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Systematic Environmental-Geographic Framework for Protected Areas Under Annex V of the Environmental Protocol

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1. Introduction

Article 3(2) of Annex V (Protected Areas) to the Environmental Protocol states that "Parties shall seek to identify, within a systematic environmental-geographic framework, and to include in the series of Antarctic Specially Protected Areas…" nine types or categories of area listed in (a) through (i) of that article. There is no elaboration of what is meant by a systematic environmental-geographic framework. SCAR and IUCN discussed such a framework in the 1992 workshop on protected areas in Antarctica (Lewis-Smith and others 1992) but there has been no resolution of the subject. Working paper ?? at CEP III discussed some of the issues identified during the open ended intersessional contact group on protected areas (CEP II to CEP III) regarding the meaning of the phrase systematic environmental-geographic framework and how it might be applied.

2. The terms and content of a "systematic environmental-geographical framework"

Table 1 provides an elaboration of the words associated with the concept "systematic environmental-geographic framework" to suggest what the concept might mean.

Table 1. Suggested explanation of terms associated with the concept of a *systematic environmental-geographic framework* as used in Article 3(2).

Framework	a basic structure or frame of reference; a structure upon or into which contents can be put.
Systematic framework	a framework that is constituted of, based on, or according to a **system**.
Environmental-geographic framework	a method of classifying or organising subsets of environmental and geographic characteristics such as different types of ecosystem (e.g. SCAR matrix), habitat, geographic area, terrain, geology, climate, individual features and human presence into geographic regions. Each region would be distinctive or in some way different from other regions but some might have characteristics in common.
Systematic environmental-geographic framework	Different environmental-geographic regions of the framework fitted together into a logical, integrated and complete system of regions (representing

Antarctica as a whole) to provide a fundamental scientific basis for a protected area strategy consistent with Article 3(2).

3. Potential development of a systematic environmental-geographical framework

Any development of a systematic environmental-geographical framework for Antarctica should building on existing schemes that represent the two main contexts:

(a) The simplified version of the ecosystem matrix classification system of SCAR 1977 (Lewis Smith and others 1992) could provide the basic environmental context;

(b) Adding elements of the Udvardy (1975) classification and Keage's approach (Keage 1987) (Figure 1) would add the geographic component that authors of the SCAR matrix approach and others have long recognised is missing.

The framework should be based on the best available science and knowledge synthesised at general levels. It would need to be appropriate to the scale of human use in Antarctica and be applicable to the needs of all Treaty Parties and instruments. Therefore it would have to be developed and presented at a very general scale and not rely on a fine resolution or detail or require routine access to large amounts of data or information. This would make it different from some protected area frameworks developed for tropical and temperate regions where human activity is relatively ubiqitous and intense.

While the development of a framework may not be particularly technical it does need to integrate a wide range of scientific disciplines. These would need to cover in a general way the main processes that effect biota in Antarctica and other values mentioned in Article 3(1) of Annex V, that is:

(1). surface geology
(2). surface climate (such as mean air temperatures in January and July)
(3). surface snow and ice cover and presence of permanent bare (ice free) ground
(4). presence of seasonal surface water or bare (ice free) ground
(5). individual geographic features of note
(6). coastal conditions including ice presence and oceanographic character
(7). other habitat characteristics at a submeso scale
(8). ecosystem types
(9). significant species assemblages
(10). human presence and significant activites

The framework could be presented as a series of map-based themes and then integrated into a series of geographic regions or environmental domains (e.g. Figure 1). Use of a Geographic Information System to present layers of information might be one way the system could develop building on existing Antarctic GISs. But the system would also need to be able to stand alone in paper form to be useful to Antarctic Treaty Parties and instruments.

4. Use of such a framework

There are at least four ways in which such a systematic environmental-geographical framework would be used consistent with implementation of the Environmental Protocol:

1. Provide substance to the term as used in Article 3(2) of Annex V (Protected Areas) to the Environmental Protocol;
2. Enable representativeness of proposed and existing protected areas to be assessed efficiently, transparently and repeatably. *Representativeness is widely considered to be a very important part of protected area systems. In order to assess representativeness objectively, it is necessary first to compile a unified classification system or framework of environmental-geographic characteristics within which protected area values or criteria for protection can be compared;*
3. Enable more systematic risk assessments of proposed protected areas by taking account of geographic differences. *In many parts of the world individual protected areas are seen as part of protected area systems (IUCN 1998). This takes account of uneven distributions of values needing protection, differences in biological, geological and climatic characteristics and human expectations and risks posed by human activities;*
4. Allow Parties and the CEP to assess overall needs for protected areas on a more systematic basis and give priority to goals or targets for such areas that may be agreed *(e.g. inviolate or reference areas).*

5. Recommendations

(a) The CEP should take an interest in furthering the development of a systematic environmental-geographical framework as it continues to develop guidelines for implementating the Protocol

(b) SCAR could be asked to help pull together the information needed to develop the framework. *SCAR has access to the wide range of scientific information necessary. SCAR-GOSEAC could provide a useful forum for discussion*

(c) A session at an international SCAR conference or a CEP workshop could be devoted to development of the framework, with invited presentations on key aspects of topic areas listed in section 3 above including how the framework should be presented

(d) Members of the CEP intersessional contact group on protected areas, COMNAP and/or National Antarctic Programmes could provide peer review.

References

Keage, P 1987. Environmental zones and planning units - a basis for an Antarctic terrestrial protected area network. In "Conserving the natural heritage of the Antarctic realm" (PR Dingwall, Editor). IUCN, Gland, pages 135-140.

Lewis Smith, RI, Walton DWH and Dingwall PR (Editors) 1992. Developing the Antarctic Protected Area System. Proceedings of the SCAR/IUCN Workshop 29 June-2 July 1992. IUCN, Gland, Switzerland and Cambridge UK, 137 pages.

SCAR 1977. SCAR Bulletin, No. 55, pages 169-172.

Udvardy, MDF 1975. A classification of the biogeographical provinces of the world. IUCN, Gland, Switzerland Occasional Paper 18.

Figure 1. An informal concept for environmental-geographic zones based on ice catchments and environmental characteristics that could give a geographic basis to SCAR's 1977 ecosystem classification system (after Keage 1987)