

Guidelines for implementation of the Framework for Protected Areas set forth in Article 3, Annex V of the Environmental Protocol

Part I: Introduction

1.1 The Antarctic Treaty System and Protected Areas

A variety of instruments have been developed within the Antarctic Treaty system to help protect special places such as important wildlife breeding areas, fragile plant communities, cold desert ecosystems and historic places. These instruments have included the Agreed Measures for the Conservation of Antarctic Fauna and Flora and numerous recommendations to Parties.

More recently Annex V of the Environmental Protocol was agreed. It defines the basic structure or framework for Antarctic Specially Protected Areas (ASPAs) with a list of values that may merit special protection (Article 3(1) and types or examples of area to be protected (Article 3(2)) (refer Appendix I). Article 3(2) of Annex V states that Parties shall seek to identify such areas within a systematic environmental-geographical framework. Such areas will then be included in the existing series of Antarctic Specially Protected Areas.

Antarctic Specially Protected Areas is the only category of protected area provided for under Annex V of the Environmental Protocol (refer Article 2). Another category of area, Antarctic Specially Managed Areas (ASMAs) are defined in Article 4 and are areas with special management requirements. ASMAs are not considered in these guidelines.

Protected areas provide a higher level of protection for specific values beyond that achieved by other forms of planning and management measures under the Protocol. These areas are designated within geographically defined limits and are managed to achieve specific protection aims and objectives.

1.2 Aim of the Guidelines

The aim of the guidelines is to assist the Parties, SCAR, CCAMLR, COMNAP and the CEP to apply Article 3 of Annex V of the Environmental Protocol for the designation of Antarctic Specially Protected Areas. The guidelines provide a set of tools to enable more systematic assessment, selection, definition and proposal of areas that might require greater protection in accordance with the provisions of Annex V of the Environmental Protocol. It is hoped that they will facilitate methodical assessment and designation of such areas.

1.3 Structure of the Guidelines

The guidelines are organised into three main parts representing a process for assessing, selecting, defining and proposing new protected areas.

Part I is an introductory section, which offers a brief explanation of the existing mechanisms to protect Antarctic areas within the Antarctic Treaty system. This section also establishes the aims of the guidelines and details the way they are structured.

Part II provides guidance for **assessing** the potential of an area or site for protection and includes checklists on the framework for protected areas provided in Article 3(1) and 3(2). The checklist provides guidance on the values to be protected and on how to determine what should be protected and why, i.e. the reasons for protection. The concept of quality, including quality criteria, is defined to provide a further means of assessing whether an area merits being specially protected. Finally, the concept of environmental risk is presented as a very important aid in assessing the area's need for enhanced protection.

Part III provides guidance for **defining** areas for protection under Article 3 of Annex V of the Protocol, including ways to apply the concept of feasibility.

Part IV briefly notes the steps for **proposing** areas for protection including drafting of management plans and refers readers to the “*Guide to Preparing Management Plans for Antarctic Specially Protected Areas*”.

NOTE:

As these guidelines have no legal status, those wishing to establish new protected areas should also carefully examine the provisions of Annex V of the Environmental Protocol to the Antarctic Treaty and should seek advice from their national authority at an early stage.

Part II: Assessing the protection potential of an area

2.1 Assessing Values to be Protected (Article 3(1))

When seeking to assess whether an area merits protection, a clear understanding is needed of the values to be protected. Values are generally taken to mean something of worth, merit or importance. Table 1 offers a checklist of the values listed in Article 3(1) that could be used to help identify those values represented in possible specially protected areas.

Table 1. Checklist of the values listed in Article 3(1)

Environmental values	does the area contain physical, chemical or biological features e.g., glaciers, fresh water lakes, melt pools, rock outcrops, plant life or animal life that are particularly unique or representative components of the Antarctic environment?
Scientific values	does the area contain physical, chemical or biological features of special interest to scientific researchers where the principles and methods of science would be applicable?
Historic values	does the area contain features or objects that represent, connate or recall events, experiences, achievements, places or records that are important, significant or unusual in the course of human events and activity [1] in Antarctica?
Aesthetic values	does the area contain features or attributes e.g., beauty, pleasantness, inspirational qualities, scenic attraction and appeal [3] that contribute to people’s appreciation and sense or perception of an area?
Wilderness values	does the area contain characteristics e.g., remoteness, few or no people, an absence of human-made objects, traces, sounds and smells, untravelled or infrequently visited terrain that are particularly unique or representative components of the Antarctic environment? [3]
Combination	does the area contain any combination of the above values?
Ongoing or planned scientific activities	does the area include ongoing or planned scientific projects or activities?

If it is considered that any examples of the values listed in Article 3(1) are contained or represented in a particular area then further investigation of the area for protected area status may be worthwhile.

2.2 Assessment of Potential Protection and Use Category (Article 3(2a-i))

Article 3(2a-i) provides a list of examples of areas that can be designated as ASPAs. It should be noted that the specific examples of areas identified are not exclusive and that other examples of protected area could potentially be included provided they aim to protect the values set out in

Article 3(1). In addition, it should be noted that Article 3(2) does not provide a uniform series of values, features, objectives, categories or uses of potential ASPAs.

A conceptual methodology has been developed to help understand more systematically what should be protected and why (i.e. examples or categories of areas and reasons for their proposed designation). Table 2 provides a checklist of the potential types or categories of areas to be protected and their management or use objectives. The aim is to provide a tool that can be used for the clearer identification of the important components or attributes of possible protected areas once the values to be protected have been agreed (refer section 2.1).

The checklist may also help to ensure that possible protected areas are considered in a more standardised way and to aid further work in the designation process (e.g. assessment and subsequent development of management plans).

Table 2. Checklist for identifying and clarifying the type of area to be protected (protection category) as well as the use or reasons (use category).

Protection Categories (i.e. what is being protected)

Ecosystems	would the area be protected for its ecosystems? I.e. dynamic complexes of plant, animal and micro-organism communities and their non-living environment interacting as an ecological unit [4].
Habitats	would the area be protected for its habitats? I.e. the places or types of site where an organism or population naturally occurs [4].
Species assemblages	would the area be protected for its species assemblages? I.e. important or unusual groupings or populations of one or more species of fauna or flora (usual type of area protection of species in Antarctica).
Species (taxa)	would the area be protected for its species? I.e. special groups of organisms which resemble each other and sometimes are linked to a common habitat to a greater degree than members of other groups, and which commonly form reproductively isolated groups that will not normally breed with members of another group [5].
Geological, glaciological or geomorphological Features	would the area be protected for its geological, glaciological or geomorphological features? I.e. distinctive or special characteristics of the history, structure or components of the Earth's crust, rocks, fossils and cryosphere or a result of present or past processes beneath or at the Earth's surface in Antarctica
Landscapes	would the area be protected for its landscape? I.e. expanses of coastal or inland scenery, usually at a scale where they contain a mosaic of inter-related ecosystems, and characterised by particular patterns of geometry, heterogeneity, patch dynamics and biophysical processes [6].
Aesthetic	would the area be protected for its aesthetic features? I.e. attributes concerned with beauty, appreciation, perception and inspiration [3].
Wilderness	would the area be protected for its wilderness features? I.e. attributes concerned with remoteness and a relative absence of both people and indications of past and present human presence or activity [3].
Historic	would the area be protected for its historic features? I.e. things which represent or recall events, experiences, places, achievements or records

that are important, significant or unusual in the course of human events and activity in Antarctica.

Intrinsic would the area be protected for its intrinsic features? (The real or inherent nature of a thing is worth protecting in its own right i.e. without requiring use).

Use Categories (why the area is being protected)

Scientific research would the area be protected for scientific research?

Conservation would the area be protected for its conservation purposes? (Conservation embraces both protection and judicious use, management of biodiversity, intrinsic value and importance in maintaining the life sustaining systems of the biosphere: distinguished from “sustainable use” and “sustainable management” [4])

2.3 Quality Criteria

Quality criteria can be applied as a checklist to evaluate further whether an area deserves special protection or not. The quality of a potential protected area can be thought of as an overall degree of excellence in terms of the values it contains. Table 3 provides a checklist of questions that can be used to assess the quality of a proposed protected area.

Table 3. Checklist for assessing quality aspects of proposed protected areas

Representativeness

- Is the potential area **representative** of other comparable parts of Antarctica?
- Does it contain ecosystems, species, habitats, physical, historic, aesthetic and wilderness or other values or features represented elsewhere?
- What contribution would the area make to an Antarctic Protected Area system with a full range of outstanding natural environmental, biological, geographic and geological values of the Antarctic region?
- In relation to Antarctica as a whole, what proportion of the values or types of protected area identified in Articles 3(1) and 3(2) are represented in the site being investigated?

E.g. an area containing representative examples of marine & terrestrial ecosystems & assemblages of species of seabird may be higher quality than one containing a single colony of a common species.

Diversity

- What **diversity** of species, habitats or other values or features does the area contain?

For example an area might be of higher quality if it contained a greater diversity of biological and/or geological features than a nearby area.

Distinctiveness

- Is the potential area **distinctive** from other areas? How different is it from other areas?
- Does it contain species, habitats or other values or features not duplicated elsewhere? Are they **unique, rare, uncommon** or common?
- Are there naturally uncommon taxa present, including “*sparse*” taxa which occur within typically small and widely scattered natural populations, “*range restricted*” taxa whose distribution is naturally confined to specific substrates (e.g a specific rock type), habitats

(e.g. geothermally-heated soils) or geographic areas (e.g. nunataks), “*vagrant*” taxa which may appear for short periods without establishing long-term breeding populations, and “*seasonal*” taxa which migrate into the polar regions during summer?

- Are there naturally uncommon abiotic features present that have been formed or preserved through an unusual or infrequent set of geological, geomorphological or glaciological processes?
- *For example an area containing the only example of a terrestrial ecosystem or a unique fossil locality might be of higher quality than one that contained a common terrestrial ecosystem or type of fossil.*

Ecological importance

- How **important**/critical is the area ecologically or numerically for key species, ecosystems or as a type locality?
- Do the number of individuals or groups occurring at the area include a high proportion of the global population? *For example, if 90% of the global population were present, this would represent a key population and a very important ecological site.*
- What contribution does the area make to maintenance of essential ecological processes or life-support systems or habitats?
- Does the area have any inherent vulnerability due to local endemism, rarity of species, biological vulnerability or for other reasons?

Degree of interference

- To what extent has the area been subject to human **interference**?
- Does the area lack signs of human activities (e.g. tracks, litters)?
- Is there minimal loss or addition of species, natural processes and abiotic material?
- What is the degree of visitation and alteration of the adjacent landscape?

E.g. an area that has not experienced local human-induced change and is protected from it because of isolation may have higher quality wilderness values and might be more valuable as an undisturbed reference area than a less natural area.

Scientific and monitoring uses

- What is the potential for the pursuit of science including gaining of knowledge by study and analysis?
- What is the potential of the area to be used as a reference area (e.g. for environmental monitoring)?

The reasons for area protection summarised in Tables 1 and 2 could be analysed together with the quality criteria in Table 3 using the matrix set out in Table 4 as a guide. This approach may provide a convenient and efficient method of evaluation and identification of a potential area. It could also help in the comparison of potential areas and for determining priorities for protection.

Table 4. Matrix of area values and categories from Tables 1 and 2 against quality criteria from Table 3.

Value / category	Quality Criteria					
	Representativeness	Diversity	Distinctiveness	Ecological Importance	Degree of Interference	Science & monitoring
Ecosystems						
Habitats						
Assemblages						
Species						
Features						
Landscapes						
Aesthetics						
Wilderness						
Historic						
Science						
Conservation						
Intrinsic						

2.4 Environmental Risk Assessment

Environmental risk assessment can be used to further assess possible protected areas i.e. to help decide whether a particular area merits protection of its special characteristics (not as a means to modify or prohibit ongoing activities in or near the area). Risk assessment should assist in identifying what the actual and potential threats and risks are to an area containing outstanding values.

This step in the protected area process recognises that every area identified as having important values may not need to be formally designated as an ASPA. Most areas will not need additional protection because they are naturally robust or because the Antarctic Treaty system already provides sufficient protection. It should be noted that the degree of environmental risk to a potential area (e.g. as identified through application of the checklist in Table 5) is not a prerequisite for formal protection of an area under the Environmental Protocol. However, areas identified as subject to risks that threaten the identified values to an unacceptable or unmanageable level may need to be considered as a priority or more worthy of more formal protection.

Table 5 provides risk criteria in the form of a checklist for assessing environmental risk to a possible protected area.

Table 5. Checklist for assessing environmental risk to a possible protected area

Human activities and impacts

- Are human activities regularly, infrequently or almost never carried out in the area?
- Are biological or abiotic components or processes of the area vulnerable to any existing or likely future human activities in the area itself or nearby?
- Could these activities directly, indirectly or in a cumulative way result in impacts on the values for which this area has been identified or modify them in any way?
- How likely, frequent and intensive might the impacts be and over what temporal and spatial scales?
- When disturbance occurs, what is the time taken to return to pre-disturbance or equilibrium levels?

Natural processes

- Are natural processes (e.g. atmospheric, climatic, marine, biological or glacial processes) likely to modify the area or its values?

Natural variability and viability

- What are the short and long term variations (e.g. seasonal changes) in populations of biota present in the area?
- Is the likely variation due to natural processes likely to be smaller, similar to or larger than impacts of human activities in the area?
- Are there any medium- or long-term indications that natural trends could result in significantly different characteristics of the area which could effect its future viability, require a reassessment of protected status or necessitate changes in management?
- To what extent does natural buffering protect the area from outside influences?

Non-Antarctic threats

- Would protection of the area be compromised by processes originating or driven from outside the Antarctic such as global change, ozone depletion or long-range transport of contaminants such as long-lived chemical pollutants and introduction of non-native species?

Urgency

- Do human activities pose imminent environmental risks?

Scientific uncertainty

- How well known are the natural values and other characteristics of the area and potential impacts of human activities on them?
 - Could these uncertainties mask significant threats to the area and its values?
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Potential areas that “score” highly in regard to the checklists in Tables 3 and 4 (e.g. meet many of the criteria listed) and that have been assessed as being at some risk environmentally (Table 5) may be considered for further investigation as a possible ASPA. Consideration should then be given to advancing the proposal further, in particular into the selection and proposal phases.

Part III: Defining areas for protection

3.1 Tools for Assisting in Selecting Protected Areas

Once potential areas have been assessed, further design and assessment is needed to ensure that they are suitable for eventual selection and proposal as ASPAs. Area design and feasibility criteria are two tools that can be used to assist in further defining of areas for protection.

3.2 Area Design

There is a wide body of literature on aspects of protected area design and selection relevant here which is beyond the scope of these guidelines. Important aspects of design include boundaries, size and shape, access, management tools, duration and relation to other protected areas (see Table 6). Proposers may wish to consult Lewis-Smith and others (1992), Thorsell (1997), IUCN (1998), FAO (1988) and Dingwall (1992).

3.3 Feasibility Criteria

The feasibility of a possible protected area is defined here as *how possible is it to implement proposed management objectives for a particular area under consideration*. The criteria defined in Table 6 could be used to assess feasibility. While the meaning of each of these criteria is generally clear, the implications or their application may not be. Therefore Table 6 is structured as a checklist with additional questions to highlight some of the issues involved and to offer further guidance.

Table 6. Checklist of feasibility criteria for assessment of possible protected areas

Boundaries

- Are the proposed boundaries consistent with management objectives? (E.g. do they protect foraging areas of birds in an important breeding area and/or do they enclose other ecosystem components required for continuity of species identified?).
- Can boundaries be easily defined for management purposes and identified by visitors? (E.g. can fixed natural boundaries such as mountain peaks, ridgelines, shorelines, or water depth be used?).
- Can management objectives be met regardless of the future use of areas adjacent to the protected area boundary, including conflicts between different values or management objectives, and acceptability to others?

What are the existing scientific or other uses of the area?

- Are there conflicting values (e.g. between environmental and scientific values in Article 3(1)) or between protection and use categories, or management objectives?

Size

- Is the area large enough to maximise the chance of management objectives being achieved?
- Is it large enough to contain all or most of the key elements identified, in their natural relationships, so that it will be self-perpetuating?
- What is the minimum size needed to achieve management objectives?
- Is the area small enough to minimise conflicts between different values or management objectives?
- Is the area large enough to accommodate future changes (e.g. due to climate change?)

Possible management tools

- Are there management tools available that could be used to help achieve management objectives and minimise conflicts? (E.g. would zoning be useful to facilitate recognition, protection and management including partitioning between objectives such as protection of vulnerable species in core breeding areas, provision of reference areas and capacity for human activity in suitable fringe areas?).
- Can management programmes be formulated to attain management objectives? (E.g. signage or boundary markers, survey and research, monitoring, any specific information needed for reporting).

Time period/duration

- Can the area be protected for a time period that allows full achievement of management objectives?
- Are there some seasonal periods when parts of the area or species in it are not vulnerable to human activity?

Accessibility/logistics

- Is the area sufficiently accessible for management operations?
- Might the logistics needed negatively impact on management objectives and are there alternative management options?
- Would inaccessibility help achieve management objectives by deterring potentially impacting activity?

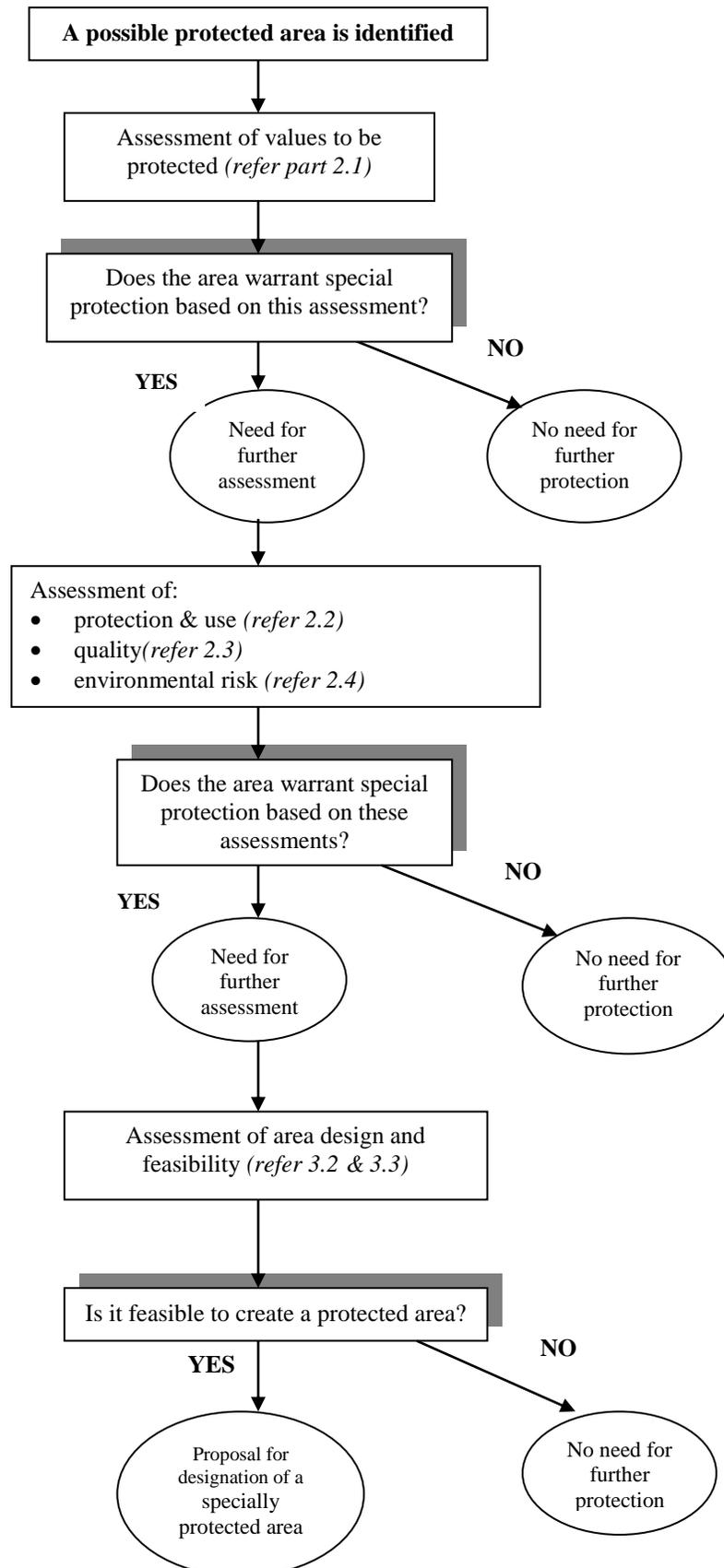
Ability to protect more than one value and meet different management objectives (i.e. complementarity)

- Is there more than one value or objective in Article 3 (1) & 3(2) that can be protected in the area?
 - Would the site add value to the Antarctic protected area system, in quality as well as quantity?
 - Is there an appropriate balance between the costs and benefits of protecting the area, and appropriate equity in the distribution of it and adjacent protected and unprotected areas?
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Therefore, if an area has been through an assessment process (Part II), and has satisfied feasibility criteria (Part III), it may be considered as a worthy candidate for further evaluation as a potential ASPA. The outcome of checking and analysis against criteria in Table 6 could also be used to help prepare the draft management plan for the area.

Figure 1 below provides a flowchart illustrating the assessment process from identifying the values and potential protection categories of a proposed area, to considering quality aspects, to identifying any environmental risks, to assessment of feasibility and finally to a decision on whether to develop a proposal for designation of the site as an ASPA.

Figure 1. The assessment process for potential protected areas as outlined in Part II and Part III of these guidelines.



Part IV: Proposing areas for protection

4.1 Drafting Management Plans for Proposed ASPAs

Once a candidate area has been assessed, it is ready for the next stages in the process. A draft management plan is prepared as required by Article 5 of Annex V. The document “*Guide to the Preparation of Management Plans for Protected Areas*” was recommended by CEP 1 and adopted at ATCM XXII in 1998 to give some practical elaboration of Article 5. This document should be referred to when drafting management plans for ASPAs.

4.2 Further Steps in the Designation Process

The final stages in the designation process involve formal consideration (review) by the Antarctic Treaty Consultative Parties of a draft management plan following the outline in Article 6 of Annex V.

Part V: Documentation

5.1 Articles 3(1) and 3(2) of the Environment Protocol

Article 3(1)

Any area, including any marine area, may be designated as an Antarctic Specially Protected Area to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research.

Article 3(2)

Parties shall seek to identify, within a systematic environmental-geographical framework, and to include in the series of Antarctic Specially Protected Areas:

- (a) areas kept inviolate from human interference so that future comparisons may be possible with localities that have been affected by human activities;
- (b) representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems;
- (c) areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals;
- (d) the type locality or only known habitat of any species;
- (e) areas of interest to ongoing or planned scientific research;
- (f) examples of outstanding geological, glaciological, or geomorphological features;
- (g) areas of outstanding aesthetic and wilderness value;
- (h) sites or monuments of recognised historic value; and
- (i) such other areas as may be appropriate to protect the values set out in paragraph 1 above [Article 3(1)].

5.2 References

(see bibliography for full citation where needed)

1. adapted from Geddes and Grosset 1996
2. Antarctic Heritage Trust
3. adapted from Porteous 1996 with reference to philosopher Kant.
4. Convention on Biological Diversity
5. Allaby 1977

Bibliography

- Allaby, M 1977.** A dictionary of the environment. MacMillan Press, London.
- Anon 1998.** Guide to the Preparation of Management Plans for Protected Areas. Report of Antarctic Treaty Consultative Meeting XXII, Norway
- Austin, MP and Margules CR 1986.** Assessing representativeness. In “Wildlife conservation evaluation”, (MB Usher, Editor) Chapman and Hall, London, pp 45-67.
- Calow, P 1998.** Handbook of environmental risk assessment & management. Blackwell Science, Oxford.
- De Lange PJ and Norton DA 1998.** Revisiting rarity: a botanical perspective on the meanings of rarity and the classification of New Zealand’s uncommon plants. In “Ecosystems, entomology and plants”, Royal Society of New Zealand Misc. Series 48, pp 145-160.
- De Poorter, M and Dalziell, JC (Editors) 1996.** Cumulative impacts in Antarctica. Proceedings of the Washington Workshop 18-21 September 1996. IUCN. 145 pages.
- Dingwall, PR 1992.** Design and delimitation of protected areas. In “Developing the Antarctic Protected Area System” (Lewis Smith and others, Editors). Proceedings of the SCAR/IUCN Workshop 29 June-2 July 1992. IUCN, Gland Switzerland and Cambridge UK, pp 49-52.
- FAO 1988.** National parks planning: a manual with annotated examples. Food and Agriculture Organisation of the United Nations, Rome. Conservation Guide 17, 105 pages.
- Forey, PL, Humphries, CJ and Vane-Wright RI (Editors) 1994.** Systematics and conservation evaluation. Clarendon Press, Oxford.
- Geddes and Grosset 1996** English dictionary. Geddes and Grosset Ltd.
- German Republic 1999.** Factors influencing risk analysis in relation to human activities in Antarctica based on German experience with logistics during German Antarctic research. Information Paper 38, XXIII ATCM, Lima, Peru, 13 pages.
- Harwell, MA, Cooper W and Flaak R 1992.** Prioritising ecological and human welfare risks from environmental stresses. Environmental Management 16, pp 451-464.
- IUCN 1994.** Guidelines for protected area management categories. Commission on National Parks and Protected Areas, with the World Conservation Monitoring Centre. IUCN, Gland, Switzerland and Cambridge UK, 261 pages.
- IUCN 1998.** National system planning for protected areas (AG Davey, main author). World Commission on Protected Areas, Best Practice Protected Area Guidelines Series No. 1, 71 pages.
- 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.
- Mackinnon, J and K, Child, K and Thorsell J 1986.** Managing protected areas in the tropics. IUCN, Gland, Switzerland.
- Njaastad , B. 1998.** Antarctic Protected Areas Workshop, Norwegian Polar Institute Report 110, 86 pages.
- Norton, DA 1999.** Forest reserves. In “Maintaining biodiversity in forest ecosystems” (M Hunter, Editor) Cambridge University Press , pp 525-555.

- O’Conner, KF, Overmars FB and Ralston MM 1990.** Land evaluation for nature conservation- a scientific review. Conservation Science Publication 3, Department of Conservation, Wellington.
- Porteous, JD 1996.** Environmental aesthetics. Routledge, London and New York, 290 pages.
- Pressey, RL and Logan, VS 1994.** Level of geographical subdivision and its effects on assessments of reserve coverage: a review of regional studies. Conservation Biology 8(4), pp 1037-1046
- SCAR and COMNAP 1996.** Monitoring of environmental impacts from science and operations in Antarctica. Report of the Oslo and Texas workshops in 1995 and 1996. Scientific Committee on Antarctic Research and Council of Managers of National Antarctic Programs. 43 pages plus annexes.
- Thorsell, J 1997.** Nature’s hall of fame: IUCN and the World Heritage Convention. Parks 7 (2), pp 3-7
- Udvardy, MDF 1975.** A classification of the biogeographical provinces of the world. IUCN, Gland, Switzerland Occasional Paper 18.
- Valencia, J. (Editor) 1999** Final report of the second workshop on Antarctic Protected Areas. Instituto Antartico Chileno, Santiago, 37 pages