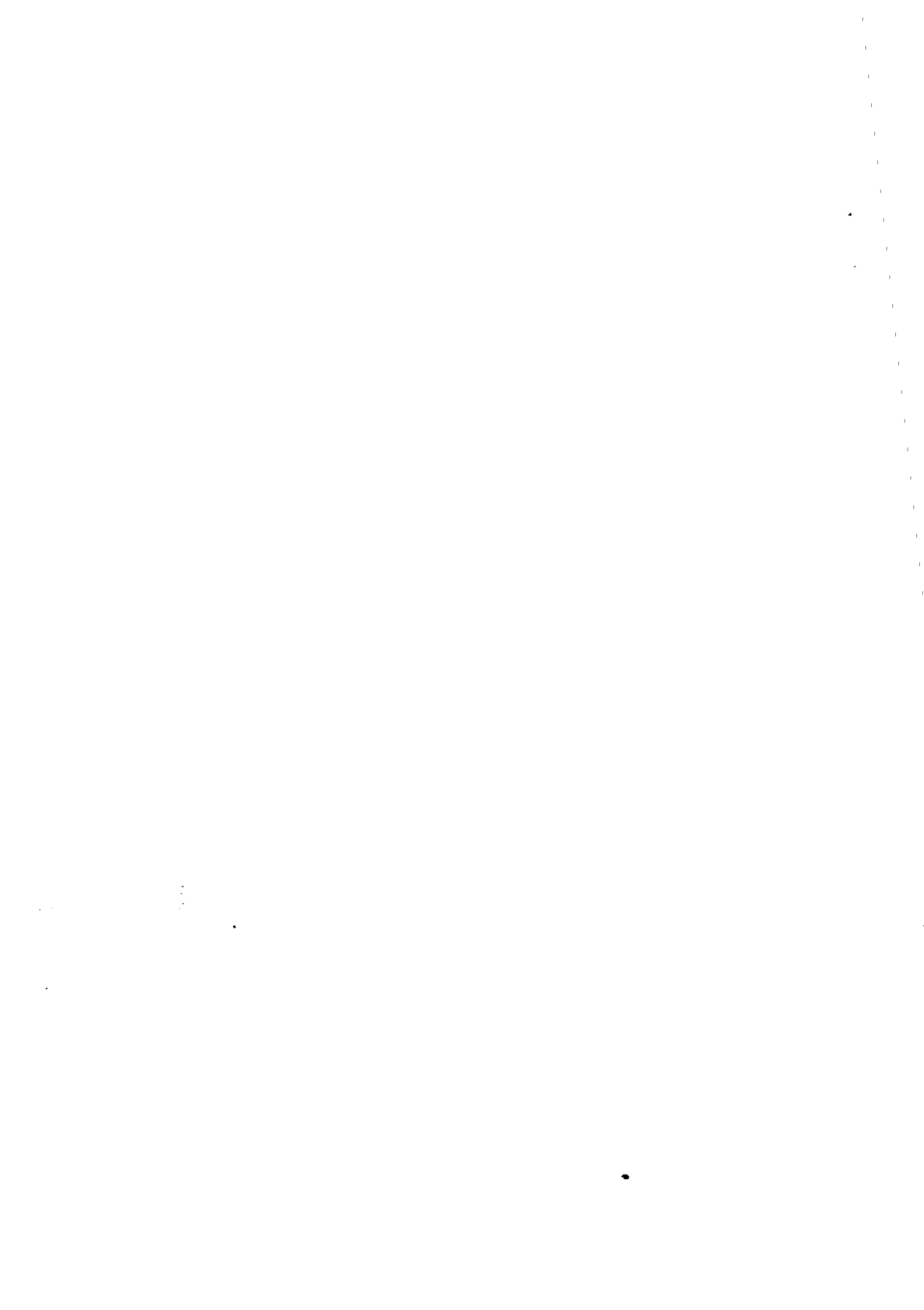
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# **REPORT OF THE ANTARCTIC PROTECTED AREAS WORKSHOP**

**Tromsø, Norway  
23 May 1998**

## **1. Background**

At ATCM XVII a report (XVII ATCM/WP4) was tabled by SCAR and IUCN, containing the recommendations of a 1992 SCAR/IUCN workshop which had examined the Antarctic protected area system. Based on a number of these recommendations, the UK presented a paper to ATCM XXI (XXI ATCM/WP 10) containing a number of proposals for improving the protected area system, including a proposal for a further workshop on this topic.

It was agreed at ATCM XXI that a workshop should be convened, and that its Terms of Reference should be:

- i) compare the protected areas currently designated against the categories of areas set out in Article 3(2) of Annex V in order to identify gaps in the existing system;
- ii) examine the SCAR ecosystem classification matrix for protected areas to identify the changes that are needed so that the matrix better incorporates the categories of areas set out in Article 3(2) of Annex V;
- iii) identify, where possible, areas which might be designated to fill any gaps found in the existing system; and
- iv) examine, and where possible identify ways to improve, the procedures for developing and reviewing proposals for ASPAs.

It was also agreed at ATCM XXI that participants attending the workshop should have appropriate expertise and include representatives from Treaty Parties, and interested Observers and Experts (e.g. SCAR, IUCN)

The workshop was organised by a small Steering Committee chaired by the UK, and comprising representatives from Australia, Chile, Norway, SCAR and IUCN.

Norway offered to host the workshop which was held on Saturday 23 May 1998 in Tromsø. The workshop was attended by 50 people from 18 Treaty Parties and 3 non-governmental organisations. This Working Paper provides an executive summary of the meeting and a list of the principal recommendations.

## **2. A workshop - a new way of looking at protected areas at an ATCM**

This was the first time that a protected areas workshop involving Treaty Parties and non-governmental organisations had been organised immediately before an ATCM. The majority of participants at the workshop are now delegates at ATCM XXII. The workshop involved talks by experts followed by discussion groups and a general plenary discussion. This new way of working was highly productive. It provided:

- delegates with updated information concerning the problems and opportunities associated with the protected area system;
- wide participation with many people getting involved during the day as speakers, leaders of discussion groups or as discussion group rapporteurs;
- an excellent way of achieving rapid, widespread agreement on the recommendations coming out from the workshop.

### 3. Major issues

The workshop noted the following major issues:

- There is an urgent need for Annex V to be ratified by all the ATCPs.
- That there is no Antarctic protected areas strategy to develop a network of protected areas in accordance with the requirements of Annex V.
- There is a pressing need for management plans for existing SPAs and SSSIs to be developed and updated in accordance with Annex V, Article 5.
- That the status and successes of the Antarctic protected area system had not been communicated adequately by the ATCPs. This has led to a lack of recognition of what has been achieved.

### 4. Recommendations

The principal recommendations of the workshop were:

#### Comparison of protected areas against categories identified in Article 3(2) of Annex V

It was apparent to the workshop that there are gaps in the system with some protected areas categories as set out in Article 3(2) of Annex V very poorly represented or not represented at all. It was noted that designation of a site as an ASPA is only one of the possible ways of providing environmental protection.

#### **Recommendation 1**

**That the ATCPs, the CEP, SCAR, and if appropriate CCAMLR, take urgent steps to identify possible new protected areas in the following categories: areas kept inviolate from human interference (Annex V, Article 3(2a)); representative examples of ecosystems (Annex V, Article 3(2b)).**

#### Consideration of the SCAR ecosystem classification matrix

The workshop agreed that the SCAR ecosystem classification matrix is useful in some instances in evaluating protected area proposals. However, a revised classification system is now required which takes into account all the categories of areas that can now be designated under Article 3(2) of Annex V. There is considerable experience outside of Antarctica in

developing systems for the classification of protected areas.

## **Recommendation 2**

**That the CEP, in collaboration with SCAR and IUCN, should develop new systems for classifying protected areas in Antarctica making good use of existing knowledge and methods.**

### Identification of possible new areas

Given the limited time available at the workshop a list of possible new protected areas was not developed. Instead, the workshop concentrated on defining the processes that should be undertaken to identify new areas. Such processes could include the establishment of a database of protected areas, compiling information on a range of values to be used in identifying new areas, establishing criteria and undertaking a gap analysis.

## **Recommendation 3**

**That the ATCPs, through the CEP, examine ways of establishing and maintaining a database on Antarctic protected areas, which could be made accessible electronically.**

## **Recommendation 4**

**That the ATCPs, through the CEP, undertake a gap analysis based on the values for site protection identified in Article 3 of Annex V, in order to make recommendations for new protected areas.**

### Developing and reviewing proposals

The workshop examined ways of improving the process for the production of protected area management plans. Better guidance is needed for those preparing management plans, and those engaged in all stages of the review process. Adequate consultation prior to the submission of the plan is important in reducing delays. It was noted that as part of the 5 year review of management plans it was desirable to inspect the site under review and use any data gathered.

## **Recommendation 5**

**That the ATCPs, the CEP, SCAR and COMNAP should consider means by which adopted management plans and the Guidelines on the Preparation of Management Plans can be made as widely available as possible.**

## **Recommendation 6**

**That the CEP should develop criteria for the 5 year review of management plans as required by Article 6 (3) of Annex V, and establish a standardised reporting system for the exchange of information as required by Article 10(1c) of Annex V.**



## **Recommendation 7**

**That the CEP should consider how it can best review plans for ASPAs proposed because of their wilderness, aesthetic or historic values given that consideration of such values lie outside the relevant competence of SCAR and CCAMLR.**

### ASPAs - the role of the CEP

Given Article 12 (g) of the Protocol, there was agreement at the workshop that the CEP has a clear mandate to advise the ATCM on elements related to protected areas. The workshop was of the opinion that because: (a) some issues relating to protected areas could be readily identified at present, and (b) required specific expertise, that the CEP should consider the establishment of some form of sub-group(s), tasked to address specific issues.

No precise recommendation was made on the composition, or functions of such a sub-group though there was support that the group should:

- i) be open-ended, but composed only of relevant experts;
- ii) work intersessionally, by appropriate means;
- iii) report to the CEP on its findings, to enable the Committee to then provide advice to the ATCM.

Terms of Reference for such a group would need to be established by the CEP, but could include the task of reviewing plans for consistency and clarity.

## **Recommendation 8**

**That the CEP consider establishing a sub-group(s) to address elements of the protected areas system, and select appropriate convenors for such sub-groups.**

## **Recommendation 9**

**That the Terms of Reference of any sub-group be determined by the CEP.**

## **Recommendation 10**

**That the CEP should examine the timelines for the submission and processing of proposed management plans with a view to improving the process, where possible.**

# Antarctic Protected Areas Workshop

Radisson SAS Hotel  
Tromsø, Norway  
23 May 1998

*Workshop Chair: Mr. Rasmus Hansson*  
*Workshop Secretary: Dr. John Shears*

<b>TIME</b>	<b>TOPIC</b>	<b>SPEAKER</b>
09:00	<b>Registration</b>	
09:10	<b>Welcome and introduction</b> <i>Introduction</i> <i>Workshop format</i>	<b>Chair</b>
09:20	<b>Introductory address</b> <i>The Antarctic Protected System in the new Millennium</i>	<b>Sir Martin Holdgate</b>
10:00	<b>Comparison of protected areas in Antarctica</b> <i>Aim - Comparison of protected areas against categories identified in Article 3(2) of Annex V</i>	<b>Dr José Maria Acero (Arg)</b>
10:15	<b>The environmental-geographic basis for designating ASPAs</b>	<b>Dr José Valencia (Chile)</b>
10:30	<b>Coffee</b>	
10:45	<b>Identification of possible new areas</b> <i>Aim - Undertake a "gap analysis" to find possible new ASPAs</i>	<b>Dr Alan Hemmings (NZ)</b>
11:00	<b>Developing an reviewing proposals</b> <i>Examination of current procedures used by SCAR and the ATCM to examine proposals for ASPAs</i>	<b>Dr David Walton (SCAR)</b>
11:10	<b>Protected Areas - the role of the CEP</b>	<b>Mr Rex Moncur (Aus)</b>
11:30	<b>Planning for discussion groups</b> <i>Aim - Describe the role and purpose of discussion groups. Identify members of discussion groups</i>	

<b>11:40</b>	<b>ASPA discussion groups</b>	
	<i>1. Comparison of ASPAs against Annex V</i>	<b>Dr K Birkenmajer (Pol)</b>
	<i>2. SCAR Ecosystem-classification matrix</i>	<b>Prof Paul Trehen (Fra)</b>
	<i>3. Identification of possible new ASPAs</i>	<b>Dr John Marsh (IUCN)</b>
	<i>4. Developing and reviewing proposed ASPAs</i>	<b>Dr Robert Hofman (US)</b>
	<i>5. ASPAs - the role of the CEP</i>	<b>Ms Birgit Njåstad (Nor)</b>
<b>12:30</b>	<b>Lunch</b>	
<b>13:30</b>	<b>Continuation of discussion groups</b>	
<b>15:00</b>	<b>Coffee</b>	
	<i>To be taken whilst discussion groups continue to meet</i>	
<b>15:30</b>	<b>Presentation by leaders of discussion groups</b>	
<b>16:30</b>	<b>Summary and conclusions</b>	
<b>17:00</b>	<b>Close</b>	

# THE ANTARCTIC PROTECTED AREAS SYSTEM IN THE NEW MILLENNIUM

Keynote Address to the Antarctic Protected Areas Workshop, 23 May 1998

Martin Holdgate

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## The Mandate for this Workshop

The present workshop derives its mandate from ATCM XXI, held at Christchurch, New Zealand, in 1997. The Consultative Meeting took note of the recommendations of a Workshop convened jointly in 1992 by SCAR and IUCN - The World Conservation Union. That Workshop made 22 recommendations for the review and improvement of the Antarctic Protected Area system (Lewis Smith, Walton and Dingwall, 1994). Five of them highlight major elements in a new Action Plan for Antarctic Protected Areas:

1. (Rec. 3). Treaty Parties should encourage proposals for new Antarctic Specially Protected Areas and Antarctic Specially Managed Areas, together with appropriate historic sites and monuments, in order to achieve an adequate geographical distribution and comprehensive environmental representation of such sites within the Antarctic;
2. (Rec. 6). SCAR, in consultation with IUCN, should develop an improved and internationally agreed Antarctic ecosystem classification system to provide a more comprehensive selection of criteria for assessment, including those features such as wilderness and aesthetic values, which are recognized to be of international importance;
3. (Rec. 7). SCAR and IUCN should collaborate to provide advice on the scientific and technical requirements for protected area management planning and design, promote research to enhance long-term conservation, and prepare and distribute widely a SCAR Handbook on the preparation of management plans;
4. (Rec. 11). Treaty Parties when preparing management plans should establish a standard methodology for site surveillance and monitoring;
5. (Rec. 18). Treaty Parties should consider the establishment and maintenance of a database on Antarctic Protected Areas.

Many of the other Recommendations deal with details, including provisions for locating and demarcating areas, issuance of permits, inspection, protecting historic sites, safeguarding of current work sites that may have historic value in future, monitoring tourist activities, and informing all visitors to the Antarctic about the conservation measures in force. But Recommendation 22 goes wider and makes a point developed later in this paper - that the Treaty Consultative Parties should discuss how to apply in Antarctica internationally recognized designations for protected areas, including those under the 1972 Convention on the Protection of the World Cultural and Natural Heritage (commonly termed the World Heritage Convention).

The present Workshop has been given a narrow mandate. It is required to:

- compare the currently designated protected areas against the categories set out in Article 3(2) of Annex V to the Environment Protocol to the Antarctic Treaty, in order

to identify gaps in the existing system;

- examine the SCAR ecosystem classification matrix and identify how it should be improved;
- identify areas which might be designated to fill any gaps;
- examine and identify ways to improve the procedures for ASPAs.

But Keynote Speakers are licensed to range widely and I propose to do so. This paper:

- first, reviews the history of Antarctic conservation with especial reference to protected areas;
- second, looks at how Antarctic protected areas measure up to world standards;
- third, makes some practical points about the response to the Workshop's mandate;
- fourth throws out some ideas about where we should be in twenty years time.

### **Retrospect: How it all Started**

In the summer of 1960 I joined the staff of the Scott Polar Research Institute in Cambridge. Almost at once, I was caught up in the Fourth meeting of SCAR, in late August and early September, and found myself a member of the new Working Group on Biology, with Dr Robert Carrick of Australia as Secretary and Chairman. Our meeting fell, of course in the period between the adoption and signature of the Antarctic Treaty in 1959 and its entry into force on 30 April 1962. We took note of the fact that Article IX of the Treaty called on the Contracting Parties in Consultative Meetings to "formulate, consider and recommend to their Governments" measures regarding the "preservation and conservation of living resources in Antarctica" (Antarctic Treaty, Article IX, 1, (f)). Spurred on by Dr Brian Roberts, we agreed that it was right for the Working Group on Biology to prepare advice to the Contracting parties on just what those measures should be. We emphasized two general points which are still crucial - and which have gained little recognition among the world conservation community.

First, we said that:

**"All areas of land and fresh water, including fast ice and ice shelves, and all coastal waters south of 60 degrees South, should be recognized internationally as a nature reserve".**

That means that we were calling for the whole of Antarctica, including its coastal waters, to be constituted a Protected Area.

Second we proposed that:

**"Species or habitats which are especially valuable or vulnerable should be further protected by the designation of selected areas as sanctuaries within which no form of disturbance should be permitted" (Lewis Smith 1994).**

The Treaty, of course, provided that Antarctica should be used for peaceful purposes only, that there should be freedom for scientific investigation, and (by implication) that any Contracting Party had the right of access to any part of the Treaty Area for the purpose of

conducting such investigations. Our second proposal meant that certain areas should be off-limits to any activity, even science, which might disturb valuable or vulnerable species or habitats. These protected areas would thus be 'core areas' as the term is now used for Biosphere Reserves (Batisse, 1997), or 'Strict Nature Reserves' in modern IUCN parlance (IUCN 1994). Because free access for science was an over-riding concept in the Treaty, and because we saw the whole Treaty Area as being a conservation area, it was logical to expect these strict nature reserves which interfered with science would be no larger and no more numerous than was essential to secure their purpose, and this is the reasoning behind ATCM Recommendation VII-2 to which I will return.

After the SCAR Meeting, Brian Roberts took me aside. I was instructed to prepare a text for a Conservation Measure that would turn the SCAR proposals into the kind of provision the Contracting Parties might adopt<sup>1</sup>. We started by looking at the conservation laws of the Parties themselves, sensing that if we gave Governments something with which they were broadly familiar, they would be more likely to accept them (Holdgate and Roberts, 1961). And the result of our work was the text that became the Agreed Measures for the Conservation of Antarctic Fauna and Flora. These were of course legitimised, first, by ATCM Recommendation II-II, which recommended that Governments consult together with a view to establishing conservation measures, and III-VIII, III-IX and III-XI which recommended approval of the Agreed Measures, urged their application ad interim until they entered into force and recognized the special role of SCAR as adviser, not least on what should be included in the Annexes (A listing specially protected species; B listing Specially Protected Areas; C listing the plants and animals permitted to be imported to Antarctica and D specifying precautions to be taken to prevent the accidental introduction of parasites and diseases) (SCAR, 1966).

As we all know, the Agreed Measures simply stated that the areas of outstanding scientific interest listed in Annex B "shall be accorded special protection by the Participating Governments in order to preserve their unique natural ecological systems." It was at XII SCAR in Canberra in 1972 that SCAR established a Working Group on Conservation and gave it a mandate (inter alia) to:

"establish a classification of Antarctic and sub-Antarctic terrestrial, freshwater and shallow water benthic [marine] ecosystems; to recommend the preservation of representative examples of the various ecosystems as well as areas with unique assemblages of species and outstandingly interesting breeding colonies of birds and mammals; to develop criteria and procedures for the establishment of shallow water marine reserves; to supervise the completion and updating of proposed management plans for the Specially Protected Areas; [and] ... to assume responsibility within SCAR for the coordination of biological monitoring in Antarctica."

In the same year the ATCM VII in Wellington redefined the criteria for the SPA list, which was to include :

- (a) representative examples of the major Antarctic land and freshwater ecological systems;
- (b) areas with unique complexes of species;
- (c) areas which are the type locality or only known habitat of any plant or invertebrate species;
- (d) areas which contain specially interesting breeding colonies of birds or mammals;

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<sup>1</sup> Brian Roberts' actual words were "You write them, and I'll sell them".

- (e) areas which should be kept inviolate so that in future they may be used for purposes of comparison with localities that have been disturbed by man.

These criteria are restated in Annex V to the Environment Protocol, Article 3, para 2.

It was also ATCM VII that specified that:

“The number of Specially Protected Areas should be kept to a minimum that will meet the criteria set out in paragraph 1.

The size of each Specially Protected Area should be the minimum required to serve the purpose for which the area has been designated.”

The same ATCM established Sites of Special Scientific Interest (SSSI). Lewis Smith (1994) has explained that this was done because SPAs were designed to give strict protection to biological sites: entry was prohibited without a permit, and was only permissible “for compelling scientific reasons which cannot be served elsewhere.” A different kind of regime was needed to safeguard sites of scientific (and especially long-term) research. Both SPAs and SSSIs required a Management Plan.

The situation was complicated further at ATCM XV in 1989, which added two more categories:

- Specially Reserved Areas (SRA)s which extended the provisions of SPAs and SSSIs to take in geological, geomorphological, glaciological, aesthetic, scenic and wilderness features;
- Multiple Use Planning Areas (MPAs) where coordinated management would minimize harmful environmental impacts, for example in places where scientific stations, transport facilities, SPAs, SSSIs, historic sites and possibly tourist activities could interfere with one another. Ross Island and parts of King George Island (South Shetland Islands) were considered prime candidates (Dingwall, 1992).

Finally, the Convention on the Conservation of Antarctic Seals, agreed in London in 1972, included a provision for Seal Reserves (seal breeding areas or the site of long-term scientific research on seals) (SCAR, 1972), while the Parties to CCAMLR (Convention on the Conservation of Antarctic Marine Living Resources) agreed in 1990 to protect sites where colonies of seabirds and seals are being monitored under the Convention’s Ecosystem Monitoring Programme (CEMP) (Dingwall, 1992).

The number of designations under these diverse (and overlapping) procedures crept up very slowly. By 1996 the total of SPAs had only reached 20. In addition there were 35 Sites of Special Scientific Interest, 3 Seal Reserves and 4 CCAMLR Ecosystem Monitoring Sites (FCO, 1997). The total area was 218,089 km<sup>2</sup> (but the CCAS Seal Reserves accounted for 98% of this area). There were, in addition, 72 designated Historic Sites and Monuments and the designated Tomb on Mount Erebus, Ross Island. Details for 1996 are given in Table 1. The complex history of evolution of these various categories of protected area has been traced by Bonner and Smith (1985), Dingwall (1992), and Lewis Smith (1994) (among others).

**Table 1. Areas of Antarctic Protected Areas as at ATCM XX (from FCO, 1997)**

	<u>SPAs</u>	<u>SSSIs</u>	<u>Seal Res</u>	<u>CEMP</u>	<u>Total</u>
Land Area (km <sup>2</sup> )	132	655	0	4	791
Sea area (km <sup>2</sup> )	52	2029	215,217	0	217,298
Total Area (km <sup>2</sup> )	184	2684	215,217	4	218,089

It is not surprising that SCAR and the Consultative parties alike decided that this muddle had to be untangled. The Environment Protocol (CM 1960, 1992) does four crucial things:

1. It recalls the designation of Antarctica as a Special Conservation Area, designates Antarctica as a natural reserve devoted to peace and science, and commits Contracting and Consultative Parties to “the comprehensive protection of the Antarctic environment and dependent and associated ecosystems.” This reaffirms Protected Area status for the whole region, and the Environmental Principles in Article 3 define a management regime designed to make it effective;
2. It establishes under Articles 11 and 12 a Committee for Environmental Protection which is advisory but has a broad responsibility to propose conservation measures including those needed for “the operation and further elaboration of the Antarctic Protected Area system”;
3. Under Annex III it re-states the provisions of the Agreed Measures except as pertains to Protected Areas;
4. Under Annex V it sets out a regime for area protection and management. This consolidates SPAs, SRAs (none of which actually exist) and SSSIs into ASPAs - Antarctic Specially Protected Areas, and restates the criteria for their creation without the constraint that they should be no larger nor more numerous than is essential. Likewise it establishes ASMAs - Antarctic Specially Managed Areas - which are essentially MPAs under another name. And it defines the content of management plans for such areas.

### **Antarctic Protected Areas in a World Context**

There is no doubt that conservationists throughout the world welcome the Protocol as an important step forward. Recommendation 19.96 of the 19th General Assembly of IUCN, held in Buenos Aires in 1994, called on all Parties to the Antarctic Treaty to ratify it swiftly so that it could enter into force. It also called upon all Parties to the Treaty to:

“establish[...] and safeguard [...] a comprehensive network of protected areas, including adequate representation of the principal habitats and the biological diversity of the Antarctic region” (IUCN, 1994b).

That is our task today. For the fact is that the designations of protected areas in Antarctica to date appear to measure up badly when compared with what has been done elsewhere. The authoritative overview of the state of things worldwide is the United Nations List of National Parks and Protected Areas which IUCN has prepared under mandate from the General Assembly since 1962 (IUCN, 1994a).



In the 1993 *UN List* the totals in Antarctic Biogeographical Realm were as set out in Table 2. (Maudlandia is broadly 'Greater' or 'East' Antarctica and 'Marielandia' is 'Lesser' or 'West' Antarctica).

**Table 2. Protected Areas in the Antarctic Realm as set out in the 1993 United Nations List of National Parks and Protected Areas (IUCN, 1994a).**

Neozelandia	205 areas	6,147,634 ha	22.77% of land area
Maudlandia	9 areas	216,195 ha	0.02% of land area
Marielandia	4 areas	1,330 ha	0.00 % of land area
Insulantarctica	24 areas	1,327,426 ha	69.12% of land area

This summary table does not accord with the details in the full list, which does list 19 sites - 12 SSSI and 8 SPAs - totalling 242,535 ha. One reason for the discrepancy between the UN List and that in Table 1 arises because the former only includes areas of more than 1000 hectares, except for offshore or oceanic islands which are included where they exceed 100 hectares and where the whole island is protected. But this does not alter the superficial impression that while New Zealand and the Subantarctic islands are doing very well - vastly exceeding the global target of 10% in some form of protection - the Treaty Area is doing badly. Antarctica emerges as the worst protected of the Earth's continents.

Table 3 contrasts the situation in the Arctic (choosing biogeographical units north of the taiga coniferous forest belt, which is not included).

**Table 3. Protected areas in the Arctic as set out in the 1993 United Nations List of National Parks and Protected Areas (IUCN, 1994a).**

Nearctic Realm

Arctic Desert and Icecap	4 areas	103,287,810 ha	48.72 %
Arctic Archipelago	1 area	14,200 ha	0.02 %
Alaskan tundra	26 areas	30,924,255 ha	32.26 %
Canadian Tundra	15 areas	16,721,130 ha	9.65 %
Greenland Tundra	0 areas	0 ha	0.00 %

Palaeartic Realm

Arctic Desert	6 areas	3,492,600 ha	17.83 %
High Arctic Tundra	3 areas	6,397,872 ha	7.44 %
Low Arctic Tundra	4 areas	1,993,308 ha	0.92 %
Icelandian	22 areas	915,924 ha	9.02 %

It is evident that while there is regional (and national) unevenness, in both Canada and the United States vast areas have been designated.

The Third World Congress on National Parks and Protected Areas, held in Bali, Indonesia, in 1982 adopted an Action Plan which called for the establishment by 1992 of a worldwide network of National Parks and Protected Areas covering all terrestrial ecological regions (McNeely et al, 1990). By 1992, when the Fourth Congress was held in Caracas, Venezuela, a little under 5% of the land surface of the planet was afforded some kind of recognized protection, and the call was made for protected areas to cover at least ten per cent of each biome by the year 2000 (McNeely, 1993).

The categories developed by IUCN, used in the UN List, and recognized world-wide, are:

- I Strict Nature Reserve/Wilderness Area
  - Ia. Strict Nature Reserve/protected area managed mainly for science
  - Ib. Wilderness Area: protected area managed mainly for Wilderness protection.
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV. Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V. Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI. Managed Resource protected Area: protected area managed mainly for the sustainable use of natural ecosystems.

The UN List correctly assigns Antarctic SPAs and SSSIs to Category I, and ASPAs will be designated likewise. What is clear is that ASMAs will not exactly fit any category (but come closest to V, without implying that science is a form of recreation !).

But how far does the designation of the whole of Antarctica under the Environment Protocol confer a status that should be recognized in the UN List ? In practical terms, Antarctica is as tightly conserved as many of the world's Category II Protected Areas: should a dialogue be established with IUCN to determine whether it met the criteria for listing in that category (obviously without implying that it was a 'National Park' in any formal sense) ? What is clear is that the UN List at present under-rates the status of Conservation in the Antarctic, and that the result is to strengthen criticism of the Treaty system as somehow out of step with the rest of the world, whereas if all Antarctica were recognized as a lawful 'Protected area' it would come out top of the Continental league !

Paul Dingwall (1992), in a Regional Review for the Caracas World Parks Congress, criticised what had been done at that time in the Antarctic under seven headings (Dingwall, 1992):

- the network had grown in a piecemeal way, and depended on national initiatives to nominate before SCAR could review and the ATCMs approve;
- the SCAR habitat classification was not biogeographical and has not been used as a framework to achieve systematic representative coverage;
- coverage was uneven geographically, with 13 of the 19 SPAs then designated and 20 of the 35 SSSIs being islands or parts of islands, with gross under-representation of near-shore maritime areas and with scanty inland sites;
- management plans were in many cases rudimentary;
- there was no single institution to oversee the establishment and management of Protected Areas (the Environment Committee under the Protocol should deal with this);
- protection of sites was poorly integrated with other activities (the ASMA provisions address this point);
- there was no information management system (but again the protocol addresses this).

### The Workshop Agenda

Those points lead naturally to comments on the agenda for the present Workshop. Our background Information Pack documents many of the criticisms. Following Lewis Smith (1994) it points out that of existing SPAs and SSSIs, 30 are in the Peninsular sector, 15 in the Ross Sea sector, 9 along the coastlands of Greater or East Antarctica, and none at all in the Bellingshausen Sea sector.

I suggest we need to think first about whether there are distinct biogeographical provinces that would justify our breaking down the continent into sub-realms. In fact we have known for thirty years that there are (Holdgate, 1970). The Antarctic Peninsular sector is distinct. It is the only part of Antarctica with native vascular plants, higher insects, and a diverse hepatic flora. Mackenzie Lamb (1970) stated that at the time he wrote only one liverwort genus was recorded away from this sector. The lichen flora is also distinctive, and with strong Fuegian affinities (Smith, 1984). The Peninsula has species of birds and marine mammals that extend into the Subantarctic. There is clearly considerable biological contact with the Neotropical realm. Miklos Udvardy (1975) was clearly correct when he recognized Marielandia as a distinct biological province within the Antarctic realm. What is not certain is how far the province extends into the less-explored parts of West Antarctica, south of the Amundsen and Bellingshausen Seas.

For its part, East Antarctica is a single continental mass and has drifted as a unit following the break-up of Gondwanaland. It has distinctive biotic elements, including arthropod faunas and lichen floras with many apparent endemics. But are there sub-divisions within it from a biogeographical standpoint? I am not sufficiently conversant with recent literature to be sure, but I do conclude that Antarctica has two biogeographical sub-realms and that we should treat them as separate units when it comes to conservation.

Within each sub-realm we need a frame for ordering the choice of areas for protection. Here the SCAR matrix is the starting point we have to use. Other papers discuss it in greater detail, but I would like to make one comment. Whatever it is, it is *not* an ecosystem matrix. It is a matrix of taxonomic diversity, on one axis, and physical environments on the other. If we want ecological units we need to look instead at vegetation types such as those defined

long ago by Gimingham and Smith (1970) or Longton (1985). Moreover, Dingwall (1992) is right in stating that the selection of SPAs and SSSIs hitherto has been weighted to the atypical - to the biologically richest. If representative protected areas are sought, some may be species poor. On the other hand, is there any point in designating ASPAs on the interior ice cap - can we leave that to nature's defences and concentrate on the under 5% of Antarctica that includes ice-free mountains, coasts and islands ?

The present Workshop agenda addresses, however, only part of the ASPA issue. Article 3 of Annex V to the Protocol specifically adds geological, glaciological and geomorphological features and also "areas of outstanding aesthetic and wilderness values" to the criteria for establishing ASPAs (it also includes historical features, but I will not cover those).

This is important. For National Parks set up to conserve wilderness have generally been huge. Yellowstone, the first in the world, created in 1872, extends over 899,000 hectares (IUCN, 1994a). The Wrangell-St Elias National Park in Alaska extends over 3 million hectares. In Tanzania, the Serengeti is nearly 1.5 million hectares in extent. There is just no way the SCAR matrix can be used as a basis for defining such areas: a quite new approach is needed and with all respect to SCAR, the criteria used around the world to define wilderness and landscape areas are not those in which SCAR has expertise. If the ATCPs are serious, they should ask the World Commission on Protected Areas of IUCN to evaluate and make proposals.

But I will hazard a few guesses. If Antarctica were treated like other continents we would certainly see a very large protected area in Victoria Land, encompassing coastlands, mountains and Dry Valleys. We would see a Lennox King-Beardmore-Axel Heiberg ASPA encompassing those three glaciers, two of them historic routes to the Pole, and the mountains between them, and probably this area would extend onto the polar plateau right to the Pole. The Dufek/Vinson Massif would be another great Wilderness area. And there would be more.

But the criteria for management would be totally unlike those previously used for SPAs. Access would be possible - for recreation as well as for science. These areas, in fact, should almost certainly be ASMAs, with ASPAs embedded in them. Some of the thinking behind biosphere reserves might well apply here also. Today's workshop is only the start of a process, and I submit that the WCPA - which is the largest network of experts on protected areas in the world with over 1000 people from over 100 countries involved, has a major contribution to make.

**Where should we be in twenty years time ?**

Let me conclude by asking what the Antarctic protected area system should look like by the year 2020.

The area of Antarctica exceeds 12.5 million square kilometres. By 2020 I would expect a representative series of about 100 strict nature reserves to cover some 150,000 hectares on land - with a far better geographical, habitat and ecological coverage than now. There will need to be an even larger area safeguarded at sea, both in coastal and offshore waters. But I would also expect at least ten very large ASMAs, probably totalling at least 10 million hectares, covering areas of outstanding scenic quality - and I would expect numerous smaller ASMAs in the coastal regions where science, logistics, tourism and an increasing surge of mountaineering and adventurous travel will meet.

I believe that the Antarctic system must progressively conform with that adopted throughout the rest of the world. Some of the gaps are more presentational than real. The quality of

protection of SPAs today is as good as in most of the world's protected areas. The Protocol offers the basis for a first-class management system. Antarctica remains the most comprehensively conserved continent in the world (I said that in 1968 (Holdgate, 1970), and it is still true). But - partly because of political manoeuvres by those who still want Antarctica classed as a 'global commons' and placed under new management, and partly because the ATCPs have not communicated what they are doing very well - much of the conservation community is ignorant of that fact.

The present Workshop should be the start of a process that gets 'scientific' ASPAs turned into a network of key, effective sites for the conservation of Antarctic biodiversity. They should be presented in a Strategy for Antarctic Biodiversity Conservation, prepared by SCAR in partnership with IUCN, and widely published. A second study should define the great 'wilderness ASMAs' (the smaller ones are likely to emerge more naturally from continuing dialogue within the Treaty system). A third dimension should be the development of the Management Handbook and the creation of a database. Here you should note that the World Conservation Monitoring Centre already has a high-grade digitised base map of Antarctica, houses the Secretariat for BCIS - Biodiversity Conservation Information System - and is located in Cambridge, England, just along the road from the SCAR Secretariat and the Scott Polar Research Institute. In my view it might make sense for WCMC to house also an Antarctic Conservation Monitoring Unit.

Finally, the 1992 SCAR/IUCN Workshop on Developing the Antarctic Protected Area System (Lewis Smith, Walton and Dingwall, 1994) also heard arguments that sites in Antarctica were of a quality to merit designation under two international Conventions - the Ramsar Convention on Wetlands of International Importance and the World Heritage Convention. The former applies to freshwater or marine wetlands, and could well encompass outstanding Antarctic lake systems as well as coastal marine habitats. ASPA designation, with the requisite Management Plans would meet the criteria for the Ramsar List. As for the World Heritage Convention, the criteria for enrolment of a natural site are that it is of world significance because it:

- illustrates a stage in the Earth's evolution;
- represents on-going geological processes;
- constitutes remarkable natural formations or areas of exceptional natural beauty;
- contains the natural habitats of endangered species.

In the Subantarctic, Gough Island, Heard and McDonald Islands and Macquarie Island have already been enrolled and a strong case for designating the New Zealand subantarctic islands has been made. It is hard to deny that on grounds of intrinsic merit the Victoria Land Dry Valleys, Mount Erebus (which, with the historic huts at its foot could well be designated on mixed natural and cultural values), and many other parts of Antarctica would merit inclusion. And surely, vast and featureless and forbidding though it be, the Polar Plateau and some of the great glaciers that drain it are unique in the world as a representation of glacial processes at their height?

The problem, of course, is that both these Conventions require nomination by a State. For Ramsar, nomination is all that is needed to secure enrolment - so that it would be perfectly practicable for the ATCPs collectively to list those ASPAs in Antarctica that they and the Ramsar Standing Committee agreed met Ramsar Criteria, and place them on an 'Antarctic Ramsar List'. For World Heritage it is more complicated because while States propose, an international Committee managed by UNESCO approves - but I still consider that this should not be an insuperable obstacle. Surely the ATCMs could designate 'Antarctic World

Heritage' sites agreed by the World Heritage Committee to meet their criteria, and place these on a separate Antarctic Treaty list? The chief advantage would be to show that the global importance of Antarctic sites is being recognized, and that the ATCPs are capable of looking outwards and relating what they do to what is happening in the wider world.

## Conclusion

I have deliberately ranged over a vastly wider terrain than this Workshop can cover. I was told to provoke debate, and I hope that I have. My central message? That Antarctica is already the best conserved continent in the world, and the Protocol is a fine vehicle for even better progress. But that practice lags behind theory. Several more workshops will be needed to provide practical means for making the Protocol work. And the global acceptance of the Antarctic Treaty System, at least in the conservation world, will be greatly enhanced if the Antarctic Treaty Parties and SCAR start facing outwards for a change, conform their systems to those used throughout the world, and tell the success story of Antarctic conservation far more persuasively than they have done to date.

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# COMPARISON OF PROTECTED AREAS IN ANTARCTICA

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Article 3 of Annex V establishes a number of values that Parties should take into account in order to designate new ASPAs in Antarctica.

The goal of this presentation is to establish a comparison between those values currently being protected by the present Protected Antarctic Areas System and those proposed by Article 3 of Annex V, in order to recognize which values are represented by the current system and which are not, so as to detect the main gaps within the present Protected Antarctic Areas System.

In addition I consider some questions derived from the analysis of this article, some of which could be helpful in further discussions within the frame of this workshop.

## 1. CURRENT SITUATION

At present, there are several Antarctic areas categories providing some kind of protection:

- 22 SPAs (Specially Protected Areas)
- 36 SSSIs (Sites of Special Scientific Interest)
- 72 HSMs (Historic Sites and Monuments)
- 3 CCAS Seal Reserves (Convention for the Conservation of Antarctic Seals)
- 2 CEMP Sites (CCAMLR Ecosystem Monitoring Programme)

***TOTAL: 135 ANTARCTIC SITES WITH SOME DEGREE OF PROTECTION***

In this presentation I will only take into account SPAs and SSSIs, since such categories -according to Annex V- will be re-classified as ASPAs as soon as this Annex enters into force.

Article 3 of Annex V expresses that:

1. Any area, including any marine area, may be designated as an ASPA to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research.
2. Parties shall seek to identify, within a systematic-environmental framework and to include in the series of ASPAs:



- a) areas kept inviolate from human interference so that future comparison 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 the 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 others areas may be appropriate to protect the values set out in paragraph 1 above.

**The first analysis I will attempt is to compare those values protected by current SPAs and SSSIs to the requirements established under Article 3.**

**The position of each protected area on this Table was selected based on the wording of its correspondant Management Plan, in order to avoid misinterpretations. In addition, it should be noted that most of the current Protected Areas may fulfill more than a single requirement of Article 3, since some Areas have been designated with more than one objective, while some others have a main objective fulfilling a requirement proposed by Article 3 and secondary objectives fulfilling other requirements also proposed by this article.**

**The table shows how the objectives of present Protected Areas' Management Plans are distributed in relation to the requirements of Annex V Article 3.**

1. SPAs (22)

REQUIREMENTS of ARTICLE 3 - ANNEX V	SPA	TOTAL	%
a) areas kept inviolate from human interference so that future comparison may be possible with localities that have been affected by human activities;	5, 13, 20,	3	13.6
b) representative examples of major terrestrial including glacial and aquatic ecosystems and marine ecosystems;	2, 3, 4, 5, 7, 9, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24	16	72.7
c) areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals;	1, 2, 3, 4, 5, 7, 8, 9, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22,	18	81.8
d) the type locality or the only known habitat of any species;	1, 2, 22,	3	13.6
e) areas of particular interest to ongoing or planned scientific research;	1, 2, 3, 5, 7, 8, 9, 13, 15, 16, 24	11	50.0
f) examples of outstanding geological, glaciological or geomorphological features;	19, 24	2	9.1
g) areas of outstanding aesthetic and wilderness value;	5, 24	2	9.1
h) sites or monuments of recognised historic value; and	25, 26	2	9.1
i) such others areas may be appropriate to protect the values set out in paragraph 1 above.	- All of them?	0 22	? 100

We can say that items b) and c) are -according to the objectives stated in the Management Plans- the most frequently taken into account for SPAs designation. Criteria such as geological, glaciological or geomorphological features, aesthetic and wilderness values as well as monuments of recognised historic value seem to be least considered.

I prepared a similar analysis with the management plans of the thirty six SSSIs.

**2. SSSIs (36)**

<b>REQUIREMENTS of ARTICLE 3 - ANNEX V</b>		<b>SSSI</b>	<b>TOTAL</b>	<b>%</b>
a) areas kept inviolate from human interference so that future comparison may be possible with localities that have been affected by human activities;		3, 9, 11, 12, 17,	5	13.8
b) representative examples of major terrestrial including glacial and aquatic ecosystems and marine ecosystems;		3, 4, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 19, 21, 22, 24, 25, 27, 28, 29, 32, 33, 34, 35, 36, 37,	26	72.2
c) areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals;		1, 6, 8, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 23, 24, 26, 32, 33, 34, 35, 36, 37,	22	61.1
d) the type locality or the only known habitat of any species;		37,	1	2.8
e) areas of particular interest to ongoing or planned scientific research;		All of them	36	100
f) examples of outstanding geological, glaciological or geomorphological features;		5, 6, 21, 24, 25, 27, 29, 31, 34,	9	25.0
g) areas of outstanding aesthetic and wilderness value;			0	0
h) sites or monuments of recognised historic value; and		6, 37,	2	5.6
i) such others areas may be appropriate to protect the values set out in paragraph 1 above.		2, All of them?	1	2.8?
			(36)	100?

In this case, requirement e) is the most represented, which is logical since designation of a SSSIs aims to protect undertaking of research plans in such sites.

As was seen in the case of SPA, items connected to protection of biological values and ecosystems appear very frequently as a reason for designation. The number of sites selected to protect geological features increases when compared to SPAs. Type locality, aesthetic and wilderness values as well as monuments of recognised historic value are again poorly represented.

Finally, the next table displays the same analysis for the total number of ASPAs (as a conjunction of SPAs and SSSIs ).

ASPAs = SPAs + SSSIs (58)

REQUIREMENTS of ARTICLE 3 - ANNEX V	SPAs	SSSIs	ASPAs	%
a) areas kept inviolate from human interference so that future comparison may be possible with localities that have been affected by human activities;	3	5	8	13.8
b) representative examples of major terrestrial including glacial and aquatic ecosystems and marine ecosystems;	16	26	42	72.4
c) areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals;	18	22	40	68.9
d) the type locality or the only known habitat of any species;	3	1	4	6.9
e) areas of particular interest to ongoing or planned scientific research;	11	36	47	81.0
f) examples of outstanding geological, glaciological or geomorphological features;	2	9	11	19.0
g) areas of outstanding aesthetic and wilderness value;	2	0	2	3.4
h) sites or monuments of recognised historic value; and	2	2	4	6.9
i) such others areas may be appropriate to protect the values set out in paragraph 1 above.	0	1	1?	1.7?
	22?	36?	58?	100?

It can be noted that the requirements b), c) and e) are the most frequently taken into account by SPAs and SSSIs designation (ranging from 70 to 80%). Almost 20% of all management plans considers some geological features as criteria for designation. Finally, type localities (7%), historic sites (7%) and aesthetic values (3%) are rarely considered.

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## DISCUSSION

If discussion were restricted to a statistical analysis, requirements needing more attention -given its poor representation in the present Protected Areas system- would be:

- item "g": *areas of outstanding aesthetic and wilderness value* (3.4 %)
- item "d": *the type locality or the only known habitat of any species* (6.9 %)
- item "a": *areas kept inviolate from human interference so that future comparison may be possible with localities that have been affected by human activities* (13.8%)
- item "f": *examples of outstanding geological, glaciological or geomorphological features* (19 %)

As you can see, items "b", "c" and "e" are adequately represented in Management Plans. Finally, I would say that Historic values, although poorly represented as criteria for SPAs and SSSIs designation, are well protected by other site categories, such as HSM.

However, a statistical analysis would not be enough to explain the whole situation. Therefore, some additional subjects connected to this presentation could be taken into account by the workshop, particularly those related to the question:

**Have all categories proposed in Article 3 the same importance when an adequate PA system is attempted to be established?**

This question has two possible answers: YES or NO.

If the answer is YES, then Parties should be asked to designate more Protected Areas to protect those values currently having poor representation, such as

- *aesthetic and wilderness values*
- *the type locality or the only known habitat of any species*
- *areas kept inviolate from human interference so that future comparison may be possible with localities that have been affected by human activities*
- *outstanding geological, glaciological or geomorphological features*

If the answer is NO, then some subjects of importance should be clearly defined, for instance:

- What are the most important categories?, and to what extent should they be represented to achieve an adequate PA system in Antarctica?
  - Is there a relative importance among categories? and How could such preponderance be reflected in a fairly way?
  - If some values are more important than others, how could a ratio between them be established?
  - What are the specific values to be protected within every category?
- how many petrel colonies or bryophyte communities should be protected?,
  - how many areas with tertiary fossil assemblages are representative enough?
  - how many types of aesthetic values do exist?)
  - what is an aesthetic value in Antarctica?

I think that these questions can be a good starting point to open discussions on this subject.



## **The environmental - geographic basis for designating Antarctic Specially Protected Areas.**

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### **Introduction.**

Last January 15 the Protocol on Environmental Protection to the Antarctic Treaty entered into force. This includes four annexes, but the fifth annex on Protected Areas adopted in Bonn has not yet been ratified. Also the ATCPs agreed that a Workshop on Protected Areas of the Antarctica shall take place before ATCM XXII in Tromsø, Norway. This represents an excellent opportunity for the review and discussion on ways to improve the system.

At the request of the steering committee, the main questions addressed in this paper are the geographical heterogeneity of Antarctica and the proposed ecosystem classification matrices as tools for evaluation of representativeness of protected sites already approved by ATCPs. These two subject matters can not be treated in a void. I propose to examine them in relation to the international instruments known as the Treaty System and to the objectives of Conservation for Antarctica, as elaborated by SCAR.

This review may help clarify the questions of what to protect in the Antarctic? What area size? and the effectiveness of protection under present conditions and under new requirements of the Protocol for Environmental Protection to the Antarctic Treaty. It is also pertinent to consider what are the environmental threats that can be anticipated under present levels of human activity in Antarctica. Threats originated within the area of application are: fisheries, tourism, local contamination near stations and local perturbation by construction and travel. Threats from outside of the area of application are: changes in composition of atmosphere, ozone depletion, chemical contamination and introduction of non indigenous species.

### **Geographic context.**

The Antarctic Region includes continental Antarctica, the Antarctic Peninsula, several groups of islands and a band of ocean that experiences seasonal partial freezing. The area of the continent is 14.5 million km<sup>2</sup>, that is almost double of Australia. The mean surface elevation is 2000 m. About 0.2% of the surface of the continent is exposed, the rest is under ice of mean thickness 1880 m (Drewry, 1983), but this percentage is variable depending on the region of the continent. There is a high central plateau reaching up to 4270 m, exposed rocks are more frequent along the Antarctic Peninsula, the Transantarctic Mountains and nunataks near the coast. Most (90%) of the coast line is formed by steep

ice cliffs. The edges of the ice mantle periodically break away forming large tabular icebergs. (Stonehouse, 1989).

The continental mass is composed of East Antarctica and West Antarctica that includes the Peninsula. East Antarctica was part of Gondwana until the mid Tertiary. The inland ice cap is almost sterile and one of the coldest places in the world. West Antarctica is smaller than East Antarctica and is formed by a group of volcanic islands separated from the Peninsula by deep channels.

This brief description of the geography demonstrate the heterogeneous physical basis of the Antarctic Ecosystems.

To set a common basis for discussion it is convenient to define the geographic realm of this Protected Areas System. This corresponds to the Area of application of the Antarctic Treaty as stated on Art.VI : the region South of 60° latitude south,. Management of the marine living resources in the area south of the Antarctic Convergence is within the scope of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR). Initial conservation measures within the A. T. System concerned mostly Antarctic land. But, ATCPs adopted three marine sites during ATCM XIV, Rio,1987.

There are 62 protected areas in Antarctica, all officially adopted by ATCPs. , until ATCM XXI. They are 22 SPAs, 36 SSSIs, 3 CCAS Seal Reserves and 2 CEMP sites. These sites add to 218.089 km<sup>2</sup> , but Seal Reserves contribute 215,217 km<sup>2</sup>. Total approximate land area protected is 790 km<sup>2</sup> and sea area is 217,298 km<sup>2</sup> on the South west Ross sea to protect seal breeding areas.

The total land area of Antarctica south of 60°, including all islands but excluding ice shelves was calculated as 12,093,000 km<sup>2</sup> . If the total land area protected is approximately 790 km<sup>2</sup> (BAS, 1993) then it is only 0,007 % of the total Antarctic land under the regime of Protected areas.( List of Protected Areas in Antarctica, F.&C. Office, London). But if calculations are done only for ice free areas of the continent, the percentage will be much higher.

### **Ecosystem Matrices.**

The use of Ecosystem Matrices can be considered as a tool to simultaneously segregate and classify the heterogeneity of habitats and the corresponding biota, to face the question of What is to be protected in Antarctica? Also to improve the consistency of the protected areas system, avoiding redundancy and obtaining better representation of the variety of communities to be protected.

The first version of the Antarctic ecosystem Matrices was elaborated during the meeting of SCAR Subcommittee on Conservation (May, 1976) and

according to a request of ATCM Rec VII-2 (Wellington, 1972). The results of this exercise were three matrices of terrestrial, freshwater and marine benthic ecosystems (SCAR Bulletin, N°55,413-416). The SCAR Working Group of Biology endorsed the work of the subcommittee in a recommendation to SCAR National Committees (W.G.B. Rec. 1976-Biol-1). The matrices were reviewed by SCAR Group of Specialist on Environmental Affairs and Conservation and the last version was prepared at a SCAR - IUCN Workshop in Cambridge, 1992.

The origin of the Antarctic protected areas was in the Agreed Measures for the Conservation of Antarctic Fauna and Flora (Rec III-8 Brussels, 1964). Later, for its implementation the ATCPs created the Specially Protected Areas (SPA) (Rec IV-1-15, Santiago,1966) and made explicit two criteria for designation a) outstanding scientific interest and b) uniqueness of the ecological systems represented; only to protect Fauna and flora.. A second category was Sites of Special Scientific Interest (SSSI),(Rec.VII-3), to protect de development of scientific activities from undue interference. To further develop protection of seals the ATCPs signed the Convention for the Conservation of Antarctic Seals (CCAS) (London,1972) and established Seals Reserves. And after the beginning of the development of the krill fishery and the signature of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)(Canberra,1980) the sites for monitoring predator species(CEMP) were established. During ATCM XV, Paris 1989, the need to protect values other than fauna and flora were recognised (Rec. XV-10) , such as: glaciological, geological, geomorphological, wildemess and scenic and created :Specially Reserved Areas (SRAs) ( Rec.XV-10). Also, for the protection of areas in the vicinity of Scientific Stations and to co-ordinate human activity, Multiple Use Planing Areas (MUPA) were recommended (Rec. XV-11). This proliferation of categories of protected areas in the A.T. induced rationalisation during the development of the negotiations of the Protocol for the Protection of the Antarctic Environment (Vina del Mar)( Protocol Annex II). There will be two categories of protected areas: Antarctic specially Protected Areas (ASPAs) to safeguard values such as aesthetic, scientific and historical and Antarctic Specially Managed Areas to protect activities .ASPAs require a permit and compelling reasons for entry. Then the difficulty to assimilate the old categories of protection to this new regime is added to the concept that management plans (Rec.XV-9) are the tool to ensure effectiveness of protection ( Art. 5).

### **Status of application of the proposed matrices.**

In reviewing the application of the three matrices, consideration is given to the total number of cells that segregate distinct categories, the number of categories that do not support biota and the number of categories that could be represented.

The marine ecosystem matrix does not include specific biota for benthos and littoral habitats, because of the high level of complexity and variety of communities. There are 6 SSSIs designated specifically to protect marine biota,

but there are 4 SPAs and 14 SSSIs that contain marine elements (Gallardo, 1987).

In a second step the reason for designation for SPAs and SSSIs is presented in tabular form for each matrix. The terrestrial Ecosystem matrix is the best represented.

**1.- Proposed Antarctic terrestrial Ecosystem Classification matrix.**

This matrix has 99 categories

45 categories do not support biota

54 categories to be represented.

21 are not represented in the Protected Areas System.

**Terrestrial SPAs Reason for designation.**

1. Bird or seal colony.	1-2-3-4-5-8-15-21	8
2. Exceptional Vegetation	9-13-14-19-20-22-23	7
3. Ecological representativeness	7-16-17-18-24	5
4. Historic	25-26	2
5. Changed to SSSIs	6-10-11-18-24	4
	<b>Total</b>	<b>26</b>

**Terrestrial SSSIs Reason for designation.**

1. Bird or seal colony	1-4-7-8-13-14-18-23-32-33	10
2. Exceptional vegetation	10-12-16-17-20-24	6
3. Ecological representativeness	15-19	2
4. Physical features	2-3-11-21-29	5
5. Fossils	5-6-25-30	4
6. Fellfield	9-22	2
	<b>Total</b>	<b>29</b>

**2.- Proposed Antarctic Marine ecosystem classification matrix.**

This matrix has no biotic variables.

Factors are water / ice and depth / substratum

The matrix has :

60 categories  
 13 are no possible habitats  
 47 categories for potential representation

**Marine SSSIs Reason for designation.**

Benthos	26-27-28-35-36	5
Littoral	34	1
	<b>Total</b>	<b>6</b>

SPAs that contain marine elements:  
5-2-18-19 4

SSSIs that contain marine elements:  
1-4-5-6-7-8-9-10-13-14-15-16-17-20 14

(Gallardo, V.A., 1987)

3.- Proposed Antarctic inland water ecosystems classification matrix.

This matrix has:

96 categories  
9 do not support biota  
87 for potential representation

Fresh water SSIs Reason for designation.

Lakes or ponds research 16-25-34 Total 3

SSSIs that contain inland water elements  
6-9-33 Total 3

### **SCAR Objectives of conservation in the Antarctic.**

The W.G. biology of SCAR discussed and agreed during its meeting in September 1988 that the objectives of conservation in the Antarctic should be made explicit. They are:

Objectives. ( SCAR Report N°5, 12, 1989)

The objectives of conservation in the Antarctic are to minimise disturbance by human activity so that:

1. the diversity of natural phenomena and systems, both in the context of the Antarctic and the Planet Earth can be maintained;
2. genetic diversity can be preserved by ensuring that adequate representative populations of animals and plants are maintained under natural conditions;
3. unique features, localities or complexes of features and sites of historical importance are undisturbed;
4. scientific research, including the provision of baseline data against which to measure change can be supported;

5. cultural values, such as scenic beauty, inspirational quality, wilderness status and recreational potential can be maintained

### **Conclusions.**

- The current system of protected areas has some deficiencies regarding representativeness, unevenness of total area protected, uneven geographical distribution and redundancy.
- Marine and inland waters matrices require much more elaboration, if they are going to be useful to evaluate representation.
- Ecosystem matrices could be improved if other features or values of conservation are included .
- A new kind of matrices could be developed for inclusion of Biogeographic features, to bring the system of protected areas in line with other regions of the world.
- There is a need for more information about the biota present in protected areas, such as: species numbers, diversity, generation time and energy fluxes, and other relevant data to facilitate management
- There is also need to develop criteria for evaluation of effectiveness of protection. .

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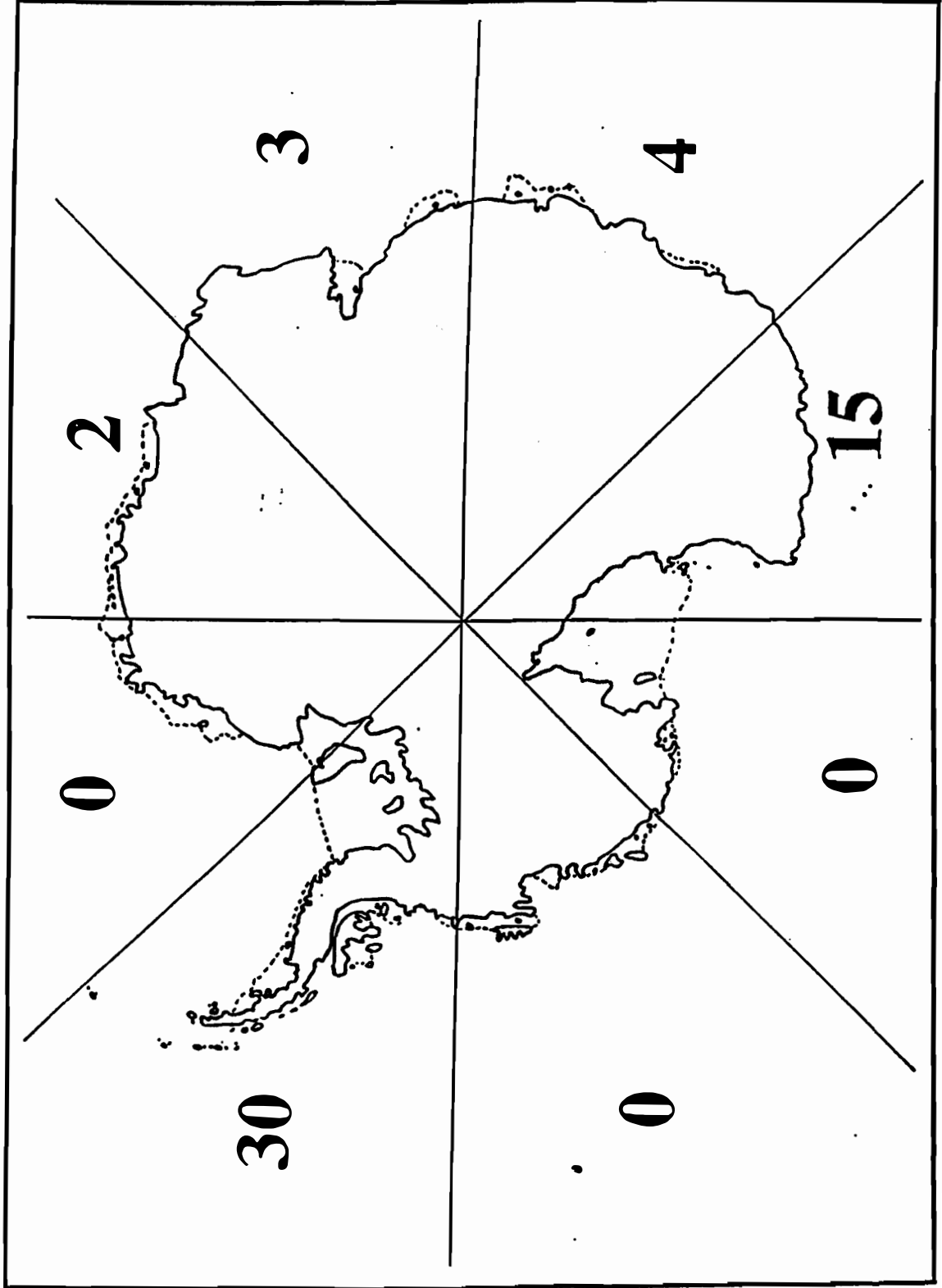
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Geographical distribution of the numbers of Antarctic SPAs and SSSIs in 45° longitudinal sectors based on the Greenwich Meridian



# Proposed Antarctic inland water ecosystems classification matrix

Environmental variables	LAKES/PONDS										STREAMS		
	Permanent			Ephemeral				Over ice	Over rock/soil				
	Fresh S<3g/l	Intermediate salinity S=3-30g/l		High salinity S>30g/l	Ice dammed		Rock or moraine dammed						
		a	h		a	b		Wholly (melt pools etc)	Partly (rock walls etc)	Sea influenced	Nit sea influenced		
Sterile													
Heterotrophs only													
A Annual algal communities													
P Perennial algal mat													
M Moss													
P Phytoplankton													
H Herbivore Invertebrates													
C Carnivore Invertebrates													

S: Salinity      a: Chemically stratified      b: Chemically non-stratified

Proposed Antarctic marine ecosystems classification matrix

	PELAGIC/NERITIC		BENTHIC				LITTORAL			
		Bathyal >500 m	Shelf zone (c. 500-200m)		Sub-littoral (c. 200-5m)		Rock/ boulder	Pebble	Sand, mud and/or shell	Ice
			Hard bottom	Soft bottom	Hard bottom	Soft bottom				
Environmental variables										
Permanent ice		X	X	X	X					
Seasonal ice		X	X	X	X					
Absence of ice										X
Fresh water influence	X	X	X	X	X					
Enclosed water mass	X	X	X	X	X					
Geothermal influence	X									

# Proposed Antarctic terrestrial ecosystems classification matrix

Environmental features (the,ally abundant)	Seasonally ice-free substrata and associated late snow beds								Permanent ice		
	Coastal ( < 10 km from seasonally open sea)		Inland ( > 10 km from seasonally open sea)			Coastal ( < 10 km from seasonally open sea)		Inland ( < 10 km from seasonally open sea)		m all.	m all.
	< 1000 m all.	> 1000	< 1000	> 1000 m all.	Cen- thermal	Cen- thermal	Adjacent to ice shelf	< 500	> 500		
Vascular plants	3										
Bryophytes	6										
Lichens	7	1	2								
Macroalgae	14										
Cyanobacteria	20		1	1							
Snow algae	13										
Microorganisms	17		1								
Invertebrates	3								1		
Birds/seals	11										
Sterile	? All				1	1					
	? All		3	5	2	2					
	10										
	11										
	16								2		
	16									1	
	.					1	2	1		1	.
	.				2	4	2			.	1

Upper values : SPA9

Lower values : SSSIs (no significant biotic variables in SSSI Nos. 2, 25, 26, 27, 28, 35, 36)

## THE IDENTIFICATION OF POSSIBLE NEW PROTECTED AREAS

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&

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### **Guidance from the Protocol**

The Area Protection and Management provisions found in Annex V of the Madrid Protocol provide opportunities for both improving environmental awareness on the part of all who visit Antarctica and for enhanced protection of the full range of Antarctic values found in the Protocol. It does this through the identification and designation of areas (including marine areas) as Antarctic Specially Protected Areas (ASPAs) or Antarctic Specially Managed Areas (ASMAs). ASPAs can be designated to protect a wide range of outstanding values including “.. environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research”. The identification of ASPAs is seen as occurring within a “systematic environmental-geographical framework” and to include the nine categories of area, identified in Article 3.2 of Annex V.

No further guidance is provided on how Parties might identify potential ASPAs, although the current distribution of protected areas within the Antarctic Treaty Area provides something of a case-history on which to draw.

### **Limitations of current protected area coverage**

The traditional approach in Antarctica has been to identify areas on a small scale and often on the basis of a single or few values. With Article 2 of the Madrid Protocol declaring the whole of Antarctica (and we see this as including the Southern Ocean south of 60 south latitude) as a "natural reserve devoted to peace and science", and the whole Treaty area accorded a significant level of protection by the Protocol, the case for additional and particular area protection of environments and values rests on a clear demonstration of need.

Current thinking is that the coverage of the Antarctic protected area system is inadequate in some sense and that accordingly there is a need for its expansion. This perception of inadequacy rests on several different sorts of limitation with the current range of protected areas - and on the sense of increasing environmental pressures and expectations of ever higher standards of protection.

Current limitations of protected area coverage include:

- uneven geographical spread across the Antarctic of protected areas in general (ie Peninsula, Ross Sea);
- coverage largely restricted to coastal locations (no plateau, nunatak, glacial or ocean areas);
- historical focus of protected areas on scientific values;
- historical focus on biological values;
- site "exceptionalism" (ie only one of each type);
- entire categories of value unrepresented (aesthetic, tourist, wilderness).

Uneven geographical spread manifests itself in the fact that 55% of SPAs/SSSIs are found in the Peninsula and 27% in the Ross Sea.

Inland nunataks, where ecosystems remain poorly known, are increasingly accessible to visitors, yet none have been designated as protected areas. Major glaciers - including some with important cultural/historical associations (eg Beardmore) - and what is presumably the dominant terrain type in Antarctica - polar plateau - are similarly without designation. Although contiguous marine areas have been included in terrestrial protected areas designations, no open ocean areas have been considered - despite concerns over some time that marine ecosystems are increasingly accessible to commercial activity and possibly at some environmental risk.

Other apparent gaps in coverage are limnological systems, including the ice-covered lakes of the Dry Valleys. As these differ greatly from each other and each could be considered unique, there may well be a case for multiple area designation - or designation of a large ASMA containing a number of smaller ASPAs for the lakes and other features (eg valley-side and bottom streams in the Dry Valleys, supporting diverse algal and lichen associations). On the McMurdo Ice Shelf are extensive areas of ponds and streams and the "dirty ice" ecosystems.

Even in the relatively well-covered coastal sphere, nowhere have entire archipelagos been secured in protected areas.

#### **The representative system of protected areas**

The 1992 SCAR/IUCN Workshop on "Developing the Antarctic Protected Area System" went some way towards developing mechanisms to assist Treaty Parties in identifying suitable areas for protection (Smith, Walton & Dingwall, 1994). Recommendations from the workshop (some of which are found in the UK's XXI ATCM/WP 10) pointed to the need to include historic sites and monuments in proposals, and to work towards achieving adequate geographical and environmental representativeness. This raises the question of the development of a framework as a basis for area selection.

According to the SCAR matrices (discussed elsewhere at this workshop) terrestrial, freshwater and inshore marine ecosystems are under-represented in the existing protected areas, while littoral and inland fluvial and continental ice systems are not represented at all. The SCAR matrices therefore provide a gap analysis technique to the areas they consider (ie the terrestrial, freshwater and marine ecosystems). Our existing protected areas do not give due recognition to representative habitats, communities and ecosystems for which special protection is required against the continuing increase of human activity - especially in the Antarctic Peninsula and Ross Sea regions (which already have the largest number of protected areas).

#### **Size of areas designated**

Annex V (Article 5.2) requires that "the area proposed for designation shall be of sufficient size to protect the values for which the special protection or management is required." Consequently rather than establishing several to many small areas (each perhaps protecting one or a small number of identified "values") a smaller number of larger areas - such as the Barwick Valley SSSI 3 designated by the USA in 1975, with an area of 279 sq km - may be preferable. Within such areas it may be reasonable to expect that a greater range of values might find reflection, although this is not an inviolable rule.

#### **Prior-knowledge level for designated areas**

Rational decisions on what areas to choose might ideally be thought to depend upon thorough prior knowledge of the environment of a region - its components and distribution, etc. However, we may also wish to designate areas identified as at risk from unregulated access before we have acquired this level of knowledge. In these cases, our knowledge base will need to be acquired after designation, and the management plans will need to make this possible.

Hitherto, identification and selection of protected areas and review of the protected area system has generally occurred within the context of the development of the Antarctic Treaty System. However an alternative approach is to view the development and operation of the protected area system with respect to the environmental values and management objectives introduced for other comparable areas, populations, communities and ecosystems outside the Antarctic Treaty area.

### **Mechanisms and models from beyond Antarctica**

It has been recognised that Treaty Parties could benefit from international experience in identifying new protected areas (Recommendation 22 in Smith, Walton & Dingwall 1994). Guidance from outside the Antarctic Treaty System may be particularly useful when attempting to identify sites to protect values which have not traditionally been addressed under the Antarctic protected areas system.

International models which may be useful include Biosphere Reserves, designation under the World Heritage Convention and the consideration of Open Ocean Reserves.

A Biosphere Reserve comes within the network established by the UNESCO Man and Biosphere programme and can carry with it considerable influence. For example inclusion on the IUCN register of Threatened Protected Areas of the World can often stimulate remedial action by the Government or authority concerned. Designation as a Biosphere Reserve requires formal commitment on the part of the state concerned and carries both prestige and global visibility. The Biosphere reserve concept has proved especially valuable because it has established a model based on zonation: a core area of strictly protected land or land safeguarded for scientific study, surrounded by zones of natural habitat used on a sustainable basis by tourism or compatible extractive industries and a buffer zone where a wide range of human activities can take place. This approach seems compatible with Annex V (cf Article 5 - 2, 3(f)(i) etc) and is in fact already reflected in the concept of "Restricted Zones" in



some recent Management Plans. Designated areas may need to be larger in order to accommodate buffer zones.

All of the sites designated as ASPAs with biological conservation as their objective could be modelled on the Biosphere Reserve concept. A dialogue between the Antarctic Treaty System or Parties and UNESCO over the possible use or application of the Biosphere Reserve system to Antarctica, and the techniques employed for the identification of possible new areas, may be helpful.

The World Heritage Convention has more elaborate procedures. Sites are nominated by states and are scrutinised by two independent agencies - one for cultural, the other for natural sites. A number of natural sites in Antarctica could, on the face of it, qualify for consideration as Antarctic World Heritage Sites - eg: the Dry Valleys, Ross Island, Beardmore Glacier, Vinson Massif, Balleny Islands archipelago, and areas on the Antarctic Peninsula - as with the subantarctic islands recently nominated by both Australia and New Zealand. Other sites could in principle meet the criteria for Antarctic Cultural Heritage Sites (notably the historic huts). Obviously the critical issue here is the political one. However, it would appear to be useful for the ATS, probably via the CEP, to consider the four main criteria used to justify inclusion of sites on the World Heritage List, and to examine how the issue of representativeness is applied by the Convention when potential new cultural and natural sites are identified.

The concept of Open Ocean Reserves is one that has been advanced recently (Mills & Carlton, 1998). Interestingly, these authors see Antarctica as a model for the initiative elsewhere, and entirely omit consideration of the polar regions. But in the face of increasing concerns about impacts on the marine ecosystem, the Antarctic may require such reserves too. Certainly, two of the key criteria for Open Ocean Reserves are met in Antarctica - ocean areas outside main shipping routes and already having mechanisms in place to regulate resource exploitation. It is a concept deserving of consideration by both CCAMLR and the CEP.

Experience in the Arctic may also be drawn upon. The Russian Ministry of Environmental Protection and Natural Resources in cooperation with UNEP/GRID-Arendal and the World Conservation and Monitoring Centre (WCMC), carried out a preliminary gap analysis of the Circumpolar Protected Area Network for the Conservation of Arctic Flora and Fauna (CAFF) meeting in September 1995. A more detailed gap analysis, using inputs from most of the CAFF projects has been proposed.

In the Canadian Arctic a protected areas gap analysis was undertaken by the Inukshuk Planning and Development for the Yukon Territory Department of Renewable Resources in the Pelly Ranges and southwest interior landscapes. At the Fredericton Workshop of the Atlantic Region Protected Areas Working Group in June 1993 a protected areas gap analysis methodology was proposed in planning for the conservation of Canadian Arctic biodiversity through eco-diversity.

#### **Beyond just scientific considerations in selecting protected areas**

An important issue may be the participants in protected area selection. The present gaps in protected area coverage may be structural consequences of the historic "selectors" as much as the protected areas framework. Viewed in a wider international context, the selection and designation of protected areas has been in the hands of a fairly restricted group - essentially the Antarctic science community - for clear historical reasons. The non-Antarctic models canvassed above draw from a larger community. A further issue in Antarctica is the division of responsibility between those who identify potential protected areas (ie SCAR national committees) and those who actually table the proposed designation and have responsibility for management (ie individual ATCPs).

Reasonably enough, the designation procedures in Annex V reflect a continuing strong emphasis on the scientific aspects which have previously been the predominant reason for area protection. However, with the adoption of SPA 25 (Cape Evans) there was no mechanism to introduce appropriate historical/heritage expertise in the designation or review process. With other non-

scientific values (eg aesthetic and wilderness) now requiring coverage, there is evidently a need for a wider participation in the process than has occurred to date.

Protected areas need to be identified within a geographical/regional strategy which involves input from not only the different states involved, but a wide range of bodies within those states - government agencies, administrative groups, the science and specialist communities, public-interest/NGO groups, commercial entities, and appropriate international bodies (eg IUCN).

### **Conclusion**

With the adoption and now ratification of the Madrid Protocol Antarctic conservation is developing from the consideration of small site specific protected area categories to that of a national resources management tool incorporating regional planning. There is also now an acceptance of marine protection in the Treaty area through the use of the protected area system. Although this development does not signal the end to identifying and selecting small discrete protected areas, which are still appropriate for particular objectives, the attention is likely to shift to a more regional planning approach and to the consideration of larger protected areas which can incorporate a number of different values or large managed areas (eg Ross Island, Dry Valleys, the Ross Sea, an area of the polar plateau) within which ASPAs could be incorporated.

### **Acknowledgments**

The authors thank Paul Dingwall of the Department of Conservation and Emma Waterhouse of Antarctica New Zealand for their helpful comments.

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## **THE PRESENT PROCEDURES USED BY SCAR AND THE ATCM TO EXAMINE PROPOSED MANAGEMENT PLANS FOR ANTARCTIC SPECIALLY PROTECTED AREAS**

### *1. Introduction*

1.1 Almost without exception proposals for the protection of areas have arisen from within the scientific community. An individual or group recognises the need to protect the special features of an area from accidental damage, or perceives the need to provide a management plan which will protect scientific work in an area from interference. Both forms of protection are possible within the designation Antarctic Specially Protected Area.

1.2 At present there is a considerable number of sites designated under a variety of Recommendations (especially Rec XV-8, and XV-9) as Sites of Special Scientific Interest (where the objectives are to protect continuing scientific programmes) or Specially Protected Areas (where the objectives are conservation of some features of the ecosystem). These will in due course become ASPAs under the terms of Annex V of the Protocol on Environmental Protection to the Antarctic Treaty. Annex V is not yet in force but plans for designation as ASPAs are being submitted based on the provisions in this Annex rather than those in the earlier legislation. The same process of assessment and review applies to both plans for new ASPAs and revisions of plans for existing SSSIs and SPAs.

1.3 The present system of review by SCAR, although slow at times, allows for expert assessment of the objectives, management and value of a site not only by an independent interdisciplinary science committee but also for the introduction of national concerns through oversight by SCAR Working Groups and national delegates. The plans when revised should meet all the requirements of Annex V, be in clear and concise English and require minimal further changes to make them acceptable to all Antarctic Treaty Consultative Parties.

### *2. Development and Revision of Plan*

2.1 A draft plan is prepared by an individual or group familiar with the site. The plan is required to contain the information requested in Annex V and is usually modelled on the general format of the Moe Island plan (SPA no.13). Article 5 of Annex V allows SCAR and CCAMLR to propose new areas for designation as ASPAs but this facility has not yet been used.

2.2 The draft may be reviewed nationally by one or more national SCAR committees with particular interests in the proposed site. It may also at this stage be sent to other scientists with an interest in the Area or to other national SCAR committees for comment or information. At this stage SCAR is not involved. At the end of this informal review process the draft, possibly revised, is sent to SCAR and passed to GOSEAC for comment. The multidisciplinary membership of GOSEAC provides expertise in a wide range of appropriate subjects within one committee and direct connections with many other SCAR and COMNAP committees.

2.3 GOSEAC provides a detailed commentary on the plan, examining its scientific objectives, its management proposals and its completeness. The committee pays special attention to the quality of the maps and any other illustrations provided. If it seems advisable, either because of the nature of the plan or the position of the Area, copies may be circulated at this stage to other bodies including SCAR Working Groups (especially Biology and Geology)

or to other SCAR national committees for comment. The plan is returned to the proposer with all the suggestions for revision. It is up to the proposer to undertake the revision and incorporate those of the changes the proposer feels are useful or necessary - there is no obligation to do so. In some cases a further iteration with GOSEAC may occur if the proposer wishes to benefit from further informed comments on a plan which may have been heavily revised. It is also at this stage that SCAR provides assistance with improving the English if this is required.

2.4 After revision the plan is sent back by the national committee to SCAR for endorsement. In even numbered years it is considered by the SCAR Delegates Meeting and in odd numbered years it is considered by the SCAR Executive. The Executive may decide to circulate the plan more widely before considering it. Either the Delegates or the Executive may suggest further changes before endorsement. After SCAR endorsement the plan is then in the hands of the national committee to take the next step. If the plan incorporates a substantial area of sea (the definition of this has been set by CCAMLR) then the national committee must send it to CCAMLR for formal approval.

2.5 It is the responsibility of the national committee to decide when a plan is ready to go forward to the ATCM. It is not necessary for any plan to have formal SCAR endorsement before being forwarded through a national Treaty delegation for tabling at the next available Treaty meeting. It is however the case that so far all plans accepted by the Treaty have been endorsed by SCAR. By convention the plans are tabled as Working Papers.

2.6 Until now the plans have been discussed in the Transitional Environmental Working Group and will presumably now be discussed at meetings of the Committee for Environmental Protection (CEP). Further changes can be made at this stage either on the advice of the CEP or by Plenary before the plan is adopted as a Measure.

### *3. Possible Improvements to the Present System*

3.1 A detailed guide to the preparation of management plans will decrease significantly the extent of revision required at the earlier stages.

3.2 The plans with significant marine areas should be submitted to CCAMLR at the same time as to SCAR to avoid a further one year delay.

3.3 The principal delays in the present procedure are those in the revision of the plans after comments by SCAR. Only the proposers can reduce this period. Often there are significant difficulties in producing maps of the required quality and accuracy. This might be alleviated if operators undertook to assist with this and it could be helpful if proposers sought advice from their national representative to the SCAR W G on Geodesy and Geographic Information.

3.4 At present the official version of those management plans which are adopted is published in the report of the relevant Antarctic Treaty Consultative Meeting. Since this is not widely distributed it is inaccessible to most people who visit Antarctica. SCAR has had a policy of reprinting the plans in SCAR Bulletin to make them more freely available to the scientific community. However, this is only a partial answer. A better solution would be to make all plans available over the Internet from a central server thus allowing all users access

to the most up to date version. The existing SCAR or COMNAP servers could be considered for this purpose.

D W H Walton  
20 May 1998

**ATCM XXII**  
**Antarctic Protected Areas Workshop**  
**Tromsø, 23 May 1998**

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**The Role of the Committee for Environmental Protection**  
Rex Moncur. Director, Australian Antarctic Division

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1. Background • what Article 12 says about the CEP and Protected Areas
    - the Protected Areas process under Annex 5, Art 5
    - CEP draft Rules of Procedure (arr ATCM XXI)
  2. Issues • issues arising from the current system
    - summary of CEP tasks
  3. Proposals • proposed CEP Protected Areas subgroup
    - a better process
- 

## 1. Background

Article 12 of the Protocol spells out clearly what is expected of the Committee in relation to the Protocol:

“In particular, it shall provide advice on:

- (a) the effectiveness of measures taken pursuant to this Protocol;
- (b) the need to update, strengthen or otherwise improve such measures;
- (c) the need for additional measures...”

and, specifically:

- (f) the operation and further elaboration of the Antarctic Protected Area system.

In terms of process, Annex V Article 5 nominates the CEP as a possible proponent of a Protected Area:

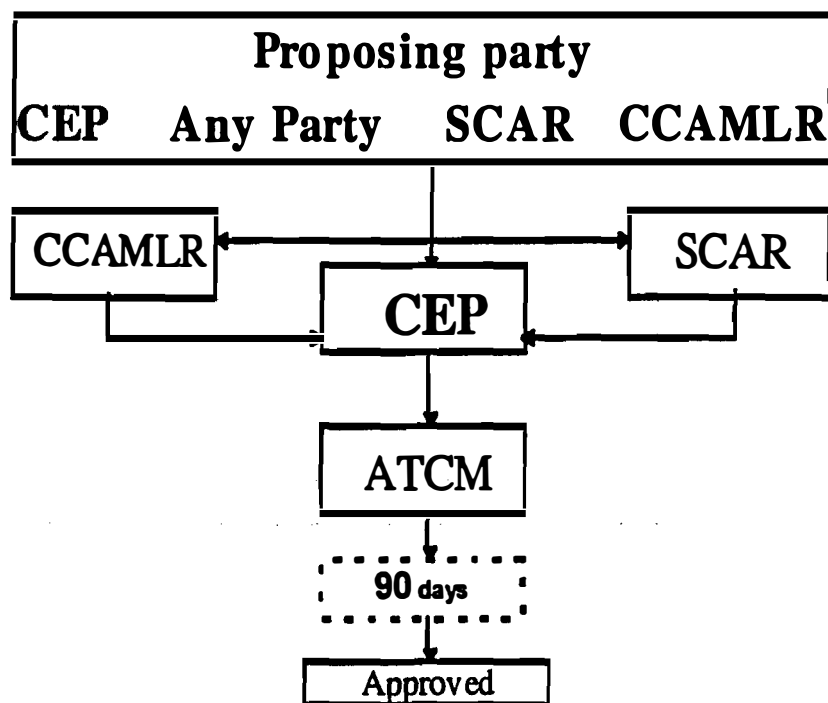
“...the Committee...may propose an area for designation...”,

and Annex V Article 6 clearly designates the CEP as the ultimate source of advice to the ATCM on proposed management plans:

“In formulating its advice [to the ATCM] the Committee shall take account of any comments provided by [SCAR and CCAMLR].



Although Annex V is not yet in force, only 9 Parties remain to approve it, and recent ATCMs have shown that Parties are prepared to act "as if" it were in force. We ought therefore to expect that the CEP will be able to assume some or all of its responsibilities under Annex V, depending upon the level of support from Consultative Parties in the ATCM. The Annex V process is as follows:



ATCM XXI accepted for consideration by the CEP (when it is established) draft Rules of Procedure drawn up by a special working group convened during the meeting. Those Rules include:

- the ability to meet between annual sessions of the ATCM (Rule 6);
- the ability to establish subsidiary bodies and open-ended contact groups (Rule 15).

So we have a clearly established role for the CEP with, as we shall see, some opportunities - all we need is the Committee to take it up, and that will start this week with the Committee's first meeting.

## **2. Issues arising from the current system.**

The current system of Protected Area designation relies on the yearly meetings of the ATCM to finalise processing the nominations - to approve the management plans. Meetings of the CEP are fundamentally tied to this ATCM cycle, although, as we have seen, they may meet more frequently.

Because of this yearly cycle, it is possible that interested Parties will not see a draft Management Plan until it is circulated as a Working Paper a month before the ATCM, or actually tabled at the ATCM. The current system also relies on the biennial meeting cycle of SCAR and to a lesser extent CCAMLR (because few Protected Areas have a significant marine component). This reliance on SCAR has arisen because there has been no more suitable advisory body, but it can add significantly to the time taken to process a management plan before submission.

From initial concept to designation, the current process might take between 11 and 35 months to approve a protected area:

- conservatively 6 months to write the plan, including initial consultation;
- between 2 and 26 months lead time for presentation to the ATCM;
- 90 days from acceptance at the ATCM until it is considered approved.

Aside from the process of designation, there are other important issues which fall under Article 12 such as refining the operation of the system, the major task of coordination for Annex V issues, and the assumption of other, unstated Article 12 Protected Area tasks. There have been 12 papers submitted to the last 3 ATCMs on the operation and improvement of the Protected Areas system (quite apart from specific management plan Working Papers), and work continues on the management plan handbook.

The assumption by the CEP of responsibility for the Protected Area system will need to acknowledge and draw upon the expertise that SCAR has developed, and the transitional nature of Protected Area designations and management (ie SPA and SSSI will not be formally redesignated as ASPA until Annex V comes into force).

Some examples of the sort of tasks that will fall to the CEP are:

- improving the consultation and designation process (ie Annex V issues);
- finalising the management plan handbook;
- identifying and assessing threats to the environment;
- identifying new areas; and
- monitoring the status of Protected Areas.

### **3. The Role of the CEP - PROPOSALS**

The ATS has become reliant to a great degree on SCAR as its prime source of analysis and advice on area protection and management - perhaps at the expense of fully developing these skills within Treaty Parties themselves - but this is clearly a role spelt out for the CEP in both the Protocol and the Committee's Rules of Procedure. Indeed, following the SCAR/IUCN workshop on Antarctic Protected Areas to the XVII ATCM in Venice, SCAR itself recommended that when considering the CEP's Rules of Procedure, Parties give "due weight to the importance of the work towards development of the Protected Area System."

Overseeing and improving the Protected Areas system is a large and important task for the CEP. Recent improvements in electronic communication, such as AEON, the new COMNAP site, and the electronic publishing of papers for this meeting make the task easier than it might have been only 5 years ago.

We need to determine how SCAR's role in providing advice on the implications for science of the Protected Area system will be brought into play in the CEP. We should also consider the role that AEON can play, and whether it is appropriate for it to remain a subsidiary of COMNAP or come more closely under the guidance of the CEP.

The nature of the Annex V tasks facing the CEP demands a very focused, facilitated, and goal oriented approach. This approach can best be achieved by constituting a CEP Protected Areas subgroup.

Such a group - a working group or more formally constituted subcommittee - would meet as required and as approved by the CEP, outside the ATCM cycle if necessary, working via the internet between meetings.

This would enable more efficient and effective consultation on, and nomination of, Protected Areas.

A CEP Protected Areas sub-group would continue to seek the advice of SCAR on the impact of protected area proposals on scientific values and the ability to conduct science, and the Scientific Committee of CCAMLR as appropriate. It would also seek the advice of those bodies on the scientific content of management plans where this is necessary. To improve the efficiency of the approval process, SCAR and CCAMLR consultation would have to take place independent of their normal meeting cycle, if necessary by incorporating a representative on the CEP subgroup.

The Protected Area sub-group would undertake other Protected Area work as directed by the ATCM through the CEP, and might start by:

- evaluating the recommendations of the SCAR/IUCN ATCM XVII workshop;
- identifying the outstanding Annex V recommendations agreed to by the Parties through ATCM, and additional needs;
- prioritising the actions advise the CEP accordingly; and
- improving the effectiveness of the nomination and approval process; and
- finalising the Protected Areas management plan handbook.

Further tasks which the subgroup might take up include:

- monitoring of the effectiveness of the system, by collating and analysing visit statistics and reports;
- further defining the values which might require protection;
- finding ways to appropriately protect values not yet represented in the Protected Area system;
- addressing the increasing presence of tourism and the increased mobility of scientific parties;
- devising and improving on-site management and monitoring; and
- learning from area protection and management outside the Antarctic context.

## **CLOSING SUMMARY**

The CEP is clearly mandated by Article 12 of the Protocol and by Annex V to play the pivotal role in Area Protection and Management for the ATS.

The importance of the Protected Area system to the ATS and to Parties individually in the conduct of their Antarctic operations is clear.

There is a need to improve the efficiency of the nomination and approval process, to monitor system performance, and to ensure that special protection is provided where it is most needed.

Area Protection and Management - Annex V - is a clearly defined element of the ATS which will benefit from the focused expert approach that can be provided by a CEP Protected Areas subgroup. Acknowledging that Annex V is not yet in force, the Article 12 imperative for CEP action on Protected Areas demands our immediate attention.

**END**

## **Discussion Group 1: Comparison of ASPAs against Annex V**

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### **Discussion Group Leader: Birkenmajer, K**

Acero, Josè Maria  
Calizaya Cresppi, Rafael  
De Poorter, Maj (**Rapporteur**)  
Hay, Linda  
Megret, Alain  
Schorno, Raymond  
Soldi Soldi, Hector  
Wang, Yong  
Waterhouse, Emma

## **Discussion Group 2: SCAR Ecosystem- classification matrix**

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### **Discussion Group Leader: Trehen, P**

Chen, Liqi  
Giuiu, Benoît  
Machado Neto, Josè Corrèa  
Modig, Anders  
Norris, Stefan  
Roots, E. Fred (**Rapporteur**)  
Ruthford, Bob  
Sanchez Rivas, Sara Guadalupe  
Velencia, Josè

## **Discussion Group 3: Identification of possible new ASPAs**

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### **Discussion Group Leader: Marsh, John**

Brandão, Antonio Carlos da Camara  
Gadea, Bernabè  
Hemmings, Alan D.  
Huberth Hansen, Jan Petter  
Luxmoore, Richard (**Rapporteur**)  
Molinari, Angel Ernesto  
Urauchi, Seiichi

## **Discussion Group 4: Developing and reviewing proposed ASPAs**

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### **Discussion Group Leader: Hofmann, Robert**

Brodersen, Cristopher  
Clark, Beth  
Comotto, Eduardo  
Gilbert, Neil (**Rapporteur**)  
Giuliani, Pietro  
Otarola Bawden, Gustave Bernard  
Queiroz, Herz Aquino de  
Walton, David  
Yan, Quide

## **Discussion Group 5: ASPAs - the role of CEP**

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### **Discussion Group Leader: Njåstad, Birgit**

Beruño, Jorge  
Bosman, Jan Peter H.  
Felici, Aldo  
Fernando, Jimenez  
Jatko, Joyce  
Moncur, Rex  
Tabajara, Nelson A.  
Richardson, Mike (**Rapporteur**)  
Solari, Horacio E.  
Teixeira, Antonio José



## REPORT FROM DISCUSSION GROUP 1: Comparison of ASPAs against Annex V

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*Discussion Group Leader: K. Birkenmajer*

*Rapporteur: M. De Poorter*

The group had a reasonably long discussion on the question of whether all categories mentioned in Art. 3 (2) (i.e. paragraphs a to i) are of equal importance or not, and two different positions clearly emerged: some in the group felt that different categories clearly have different values and are of different priority; others pointed out that it would be impossible to reach agreement on relative values as this would differ from person to person., and that the categories hence had to be treated on an equal basis by the "system".

The discussion group agreed that there are gaps in the existing system of ASPAs. Existing matrices need improvement, and an environmental geographical basis should be used in addition to the existing matrices.

The group felt there was great urgency in addressing the gaps, and providing a list of missing areas (including criteria as well as specific sites). Such list should be made within the ATS. Involvement from the CEP, SCAR, any Party, and where appropriate, CCAMLR, is required. The ATS will also have to seek expertise from outside ATS.

The identification of "gaps" should be considered a standing issue, as ongoing consideration is required to deal with a changing situation (and changing threats).

The group discussed the urgency of designated ASPAs in the categories listed in Art 3 (2):

*(a) Areas kept inviolate from human interference so that future comparisons may be possible with localities that have been affected by human activities*

The group identified two types:

- area set aside for «direct» comparison with one where an impact is happening or expected to be happening. Such area would have to be chosen very carefully in order to truly fulfil the control-function that is envisaged for it.
- large areas of pristine or near pristine nature should be set aside as a more generic «control» for a longer time period. (Note that this has been identified as well in the IUCN Cumulative Impact Workshop in 1996)

There was agreement that such designations need to be considered with urgency. If we wait too long, hardly any sites will be left where impact has not already occurred, due to the increased pressures of visits to previously unvisited sites (including commercial ventures)

(b) *Representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems*

The degree of urgency will vary with the degree of pressure and potential pressure on sites.

(c) *Areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals*

Microfauna is felt to have been covered better than microflora (e.g. micro-organisms, lower algae, limnology). Often we do not have enough knowledge on where such sites are with respect to micro-organisms. This lack of knowledge needs to be addressed with urgency for micro-organisms.

(d) *The type locality or only known habitat of any species*

Needs consideration. Taxologists should be involved in deciding on degree of urgency.

(e) *Areas of particular interest to ongoing or planned scientific research*

Needs consideration. All committees of SCAR are in good position to deal with this category.

(f) *Examples of outstanding geological, glaciological or geomorphological features*

Needs consideration. It was noted that designation of a site for geological values (especially e.g. fossils) may draw undesirable attention from collectors or tourism.

(g) *Areas of outstanding aesthetic and wilderness value*

Wilderness and aesthetic values are very important, but it is not always going to be an ASPA that is the best management tool to protect them. For large areas especially, ASMA may be more appropriate (including for administration purposes). The group felt that some wilderness areas («pristine» or near «pristine») should be considered under category (a).

(h) *Sites or monuments of recognised historic value*

It was felt that generally speaking historical sites etc. were adequately protected as historic sites and that it was therefore not a great concern that few had been designated ASPAs. However, designation as a historic site may not always provide enough protection, and in such case designation as ASPA may be better (e.g. Cape Evans).

(i) *Such other areas as may be appropriate to protect the values set out in paragraph 1 above*

Other categories that were identified included:

- sites that are under potential threat but not all information has been collected yet to argue for designation under one of the categories (a) to (h). In such case interim protection should be considered
- Disturbed sites that may need protection to allow for recovery
- sites where the value to be protected is a process.

### **Conclusion**

- ASPA is but one tool in environmental management. Designation of ASPA may not always be the best tool to use in order to provide environmental protection. The number of ASPAs was therefore not felt to be a good indication of "Antarctic environmental Protection" in general.
- The group felt there was urgency in addressing the gaps, and providing a list of missing areas (including criteria as well as specific sites). An environmental - geographical basis should be used besides the existing Protected Area matrices in identifying gaps.
- There was disagreement as to whether points a to i of Art. 3 (2) are equally important or not
- Keep in mind:
  - (i) sites may have multiple values that are worth promoting
  - (ii) The AT system is dynamic: It allows for revisiting/reviewing management plans.
- There is no point in trying to fill all the gaps in ASPA system at once. The most urgent consideration must be given to those cases where there is a threat or pressure now, or potential or likely in future. Gaps that would lead to a loss if not filled, need to be filled most urgently. The issue is to be kept under review constantly as new pressure may be identified.
- In addressing gaps relating to Art. 3 (2) the following points can be used as guidance:
  - (a) *Areas kept inviolate from human interference so that future comparisons may be possible with localities that have been affected by human activities:*  
**Very urgent matter**

(b) *Representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems*

**Important but urgency depending on degree of pressure.**

(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*

c), d), e) : **all need consideration.** [ c) - especially for micro organisms]

(f) *Examples of outstanding geological, glaciological or geomorphological features*

**Consideration especially with regard to tourism**

(g) *Areas of outstanding aesthetic and wilderness value*

- ASPA may not always be best tool for administrative reasons, very large areas in particular may be better protected by ASMA designation

- Criteria to be elaborated

- Some areas may need to be considered under (a)

(h) *Sites or monuments of recognised historic value*

Generally well covered, but some gaps

(i) *Such other areas as may be appropriate to protect the values set out in paragraph 1 above*

- Interim designation while information gathered

- Disturbed area - to allow recovery

- Processes protected

> e.g. IUCN,  
C.I.W.

## REPORT FROM DISCUSSION GROUP 2

### SCAR Ecosystem- classification matrix

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*Discussion Group Leader: P. Trehen*

*Rapporteur: E.F. Rootes*

1. The protected areas system must recognise that the whole area south of Lat. 60°S is an environmental protected area. It is necessary to consider ASPAs as part of a “family” of specially protected and managed areas within that overall protection.
2. The SCAR matrices show the variety of situations existing when major species groups (not ecosystems) are related to general physical characteristics. They do not in themselves provide an adequate basis for selecting priority areas for protection.
  - or for what kinds of protection is needed
  - or for what would happen if there were no protection

SCAR matrices were not designed to identify specific areas, and they have little value for identifying needs for protection of large areas, for migratory species, for relating to dynamic processes, vulnerability to human activities or global change, etc.

3. The SCAR matrices may be useful when reviewing a network of ASPA sites to see whether major areas of biological communities (except marine) or physical features have been missed or to check whether there are bodies of information that have not been used.
4. The selection and analysis of Protected Areas must be based on a combination of classification and selection systems. In general:

#### *4.1 Start with spatial analyses*

E.g.: Biogeographical analyses for biologically important systems based on Udvardy lines adapted to present knowledge of Antarctic ecosystems and processes and their distributions, but also taking into account a range of space and time scales, dynamic interactions within and outside the Antarctic region.

#### **Example**

- draft zonal classification for terrestrial Antarctic ecosystems (Figure 1).
- similar schemes although different because of lack of information or understanding needed for fresh waters, coastal areas, marine
- abiotic importance and vulnerability analysis for vulnerable areas of geological, glaciological or geophysical importance.  
Examples: - fossil sites, type localities
  - Lake Vostok, other subglacial sensitive features
  - areas of meteorite nodule emergence\*

- critical geological features

These analysis can be the start of GIS data trees for assessment of protective scenarios.

5. On basis of spatial analysis and classifications, develop a series of check lists or decision models that identify the importance of candidate sites on local, regional, and global scales, then apply a series of key words or selected concepts

Examples: - time- generation turnover

- nutrient distribution
- energy fluxes
- community organisation
- vulnerability to local impact of global change

These can then be related area categories a-i, Art. 3 (2) (see examples in Figure 2)

6. Advantage should be taken of the experience, procedures and guidelines that have been developed in other protected area classification and identification schemes that have some similarity to Antarctica - then applied, modified or adapted to Antarctic needs or situations if useful.

Examples: - IUCN - Protected Area Guidelines (Caracas)

- CAFF - Circumpolar Protected Areas Network. Principles and Guidelines (CAFF- Report 4)
- UNESCO - MAB - Biosphere Reserves criteria, evaluation scheme
- IGBP - Global Change System for Analysis, Research and Training (START) - Antarctic Region 14

7. The recommendations of the 1992 IUCN/ SCAR workshop and the 1996 Workshop on Cumulative Environment Impacts should be considered and used as a basis for selection and evaluation.

8. There will be some areas where information is simply inadequate to provide a basis for judgement , e.g. Does The Ross Seal need protection?

## Conclusions

1. ASPAs should be established and their management plans developed within the context of the broad principles of environmental protection of the Antarctic Treaty Region as a whole, and a special but compatible part of the "family" of specially designated areas for habitat, environment, ecological and historical protection and management schemes in Antarctica.
2. In the identification, assessment and prioritisation for establishment of candidate ASPAs, attention must be given not only to the local and immediate situation and apparent importance, but to the range of space scales, the dynamic processes and changes with time, the issues of phylogeny, nutrient and energy fluxes, community and trophic interactions that make a particular area important.

3. The classification and selection system, in order to identify the need for protection status, should enable determination of:
  - criteria for the value ecological or abiotic
  - threats to those values if protection status not achieves
  - analysis of how protected status works
  - maintain those values
4. The SCAR ecosystem-matrix classification, although useful, is not adequate to serve as a basis for selection of sites or analysis of ASPA success (does not apply to large areas, marine habitats, wilderness values, etc.)

#### **Indications for a new matrix of classification of ecosystems**

1. The identification, selection and assessment of protected areas, and the development and review of management plans, must be based not on a single set of matrixes or criteria, but on a range of systems according to the type of area and the kind of protection required to meet Annex 5, Art. 3.22 (a-i).
2. In development and implementation of the methodologies and procedures for Protected Area selection and assessment, advantage should be taken of the experience and the procedures and guidelines developed in systems in other parts of the world, and then applied, modified or adapted to the Antarctic regions.

Especially: - IUCN Protected Area Guidelines  
 - CAFF- CPAN - Principles and Guidelines  
 - UNESCO/ MAB - Biosphere Reserves criteria, evaluations  
 - IGBP Global Change START selection criteria

3. The classification/selection system should be based initially on (i) a biogeographical analysis - along Udvardy lines, but adapted to present knowledge of Antarctic ecosystems and their distributions, taking into account needed range of space scales and time dynamics, or on (ii) abiotic importance and vulnerability analyses, based on expert judgement of vulnerability and consequences if protection is not achieved.
4. Within the spatial and vulnerability analysis, matrices or check lists to be developed to assess importance, need for protection, and feasibility of protection on a range of scales including local, regional, and global, within which the available information is assessed according to a number of key words or concerns, and related to protected area categories (a) - (i) (see Figure 2).
5. CEP should request SCAR or other expert groups, e.g. in arctic ecology and ecotoxicology, to carry out technical analysis and propose schemes outlined in (3) and (4) above, taking into consideration experience and models elsewhere (2).
6. CEP, on the basis of (5) above, should modify and adapt the ASPA handbook to (i) ensure that ASPAs fit compatibly unto the "family" of protection and landscape/habitat management schemes into the Antarctic Treaty regime, (ii) apply to areas not presently covered or not sufficiently developed, such as marine, seabed,

geological or glaciological areas, (iii) apply to the various types areas in Art. 3.2 (a-i) and (iv) fit compatibly with and contribute to the growing concern for a world-wide or global network of protected area systems.

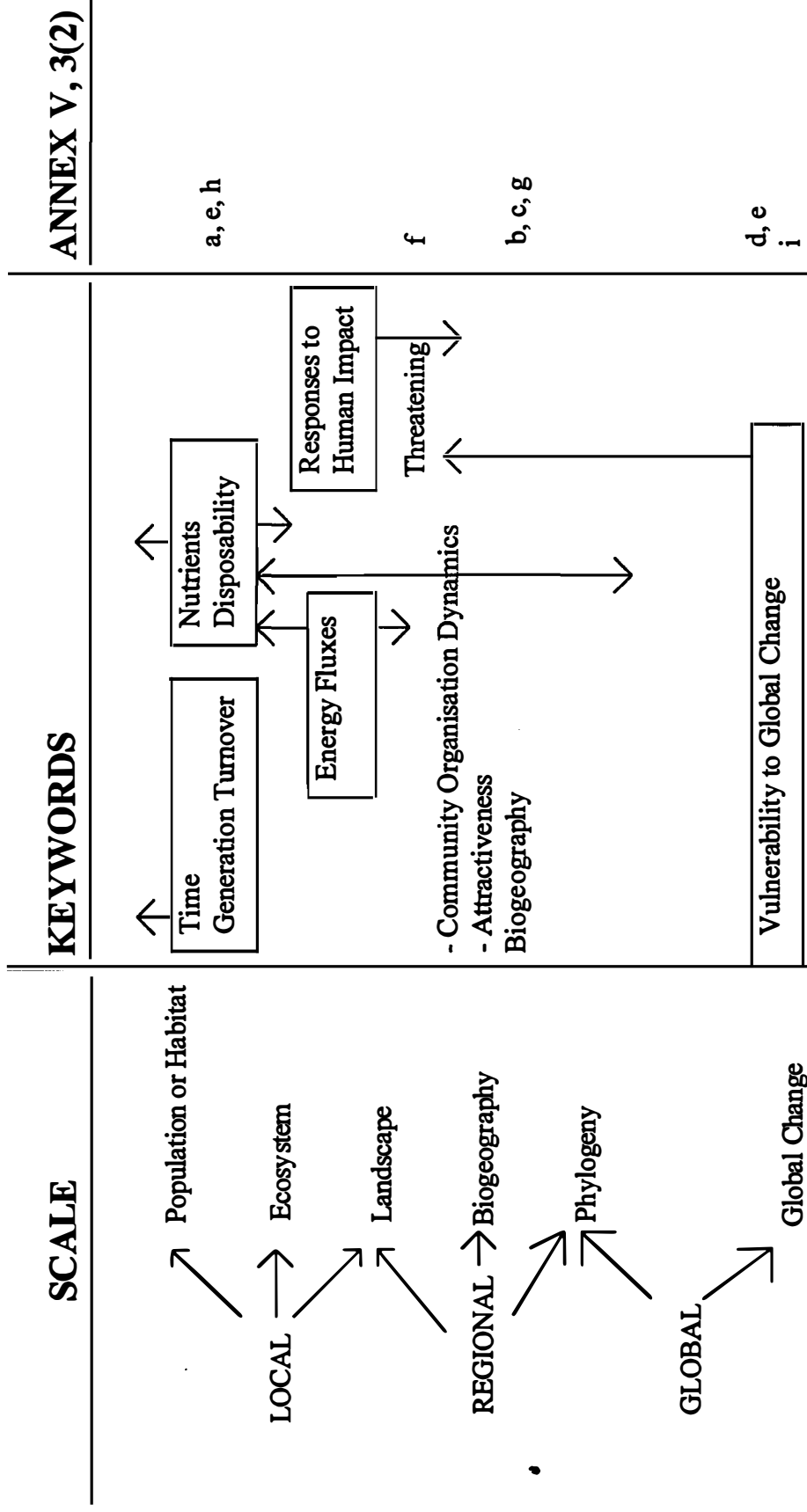
**Figure 1**

**Proposed taxonomy of Antarctic Terrestrial Systems**

<b>Botanical and Invertebrate Units</b>		<b>Vertebrate Units</b>
<b>1.</b>	<b>“STERILE” AREAS</b> (micro-organisms and propagules may be present)	
<b>2.</b>	<b>SNOW ALGAL ASSEMBLAGES</b>	
<b>3.</b>	<b>FELDMARK ZONE</b> Lichen dominated: acarine fauna collumbola endolithic communities Eutrophic areas with algae linked to birds	Breeding colonies inland: Antarctic petrel Snow petrel
<b>4.</b>	<b>BRYOPHYTE-LICHEN ZONE</b>	
<b>4.a</b>	Sparse/dispersed/impooverished bryophytes - few or no hepatics. Simple Acarine/collumbola/nematode	Emperor and Adelie penguin
<b>4.b</b>	Substantial/semicontinuous bryophyte communities. Diverse acarine/collumbola/nematoda	Adelie and Chinstrap penguin Weddell and Leopard seal
<b>5.</b>	<b>BRYOPHYTE-LICHEN-VASCULAR ZONE</b> Deschampsia, Colobcathus, enchytraeida present	Non-breeding elephant seals  Gentoo, Chinstrap and Macaroni penguin
<b>5a.</b>	Highly eutrophic algal assemblages linked to bird and seal breeding and moulting areas	Weddell, Elephant and Fur seals



Figure 2



## REPORT FROM DISCUSSION GROUP 3

### Identification of new ASPAs

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*Discussion Group Leader: J. Marsh*

*Rapporteur: R. Luxmoore*

#### **Aim**

The group decided that it had neither the time nor the competence to recommend any new ASPAs but would concentrate on defining a specific process by which this would be achieved.

#### **Background**

The history of consideration of PAs in the Antarctic stretched back over 20 years and it was important to build on this experience. There was also a wealth of material and expertise associated with PA planning in the Arctic and other regions which could be adopted or adapted. Background documents available are listed in Table 1.

#### **Gaps already identified**

The various partial reviews already undertaken have identified a number of potential gaps in the existing PA network. These include:

1. Unrepresented geographical/biogeographical areas (though it was noted that there was a need to justify this in terms other than by longitude alone).
2. Specific biological resources (e.g. IUCN recommendations)
3. Thematic gaps:
  - Marine ecosystems (including open ocean),
  - Geological/glaciological sites
  - Freshwater ecosystems(see Prebble & Hemmings)
4. Wilderness areas (may need to be large)
5. Aesthetic criteria based on landscape or scenic value
6. Historic sites (especially buffer zone) around existing huts, etc.

A number of other processes and criteria should be borne in mind while recommending new sites:

1. The possibility of «shadowing» international designations, e.g.:
  - World Heritage
  - Biosphere Reserves
  - Ramsar sites
2. The need for temporary designations (where, for instance, inadequate information was available, but it was important to prevent further damage before this could be collected)
3. Regional planning, larger Multiple Use Areas (ASMAS?)
4. The type of threat facing the site
5. The need to designate multiple examples of each site to cater for unforeseen changes (especially climate change)

### **Recommended procedure**

A consideration of the experience of PA planning in other regions showed:

- The CAFF procedure for planning a circumpolar PA Network contained many useful parallels (but some omissions - e.g. landscape values, marine areas)
- There are other established methodologies which could be incorporated (e.g. landscape features, scenery, wilderness values, Geological features) A tentative framework for Geological features was drawn up (Table 2)
- The type of threat should also be considered

As a result of this discussion a 5- step procedure was recommended (Table 3) for identifying priorities for New ASPAs.

In carrying out this procedure it was noted that there was needed to:

1. Draw in expertise from relevant bodies including CEP, SCAR, CCAMLR, IUCN and WCMC.
2. Make provision for ensuring that a database of Protected Areas and other features used in the analysis (biological, geological, landscape etc.) was both established and maintained in order that decisions on new ASPAs could continue to be made in the future.

**Table 1**  
**BACKGROUND INFORMATION/ ACTIVITIES REGARDING THE**  
**SELECTION OF PROTECTED AREAS (PAs)**

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- SCAR ecosystem matrix - 1977 →
- SCAR/IUCN workshop/publication - 1992
- Paper by Prebble and Hemmings
- This workshop - information package
- IUCN PA classification
- Cumulative impacts report
- Marine PAs paper - tabled at ATCM XXII
- PA system planning experience elsewhere, e.g. CAFF
- PA workshop on Dry Valleys

**Table 2**  
**CRITERIA FOR AREA PROTECTION**

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*Geological features for consideration*

- Examples of principal formations, structures, ages
- Type localities
- Fossil and mineral sites
- Meteorite fields
- Geomorphologic features, landforms
- Glaciological features
- Sub-glacial lakes
- Other spectacular or unique features

**Table 3**  
**PROCEDURE**

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1. Inventory of existing PAs
2. Decide criteria + guidelines
3. Compile additional information
  - Biogeography
  - Wilderness value
  - Landscape
  - Geological value
  - Glaciological value
  - etc.
4. Carry out Gap Analysis
5. Recommend priorities for new PAs

## REPORT FROM DISCUSSION GROUP 4

### Developing and reviewing proposed ASPAs

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*Discussion Group Leader: R. Hofman*  
*Rapporteur: N. Gilbert*

The group considered its mandate to be

*Examining ways to improve the process of review of proposed management plans for ASPAs*

The existing process for the review of draft Management Plans was examined. The following timetable summarises the various stages of the review process:

June	Assessment by GOSEAC
July	SCAR meeting (Executive or Delegate meeting)
July/August	CEMP Working Group
October	CCAMLR Scientific Committee and CCAMLR Commission if the proposed site contains a marine component
April	Deadline for submission of Working Papers to ATCM
May	CEP ATCM

Ideally, a draft ASPA Management Plan would achieve endorsement and adoption at an ATCM within just one cycle of this schedule (i.e. 12 months). But the group agreed that any redrafting requirements, imposed at any stage of the review process, would cause a delay until the following year. The onus was therefore on the proposing body to ensure adequate preparation and presentation of draft Management Plans before embarking on the review process. Such preparation should include:

- early consultation and sufficiently wide consultation (i.e. to include all Parties likely to be affected by the proposed plan);
- preparation of the plan in accordance with the Guide to Preparation of Management Plans (see below);
- and strict adherence to the above timetable.

There was a brief discussion on the need for an overall Antarctic conservation strategy. It was recognised that proposers of protected areas must be clear on the reasons for nominating a new site. However, it was agreed that such an issue fell outside the remit of the discussion group.

The role of SCAR/GOSEAC was discussed. It was noted that SCAR does not have the necessary expertise to assess the appropriateness of designating sites for wilderness, aesthetic or cultural values. It was the group's opinion that the CEP should consider the mechanisms and possible source for obtaining clear and objective advice on such values, perhaps by looking outside the Treaty System.

### **Guide to the Preparation of Management plans.**

The purpose of the Guide is to assist preparers of Management Plans and to attempt to improve the quality of all Plans to a consistently high standard. It was agreed that the document was likely to be an invaluable tool in assisting the preparation of management plans.

In this regard the group considered that the Guide should, once adopted by the ATCM, be made as widely available as possible, so that those who require access to it could do so. This could be achieved by making the Guide available on websites such as those of SCAR and COMNAP.

The need to ensure that finalised and adopted Management Plans are also made as widely available as possible was also noted.

### **Reviewing Management Plans.**

The group noted that the process did not stop once a Management Plan had been agreed and adopted at an ATCM. Article 6 (3) of Annex V of the Protocol requires that a review of Management Plans is initiated at least every five years and the Plans updated as necessary. If this review process is to be effective the CEP should consider developing a framework for the review. This could include establishing a checklist of questions to be considered in relation to the site and the Management Plan to ensure that the reasons for the site's designation remain valid.

To assist the review process it was suggested that the CEP should have available to it all relevant and up-to-date information. It was agreed that a site visit by the appropriate body would be needed as part of the review. But this should not be a mandatory requirement as access to certain sites can be difficult to achieve.

### **Reporting and Exchange of Information.**

The group agreed that availability of information on existing ASPAs was important to assist preparers of draft Plans. The group noted the requirement of Article 10 of Annex V with regard to exchange of information and in particular the need for standardised reporting required by Article 10 (1c). It was agreed that the CEP should examine this issue, to ensure that information provided in the annual exchange of information is consistent and helpful to the process of review of Management Plans. Revision of the SCAR visit reporting form may also be desirable in this context.

The group considered that annual reporting should include information on permits issued; permits being considered for issue; breaches of permits; current status of the site, etc. as required by Article 10 (1) of Annex V.



## **Conclusions**

- 1. An overall conservation strategy is required to ensure that ASPA proposals fit into a coherent and justifiable plan.**
- 2. The CEP should consider the mechanisms and possible source for obtaining clear and objective advice on the appropriateness of ASPAs proposed for their wilderness, aesthetic, or cultural values, given that assessment of such values lie outside the competence of SCAR.**
- 3. The CEP should consider means by which adopted management plans and the Guidelines on the Preparation of Management Plans are made as widely available as possible (e.g. by inclusion on websites).**
- 4. The CEP should act on the requirements of Article 10 (1c) of Annex V and establish a standardised reporting system for the exchange of information on ASPAs.**
- 5. The CEP should consider establishing a standardised framework for the periodic review of management plans as required by Article 6 (3) of Annex V, to ensure that the reasons for site designations remain valid.**

## REPORT FROM DISCUSSION GROUP 5

### ASPA - the Role of the CEP

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*Discussion Group Leader: B. Njåstad*

*Rapporteur: M. Richardson*

The group took as its remit an amalgamation between the title of the discussion group "ASPA - The Role of the CEP" and the workshop's terms of reference number 4 - identifying ways of improving the procedures for developing and reviewing proposals for ASPAs.

Given Article 12 (g) of the Protocol, there was agreement that the CEP has a clear mandate to advise the ATCM on elements related to protected areas. There was, however, recognition of the valuable work undertaken to date by GOSEAC in reviewing proposed management plans. But, it was also noted that this had created time-tabling problems, with delay in the processing of such plans. Furthermore, it was felt that the wider criteria under the Protocol for the establishment of ASPAs now required additional expertise over and above those held by SCAR, i.e. to address non-scientific issues such as aesthetic and wilderness values.

The group was of the opinion that because: (a) issues relating to protected areas could readily be identified, and (b) required specific expertise, that the CEP should consider the establishment of some form of sub-group, tasked to address protected areas.

No precise recommendation was made on the composition, or functions of such a sub-group though there was support that the group should:

- be open-ended, but composed only of relevant experts;
- address the range of work on protected areas undertaken currently by GOSEAC;
- work intersessionally, by appropriate means;
- report to the CEP on its findings, to enable the Committee to then provide advice to the ATCM.

It was recognized that some form of switch-over from the existing procedures carried out by GOSEAC to a system undertaken by the CEP sub-group would be needed. The period ahead of the entry into force of Annex V provided a window within which such a transition could take place. In this respect the group acknowledged the importance of retaining the advice and expertise of GOSEAC, and other ATCM observers, and recommended that links to strengthen their advisory capacity to the CEP be developed.

The precise working arrangements of the sub-group were not stipulated. They could be developed through time and experience. The sub-group might operate initially through intersessional correspondence, via an appropriate convener. The possibility of the group developing into a more formal subsidiary body of the CEP (with the prior agreement of the ATCM) was not, however, ruled out.

The group recommended that the CEP should formulate terms of reference for such a sub-group which would: (i) address the short-term requirements for the review of proposed management plans, and (ii) and in the longer term address more general issues related to protected areas, e.g. gap-analyses. In the groups' view the CEP would also need to provide clear guidelines on the timelines needed for the submission expeditious processing of management plans.

**Conclusions.**

- that the CEP establish a sub-group to address the protected areas system;
- that the Committee determines the terms of reference of such a group. These should include:
  - (a) procedures for processing management plans
  - (b) a role to address wider issues relating to protected areas (e.g. gap-analyses)
- the CEP should also set out clear timelines for the submission and processing of proposed management plans.

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### Tromsø, Norway 23 May 1998

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## **REPORT LANGUAGE FROM ATCM XXI, CHRISTCHURCH PROTECTED AREAS WORKSHOP**

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### *Area Protection and Management under Annex V*

- (57) At ATCM XVII a report (XVII ATCM/WP4) was tabled by SCAR and IUCN, containing the recommendations of a 1992 SCAR/IUCN workshop which had examined the Antarctic protected area system. Based on a number of these recommendations, the United Kingdom presented Working Paper (XXI ATCM/WP10) to the Meeting. The paper contained proposals for improving the protected area system, including a proposal for a further workshop on this topic.
- (58) The Meeting noted that a protected areas workshop was consistent with Article 3 of Annex V of the Environmental Protocol which calls upon Parties to identify and protect areas of outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of these values, or ongoing or planned scientific research within a systematic environmental-geographical framework.
- (59) The Meeting agreed that the protected areas currently designated in Antarctica should be examined to see if they include representative examples of all the categories of areas identified in Article 3 (2) of Annex V. The Meeting further agreed that a workshop should be convened for this purpose.
- (60) The Meeting decided that the Terms of Reference of the workshop would be to:
- i) compare the protected areas currently designated against the categories of areas set out in Article 3 (2) of Annex V in order to identify gaps in the existing system;
  - ii) examine the SCAR ecosystem classification matrix for protected areas to identify the changes that are needed so that the matrix better incorporates the categories of areas set out in Article 3 (2) of Annex V;
  - iii) identify, where possible, areas which might be designated to fill any gaps found in the existing system; and
  - iv) examine, and where possible identify ways to improve, the procedures for developing and reviewing proposals for ASPAs
- (61) The Meeting agreed that participants in the workshop should have appropriate scientific, technical or environmental expertise and include representatives from Treaty Parties, and from interested Observers and Experts, including SCAR, CCAMLR, and IUCN.

- (62) The Meeting agreed that the workshop should be organised by a small Steering Committee chaired by the United Kingdom working during the intersessional period via e-mail. The Meeting further agreed that representatives from Australia, Chile, Norway, SCAR and IUCN be invited to serve on the Steering Committee.
- (63) Norway offered to host the workshop on the Saturday immediately preceding the start of the meeting of the TEWG/CEP at ATCM XXII in Tromsø in 1998. This offer was gratefully accepted by the Meeting.

