CCEA eco

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. . . from the CCEA Chair

Ed Wiken

Partnerships

The whole is greater than the sum of its parts is a common but meaningful adage in ecology. Yet we still tend to view and understand things (i.e. ecosystems, activities) through their component parts, sometimes losing track of the larger whole. For the CCEA, what is the broader picture on recent achievements and activities? Much of it is based on the *partnerships* that CCEA has with a diversity of agencies and organizations.

One of our partnerships, in this case with the Commission for Environmental Cooperation, resulted in the release of the *Ecological Regions of North America* report. That report serves to educate North Americans as to the diversity and character of the continent's ecosystems. Also, it is increasingly becoming a continental basis for resolving and understanding issues such as ecosystem conservation and biodiversity. The short article that follows on page 2 will help to place various classification systems into perspective.

Through the cooperation of many organizations, the CCEA held a national conference last fall to discuss our various perceptions on what could be taken as an ecological bottom line in conservation practices and programs. The sessions were aimed mainly at exchanging views held by resource managers and conservationists; a special emphasis was given to considerations within forested and marine ecosystems of Canada.

In this newsletter you will read an important article by Adrian Phillips, Chair of the World Commission on Protected Areas. Dr. Phillips talks about the development of the IUCN classification system for protected areas and how it is being used and interpreted. We are particularly pleased to be printing his article for CCEA readers because it reflects the need to improve our partnership efforts to identify the management purposes for various types of protected areas. CCEA has a special interest in the use of a standardized system for classifying protected areas since we manage the Canadian Conservation Areas Database (CCAD), a national compendium of information on protected areas. With the assistance of all the jurisdictions and several federal departments (i.e., Parks, Forestry & Environment), the Council continued its role in consolidating information on Canada's network and holdings of protected areas through the CCAD. This information tool is designed to help other ENGOs and institutions understand the status of Canada's conservation areas, and to promote the development of a platform of information to aid individuals and organizations to assess progress and priorities. Each protected area in CCAD is coded as to its IUCN status.

To complement Dr. Phillips's article, we also provide in this newsletter an update by Rob Beric on the structure and status of CCAD. Using the CCAD model, CCEA, in cooperation with agencies in Mexico and the United States, is developing the structure and data for a North American Conservation Areas Database (NCAD). In addition, CCEA is very pleased to be working with The Nature Conservancy of Canada (NCC) in helping to convert their information on NCC holdings across Canada into a format that can be integrated with CCAD.

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In This Issue:

Classifying Canada's Landscapes and Seascapes

Ed Wiken

By virtue of Canada's size alone, the nation encloses a great diversity of landscapes and seascapes. How have the differences been commonly classified and described? In general, the approaches fall within two categories — a thematic view (emphasizing the use of singular features) and an integrated view (emphasizing multiple features). Each addresses and fulfills different roles; each results in a "natural region" classification but they differ significantly. User needs and expectations have to be carefully assessed in selecting a proper system (see Table 1 for a comparison of various classification systems).

Thematic Classifications — examples

The **Physiographic Regions** of Canada focus on describing the major landforms across Canada's landscapes. What is the character and distribution of plains, plateaus, hills, mountains, etc.? The **Forest Regions** of Canada are another example of using a singular theme but the work is mainly aimed at a limited part of the Canadian landscape — the forested areas. The units describe and map the major forest tree associations not forest ecosystems. The **Natural Regions** used by Parks is essentially a composite of the previous two — it was an early and innovative meld of physiographic and forest units.

Ecoclimatic Regions (sometimes called ecoregions in the USA) are more recent but still thematic. This classification depicted major climatic regimes from the standpoint of ecological responses. Using mesic benchmark sites, soils and vegetation indicators were employed as a basis to map climate units. **Soil Landscapes** represents another physical description like physiography but this classification characterizes the major types of soil associations.

The **Natural Regions** used by WWF is perhaps the only system that does not use any consistent criteria or classification system across the nation. It is a diverse mixture of national region classification systems, varying from one province and territory to another.

Integrated Classifications — examples

These tend to be more recent and reflect a need to have comprehensive data and ecosystem perspectives. The parental system is the **Biophysical**. It marks a switching point where classification of the landscape was becoming more holistic. The land region (climate unit) and land district (physiographic unit) levels of classification in this system were still thematic but the land system was the truly biophysical unit.

The **Ecosystem Classification** is the first system to more fully employ biological and physical criteria for all levels of classification — ecorealms (5), ecozones (20), ecoprovinces (59), ecoregions (217), ecodistricts (1500), ecosections (15,000+), etc. Initially, it was restricted to Canada's landscapes but was later extended to include the Canadian seascapes as well.

The **CEC system** is the same thing as the **Ecosystem Classification**. Instead of using names like ecozones, the levels of classification were simply referred to as Level I or II. The scope of the work is limited to North America's landscapes and does not include oceans. The Commission on Environmental Cooperation (CEC) has just recently released their North American report/maps. [See CCEA's Occasional Paper No. 14 — *A Perspective on Canada's Ecosystems* or CEC's *Ecological Regions of North America* report].

Partnerships

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Continuing on the theme of protected area databases, CCEA, in cooperation with The Nature Conservancy of Canada, held two special national workshops in Toronto in November on conservation databases and mechanisms for protecting conservation areas (see announcement on page 20 of this newsletter).

The CCEA also initiated a national study on wetland ecosystem conservation protection to profile the achievements as well as the outstanding gaps with these special ecosystem types. CCEA continues to advise many organizations on criteria and indicators concerning protected area system plans and endangered ecosystems; often this type of information has been summarized in papers and presented at conferences/workshops. A tentative arrangement has been made with the George Wright Society to publish a series of papers on protected area reporting and indicators. The CCEA provided scientific and technical assistance to provincial/territorial governments and the governments of Mexico and Zimbabwe regarding a national ecosystem classification and ecosystem conservation/indicators.

The organization has been approved to advise of Ecologically Sensitive Lands donations. We have continued to enhance our WEB page — one that people typically say is a site with "real information." As always, we invite your comments, and look forward to continued progress with all of our partners.

Table 1. Comparisons of various classification systems.

System Names	Hierarchical	Consistent Criteria	Holistically Defined	All Canada Coverage	Terrestrial Focus	Marine Focus	Widely Supported	Multiple Purpose	Used Broad Expert Groups	Widely Used
Forest Regions	(No)	YES	NO	NO	(Yes)	NO	(Yes)	NO	(No)	(No)
Physiographic Regions	(No)	YES	NO	NO	YES	NO	NO	NO	NO	NO
Eco-climatic Regions	(No)	YES	NO	NO	YES	NO	NO	NO	(Yes)	NO
Natural Regions (WWF)	NO	NO	NO	NO	YES	NO	(No)	NO	NO	(No)
Ecosystems (CCELC/CCEA)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Soil Landscape (Agric.Can)	YES	YES	NO	NO	YES	NO	(Yes)	(No)	(Yes)	(No)
Natural Regions (Parks)	NO	(Yes)	NO	(Yes)	YES	(Yes)	NO	NO	(No)	(No)
Ecological Regions (CEC)	YES	YES	YES	(No)	YES	NO	(new)	YES	YES	(new)
Wetland Regions	(No)	(Yes)	(Yes)	NO	(Yes)	NO	NO	NO	(Yes)	(No)
Biophysical (CLI)	YES	NO	(No)	NO	(No)	NO	(No)	(Yes)	(Yes)	(No)

Notes:

a) **General ranking** goes from YES - (Yes) - (No) - NO. Wetland Regions and Forest Regions have partial but very limited hierarchies, for example. Therefore, they get a (No).

b) **System Names.** These are among the ten more commonly known and used at the national level.

c) **Hierarchical.** A hierarchical system should have classifications that meet local to international planning & assessments needs.

d) **Consistent Criteria.** Some systems employ criteria that drastically change. The old biophsyical had land regions defined by climate, land districts according to physiography and land system according to biophsyical characteristics. Some systems are consistent inusing one set of criteria.

e) **Holistically Defined.** Which systems describe map units using a broad set of biological and physical criteria? WHich systems cover natural and human modified systems?

f) **All Canada Coverage.** Canada includes terrestrial and marine areas. Do these systems classify these two broad areas?

g) **Terrestrial.** Some systems like wetlands cover all of the terrestrial areas but only focus on wetland segments; forest regions concentrate on forested areas. Other like eco-climatic regions cover the terrestrial areas but only look at the climate layer.

h) **Marine.** Similar ideas to terrestrial.

i) **Widely Supported.** Do natural resources agencies, ENGOs, governments and industry provide direct and indirect support in the sense of data, information and reports based on a particular system? Forestry Canada, Agriculture Canada, Statistics Canada, Environment Canada, Canadian Council on Ecological Areas, Commission on Environmental Co-operation, World Commission on Protected Areas, etc. provide wide support for updating and refining the Ecosystem (CCELC) classification.

j) **Multiple Purpose.** Is the scope of applications and client groups broadly based? Or the purposes narrowly defined for more singular uses?

k) **Used Broad Expert Groups.** Was the system defined, reviewed, and based on recommendations from a diverse range of experts and disciplines?

l) **Widely Used.** Is the system commonly used for analytical, reporting and monitoring purposes?

Management Categories for Protected Areas

Presented at the International IUCN Seminar on the Classification of Protected Areas: Helsinki, Finland, 11 September 1998

Adrian Phillips
(Chair WCPA, IUCN; and Cardiff University, UK)

The Thinking Behind the IUCN Management Categories for Protected Areas

When environmentalists from two or more countries come together, there is always scope for misunderstanding. Even when we all speak in one tongue, the words we use are often misunderstood.

Take the case of protected areas. National parks, for example, mean very different things in different places. A Finnish visitor to the Lake District National Park in the United Kingdom would be surprised to find fields, farms, villages and even small towns. Beautiful as the Lake District may be, it hardly has the natural qualities which visitors from many other countries associate with the term "National Park." A visitor to Australia, however, would be faced with a different problem: there are more than 50 different titles given in federal and state law within Australia to protected areas. There are familiar ones such as National Parks, uninformative ones, such as "other protected areas," and exotic ones, such as "mutton bird reserves."

So when the managers of the world's protected areas come together, it is obviously difficult for them to communicate if the words they use convey different images in different countries. It also becomes harder to compile statistics and to make comparisons between countries, for example, as to the area given protection. Misunderstandings may arise, even arguments ensue, especially over important policy issues affecting the purposes of protected areas and what uses are acceptable within them. And time spent on arguing about names may mean that more important questions about protected areas are overlooked.

"If names are not correct, language will not be in accordance with the truth of things." ***(Confucius).***

We can say, therefore, that a global system of classifying protected areas is necessary for five main reasons:

- to reduce the confusion which has arisen from the adoption of many different terms to describe different kinds of protected areas, and generally to improve communication and understanding between all those engaged in conservation,
- to provide international standards to help governments and others raise the quality of protected areas management,
- to help global and regional accounting and comparisons between countries, thereby providing a framework for the collection, handling and dissemination of data about protected areas,
- to help demonstrate to governments the full range of values represented by protected areas, particularly by showing the many different purposes for which they can be managed, and
- to encourage governments to develop national *systems* of protected areas, adopting a wide range of management aims tailored to national and local circumstances, rather than developing only one to two kinds of protected areas.

The 1978 Categorisation system

To address this challenge, IUCN's World Commission on Protected Areas (WCPA) has developed a number of categories of protected areas for international use. The original proposal for ten categories of protected areas was drawn up by WCPA's predecessor, CNPPA, in 1978 (see Box 1).

Valuable as this 1978 system of classifying protected areas has been, experience soon revealed its shortcomings. Many definitions were imprecise and overlap, while the prescriptions were unrealistically demanding (for example, the definition of a Category II area implies the absence of resident populations, yet 88% of all internationally recognised national parks in South America are inhabited). Also, Categories IX and X were not really categories, but international designations. For these and other reasons, a major review of the 1978 system was initiated by CNPPA. The review process was wide ranging and time consuming — it quickly became clear that it was not only about technical details but also about the very philosophy which underpins the world's 30,000 protected areas. The debate became focused through a two-day workshop at the Fourth World Congress on National Parks and Protected Areas held in Caracas, Venezuela, in February 1992 (McNeely, 1994). The workshop concluded that there was an urgent need for updated guidelines to replace those adopted in 1978.

The Revised 1994 Guidelines

The wheels of international consultation grind slowly and it was not until January 1994 that the IUCN General Assembly gave final approval to the revised guidelines. They were published six months later, as the *IUCN Guidelines for Protected Area Management Categories* (IUCN, 1994; Harrison and Phillips 1997).

The 1994 management guidelines adhered to many of the principles set forth in the 1978 system. But they represent an advance on 1978 system, principally by:

- reducing the number of categories from ten to six,
- introducing more flexibility into the system to reflect the complexities of the real world, and
- adding case studies to illustrate the application of the categories in the real world.

The starting point of the new guidelines is an agreed definition of a protected area, as follows:

> *An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.*

This definition embraces the "universe" of protected areas. Thus all categories must fall within this definition. Any protected area that falls within this general definition should be capable of being picked up by one of the categories.

Although all protected areas must meet the general purposes contained in this definition, in practice, the precise aims for which protected areas are managed differ greatly. The management guidelines identify a number of such aims: scientific research, wilderness protection, preservation of species and genetic diversity, maintenance of environmental services (e.g. water supply, carbon sequestration), protection of specific natural and cultural features, tourism and recreation, education, sustainable use of resources from natural ecosystems, maintenance of cultural and traditional attributes.

Having regard to the different mix and priorities according to these many management objectives, the categories in Box 2 emerged clearly as distinct management categories of protected areas.

However, most protected areas also serve a range of secondary management objectives. The relationship between management objectives and the categories is illustrated in matrix form in Box 3 (right).

Principles for the Application of the Guidelines

In developing the guidelines, IUCN lays stress on a number of important features.

- first (as already indicated), the basis of categorisation is by primary management objective, as de-

Box 1: Protected Area Management Categories, 1978 System

Category	Title
I	Scientific Reserve/Strict Nature Reserve
II	National Park
III	Natural Monument/Natural Landmark
IV	Nature Conservation Reserve/Managed Nature Reserve/Wildlife Sanctuary
V	Protected Landscape
VI	Resource Reserve
VII	Natural Biotic Area/Anthropological Reserve
VIII	Multiple Use Management Area/Managed Resource Area
IX	Biosphere Reserve
X	World Heritage Area (natural)

source: IUCN, 1978

Box 2: Protected Area Management Categories, 1994 System

Areas managed mainly for:

I	Strict protection (i.e. strict nature reserve/wilderness area).
II	Ecosystem conservation and recreation (i.e. national park).
III	Conservation of natural features (i.e. natural monument).
IV	Conservation through active management (i.e. habitat/species management area).
V	Landscape/seascape conservation and recreation (i.e. protected landscape/seascape).
VI	Sustainable use of natural ecosystems (i.e. managed resource protected area).

source: IUCN, 1994

Box 3: Objectives/Categories Matrix

Objectives	Categories						
	Ia	Ib	II	III	IV	V	VI
science	1	3	2	2	2	2	3
wilderness	2	1	2	3	3	-	2
species & genetic diversity	1	2	1	1	1	2	1
environmental services	2	1	1	-	1	2	1
natural/cultural features	-	-	2	1	3	1	3
tourism/recreation	-	2	1	1	3	1	3
education	-	-	2	2	2	2	3
sustainable use	-	3	3	-	2	2	1
cultural/traditional attributes	-	-	-	-	-	1	2

1	Primary Objective
2	Secondary Objective
3	Acceptable Objective
-	not applicable

source: IUCN, 1994

fined in law and management plans.

- second, assignment to a particular category is not a commentary on management effectiveness. The assessment of management objectives and management effectiveness are two separate judgements: what an area is intended to be; and how it is run. Obviously, if assignment is the basis of primary management objective, then strictly speaking the effectiveness of management is irrelevant to the categorisation (whether a strict nature reserve is well run or mismanaged, its objectives remain the same). However, assessment of the quality of management of a protected area is an important judgement in its own right. WCPA has therefore recently established a management effectiveness task force, which is developing a separate system for monitoring and recording management effectiveness; when complete, this will be promoted alongside the categories system.
- third, the categories system is international. It has been developed, *inter alia*, to provide a basis for international comparison — to give protected area managers an international language with which they can communicate with one another. Moreover, the system is intended for use in all countries, so the guidance it contains is fairly general and will need to be interpreted with flexibility at national and regional levels.
- fourth, national names for protected areas may vary. In a perfect world, IUCN's system of categories would have been in place first and national systems would have followed, using standard terminology. But, as indicated above, in practice, different countries have set up national systems using widely varying terminology. It would be unrealistic, and unnecessary, to seek to change national titles to make them accord with international terminology. After all, to pursue the example given above, the Lake District is — in the eyes of people within Britain — a "National Park" in exactly the same way as Lemmenjoki is to the people of Finland, or Yellowstone to those in the USA. So at the national level, a variety of titles will continue to be used. Therefore, it is inevitable that the same protected area title used at the national level can mean different things in different countries; and different titles in different countries may be used to describe the same category of protected area. This makes an international system of categorisation, identified by management objectives, all the more important.
- fifth, a new category is introduced mainly because of arguments put forward by representatives of developing countries at the Caracas Congress. This is for the sustainable use of natural ecosystems (managed resource protected areas). These are areas which are "managed to protect their biodiversity in such a way as to provide a sustainable flow of products and services for the community." Hitherto they would probably not have been regarded as protected areas in the conventional sense. It is to be hoped that the new Category VI will be widely adopted as a means of linking conservation and development, particularly within poorer countries.
- the sixth principle is that all categories are important. The number assigned to a category does *not* reflect its importance. The range of categories is needed for conservation and sustainable development. The categories should *not* therefore be seen as a hierarchy but as the basis for national systems of protected areas, as a "tool kit" for a variety of national needs. Since each category fills a particular "niche" in management terms, all countries should consider the appropriateness of the full range of management categories to their needs.
- finally, however, the categories do imply a gradation of human intervention. In general, the degree of intervention in Categories I, II and III will be less than that in Categories IV, V and VI. (In practice, the environment in Category V areas will be the most modified: Category VI really lies between III and IV, but has been given a lower numeral because Categories I to V were carried forward from the 1978 System).

. . . the Lake District is — in the eyes of people within Britain — a "National Park" in exactly the same way as Lemmenjoki is to the people of Finland, or Yellowstone to those in the USA.

The new guidelines give advice on the application of the categories, dealing with such matters as the size of protected areas and zoning within them; management responsibility and ownership of land; regional variation; multiple classifications and the treatment of land around protected areas; and international designations. There is a one-page summary of the key features of each category, covering definition, the objectives of management, guidance of selection, organisational responsibility and the equivalent category in the 1978 system. The new guidelines also contain a range of short case studies, showing examples, with photographs, of how the categories are being applied in practice.

Experience with applying the 1994 guidelines

The new system has now been in place for four years. There is growing evidence that it is becoming the focus around which much protected areas debate revolves, and a number of interesting developments are

taking place. For example:

- preparation of regional, national and sectoral interpretation of the global guidelines,
- adoption of the guidelines nationally in planning and legislation,
- application of the new system in the latest (1997) United Nations List of Protected Areas (IUCN, 1998),
- use of the system to raise standards of protected area management,
- reference to the categories system in international fora,
- reference to the categories in conservation/development arguments by various interest groups (e.g. indigenous peoples and resource users).

The implications of these developments are now explored in turn.

Regional, National and Sectoral Interpretations of the Global Guidelines

The guidelines are clearly presented as an *inter*national framework. This means they are expressed in rather general terms. As a result, a number of countries, and conservation groups have found the need to develop the guidance at the regional or national level in order to ensure that they can take the full advantage of the flexibility which the system offers. In Australia, for example, a joint Federal-State initiative was launched in 1994 to develop "rules of thumb" on the application of the categories — a draft handbook on the *Application of IUCN Protected Area Management Categories* has been prepared and circulated. WCPA members in Australia and New Zealand have recently decided to review and publish this advice as WCPA guidance. In Europe, WCPA members have agreed on a text on the application of the guidelines in this region, to be published next year. In a number of countries, including the UK and now Finland, seminars and similar events have been held to explore the implication at the national level of the guidelines.

Just as the 1994 guidelines are not country specific, so they have not been drawn up with a specific focus on a particular habitat, but are intended for general application to all habitats. WCPA has received several requests for interpretation on their application to individual habitats, and as a result is now developing such advice. Thus, with WWF, IUCN/WCPA has recently published a discussion paper on the implications of IUCN's protected area management categories for forest conservation (Dudley and Stolton, 1998). There is also a need for advice on the application of the guidelines in the marine environment; through its marine protected areas network, WCPA is currently drafting such advice in preparation for a publication next year.

WCPA welcomes such developments, as they will help to promote the wider use of the categories system. It believes, however, that they should:

- be based firmly on the published guidance, rather than be used as means to deviate from it,
- help interpret the global advice in the ecological, social, legal and political contexts in which the protected areas exist in the region or country concerned; or similarly in respect of the marine environment, and
- include a wide range of case studies so that managers and others can readily relate the advice to their own needs.

Adoption of the Guidelines Nationally in Planning and Legislation

The impact of IUCN's advice on protected area management categories has grown at the national level in recent years. There are several reasons for this, e.g: greater concern generally about biodiversity conservation, especially in relation to the Convention on Biological Diversity (CBD) — see below; greater appreciation of the need for a range of instruments for area-based protection; greater interest in international co-operation in the field of conservation; and greater sensitivity to the information in the UN list.

***The categories should* not . . . be seen as a hierarchy but as the basis for national systems of protected areas, as a "tool kit" for a variety of national needs.**

Whatever the reasons, it is clear that there is growing evidence of the adoption of the categories system at the national level, in policy, in planning and in legislation. This is apparent in the way a number of countries, which are now designing, or redesigning, their protected areas systems, have adopted the 1994 guidance as a key element. Examples known to WCPA include:

- New South Wales, Australia, where a wide-ranging review of the state-protected area system has recently been initiated, using the categories as a framework for the exercise (see references),
- Australia, where the federal government is currently developing new conservation legislation which incorporates the categories system directly into articles of the law,
- Vietnam, where IUCN is assisting the government to undertake a review and the development of a national system of protected areas,
- Jordan, where the Royal Society for the Conservation of Nature, which advises the government on conservation policy and practice, is currently reviewing Jordan's network of protected areas with a view to using more of the categories.

The New Categories System and the UN List

The UN list — in full, the United National List of Protected Areas — is a regularly updated global compendium, containing basic information on all but the smallest protected areas. The latest, 12th version of the list (IUCN, 1998) is the first to apply the new categories system. Reclassifying the 12,750 sites in the list in this way was described in the introduction as a "major undertaking .... lengthy and challenging," requiring the "management objectives of each national designation to be reviewed in relation to the criteria and guidelines established for the application of the new categories" (xvii). The summary data revealed by the list is in Box 4.

Box 4: Global Coverage of Protected Areas by Management Category

IUCN Management Category	Number	%	Extent (sq. km.)	%
Ia	4,389	14	978,698	7
Ib	809	3	940,360	7
II	3,384	11	4,001,605	30
III	2,122	7	193,021	1
IV	11,171	37	2,459,703	19
V	5,578	18	1,057,448	8
VI	2,897	10	3,601,440	27
Total	**30,350**	**100**	**13,232,275**	**100**

Use of the System to Raise Standards of Protected Area Management

Although the UN List is essentially a record or a compendium, it is constantly referred to by those dealing with protected areas. As this happens, the significance and value of the categorisation system is becoming more widely appreciated, and greater interest shown in how certain protected areas are classified by WCPA and WCMC (which together determine the classification in the UN list, based on national advice). This is notably so in some countries in Europe, where the categories system has been used to drive up the standards of management, and in particular to ensure that protected areas which claim to be Category II-type national parks meet the criteria set out in the guidelines. Examples include Austria, Germany and Slovenia, where conservationists have argued persuasively that areas designated as "national parks" in national legislation must be properly protected against hunting, forestry operations, agriculture and intrusive forms of tourism. The need to meet the Category II criteria was particularly important on shaping the management plans for the new Donau-Auern and Kalkalpen National Parks in Austria. Both parks have been so designated in the 1997 UN list (the question has a special importance in Austria as federal funds are only available for national parks classified as Category II in the UN list).

The significance of this development lies in the way in which the debate about how protected areas are managed can be focused on objective advice that has international acceptance. In practice this can be a very effective means of raising management standards for protected areas of all categories. It is to be hoped that, in future, conservationists will broaden their concerns beyond a preoccupation with Category II, as the system is capable of being used to raise management standards for *all* types of protected areas.

Reference to the Categories System in International Fora

Article 8 of the CBD requires Parties to establish a "system of protected areas." WCPA has recently given advice on national system plans for protected areas as the recommended instrument to fulfil this obligation (Davey, 1998). Such a plan could be either free-standing or could form part of a national biodiversity strategy under Article 6. The WCPA advice stresses the desirability of countries considering the adoption of the full range of management categories, emphasising especially the advantage of making greater use of the more "flexible" categories, i.e. Categories V and VI, which have in general received less attention compared to the stricter categories of protection. WCPA also calls for the preparation of a national system plans to be used to review the categorisation of existing protected areas, and to identify the links between all six categories of the IUCN classification.

There are several recent international fora in which reference has been made to the role of the protected area management categories, for example:

- at the Fourth Conferences of the Parties of the CBD, (Bratislava, Slovakia, May 1998) there was considerable interest shown in the topic, which was also addressed in a CBD Secretariat paper (ref. UNEP/CBD/COP/4/13),
- the recently published advice of the Man and Biosphere Programme of UNESCO and IUCN gives guidance on how the categories system relates to biosphere reserves (Bridgewater et al., 1996), and
- the Intergovernmental Forum on Forests (IFF) has addressed this topic in its work programme and has welcomed a recent WCPA submission to it (annexed to this paper).

Thus in each of these fora, dialogue about protected areas has tended to become focused on the categories, using them much as a means of clarifying concepts or refining policies as they affect protected areas.

Reference to the Categories in Conservation/Development Arguments by Various Interest Groups

Indeed, it is not only in government and conservation circles that interest in protected areas categories is growing. Some resource users have also begun to show an interest in its implications for their interests. IUCN and WCPA are aware, for example, that mining and energy companies, in Pakistan and Australia for instance, have sought clarification of the significance of the categories for their purposes; logging companies in Canada are doing likewise. On the other hand, indigenous peoples groups have asked WCPA to clarify the significance of the categories in relation to their needs. As a result, steps are being taken by WCPA to develop guidance for different interests groups on the interpretation of categories, sometimes in partnership with WWF as follows:

- The IUCN/WWF discussion paper on **forest** protected areas has been referred to above (Dudley and Stolton, 1998),
- draft advice from WCPA is also underway on the implications of the categories for **mining** in protected areas,
- with WWF, WCPA is also developing principles and guidelines on the application of the categories system for **indigenous peoples'** interests.

Clarification of this kind is especially necessary as it has become clear that some interest groups see in Categories V and VI, in particular, a potential green light to commercial activity. Also, some governments may believe that they can achieve both protected area and economic targets by classifying some areas used of intensive resource use as protected areas under these categories. But this is a gross distortion of the intention, as a reading of the 1994 guidelines will make clear. The Chair of the WCPA has set out its position in a recent communication to the IFF (see below).

Conclusions

The concept of protected area management categories is much more than the basis for a mechanical exercise in classification and accounting. Experience in recent years suggests that it has added considerably to the quality of national and international debate about protected areas. In particular, it is helping to clarify thinking about the purposes of protected areas and to introduce a new rigour into international deliberations. It is to be hoped that more countries will seriously review the implications of the IUCN advice for the development of their own protected areas systems, both to assist them in fulfilling their obligations under the CBD, and as a means to help them communicate meaningfully with their colleagues in protected areas conservation in other countries.

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Letter and attachments from WCPA Chair to the Intergovernmental Forum on Forests (IFF)

Jaime Hurtubia
Intergovernmental Forum on Forests
United Nations
New York 10017 USA

17 August, 1998

Application of IUCN Protected Area Categories to Forest Ecosystems

I understand that the Intergovernmental Forum on Forests (IFF) has shown an interest in the application of IUCN's protected area management categories as they affect forest ecosystems. As the chair of IUCN's World Commission on Protected Areas (WCPA), the world-wide network of protected area experts which prepared the guidelines to the categories system (IUCN, 1994 — see appendix to this letter), I am writing to the forum to clarify the situation, especially as it relates to commercial forestry operations.

continued on page 10

continued from page 9

All protected areas, according to the IUCN definition (see appendix), should be "especially dedicated to the protection and maintenance of biological diversity." However, WCPA recognises the wider social and environmental importance of protected areas and that many also support the needs of human communities. In addition to strict conservation, scientific research and wildlife habitat, many have great value in watershed and soil protection, carbon sequestration, recreation benefits, defining indigenous territory and the maintenance of cultural and spiritual values. Protected areas are therefore becoming more flexible in their aims and management. WCPA argues for a range of protected area management categories to reflect these different objectives of management, while stressing that all protected areas must have a strong biodiversity conservation purpose.

This more inclusive strategy has many practical conservation benefits. Some early protected areas — where in extreme cases human communities were evicted from their traditional lands to make way for nature protection — have generally failed. People who are alienated from the land will often invade the protected area for illegal hunting and logging. More collaborative methods are usually far better, both for people and nature. This broader approach is particularly well-reflected in two of the six recommended protected area categories: Categories V (Protected Landscape/Seascape) and VI (Managed Resource Protected Area).

There have recently been attempts to argue that land within IUCN Category V and VI protected areas can be used for large-scale industrial activities. This is a serious misunderstanding of the concept of protected areas. All categories of protected areas are intended to be permanent designations which provide long-term protection to biodiversity and other values. The use of such categories, which envisage a degree of human presence and sustainable resource use, does *not* mean abandoning protection in these areas.

To clarify the situation: WCPA believes that large-scale commercial activities such as clearcutting, plantation establishment and other forms of industrial forest management, unrestrained tourism and major infrastructure projects are not compatible with any protected area designations. As far as mineral extraction in protected areas is concerned, WCPA is currently developing a policy for IUCN: this will make clear that large scale mineral extraction is also incompatible with protected area objectives.

The adoption by countries of the IUCN protected area management categories system has many benefits — for example, the opportunity to extend the areas under protection, to integrate these with the needs of local and indigenous communities in rural areas, and to integrate protection with other conservation strategies across the entire landscape. For these reasons, IUCN recommends the wider use of these categories (e.g. in recommendations 1.33 and 1.35 from the Montreal World Conservation Congress of 1996). But though greater flexibility in the development of protected area approaches is urgently needed, the adoption of a wider ranger of categories than hitherto should not be used to compromise the distinctive nature of protected areas — as places where protection can be assured.

The recognition of the IUCN protected area management categories within the G8 Action Plan will further help these developments. IUCN and its WCPA welcome the IFF Inter-sessionals on protected areas, and look forward to making a positive contribution to these important initiatives.

Professor Adrian Phillips,
Chair of the World Commission on Protected Areas

APPENDIX: THE IUCN PROTECTED AREA MANAGEMENT CATEGORIES SYSTEM

This note extracts some of the key definitions from the *Guidelines for Protected Area Management Categories* (IUCN, 1994).

What is a protected area?

The guidelines offer a definition of a protected area which is to apply to all categories: "An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means."

What are the IUCN Categories of Protected Areas?

IUCN and its World Commission on Protected Areas have developed six management categories of protected area, which were proposed in February 1992 at the IVth World Congress on National Parks and Protected Areas in Caracas and agreed at IUCN's General Assembly in Buenos Aires in January 1994:

Category Ia: Strict nature reserve/wilderness protection area managed mainly for science or wilderness protection — an area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring;

Category Ib: Wilderness area: protected area managed mainly for wilderness protection — large area of unmodified or slightly modified land and/or sea, retaining its natural characteristics and influence, without permanent or significant habitation, which is protected and managed to preserve its natural condition.

Category II: National park: protected area managed mainly for ecosystem protection and recreation — natural area of land and/or sea designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Category III: Natural monument: protected area managed mainly for conservation of specific natural features — area containing specific natural or natural/cultural feature(s) of outstanding or unique value because of their inherent rarity, representativeness or aesthetic qualities or cultural significance.

Category IV: Habitat/Species Management Area: protected area managed mainly for conservation through management intervention — area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats to meet the requirements of specific species;

Category V: Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation or recreation — area of land, with coast or sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

Category VI: Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural resources —

area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while also providing a sustainable flow of natural products and services to meet community needs.

These categories have been designed to help classify protected areas rather than constrain the development of a protected area network. WCPA urges countries to develop the best possible protected area network for their own conditions, and then classify the areas according to their management objectives.

Do all the IUCN Categories offer the same level of protection to biodiversity?

The guidelines offer this commentary: "The number assigned to a category does not reflect its importance: all categories are needed for conservation and sustainable development. Therefore IUCN encourages countries to develop a system of protected areas that meet its own natural and cultural heritage objective and then apply any or all of the appropriate Categories. Since each Category fills a particular "niche" in management terms, all countries should consider the appropriateness of the full range of management categories to their needs. However, it is inherent in the system that the categories represent varying degrees of human intervention. Categories I to III are mainly concerned with the protection of natural areas where direct human intervention and modification of the environment has been limited; in categories IV, V and VI significantly greater intervention and modification will be found." (IUCN, 1994, pp 9-10).

Does the new Category VI reduce the emphasis on biodiversity conservation?

In order to clarify this, the guidelines offer this specific advice:

"*. . . The key point is that the area must be managed so that the long-term protection and maintenance of its biodiversity is assured.* In particular, four considerations must be met:

- the area must be able to fit within the overall definition of a protected area (see above),
- at least two-thirds of the area should be, and is planned to remain in its natural state,
- large commercial plantations are not to be included, and
- a management authority must be in place.

Only if these requirements are satisfied can areas qualify for inclusion in this category" (source IUCN, 1994, p.9).

Further reading

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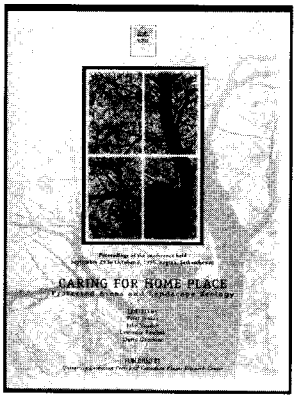
Davey A. (1998). *National System Planning for Protected Areas*, WCPA Best Practice Protected Area Guidelines Series number 1, IUCN, Gland, Switzerland and Cambridge , UK. x + 71pp.

1995 & 1996 Conference Proceedings now available

The proceedings of the CCEA conference entitled "Protected Areas in Resource-Based Economies: Sustaining Biodiversity & Ecological Integrity" held in Calgary, Alberta, on November 7 & 8, 1995 are now available. The proceedings were edited by Denise Onysko and Robyn Usher. The cost of this 96-page volume is $25.00, which includes all taxes, postage and handling.

The 1996 CCEA conference entitled "Caring for Home Place: Protected Areas and Landscape Ecology" was held jointly with the Canadian Society for Landscape Ecology and Management on September 29-October 2, 1996 in Regina, Saskatchewan. The proceedings of this conference are published in a 361-page volume edited by Peter Jonker, John Vandall, Lawrence Baschak, and David Gauthier. It is available at a cost of $30.00, including all taxes, postage and handling.



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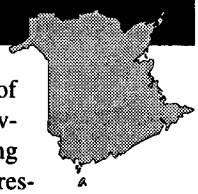
New Brunswick



In 1997, Dr. Louis LaPierre of the University of Moncton was asked by the New Brunswick government to lead a scientific team in developing a protected area strategy for the province's terrestrial land base. The strategy's main objective was to map out a long-range plan for biodiversity conservation in New Brunswick.

The New Brunswick Protected Area Strategy, which is nearing completion, has three principal focuses; these being to conserve biodiversity at the fine scale, the large scale and the regional scale. The fine-scale component will be proposing a methodology and criteria for identifying and protecting ecologically sensitive areas, unique, threatened and endangered spaces, etc. This will apply to both flora and fauna and would serve as a basis for government and non-government agencies to safeguard New Brunswick's site specific natural heritage.

The large-scale component will identify large areas in each of the province's seven ecoregions which best capture structural and functional processes, ecosystem and landscape representivity and biological diversity. A computer model was developed to help identify which areas in New Brunswick offered the best representivity. The strategy will also take into account all large areas which presently have protective status within the province and elsewhere within the Acadian Forest Ecozone.

The third component will examine ways and means to conserve biodiversity and to maintain biological structure and function at the ecozone level. This component recognizes that landscapes and ecoregions in New Brunswick are but a part of the Acadian Forest Ecozone. Cumulatively, the Acadian Forest Ecozone encompasses Nova Scotia, Prince Edward Island, New Brunswick, the Gaspe region and northern Maine. As such, the strategy will reflect the reality that ecosystem functions and processes are oblivious to and transcend political boundaries. The proposed strategy will identify co-operative opportunities between respective jurisdictions within the Acadian Forest Ecozone to allow for gene flow, connectivity, and other natural processes.

The strategy will be recommending an implementation timeframe along with identifying whether legislative changes are needed to facilitate the designation of candidate sites and areas under protective status (e.g., if amendments are required to New Brunswick's Ecological Reserve Act, Crown Lands & Forests Act, etc.). With work being undertaken on the strategy over the past year, the province has withheld designating any ecological reserves or conservation areas while the study is underway.

Meetings have been held with neighboring jurisdictions to explain the scope of this strategy, to solicit input and to identify opportunities for partnerships. Stakeholders workshops have also been held over the past year in New Brunswick to ensure NGOs, industry, conservationists and other government agencies were kept up to date on progress being made and to provide the scientific team with feedback. The strategy should be presented to government by this autumn.

Public consultation sessions are scheduled for later this year and upon completion of this, a final draft with recommendations will be submitted to the province soon thereafter.

Quebec

Since April 1997, two new sites were added to the **Québec network of ecological reserves**: the *Rivière-Rouge* ecological reserve (313 ha) in the *Laurentides* region and the *Charles-B.-Banville* ecological reserve (1,000 ha) in the *Bas-Saint-Laurent* region. Furthermore, 117 ha were added to the *André-Michaux* ecological reserve in the *Outaouais* region. The network now has 58 ecological reserves for a total area of 70,280 ha (703 km^2).

The National Assembly in Québec City and the House of Commons in Ottawa have both promulgated, on 12 June 1998, **the creation of the Saguenay-St. Lawrence Marine Park**, (respectively with Bill 86 and Bill C-7). This first marine park in Québec, situated at the confluence of the Saguenay River and the St. Lawrence estuary, is the result of several years of planned efforts between the Québec and the Canadian governments, with the support of several regional and local partners. With this added 1,138 km^2, the Québec network of parks now has nineteen parks, for a total of 5,540 km^2. **Work is under way for the designation of four new parks** (*Plaisance, Vauréal, des Hautes-Gorges-de-la-Rivière-Malbaie* and *Cratère-du-Nouveau-Québec*) and the regulatory process for the enlargment of the *Aiguebelle* Park is almost completed.

During the past months, the Québec Ministry of Environment and Wildlife has initiated the elaboration of its **Strategy on protected areas**. In this way, Québec wants to acquire a global vision and a strategic plan for the development of its network of protected areas, in a context of biological diversity conservation.

A new regulation designating ten plant species as threatened or vulnerable became effective on 8 May 1998. The status "threatened" was given to six plants: *Arisaema dracontium*, *Justicia americana*, *Podophyllum peltatum*, *Carex lupuliformis*, *Polemonium vanbruntiae* and *Aplectrum hyemale*. The status "vulnerable" was given to four other species: *Helianthus divaricatus*, *Polygonum douglasii* ssp. *douglasii*, *Rhus aromatica* var. *aromatica* and *Cypripedium arietinum*. This new regulation brings to nineteen the number of plant species with a legal protection status in Québec. Furthermore, the Ministry of Environment and Wildlife has published, during the past year, seven situation reports on threatened or endangered plant species or species likely to be designated as such.

from across the country

In 1997-1998, 450 new occurrences were added to the ***Centre de données sur le patrimoine naturel du Québec*** **(Québec Conservation Data Centre)** for the Outaouais region and the St. Lawrence softwater estuary, bringing to 7,500 the number of occurrences stored at the *Centre de données sur le patrimoine naturel du Québec* (vascular plants: 5,500 occurrences; vertebrates: 2,000 occurrences).

A **third quinquennial federal-Québec agreement on the St. Lawrence River** was signed on 8 June 1998 by the Québec and the Canadian governments. This new phase of the St. Lawrence Action Plan is aimed at safeguarding and protecting the St. Lawrence and its environment. Specific objectives of the biodiversity facet of this third agreement include the safeguarding of 35 species (animals and plants) in difficulty and the protection of 1,200 km² of natural habitat along the St. Lawrence.

The first annual report on the follow-up of Québec's Biodiversity Action Plan was published in November 1997. This document outlines the follow-up of actions regarding biodiversity in related ministries or organizations, during the past year, following the adoption of Québec's Implementation Strategy of the Convention on Biodiversity and Québec's Biodiversity Action Plan.

The network of ecological reserves supported in 1997-1998 over **twenty research projects** in more than thirty ecological reserves. Several research activities consisted in environmental monitoring and the study of ecosystem functioning. Other research projects were aimed at studying the biological diversity of these sites or threatened or vulnerable species.

Between 5 January and 9 January 1998, southern Québec experienced **the worst ice storm of its history**. Up to 80 mm of ice accumulated during four consecutive days in some areas, causing damage to a total of nine ecological reserves and eight Québec parks. Interventions for safety were done in several parks; the damage was characterized in the affected ecological reserves and in some parks.

For additional information, contact Jean Gagnon, Direction de la conservation et du patrimoine écologique, ministère de l'Environnement et de la Faune, 675, boul. René-Lévesque Est, 10e étage, Québec (Québec) G1R 5V7.

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Depuis avril 1997, le réseau québécois des **réserves écologiques** s'est enrichi de deux nouvelles réserves écologiques. Il s'agit de la réserve écologique de la Rivière-Rouge (313 ha), dans la région des Laurentides et de la réserve écologique Charles-B.-Banville (1 000 ha), dans le Bas-Saint-Laurent. De plus, 117 ha ont été ajoutés à la réserve écologique André-Michaux, en Outaouais. Le réseau québécois des réserves écologiques compte maintenant 58 réserves écologiques, totalisant une superficie de 70 280 ha (703 km²).

Au niveau des **parcs québécois**, l'Assemblée nationale à Québec et la Chambre des communes à Ottawa, respectivement par le biais de la *Loi 86* et de la *Loi C-7 sur le parc marin Saguenay-Saint-Laurent*, ont toutes deux promulgué le 12 juin 1998 la création du parc marin, au confluent de la rivière Saguenay et de l'estuaire du Saint-Laurent. Il s'agit du premier parc marin au Québec. La création de ce parc est le résultat de plusieurs années d'efforts concertés des gouvernements du Québec et du Canada, appuyés dans leur démarche par plusieurs partenaires locaux et régionaux. Avec cet ajout de 1 138 km², le réseau québécois compte maintenant dix-neuf parcs, pour une superficie totale de 5 540 km².

Des travaux sont en cours pour la désignation de quatre nouveaux parcs québécois (Plaisance, Vauréal, des Hautes-Gorges-de-la-Rivière-Malbaie et Cratère-du-Nouveau-Québec) et le processus réglementaire permettant l'agrandissement des limites du parc québécois d'Aiguebelle est presque complété.

Au cours des derniers mois, le ministère de l'Environnement et de la Faune du Québec a amorcé l'élaboration d'une **Stratégie québécoise des aires protégées**. Le Québec désire ainsi se doter d'une vision globale et d'un plan stratégique pour le développement de ses réseaux d'aires protégées, dans un contexte de conservation de la diversité biologique.

Un nouveau règlement désignant dix espèces floristiques comme menacées ou vulnérables est entré en vigueur le 8 mai 1998. Ce règlement inclut également la protection de certains de leurs habitats. Le statut d'espèce menacée a été conféré à six plantes: *Arisaema dracontium, Justicia americana, Podophyllum peltatum, Carex lupuliformis, Polemonium vanbruntiae* et *Aplectrum hyemale*. Le statut d'espèce vulnérable a été conféré à quatre autres espèces: *Helianthus divaricatus, Polygonum douglasii* ssp. *douglasii, Rhus aromatica* var. *aromatica* et *Cypripedium arietinum*. Ce nouveau règlement porte à dix-neuf le nombre d'espèces floristiques bénéficiant maintenant d'un statut légal de protection au Québec. De plus, le ministère de l'Environnement et de la Faune a publié, au cours de la dernière année, sept rapports de situation d'espèces floristiques menacées ou vulnérables ou susceptibles d'être ainsi désignées.

En 1997-1998, le **Centre de données sur le patrimoine naturel du Québec** s'est enrichi de 450 nouvelles occurrences sur la flore, pour les régions de l'Outaouais et de l'estuaire d'eau douce du Saint-Laurent. Cet ajout porte à 7 500 le nombre d'occurrences consignées au Centre de données sur le patrimoine naturel du Québec (plantes vasculaires: 5 500 occurrences; vertébrés: 2 000 occurrences).

Une troisième **entente quinquennale fédérale-Québec sur le fleuve Saint-Laurent** a été signée le 8 juin dernier par les gouvernements du Québec et du Canada. Cette nouvelle phase du Plan d'action Saint-Laurent vise la sauvegarde et la protection du Saint-Laurent et son environnement. Parmi les principaux objectifs du volet biodiversité de cette troisième phase du Plan d'action signalons, la sauvegarde 35 espèces fauniques et floristiques en difficulté et la protection de 1 200 km² d'habitats naturels le long du Saint-Laurent.

Un premier rapport annuel du suivi du Plan d'action québécois sur la biodiversité a été publié en novembre 1997. Ce document présente la situation sur le suivi des actions concernant la biodiversité dans chacun des ministères ou organismes concernés, au cours de la dernière année, suite à l'adoption de la Stratégie québécoise de mise en œuvre de la Convention sur la diversité biologique et du Plan d'action québécois sur la diversité biologique.

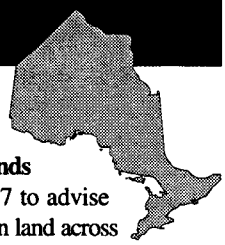
Le réseau québécois des réserves écologiques supportait en 1997-1998 une vingtaine de **projets de recherche**, répartis dans plus de trente réserves écologiques. Plusieurs travaux de recherche portaient sur des activités de surveillance environnementale et

sur l'étude du fonctionnement des écosystèmes. D'autres travaux de recherche étaient axés sur l'étude de la diversité biologique et d'espèces menacées ou vulnérables.

Le sud du Québec connaissait, du 5 au 9 janvier 1998, **la pire tempête de verglas de son histoire**. Jusqu'à 80 mm de verglas se sont accumulés en quatre jours dans certaines régions, causant des dommages considérables aux forêts. En tout, neuf réserves écologiques et huit parcs québécois ont subi des dommages. Des travaux d'ordre sécuritaire ont été réalisés dans plusieurs parcs québécois tandis que des travaux de caractérisation de l'impact ont été effectués dans les réserves écologiques touchées ainsi que dans certains parcs québécois.

Pour plus d'information, contacter Jean Gagnon, Direction de la conservation et du patrimoine écologique, ministère de l'Environnement et de la Faune, 675, boul. René-Lévesque Est, 10e étage, Québec (Québec) G1R 5V7.

Ontario



On 30 October 1998, Natural Resources Minister John Snobelen made public the consolidated recommendations of the three **"Lands for Life"** Round Tables, established in 1997 to advise the government on the strategic use of Crown land across an extensive region of northern and central Ontario. The Round Tables' recommendations deal with many facets of land-use: completing Ontario's system of parks and protected areas; recognizing resource-based tourism needs; providing greater certainty for resource industries; enhancing fishing, hunting and other recreational opportunities; Aboriginal involvement in land-use planning; new land-use designations; and, future land-use policy.

Regarding the completion of Ontario's system of parks and protected areas, the Round Tables recommended 272,385 hectares in 72 new Provincial Parks, and 430,506 hectares in 199 new Conservation Reserves. Together, these areas would add another 1.6% of the total planning area to the existing 7.4% of the area currently within existing provincial parks. In addition to provincial parks and conservation reserves, the recommendations call for the designation of another 6.7% of the planning area in four other newly proposed protective categories: Stewardship Reserves (1.6%), Enhanced Management Areas (3.6%), Heritage Waterways (1.9%) and Great Lakes Coastlines (0.2%).

The Ontario government launched "Lands for Life" in February 1997 to address long-standing conflicts over protection and use of Crown lands in a 46-million-hectare area of northern and central Ontario which contains virtually all of Ontario's Crown forests, much of its mining potential, landscapes that afford superb recreational opportunities, and many resource-based communities. Round Tables made up of residents were established in three ecological regions — Boreal West, Boreal East and Great Lakes-St. Lawrence — to conduct a public consultation process across the planning region and in southern Ontario. Altogether, some 65,000 people took part in the consultations. Copies of the consolidated report are available to the public at MNR District Offices and Natural Resource Centres and at http://www.mnr.gov.on.ca/MNR/lfl, on MNR's "Lands for Life" web site.

Substantial progress is being made on the acquisition of new Provincial Nature Reserves through **"Ontario Parks Legacy 2000."** Legacy 2000 is a partnership between Ontario Parks and The Nature Conservancy of Canada aimed at acquiring new areas for Provincial Nature Reserves to celebrate the Millennium. The programme operates under an agreement signed by the parties in March 1996, with the initial objective of acquiring significant natural areas having a land value of at least $4 million by 31 March 2000.

In June 1998, a ceremony marking the first corporate donation of land to "Ontario Parks Legacy 2000" was held in Morrisburg. DuPont Canada Inc. generously donated 550 acres (222.6 hectares) of significant natural area in the Hoasic Creek Hardwoods and Wetlands to The Nature Conservancy of Canada for a Provincial Nature Reserve. This gift will preserve one of the largest nesting areas for Great Blue Herons in Ontario, along with habitat for the Red-shouldered Hawk and some 400 species of flowering plants. Earlier accomplishments have included key acquisitions for the Morris Tract, near the mouth of the Maitland River west of Lake Huron, and the Beattie Pinery northwest of Toronto, both of which have been regulated as Provincial Nature Reserves, and the dedication of the Menzel Centennial Provincial Nature Reserve in southeastern Ontario.

Building on these early successes, in July 1998 the parties extended the initial programme to December 31, 2000, with the financial target expanded by another $6 million. The aim is now to secure prime natural areas with a total land value of $10 million for new parkland, mainly Provincial Nature Reserves. At this stage, the acquisition of several dozen significant properties, featuring Great Lakes shorelines, wetlands, woodlands, alvars and prairies that would add substantially to the representation of important segments of Ontario's biodiversity is being pursued.

Proceedings of the annual general meeting of the **Parks Research Forum for Ontario (PRFO)**, held in Peterborough on February 5 and 6, 1998, are nearing completion. The meeting featured a symposium with invited papers on "Parks in the Canadian Shield," workshops, volunteered papers, and poster presentations featuring research associated with parks and protected areas. The proceedings will be available at approximately $15.00 per copy through the University of Waterloo (Tel: (519) 888-4567 ext. 2072; Fax: (519) 746-2031; e-mail: hrc@fes.uwaterloo.ca).

Family, colleagues and friends were deeply saddened by the untimely death of **Dr. George Burton Priddle (1938-1998)** on 7 September 1998, following a lengthy illness. Dr. Priddle had recently been presented with the first "Ontario Parks Natural Heritage Protection Award" (at PFRO's February meeting) in recognition of his outstanding contributions in teaching and research associated with parks, protected areas, outdoor recreation and resources conservation.

Dr. Priddle graduated from the University of Western Ontario in 1962, after which he completed graduate work at Clark University in Worcester, Massachusetts where he received both his MA and PhD. His graduate work focused on behavioural studies in "resources management and the users perception of wilderness." His PhD was the first in depth "environmental perception and user study" of backcountry users in Algonquin Park. His work led to the development of carrying capacities for wilderness, based on the human dimension, which underlie today's park class size standards for Wilderness Parks in Ontario.

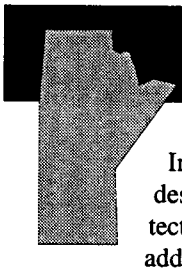
Dr. Priddle taught in the Department of Geography at Wilfrid Laurier University in the early 1970s, and later assumed a post in Environmental Studies and Geography at the University of Waterloo. He has mentored some 50 students at the graduate level,

many of whom did their research on park-related topics, and many of whom have assumed professional careers in parks and resource management agencies across Canada.

As first Chair of the Ontario Provincial Parks Council (1975-1982), Dr. Priddle helped to steer the development and growth of Ontario's Provincial Park System, including the virtual doubling of the system though land-use planning in the early 1980s. Dr. Priddle was a member of the Canadian Delegation to the Second World Congress on Parks and Protected Areas in Wyoming, to the Third World Congress in Bali Indonesia, and to the IUCN Conference in Christchurch, New Zealand. In recent years, Dr. Priddle was involved in initiatives on rails, trails and greenways.

Dr. Priddle has authored three books, chapters in 10 other books, and more than 100 papers and reports, many of which are on the topic of parks, trails and associated pursuits. Until his death, Dr. Priddle was a strong advocate for parks, protected areas and outdoor recreation. To all who knew him, Dr. Priddle will remain a champion and an inspiration in the parks and protected areas movement.

Manitoba



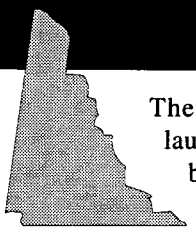
In 1997-98, an additional 32,095 ha in 13 existing designated Wildlife Management Areas were protected from industrial development by regulation. An additional 30 Wildlife Management Areas are to be screened to see if they can contribute to Manitoba's Network of Protected Areas in future. No other new protected areas were established during 1997-98, but consultations continued on various fronts. It is expected that new protected areas will begin to be established in fall 1998.

During 1997-98, Manitoba negotiated a Memorandum of Understanding with First Nations organizations to work cooperatively for the establishment of new protected areas. The agreement was signed in March 1998 and consultations with individual communities began soon thereafter. To date, initial meetings have been held with 8 communities. Cultural, spiritual and ecological matters and areas of importance to First Nations peoples will be part of the evaluation process. Communities can nominate areas they wish to see protected, and at least 3 have been proposed so far.

During 1997-98 a Working Group on Minerals with representatives from industry and government agencies involved in mining was established. The Working Group examined over 35 candidate sites in 5 natural regions, and agreed that about half could be protected from a minerals perspective. Additional evaluation is needed for the other sites. New candidates will be screened in the same way.

The Conservation Agreements Act was passed by the Legislature in June 1997. It was proclaimed in July 1998, and regulations to implement it are now in place. The Act allows landowners to place a protection agreement on a land title to legally bind future owners from developing the site. This would allow such lands to contribute to Manitoba's network of protected areas.

Yukon



The **Yukon Protected Areas Strategy**, launched in 1996, took shape in 1997-98 based on extensive consultation with the Government of Canada, First Nations, the Yukon Fish & Wildlife Management Board, Renewable Resources Councils, industry, environmental groups and the public. The draft strategy should be released for public review this summer.

Habitat Protection Amendments to the Wildlife Act were proclaimed in February 1998. These amendments provide for the establishment of Habitat Protection Areas and a permitting process which allows for effective management of human activities in Habitat Protection Areas.

Two new **Yukon First Nation Final Agreements** with the Carmacks and Selkirk First Nations were completed and became law in October 1997, and agreement in principle on a Final Agreement was reached with the Tron'dek (Dawson) First Nation. As a result, four new protected areas have been agreed upon: The Tombstone Natural Environmental Park, and the MacArthur, Llutsaw (von Wilczek Lakes) and Nordenskiold Habitat Protection Areas.

Northwest Territories

In 1997 the Northwest Territories (NWT) proclaimed **three new territorial parks**, including the 2,000 ha Hidden Lake Natural Environment Recreation Park, the 1,400 ha Blackstone Outdoor Recreation Park, and the 8,800 ha Gwich'in Outdoor Recreation Park. These parks have the potential to protect wildlife and wildlife habitat, as well as unique or representative ecosystems. Important work was also conducted in the Gwich'in Settlement Area, with the identification of protected area candidate sites by the communities released through a Draft Land Use Plan, scheduled for completion sometime in 1998.

The federal government reaffirmed its support of the NWT Protected Areas Strategy by providing funding to Aboriginal organizations to promote community involvement in the establishment of protected areas. The territorial and federal governments completed a draft of the strategy document, which includes a formal ecological framework for assessing landscape unit representation.

Work has started on a pilot initiative between the two governments and World Wildlife Fund Canada to map areas suitable for conservation in the Slave Geological Province, the region in which the BHP diamond mine is located.

The Akiliniq Planning Committee's Thelon Wildlife Sanctuary Management Plan was provided to Aboriginal organizations in Nunavut for approval and ministerial signature; however, some concerns were raised and the plan may not be implemented until recommended changes are included.

Canadian Conservation Areas Database (CCAD)

1998 Report on updates and current status

Prepared by
Robert Beric

CCAD background

Originally developed by the CCEA as the "Ecological Areas Database," the Canadian Conservation Areas Database (CCAD) was a hard copy binder which included protected area descriptions for about 500 conservation areas. This was converted into a Dbase relational database and some preliminary work was conducted under CLDS (Canada Land Data System) system to plot the points (conservation area centroids) and some of the boundaries of large conservation areas. Most of this work was undertaken in conjunction with the federal Lands Directorate and subsequently, the Sustainable Development Directorate. The CCEA used its yearly jurisdictional reports and related sources to update the data and information.

The CCEA later worked with the Environment Canada's State of the Environment Directorate (SOER) and other federal departments to expand the database to include over 3,200 government conservation areas and about 10,000 non-government conservation areas. This was version 8 of CCAD. At that stage, the main federal partner (SOER) ceased to exist and CCAD 9 to 12 were versions updated mainly by the CCEA. The process of updating was, however, beyond the means of CCEA alone and MOUs were sought with major national partners in late 1997.

Status of CCAD 12

CCAD 12 originated from an earlier version of the database (CCAD 8), but contained some major revisions to the structure of the database in terms of table structure and data content. The database was originally relational in terms of its relationship with external programs. These programs were generally GIS software that plotted out the centroids. This was changed so that the database was further relational in terms of table structures. At first there was a single data table in Microsoft Access format. Eight tables were added and are used to explain the codes used within the main data table. They describe province, ecoregion and various other types of coded information and allow for data to be reported in a more comprehensible method to the users of the database. It also allows CCAD to take full advantage of the relational nature of databases, which programs such as ACCESS were intended to do.

The CCAD12 database was also updated and the number of entries expanded to 3,300 entries of government conservation areas (see Table 1).

Interim Improvements

Revisions were made on CCAD version 12. CCAD 13 represents the work which was conducted by Statistics Canada through a MOU. Statistics Canada agreed to contribute staff time and GIS services for their contribution to improving CCAD. CCEA members provided contacts and data sources.

However, owing to reassignment and departures of staff members in Statistics Canada, to date no GIS information has been delivered. They did provide some updates to entries, conducted some database analysis, and identified that the current CCAD entries should ideally number to about 3,800 conservation areas.

Targets and needs for CCAD 14

Although Statistics Canada made an effort to provide some of the new entries, many were not entered and require work. Each entry is accompanied by a wide array of descriptive fields, and there is still considerable work required in updating the 18 fields.

At present, work is being done in consultation with the prairie provinces to verify data and obtain missing data for that region. Consultation with other provinces is still required.

Table 2 shows the number of new entries indicated by Statistics Canada that should be entered into the database sorted according to province. An ecozone analysis is not possible as the data does not contain latitudes and longitudes, or ecoregions.

Even without the ecozone/ecoregion codes, many of these protected areas are likely to be associated with the forested area of Canada and to some extent, the agricultural areas of Canada.

The data supplied by Statistics Canada is incomplete and does not indicate the full extent of the revision. Data missing includes entries for various fields, such as Parks Canada, years of establishment, Natural Regions classifications, jurisdiction, legislation, latitudes and longitudes, and ecoregions. Table 3 is an example of the most common information that is missing for entries.

A common validity date for CCAD data should be a goal. Updating to December 1998 would be useful target.

Aside from new entries that need to be included, existing entries need to be verified as well because of conservation areas being re-designated with new designa-

Table 1. Analysis of the number of conservation areas for Canada in CCAD 12.

Province	Number of entries
Alberta	231
British Columbia	677
Manitoba	132
New Brunswick	102
Newfoundland and Labrador	95
Nova Scotia	165
Northwest Territories	55
Ontario	1084
Prince Edward Island	57
Quebec	274
Saskatchewan	514
Yukon Territory	8

Ecozone	Number of entries
Arctic Cordillera	2
Northern Arctic	14
Southern Arctic	12
Taiga Plains	24
Taiga Shield	17
Taiga Cordillera	1
Hudson Plains	23
Boreal Plains	402
Boreal Shield	656
Boreal Cordillera	23
Pacific Maritime	299
Montane Cordillera	346
Atlantic Maritime	368
Prairies	431
Mixedwood Plains	741

tions, as well as conservation areas being re-surveyed and their land area values adjusted. Along with changing designations come changes to IUCN designations.

Other Opportunities

Opportunities also exist to expand the usefulness of CCAD by co-operating with other projects. This has been done in the past with CCAD being used in such applications as BioRisk Map. One current project in which CCAD can further expand is in the EcoMap project, which comprises numerous environmental and socio-economic datasets that have the potential to add more descriptive attributes to CCAD.

Another opportunity is the endangered species database being developed in Canadian Wildlife Service (CWS). At present they are mapping species ranges into a GIS format. This information, combined with the protected areas database, provides many opportunities for data analysis and policy. Opportunities to expand CCAD's role by trying to link it to other databases with habitat or wildlife themes are continually being researched.

Beyond the Canadian context, CCAD has been used to promote other extended databases on protected areas such as a proposal with CEC-North American information base on conservation areas. This material is of value to North American-based forestry, parks and wildlife initiatives and also helps international programs such as WCPA and WCMC. It was also used in a Geomatics Development Program submission through EMR.

Reference Data and Sample Summaries

Reference Data. Tables 4 and 5 (found on the next page) are descriptions of selected tables from the database that outline the fields and descriptions and the number of entries for each table.

Sample Data. Tables 6, 7, and 8 and Figures 1, 2, and 3 (found on the next two pages) are some sample summaries from the current data set. These are based on CCAD 13 data sets.

Agreements on CCAD Support/Analysis

Requests for work will be directed to the CCEA (ecologic@istar.ca // 2067 Fairbanks Ave, Ottawa, Ontario K1H 5Y9 // FAX 613-521-4808) and then allocated to various contractors.

Table 2. The number of potential new entries according to province/territory

Province	Number of entries
Alberta	74
British Columbia	149
Manitoba	48
New Brunswick	53
Newfoundland and Labrador	5
Nova Scotia	6
Northwest Territories	3
Ontario	0
Prince Edward Island	8
Quebec	20
Saskatchewan	101
Yukon Territory	5

Table 3. Sample of some of the fields with missing information and the number of entries that would need to be updated.

Element	Number of entries
Lat/Long	853
Ecoregion	842
Legislation	812
Year of establishment	340
IUCN designation	42

Table 4: Main Data Table* - DataProtArea Record Count: 7024

Name	Description
Name	Name of Protected Area
Year	Year of establishment
Area	Total area (ha)
EArea	The ecoregion area (ha) each conservation area covers
Counter	Unique ID for each protected area
DsgntnCode	Designation as a three letter code
Grouping	A major grouping based on designation
EcoregionCode	A code based on the ecozone classification system that allows analysis at both the ecoregion and ecozone level
ProvCode	Two letter code for the province/territory
UACode	Main entry identifier
JursdctnCode	Jurisdiction of the protected area as a coded entry
IUCNCode	The IUCN designation based on the 6 class system
Lat	Latitude in decimal degrees
Long	Longitude in decimal degrees
ECent	The ecoregion the centroid of the protected area lies in
Legl	Primary legislation for protected area creation
Agency1	Primary agency responsible for the protected area
Leg2	Secondary legislation that protects the area
Agency2	Secondary agencies that are responsible for the protected area
Notes	Notes on the selected field such as the date of last update
VSOURCE	
GGVERIFIED	
SOURCE	
NatRegCode	Code that applies to National Parks and identifies the Natural Region
WCMC	The corresponding ID code used by WCMC for the conservation area
WCMCDesgntn	The designation given by the WCMC to the area
ECOSEC	
LINKCODE	
SPLITCODE	
BOUNDARY	
X	
POLYFILE	
POLYNUMBER	

* Microsoft Access is a relational database program. As such, CCAD is set up using a series of relational data tables. This table is the main data table and is linked to 8 others.

Table 5: Designation Code Table - CodeDsgntntbl Record Count: 124

Name	Type
DsgntnCode	Two letter code for the designation
DsgntnDscrptn	Full designation name
Group1	A grouping category used in analysis
Group2	Another grouping category used in analysis
Group3	Another grouping category used in analysis

Table 6: Summary of government organizations and the respective land area under protection.

Organization	Area (ha)
Federal Government	36,560,748
Government of Quebec	15,531,378
Government of British Columbia	5,768,104
Government of Manitoba	4,604,590
Government of Saskatchewan	1,174,038
Government of New Brunswick	344,931
Government of Alberta	329,850
Government of Ontario	114,702
Government of Prince Edward Island	2,037
Government of Nova Scotia	1,281

Table 7: Summary of CWS holdings over a 1000 ha.

Ecozone	Migratory Bird Sanctuary	National Wildlife Area	Total
Arctic Cordillera			**0**
Northern Arctic	7	1	**8**
Southern Arctic	5		**5**
Taiga Plains			**0**
Taiga Shield			**0**
Taiga Cordillera			**0**
Hudson Plains	5		**5**
Boreal Plains	4	1	**5**
Boreal Shield	3		**3**
Boreal Cordillera			**0**
Pacific Maritime	1		**1**
Montane Cordillera		1	**1**
Prairies	6	2	**8**
Atlantic Maritime	1	2	**3**
Mixedwood Plains	5	3	**8**
Total	**37**	**10**	**47**

Table 8: Number and area of CWS holdings IUCN category 4 to 6 compared to all protected areas.

Ecozone	Migratory Bird Sanctuary		National Wildlife Area		CWS holdings		All		Total	
	Number	*Area*	*Number*	*Area*	*Number*	*Area*	*Number*	*Area*	*Number*	*Area*
Arctic Cordillera										
Northern Arctic	8	4,163,400			8	4,163,400	2	250,400	10	4,413,800
Southern Arctic	6	6,629,200			6	6,629,200	2	2,407,200	8	9,036,400
Taiga Plains					0	391,172			0	391,172
Taiga Shield							4	1,742,300	4	1,742,300
Taiga Cordillera										
Hudson Plains	5	391,172			5	391,172	2	1,379,997	7	1,771,169
Boreal Plains	5	24,644	3	1,772	8	26,416	304	952,751	312	979,167
Boreal Shield	13	24,393	1		14	24,393	163	13,135,233	177	13,159,626
Boreal Cordillera							5	1,275,803	5	1,275,803
Pacific Maritime	5	2,629	3	506	8	3,135	72	19,953	80	23,088
Montane Cordillera	2	462	2	1,793	4	2,255	61	29,495	65	31,750
Prairies	15	51,501	10	19,779	25	71,280	338	1,178,485	363	1,249,765
Atlantic Maritime	14	6,130	13	7,613	27	13,743	107	1,214,990	134	1,228,733
Mixedwood Plains	20	16,841	13	8,804	33	25,645	542	190,506	575	216,151
Total	**93**	**11,310,372**	**45**	**40,267**	**138**	**11,350,639**	**1,602**	**23,777,113**	**1,740**	**35,127,752**

Figure 1. Grouping of conservation areas (based on designation) and a summary of the number of protected areas.

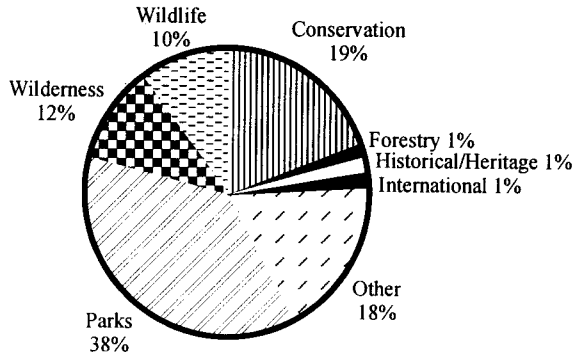


Figure 2. Grouping of conservation areas (based on designation) and a summary of the areas protected (ha).

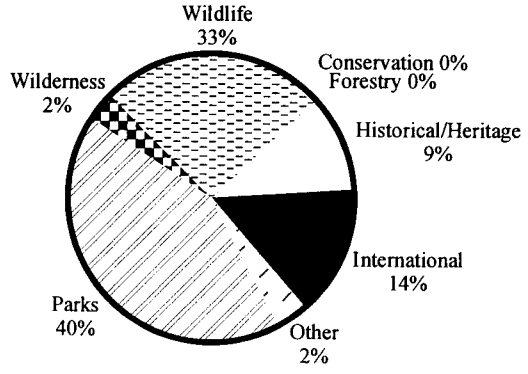
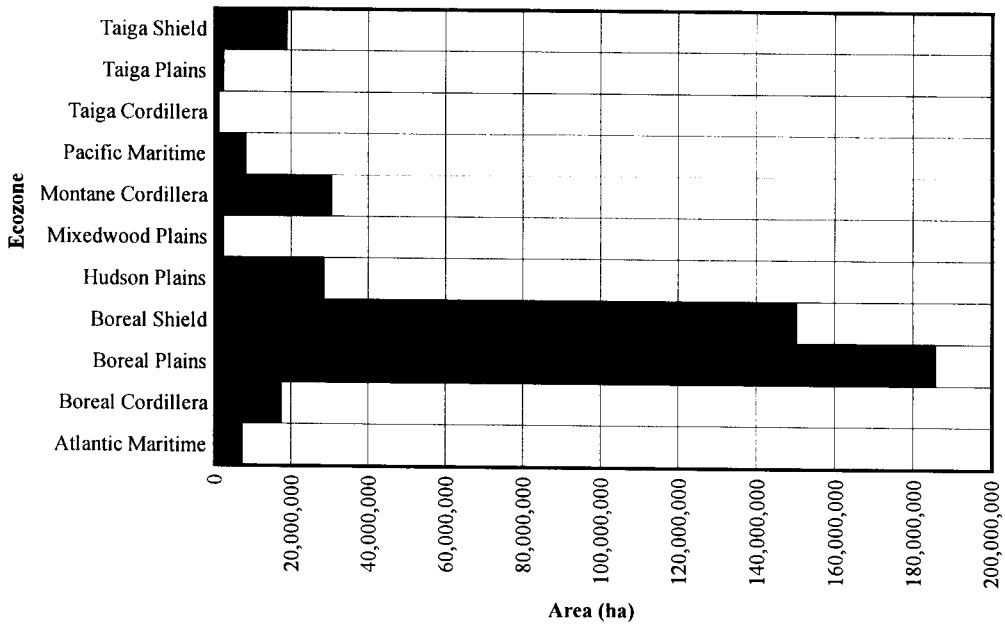


Figure 3. The area (ha) of forest ecozones conserved.



CCEA Workshop Series on Protected Areas

CCEA Workshop and 1998 Annual General Meeting, Toronto, Ontario, November 15-17, 1998

The Canadian Council on Ecological Areas invited representatives of government and non-government organizations and academics to attend a workshop November 15-17 focusing on two themes. The first workshop was concerned with issues regarding the type and content of databases useful for protected area planning and management. The second workshop addressed issues of protected areas systems design, specifically the roles of stationary conservation areas and floating reserves. The CCEA is committed to the establishment of fixed conservation areas as the most appropriate means of achieving representation of Canada's ecosystems within protected area systems. In this context, the second workshop addressed the issue of whether floating reserves and other conservation-oriented management objectives have a complementary role to play outside of the fixed protected area systems.

The intent of these workshops was to promote a discussion without prejudice of the principles and applications related to these two topics. The workshops offered an opportunity for participants to focus their attention on two specific themes with the assistance of keynote presentations on those themes and facilitated working group discussions. These workshops were intended to engage all participants in critically addressing the conceptual and operational aspects of these themes, including the merits and limitations of various approaches.

The two themes selected for the workshop resulted from discussions with protected area representatives from provincial and territorial jurisdictions plus interests that have been expressed from other organizations. It is intended that a summary of the discussion from the workshops will be prepared and distributed to all participants. Also, from the workshop discussions, CCEA will proceed with developing working papers on both themes as part of its Occasional Paper Series.

WORKSHOP I: PROTECTED AREA DATABASES

Electronic databases on protected areas now exist for a number of federal, provincial and territorial jurisdictions. Most are compatible with geographic information systems to allow rapid mapping and analysis of elements. Federal, provincial and territorial jurisdictions have worked with the CCEA to develop the content for the Canadian Conservation Areas Database (CCAD). Each year, jurisdiction representatives prepare summaries of additions or changes to their protected area systems that are compiled by the CCEA as annual Jurisdiction Reports. Also, the information is added to the CCAD database. A number of non-government conservation organizations have also developed databases to assist them in achieving their respective mandates. Conservation Data Centres (CDCs), supported by The Nature Conservancy of Canada and The Nature Conservancy (U.S.), are now operating in six provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, and Quebec) with a CDC prototype being developed in the Atlantic Provinces.

More comprehensive information needs for the planning and management of protected areas has prompted interest in standardizing, integrating and applying these databases to better service the selection, protection and management of ecological areas. This workshop enabled participants to learn more about various databases and their application for planning and management of protected areas. Based on this workshop a CCEA Occasional Paper will be prepared that addresses issues of protected area database design and their application to protected area planning and management.

WORKSHOP II: APPROACHES TO DEVELOPING PROTECTED AREA SYSTEMS

Many jurisdictions have developed protected area systems plans that use a wide range of management techniques to ensure that biodiversity and the ecological integrity of ecosystems are represented and protected. These protected areas are usually defined in terms of permanent boundaries and legal status. Many protected areas are specific tracts, of varying size, dedicated to secure representative terrestrial and aquatic segments and special features for long-term scientific research, monitoring, education and heritage appreciation. Their primary objective is often stated as the conservation of ecosystem diversity and ecological integrity. Modern understanding of ecosystem processes, structure and function has prompted holistic perspectives on the design and stewardship of protected area systems. Concepts such as "greater area ecosystems," and "ecosystem management" have been proposed for conserving ecological diversity within protected area systems and the matrix of natural and developed landscapes/seascapes in which they are embedded.

This workshop considered the role of stationary reserves in achieving representation and ecological integrity goals and whether the concept of floating reserves may complement this role in working landscapes/seascapes. It is intended that this workshop discussion will contribute to the development of a CCEA Occasional Paper.

WORKSHOP STRUCTURE

Participants received briefing notes prior to the workshop that allowed them to develop their thoughts as they prepared for the workshops. The workshops ran consecutively to allow all participants to contribute to both themes. Within each workshop, participants were assigned to smaller working groups to facilitate discussion and then re-grouped in plenary sessions to share the results of their discussions with the full group.

eco *is the official newsletter of the Canadian Council on Ecological Areas. Its purposes are to keep others informed about the work of the CCEA and to develop a community of discourse in the field of conservation and environmental protection.*

Editor: Dr. David A. Gauthier
Co-editor: Donna Achtzehner

Information for the newsletter should be submitted to Canadian Plains Research Center, University of Regina, Regina, Saskatchewan, S4S 0A2. Tel: (306) 585-4787; Fax: (306) 585-4699; e-mail: donna.achtzehner@uregina.ca. Design and production by Canadian Plains Research Center, University of Regina.

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