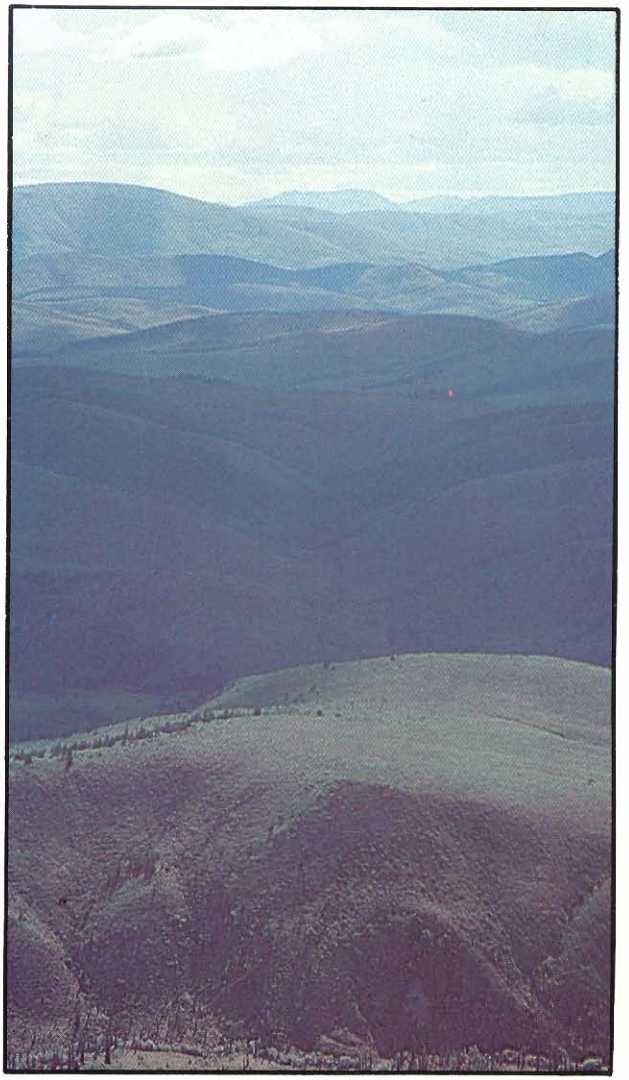
Report of the Biennium

1982-1984



Canadian Council on Ecological Areas

Conseil canadien des aires écologiques

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CCEA Biennium Report

This report is available from the Canadian Council of Ecological Areas (CCEA), Ottawa, Ontario K1A 0E7 at a cost of $5.00

Canadian Council on Ecological Areas

The Canadian Council on Ecological Areas is an incorporated non-profit independent national forum established in 1982 to encourage the selection, protection and stewardship of a comprehensive system of ecological reserves in Canada. It draws its membership from federal, provincial and territorial governments, non-government organizations, universities and private citizens.

Objectives

1. To promote public understanding of and support for the establishment of a comprehensive Canadian system of ecological areas;
2. To facilitate the exchange of relevant information among governments and other interested organizations;
3. To advise and assist governments and others interested in the development and maintenance of a comprehensive Canadian system of ecological areas and in its integration with land-use planning systems;
4. To prepare guidelines on the selection, establishment, protection and management of ecological areas, and on evaluation and upgrading of the relevant data base;
5. To evaluate and report on the selection, designation, protection, management and use of established and proposed Canadian ecological areas;
6. To establish useful relationships with international organizations and organizations in other countries having similar interests and concerns;
7. To do all such other things as are incidental or conductive to the attainment of the above objects.

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1982-83, 1983-84

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Foreword from the Chairman

Collectors—whether of carvings, paintings, carpets or combs; of butterflies, orchids, beetles or birds—have pursued their interests through the ages and bequeathed to us the treasures of art and nature that are stored in museums and galleries around the world. To study these priceless collections helps us to define ourselves as individuals; we learn more clearly what it means to be a Canadian or a Kenyan, for example, and we come to understand better our relationship to other living things. Much that we know of natural and cultural evolution we have learned from studying the works of ancient artists and artisans and scrutinizing specimens of the plant and animal species that share our world. All this we have long realized quite clearly, and while there may from time to time be arguments about matters of scale and pace, there is no fundamental debate about the need to construct and maintain museums and galleries.

More recently we have come to realize that a single object tells us less than an integrated collection of related objects. Reconstructed pioneer settlements, like Upper Canada Village or Barkerville, illustrate with deeper meaning and greater persuasiveness than even a well-presented collection of tools, utensils and garments, what it was like to live in the St. Lawrence Valley or the Cariboo a century or so ago. The same principle holds with respect to living things. We can learn more by watching the actions of ducks and waders, dragonflies and water-striders in the complex marsh community of which they are a part than we can from the most intimate study of individual specimens of the various plants and animals that make up that community. To preserve a functioning ecosystem is to provide the opportunity see how living things interact and how they respond, individually and as a community, to the passage of time. Furthermore, we can effectively protect individual organisms only by a protecting the systems in which they are found. What we have realized, then, is that we should be establishing collections of functioning ecosystems. That, in fact, is what is happening where systems of ecological reserves are being set up.

It seems unlikely, however, that there is sufficient recognition of just how important and useful such a collection of ecosystems can be. Despite the startling and impressive technologies that are being applied in agriculture, forestry and fisheries, indeed, in all fields of human activity, our dependence upon functioning ecosystems for our survival is not one whit less than it ever was. Technology will never release us from that vital relationship. But we have modified, and we continue to modify at an ever greater rate—sometimes in very fundamental ways—the functioning of ecosystems. We have established single crop systems, sustained by chemical fertilizers and pesticides, where once heterogeneous communities of trees, shrubs, forbs and grasses grew. We have clear-cut thousands of square kilometres of forest. We do not know the long-term effects of all these actions. To many of the important questions that we might ask about soil fertility and plant succession, the answers are obscure or uncertain. The practical value of ecological reserves is that they offer us the opportunity to learn from the unfolding of natural phenomena; in fact, they provide the only opportunity to derive the knowledge and understanding that will enable us to use our living resources more wisely. Beyond that they serve as a store house for maintaining precious genetic resources—at risk of being lost forever as natural communities are eliminated.

While many gaps must be filled before our nation-wide system is complete, most Canadian jurisdictions have made a good start in establishing ecological reserves; there has been much less progress in starting up the programs of monitoring and research that will eventually make the system pay off.

The Canadian Council on Ecological Areas was established to promote the concept of a nation-wide system of ecological reserves and to help those persons who have a professional interest in or responsibility for ecological reserves to exchange information and ideas about how best to plan, manage and use provincial and national systems.

This first biennial report of CCEA reviews the activities that it has undertaken since its establishment. It reports more fully on mechanisms for establishing ecological reserves and on guidelines for their management, two of the topics that CCEA has already studied in some detail.

David A. Munro
Chairman

Origin and Growth of CCEA

The Canadian Council on Ecological Areas had its origin at a meeting convened by Environment Canada in Ottawa on December 10, 1981. Representatives of federal and provincial and territorial departments, non-government organizations and academics interested in the creation of a national system of ecological reserves were in attendance.

Interest in ecological reserves in Canada was given considerable impetus by the work of the Canadian Subcommittee for the Conservation of Terrestrial Communities of the International Biological Programme (IBP-CT) which was active for the ten years from 1964 to 1974. The various Regional Panels of the Subcommittee identified a large number of potential sites having features worthy of consideration as reserves. By the end of the Programme in 1974, data had been collected on 964 sites and a number of other unassessed areas were listed. Beginning in 1975, the work of IBP-CT was continued by an Associate Committee on Ecological

Reserves (ACER) of the National Research Council. However, after three meetings it became more or less inactive while various schemes for continuing its work under the aegis of Environment Canada were considered until the meeting in Ottawa in December 1981. The purpose of the Ottawa meeting was to explore the possibility of establishing a new independent organization that could build on the work of IBP-CT and ACER and generally foster the development of a comprehensive national system of nature reserves.

The initiative of Environment Canada was greeted enthusiastically and an interim committee was established to recommend the steps to be taken to establish a new organization. A second meeting in Ottawa on February 12, 1982 elected Dr. David A. Munro as Chairman of the emerging "Council." A programme of activities was proposed and plans laid for a General Meeting to be held in Calgary on July 7-8, 1982.

At Calgary there were representatives from six provinces and one territory, four federal government departments, six non-government organizations and seven universities and the Canadian Environmental Advisory Council. There was a wide ranging discussion of what needed to be done to promote a national system of reserves and the priority tasks to be addressed. These included a national registry of established and proposed areas, guidelines for selection, establishment and management of ecological areas and the need for a programme of information and education to promote a better understanding of the value of reserves. A Working Group was set up to explore the feasibility of a national registry. There was also considerable discussion of the special circumstances relating to the establishment of ecological areas in the North. A draft statement of objectives and mode of operation was approved.

Organizational matters including the appointment of an executive,committee coordinators, the definition of membership, the possibility of incorporation and the official name of the Council were also discussed.

The next meeting was held at York University in Toronto on November 24-25, 1982. Again there was good representation from six provinces, one territory, four federal government departments, ten non-government organizations, six universities, the Niagara Parks Commission, the National Museum of Natural Science, and the Canadian Environmental Advisory Council. By this time, the Council had an administrative structure, its objectives were becoming clearer, and members were better acquainted; all of which contributed to a lively informal exchange of information and ideas among those in attendance and to productive discussion in the formal meeting. There was a continuing discussion on the need for a national registry and for the collection of data on methods of record-keeping within the various government and non-government agencies. The Working Group on the National Registry was asked to undertake a questionnaire survey to gather this information and to continue its investigation. Representatives of the Department of Indian and Northern Affairs invited the Council to comment on a draft discussion paper entitled: A Comprehensive Conservation Policy and Strategy for the Northwest Territories and the Yukon. A Task Force of CCEA was appointed to carry out the review. Its report was subsequently presented at the Northern Conservation Policy Workshop in Whitehorse in March 1983, and later formed the basis for the CCEA submission to the Task Force on Northern Conservation in February 1984. Other items before the meeting were: the proposal for incorporation, the preparation of a CCEA statement expressing concern for possible closure of biological field stations across the country, the prospects for ecological reserves on federal lands, and the completion of position papers in preparation by Committees.

The 1983 General Meeting was held at Mount Allison University in Sackville, New Brunswick, on August 15-16. Representation was somewhat increased at this meeting with attendance by four federal departments, seven provinces and one territory, eight non-government agencies, four universities and the Canadian Environmental Advisory Council.

It was announced that the Council was incorporated in August and therefore had a constitution and by-laws to govern its affairs. A bilingual brochure describing the organization and objectives of CCEA, prepared by the Information and Education Committee, was distributed for the first time. A Board of Directors was elected in accordance with the requirements of the constitution. A Working Group was appointed to prepare a submission on Ecological Reserves and Northern Conservation to the Task Force on Northern Conservation. There was the usual useful exchange of views and reports on activities by the jurisdictions and non-government agencies represented.

There have been two meetings of the Executive Committee, November 25, 1982 at York University and on February 21-22, 1983 in Winnipeg, and one meeting of the Board of Directors on December 7, 1983, in Vancouver. The first two meetings were primarily concerned with organizational and administrative matters, incorporation, preparation of the brochure, terms of reference of committees and the like. The Board meeting was mainly taken up with the CCEA submission to the Task Force on Northern Conservation and the national registry.

The first two years of the Council's operations have been a period of establishing a legal organizational structure, carefully defining the work ahead and starting on the tasks which will lead to a comprehensive system of ecological areas in Canada.

Committees and Working Groups

At the Calgary meeting three standing committees were established: *Scientific, Management* and *Information and education* as well as Working Groups to tackle specific short-term tasks.

Scientific Committee (Coordinator: Dr. S. Rowe)

The work of this committee is fundamental to all other activities of the Council. Its task is to address the questions and criteria of a scientific and research nature relevant the procuring of a representative series of examples of the Canadian landscapes which will constitute the comprehensive national system of ecological areas mentioned in the objectives of CCEA. The Committee began by seeking an appropriate ecological map of Canada as a foundation for site selection. It will continue to consider selection criteria and uses and values of ecological areas.

Management Committee
(Coordinator: Dr. Bristol Foster)

The first task of this Committee has been the preparation of a working paper on *"Guidelines for management and research on ecological areas."* Drafts were discussed at several general meetings and the finished document is included as part of this report.

Information and Education Committee
(Coordinator: Dr. C.D. Fowle)

The first item in the list of objectives of CCEA is the promotion of public understanding of the values of ecological areas and the need for a national system. It is the business of this Committee to pursue this objective. So far it has been responsible for the preparation of the CCEA brochure and this report.

Working Group on a National Registry of Ecological Areas (Coordinator: Tim Lash)

At the founding meeting of the Council it was recognized that a centralized registry of protected areas was a primary requisite for the establishment of a national system. The topic was discussed and at the Calgary meeting a Working Group on a National Registry was appointed to undertake a systematic study of ways to develop a registry. A first task was to circulate a questionnaire to appropriate agencies across Canada seeking information on available data bases and the format for storing and recovering information on established and candidate protected areas. An interim report was presented at the General Meeting in Sackville in 1983.

At the Executive Meeting in December 1983, a proposal for a cooperative study of a registry between CCEA and the Nature Conservancy of Canada was approved. In March of 1984 the Nature Conservancy, in consultation with several interested agencies including CCEA, convened a workshop in Toronto on *A Canadian Registry for Natural Heritage Areas.* There were 18 participants representing federal and provincial governments, non-government organizations and universities. There was a productive discussion and exchange of ideas and experiences which clarified some of the issues to be addressed in setting up a registry. A second workshop was recommended for later in 1984.

Working Group on Ecological Reserves and Northern Conservation
(Coordinators: G. Nelson and R. Revel)

At the General Meeting at York University in 1982, representatives of the Department of Indian and Northern Affairs tabled a draft discussion paper: *A comprehensive conservation policy and strategy for the Northern Territories and Yukon,* and invited comment by the Council. The Council responded by asking a Working Group to review the document. Subsequently, in late February 1983, DINA convened a Northern Conservation Policy Workshop in Whitehorse at which there was an opportunity for members of the Working Group to present the views of CCEA. On the recommendation of the Workshop, the Minister of Indian and Northern Affairs appointed a Task Force on Northern Conservation to make recommendations for a northern policy. At the Sackville meeting, it was decided that CCEA should make a submission on ecological reserves to the Task Force. Another Working Group to prepare the submission was appointed and the paper prepared was reviewed by the Executive before submission to the Task Force in February 1984.

Finances

To date, the Council has had no funds of its own. Expenses of representatives attending meetings have, for the most part, been paid by the agencies and organizations they represent. Environment Canada has supplied the services of the secretariat, the stipend of the Chairman and travel for some people attending general and executive meetings. A contribution from the World Wildlife Fund (Canada) paid for incorporation and part of the costs of printing a bilingual, full-color brochure describing the Council.

The Council is exploring ways of broadening the base of its financial support over the long term.

Working Papers from the Council

The following three working papers of the Council have been prepared by some of the Committees and Working Groups. They represent the views of the Council at the time of publication of this report but they

are true "working papers", designed to serve as a basis for discussion and are subject to revision as new information comes to hand.

In addition to the preparation of these papers, the Council joined with the Institute for Resource and Environmental Studies at Dalhousie University in a joint publication of *The Status of Ecological Reserves in Canada* by Pierre Taschereau. This is a major contribution to the literature on ecological areas in Canada and will serve for some years as a foundation document in bringing together the current knowledge on the legislation and distribution of reserved areas across the country.

Copies are available from the Secretariat of the CCEA in Ottawa or from the Institute at Dalhousie University in Halifax, Nova Scotia.

Guidelines on Management and Research in Ecological Areas

Prepared by the Management Committee

INTRODUCTION

The objective of the Canadian Council on Ecological Areas is to encourage selection, protection and stewardship of a comprehensive system of Ecological Areas in Canada.

In this paper the Council offers broad guidelines for the stewardship of proposed and existing Ecological Areas. The IUCN's paper "*Categories, objectives and criteria for protected areas*" (1978) has been drawn upon for these present guidelines. This paper does not attempt to accomodate all Canadian jurisdiction; to do so would result in guidelines so broad as to be useless as a standard to strive for in any Ecological Areas program. Those jurisdictions which must adopt management procedures that deviate widely from these guidelines should consider naming their sites Multiple Use Management Areas (IUCN Category 8) or some designation other than Ecological Areas (Reserves, Sites, etc.)

The Council recognizes that emphasis on a uniformly high degree of protection could prevent the establishment of Ecological Areas in some locations, particularly north of 60°. While complete protection of certain sites is often highly desirable, it is not always possible and in such cases zoning may be a particularly helpful technique for combining the protection of critical areas with the managed use of adjacent areas. While not all parts of all areas need to be pristine, site specific management plans are essential and, so far as possible, they should reflect broad national standards.

The Council considers it important that Ecological Areas be established in the context of a land use planning process and a comprehensive conservation policy and strategy.

Because of differences in provincial legislation and policy for protected ecological areas in Canada, Council advocates that environmental management in each area be guided by a stewardship plan. If as many as possible of the following principles and guidelines are adopted in the preparation of such plans, it will help to raise environmental management policies and practices in the different jurisdictions toward the highest possible level.

To help ensure compliance with management and research principles it has been found useful to have an Advisory Board, appointed by the appropriate Minister(s), to give guidance to the Minister and the government employees responsible for the management of Ecological Areas. An Advisory Board can be particularly useful to the Minister in establishing priorities for designating areas and in giving guidance on management and research policies.

STEWARDSHIP PLANS

Stewardship plans are official statements that guide activities related to management, research and nature appreciation in Ecological Areas. The plans take account of important ecological features and processes affecting protected areas. While stewardship plans should focus primarily on the protection of natural systems, they should also provide the flexibility necessary to conserve specific ecological features that require separate and special environmental management procedures.

Stewardship plans may vary in complexity and detail depending on the purpose for and management needs of protected areas. For example, in situations where the aim is to allow natural succession to prevail over an entire area, the plan would simply entail a statement of purpose and a brief prescription outlining any special management requirements to achieve this end.

More complex situations, having a range of conservation objectives, may require more sophisticated stewardship plans. For example, a specific plan may seek to permit natural succession in some parts of an area, while in other parts it may be desired to arrest succession at a certain stage and thus some form of intervention will be necessary. Under such circumstances, stewardship plans can, by means of zoning, provide the flexibility needed to accommodate specific management prescriptions for distinct compartments having different conservation objectives.

While the preparation of plans will vary among jurisdictions a Stewardship Plan should:

(1) State goals and objectives for the area based on an adequate understanding of its ecological values and be consistent with the guidelines for management adopted by the jurisdiction.

(2) Develop a management plan consistent with the area's values. The plan may designate core and buffer zones, and it may indicate how specific values (e.g., those related to endangered species or ecosystems) should be conserved by active management to achieve stated objectives. In general

the least manipulative methods and natural rather than unnatural techniques should be used.

(3) Reflect the advice of Advisory Boards, which should be consulted in plan preparation and should review and endorse plans developed by others. In the absence of Advisory Boards, working groups, external specialists and reviewers should be engaged to fulfill this role.

(4) Take account of public concerns in its preparation. Stewardship plans should be available to the public at various stages during preparation, and as finally approved documents.

(5) Be approved by the administering agency at a high level.

(6) Provide that external boundaries and zone boundaries are clearly defined by natural features, or are designated on the ground.

(7) Outline a program of inventory, monitoring and research; and education, if appropriate.

(8) Establish a policy for visitors, on the basis of deciding if the Area is so fragile that it can be accessible only by permit or whether casual visitation can be permitted at any time. Indicate procedures to obtain permits when necessary and define what visitors may or may not do.

(9) Establish firm guidelines for any allowable development (usually only in buffer areas) or for maintaining existing developments, such as trails.

(10) State administrative and enforcement measures and responsibilities (e.g., erection of signs, fencing, designation of boundaries, surveillance, etc.).

(11) Define an implementation strategy.

(12) Provide for periodic review to assess their relevance.

ZONING

Within protected Ecological Areas, zoning may be used to delineate sub-areas having discrete conservation objectives and management requirements. Zone descriptions, including accurately mapped boundaries, should be accompanied by a statement of purpose and a prescription of the environmental management techniques to be used to achieve the stated objectives. Normally, four zones will accommodate the range of management requirements that may arise: Strictly Protected Zones, Managed Zones, Buffer Zones and Access Zones. (Terms similar to the first two, viz., Strictly Protected Areas and Managed Areas, may be used to refer to entire protected areas that are not divided into zones.)

(1) Strictly Protected Zones or Areas (IUCN, Category 1) are protected lands and waters, having a high degree of natural integrity, where natural processes prevail without man's intervention. Strictly Protected Zones or Areas will serve as benchmarks for the investigation of natural changes in ecosystems.

(2) Managed Zones or Areas (IUCN, Category 4) are areas containing aquatic or terrestrial communities and features, where natural processes may be simulated, or other forms of environmental manipulation applied, to maintain a particular feature or condition. Managed areas provide opportunities to maintain and study communities and species that might otherwise be lost through natural succession or other kinds of environmental change.

(3) Buffer Zones are lands and waters designated to shield Strictly Protected Zones and Managed Zones which, together, may be called "core areas or zones", from incompatible uses of adjacent or surrounding lands.

(4) Access Zones are confined zones where development and support facilities for access and research are located. Access zones will usually be placed in Buffer Zones.

Areas of less than 100 ha should usually not be zoned but strictly protected throughout. Larger areas could be managed in accordance with core and buffer zone concepts. A buffer zone, even with some controlled industrial use, can help to protect the core area. For example, selective logging rather than clear cutting in the buffer zone can lessen the chance of trees blowing down in the core area.

Whenever possible, Strictly Protected Zones and Managed Zones should be located centrally in an Ecological Area with Buffer and Access Zones on the periphery. Ideally, clear physiograhic boundaries should be the basis for defining zones thus facilitating delineation in the Reserve. Possible problems should be considered before an Ecological Area is established. The sources of potential management conflicts, such as an ore body or mine site, should not be placed within the core of an Ecological Area.

MANAGEMENT GUIDELINES FOR CORE AREAS

The following guidelines with respect to use are recommended for Strictly Protected and Managed Zones or Areas. Exceptions to guidelines arising from emergencies should be the subject of review by an Advisory Board.

Mining: No extractive use unless present before Ecological Area designated; no prospecting with the intention of removing any resource; no new mining activity. Existing leases would normally be allowed to expire before the Area is created. Any minerals such as gas under an Ecological Area would have to be extracted by drilling from outside the Area, a feasible procedure if the core area is small enough.

Logging: Not allowed in any strictly managed zone even if the trees are decadent, overmature, insect ridden or blown down. (Selective logging may be needed in buffer area to protect core area against blowdown.)

Pest Control: Chemical, biological or other pest control not permitted in Strictly Protected Area. Such management could occur in a Managed Area providing it served the Management Plan and had the consent of the Administrator and Advisory Board.

Hunting/Fishing and Trapping: Since Ecological Areas are established to protect ecosystems, hunting, fishing and trapping should not be permitted in the core of an Ecological Area except in emergencies for subsistence purposes or as required to satisfy existing treaty rights. Where prohibition of hunting, fishing or trapping is legally impossible, voluntary restrictions should be sought if such would be in accordance with the stewardship plan. Another exceptional situation might be if wild ungulates were having a severe impact on vegetation, in which case herds might need to be reduced in a Managed Zone. Similarly, trapping should not be permitted except in special circumstances where it serves the stewardship plan.

Grazing: By domestic stock may be advisable in a Managed Zone when the Board has determined that such grazing is of benefit to the Ecological Area. Some grassland areas may need to be fenced to control domestic stock; wood rails rather than wire should be used wherever possible.

Motorized Vehicles: May be permitted on routes built before the Ecological Area was established. Off road vehicles, motorized boats and aircraft should be banned except for research needs and to provide medical aid to injured persons. An elevation limit might have to be imposed on air craft flying over nesting or calving areas.

Fire: Can be considered a natural management tool and can sometimes be used to maintain a Managed Zone in a specific stage of ecological succession. In other cases fire can be very damaging to an Ecological Area. A fire management plan is needed for most Ecological Areas so that local fire fighters can know immediately what response, if any, is warranted when a fire occurs in an Area. Appropriate fire fighting techniques must also be defined. In general only water should be used, with fire retardants, bulldozers, etc. used in extreme cases only.

Recreation: "Non-consumptive" recreation such as hiking, photography and bird watching should not be encouraged; it should be allowed only if it is determined that the effect of such activities on the Ecological Area is insignificant. Camping should not be allowed except by researchers under permit and only when the Area is too large to allow daily access.

RESEARCH, MONITORING AND EDUCATION

Ecological Areas are set aside for the permanent protection of ecosystems and for research and educational purposes. While it is sometimes possible to do research in other areas such as Parks, only in Ecological Areas is research deemed to have top priority; other activities such as recreation are permitted only if they do not significantly detract from the conduct of research in natural ecosystems.

The basic principle governing research and monitoring in an Ecological Area is that these activities should not significantly affect the natural processes at work in the core area. In the collection of specimens and the disturbance of surficial deposits it is often a matter of subjective judgement as to how much disturbance can be tolerated without altering the natural state significantly, and a very conservative approach should be taken. It should be recalled that Ecological Areas are repositories of genetic material or in situ gene banks available for future generations. Controversial research proposals should be reviewed by an Advisory Board before decisions are taken.

A second principle underlying the collection of data relates to timeliness. All Ecological Areas are changing, in respect of both individual species that they support and the ecosystems that they comprise. Thus it is crucial to monitor environmental changes over time. Ecological Areas are used as "baseline" or "control" areas with which changes elsewhere can be compared. Hence, baseline studies have the highest priority in the early years of an Ecological Area. In later years, study of logical ecoprocesses may assume equal importance.

From these general considerations, the following guidelines are recommended:

(1) Research and other activities should not significantly affect the naturalness of an Ecological Area.
(2) Baseline inventories and environmental monitoring of Ecological Areas should receive top priority at first, with studies of ecological process becoming important later.

Similar considerations apply with respect to education. Allowable educational activities should be indicated in the management plan and should be permitted providing no significant damage to the Area results. Organized groups should request permission to use an Area so that a record of use can be assembled.

LEGAL ARRANGEMENTS FOR MANAGEMENT

The following guidelines are recommended:

(1) Regulations incorporating site management guidelines should be formally adopted.
(2) The Ecological Reserves Act, or equivalent, should state significant penalties for breaking the Regulations.
(3) All enforcement officers in the region should be able to enforce the Regulations: police, conservation officers, forest rangers, park officers, etc.
(4) Ecological Areas should be established with legal descriptions so that the borders can be described and clearly marked on the ground to facilitate any legal action.

	Core		*Buffer Zones*	*Access Zones*
Activities Permitted	Strict Ecological Areas or Zones	Managed Ecological Areas or Zones		
Mining	no	no	gas, oil	see Note[1]
Logging	no	only to protect endangered species/ecosystems or a seral stage	for research or protecting core area only	see Note[1]
Pest Control	no	ditto above	for research only	see Note[1]
Hunting	no	ditto	see Note[1]	no
Trapping	no	ditto	see Note[1]	see Note[1]
Grazing	to simulate wild ungulates only	ditto	see Note[1]	see Note[1]
Motorized Vehicles	only in emergency	ditto	see Note[1]	see Note[1]
Fire	no	ditto	see Note[1]	
Recreation	non-consumptive usually allowed	yes	yes	yes
Research	non-manipulative only	yes	yes	yes
Monitoring	yes	yes	yes	yes
Education	see Note[1]	yes	yes	yes

NOTE[1]: Activity permitted providing it is recommended by Administrator and Advisory Board.

SELECTED REFERENCES

The following is a selected list of references pertaining to management and research in protected ecological areas.

The list emphasizes publications that deal with practical aspects of managing established reserves. Among the readings are several manuals that provide examples of management plans, or otherwise offer guidance for their preparation.

BOOKS AND REPORTS

A NATURE RESERVE MANAGEMENT PLAN FOR THE ISLAND OF RHUM, INNER HEBRIDES. 1964. By W.J. Eggeling. Journal of Applied Ecology, 1:405-419.
(This paper sets out a model prescription for management plans for nature reserves based on a case study.)

A SURVEY OF ECOLOGICAL INVENTORY, MONITORING, AND RESEARCH IN U.S. NATIONAL PARK SERVICE BIOSPHERE RESERVES. 1983. By Alison Mack, William P. Gregg, J. Susan P. Bratton and Peter S. White. Biological Conservation, 26(1): 33-45.
(The paper documents needs and trends for long term research in 14 U.S. Biosphere Reserves.)

BIOLOGICAL MANAGEMENT AND CONSERVATION: ECOLOGICAL THEORY, APPLICATIONS AND PLANNING. 1973. By M.B. Usher. Chapman and Hall, London, xiv + 394 pp., illus.
(This book reviews ecological theory relevant to the management of ecosystems and discusses its application for the preparation of management plans.)

CLASSIFICATION AND USE OF PROTECTED NATURAL AND CULTURAL AND CULTURAL AREAS. 1973. By R.F. Dasmann. IUCN Occasional Paper, No. 4. International Union for Conversation of Nature and Natural Resources, Morges, Switzerland. 24 pp., illus.
(This publication presents a classification of protected areas that reflects distinctive objectives and management requirements.)

CONSERVATION BIOLOGY: AN EVOLUTIONARY-ECOLOGICAL PERSPECTIVE. 1980. Edited by M.E. Soule and B.A. Wilcos. Sinauer Associates, Inc., Sunderland, Massachusetts. xv = 395 pp., illus.
(This work presents a series of readings pertaining to the conservation of species and natural areas. Among the papers are many theoretical ideas accompanied by practical considerations for their application.)

GUIDE TO SANCTUARY PLANNING. 1979. By Anonymous. Massachusetts Audubon Society, Lincoln, Massachusetts. 01773. iv + 102 pp. + appended workbook., illus.
(This manual is intended to assist with developing a management programme for protected wildlife areas. It provides an outline of ecological survey requirements, guidelines for setting objectives and plan preparation, and a review of operational considerations. Presented informally, some of the material has application for managing ecological areas.)

INTERPRETIVE PLANNING ON NATURE RESERVES. 1978. By J.E. Beatty. Discussion Papers in Conservation, No. 17. University College London. 55 pp., illus.
(This report reviews various aspects of interpretive planning related to visitor use, environmental protection and resources management.)

MONKS WOOD: A NATURE RESERVE RECORD. 1973. Edited by R.C. Steele and R.C. Welch. The Nature Conservancy, Natural Environment Research Council, Monks Wood Experimental Station, Huntingdon PE17 2LS. xiv + 337 pp. + folded map., illus.
(A model management plan including a comprehensive inventory of biotic communities, flora and fauna, and a detailed plan for this world famous research area.)

LEGISLATION ON WILDLIFE, HUNTING AND PROTECTED AREAS IN SOME EUROPEAN COUNTRIES. 1980. By Christian du Saussey. Legislative Study No. 20. Food and Agriculture Organization of the United Nations, Rome. 44 pp.
(The second half of this report reviews legislation in selected countries aimed at protecting areas for faunal conservation.)

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(Although aimed at national parks, this booklet provides many concepts, principles and guidelines for preparing management plans and programmes in other protected ecological areas.)

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(This paper addresses some practical issues associated with managing strict natural areas. The importance of monitoring environmental change and human activity is emphasized.)

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(A conference proceedings reporting on information needs, priorities, information sources, and case studies pertaining to data gathering to facilitate the conservation of rare plants.)

RESERVE RECORDING: INSTRUCTIONS FOR WARDENS. 1973. By F.H. Perring, G.L. Radford and G.F. Peterken. Biological Records Centre, Monks Wood Experimental Station, Abbots Ripton, Huntingdon PE17 2LS. iv + 36 pp., illus.
(A handbook providing instructions for recording flora and fauna and documenting management events in nature reserves.)

SCIENTIFIC ASPECTS OF NATURE CONSERVATION IN GREAT BRITAIN. 1977. Edited by A.R. Clapham. The Royal Society, London. ix + 103 pp.
(This book reports on a meeting staged to review the scientific rationale for nature conservation and nature reserves, and discusses some aspects of scientific management in protected areas.)

STEWARDSHIP: GUIDE FOR PRESERVES. 1978. By Anonymous. The Nature Conservancy, Arlington VA. 80 pp., illus.
(A practical source-book with information on many aspects of reserve management including management policies, guidelines on the content and preparation of stewardship plans, operational aspects and budgetary considerations.)

THE LEGAL ASPECTS OF ECOLOGICAL RESERVE CREATION AND MANAGEMENT IN CANADA. 1975. By Robert T. Franson. IUCN Environmental Policy and Law Paper, No. 9. International Union for Conservation of Nature and Natural Resources, Morges, Switzerland. 108 pp.
(This publication reviews legal aspects of establishing and managing ecological reserves and presents model legislation for ecological reserves.)

THE SCIENTIFIC MANAGEMENT OF ANIMAL AND PLANT COMMUNITIES FOR CONSERVATION. 1971. Edited by E. Duffey and A.S. Watt. Blackwell Scientific Publications, Oxford. xviii + 652 pp., illus.
(A symposium proceedings containing 41 papers covering a wide range of topics on ecological theory, management needs and case studies reporting scientifically based management efforts.)

WOODLAND MANAGEMENT AND CONSERVATION. 1981. By G.F. Peterken. Chapman and Hall, London. xv + 328 pp., illus.
(In three parts, this book provides a good overview of the ecology and classification of British woodlands as a basis for outlining management practices for their conservation. Many of the principles for woodland management have application for preserving these communities in protected ecological areas.)

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BIOLOGICAL CONSERVATION. Edited by Eric Duffey. Elsevier Applied Science Publishers, Essex, England.
(An international journal, with 12 issues yearly, "devoted to the study and understanding of wildlife conservation and allied natural resources for the lasting cultural and economic welfare of mankind." Subscriptions are £173.00 payable to: Elsevier Applied Science Publishers Ltd., Ripple Road, Banking, Essex, England.)

ENVIRONMENTAL CONSERVATION. Edited by Nicholas Polunin. Elsevier Sequoia S.A., Lausanne, Switzerland.
(A quarterly international publication of the Foundation for Environmental Conservation reporting on initiatives for conservation including the establishment and management of protected ecological areas. Subscriptions are SFrs 170 payable to: Environmental Conservation, Elsevier Sequoia S.A., P.O. Box 851, 1001 Lausanne 1, Switzerland.)

NATURAL AREAS JOURNAL. Edited by Greg F. Iffrig. The Natural Areas Association, 310 South Third Street, Rockford, IL 61108.
(A quarterly publication of The Natural Areas Association reporting on identification, protection and managment activities for protected ecological areas and rare species. Subscriptions are $10.00 U.S. payable to: The Natural Areas Association, 310 South Third Street, Rockford, IL 61108.)

RESTORATION AND MANAGEMENT NOTES. Edited by William R. Jordan, III. University of Wisconsin Arboretum, Madison, WI 53711.
(A semi-annual periodical reporting information on the restoration and wise stewardship of plant and animal communities. Subscriptions are $10.00 U.S. payable to: University of Wisconsin Arboretum, 1207 Seminole Highway, Madison, WI 53711.)

Ecological Areas Decision-Making Processes and Case Studies

R.D. Thomasson and J.M. Shay
Management Committee

INTRODUCTION

Development of Ecological Area/Reserve programs requires that a process be identified for their establishment. Currently a variety of processes exist across Canada. These developed more or less in isolation with each meeting the needs of the jurisdiction responsible for it.

In February 1982 the Canadian Council on Ecological Areas identified the need to disseminate information on successful and unsuccessful attempts to establish Ecological Areas/Reserves. As a result a task group lead by Manitoba and assisted by New Brunswick and the Northwest Territories prepared this report.

METHOD

The task group was asked to document case studies. This would, however, be more valuable if viewed against the background of the appropriate decision making/ establishment process. Thus descriptions of the pertinent processes are included in this report.

The following material was requested from program co-ordinators of Manitoba, New Brunswick, the Northwest Territories, British Columbia and Canada:

1. A schematic diagram of the normal decision making/ establishment process.
2. Identification of:
   a) one successful, typical proposal
   b) one unsuccessful, typical proposal
3. A description of the successful proposal's progress identifying problems encountered and describing how they were overcome.
4. A description of the unsuccessful proposal's progress identifying:
   a) problems encountered with a description of how they were overcome
   b) the major problem(s) which caused the proposal to be rejected or shelved and attempts made to overcome the problem(s)

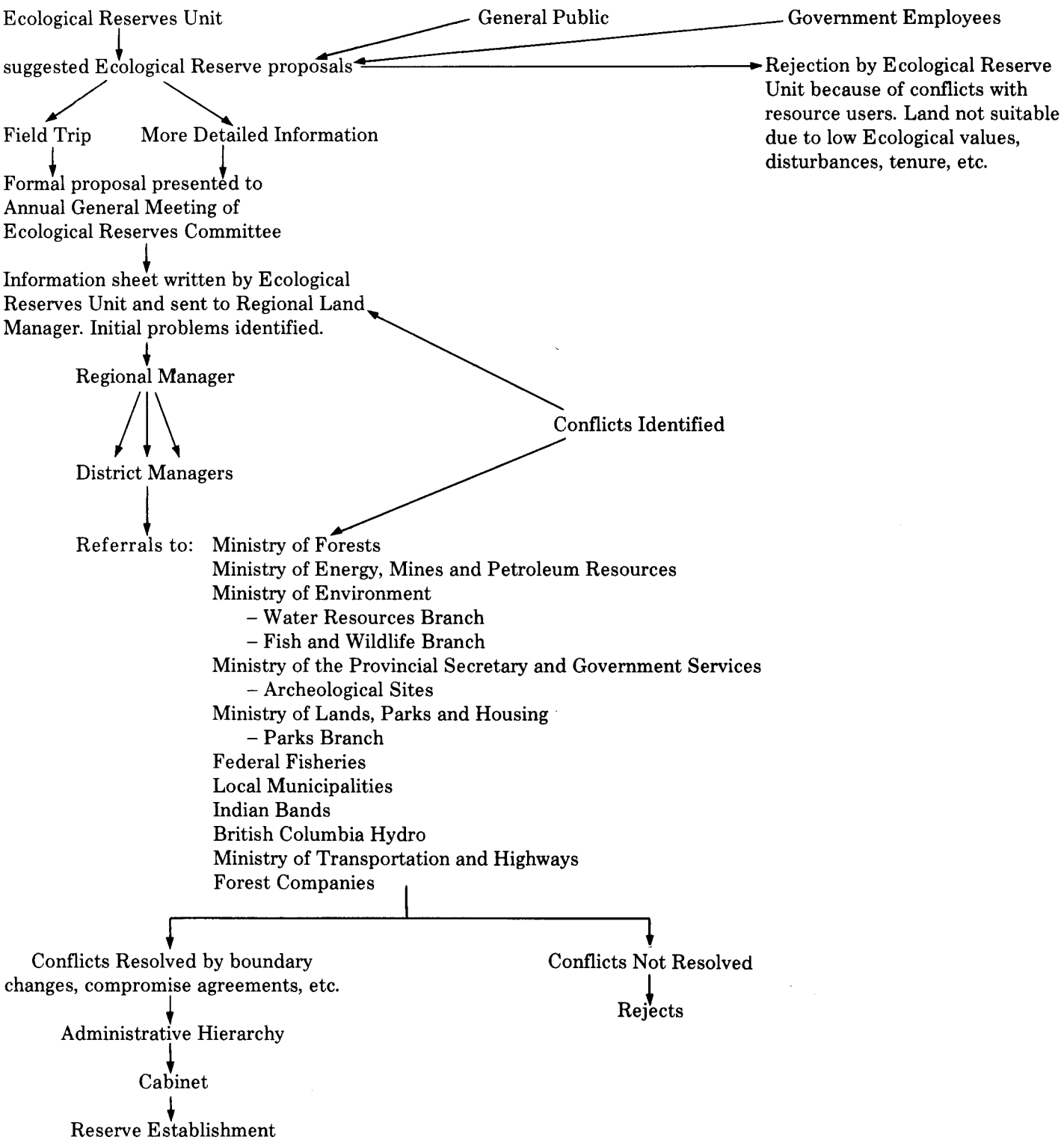
DECISON MAKING/ESTABLISHING PROCESS

Diagrams showing decision making/establishment processes are shown for British Columbia, Canada, Manitoba and New Brunswick. One or more reserves have gone through each of the provincial processes; however, the Federal Government's (Canada) process has not been fully tested to date.

BRITISH COLUMBIA

In British Columbia, (Figure 1), proposed areas (proposals) may be identified by the general public,

Figure 1. BRITISH COLUMBIA: DECISION MAKING / ESTABLISHMENT PROCESS



government employees or the Ecological Reserves Unit of BC's Department of Lands, Housing and Parks. Proposals are screened by the Ecological Reserves Unit and may be rejected because of conflicts with resource users, low ecological values, disturbances, inappropriate tenure and related reasons.

Proposals considered appropriate for further consideration are field checked and more detailed information is gathered. Subsequently a formal proposal is made to the Annual General Meeting of the Ecological Reserves Committee. Upon approval of the proposal by the Committee an information sheet is prepared by the Ecological Reserves Unit and sent to the Regional Land Manager within whose region the proposal is located. This marks the beginning of the problem identification stage.

The Regional Land Manager forwards the proposal to the appropriate District Managers and to a wide variety of governments and agencies. These include provincial government departments, federal government departments, local municipalities, Indian Bands, Crown corporations and private business. This widespread referral completes the problem identification stage. Efforts are then made to resolve problems through boundary changes, compromise agreements, etc. When problem solving efforts have been successfully completed, the proposal moves through the administrative hierarchy to Cabinet to establish ecological reserve status for the proposal by Order-in-Council. If problem solving efforts are not successful the proposal is rejected.

CANADA

The process used by Canada (Figure 2) accomplishes the same ends but is quite different from the BC process. It should be noted that this process is used almost exclusively in the northern territories where Canada exercises a number of powers which are the responsibility of provincial governments in the more southerly parts of the country.

Candidate ecological areas (proposals) were identified for Canada during the International Biological Program (IBP). The IBP panels (9 & 10) responsible for the program initiate the decision making process by submitting proposals to the Interdepartmental Working Group on IBP Ecological Sites. This group conducts a preliminary review of each proposal. If the review is favourable the approval of the Minister of Indian Affairs and Northern Development is sought in order that the process can continue on to public discussion. If the review is not favourable or if Ministerial approval is not forthcoming the process stops.

Subsequent to public discussion the Interdepartmental Working Group re-evaluates the proposal and prepares its final recommendations. These are forwarded to the Minister of Indian Affairs and Northern Development who may approve, modify or reject the proposal.

Canada's process is untested to date hence modifications may occur. These are most likely to be related to the emerging comprehensive conservation policy and to the northern land use planning policy.

MANITOBA

Manitoba's process allows for the initiation of proposals by any person or group. Hence the general public, special interest groups, government staff and the Ecological Reserves Advisory Committee may all initiate proposals. Once a proposal is initiated available information is gathered and reviewed. To a limited extent additional data is gathered, if necessary, by the Ecological Reserves Advisory Committee (ERAC). This constitutes an initial review during which the proposal is either rejected as being unsuitable ecologically approved for further consideration. Approval leads to placing a Crown land reservation, for temporary protection, on the proposal area and to field inspection. A second review of the proposal by ERAC is based on results of the field inspection. This proposal is then either rejected for ecologically significant reasons or approved as worthy of reserve status by ERAC with the proviso that no major problems are identified in subsequent stages of the decision making/establishment process.

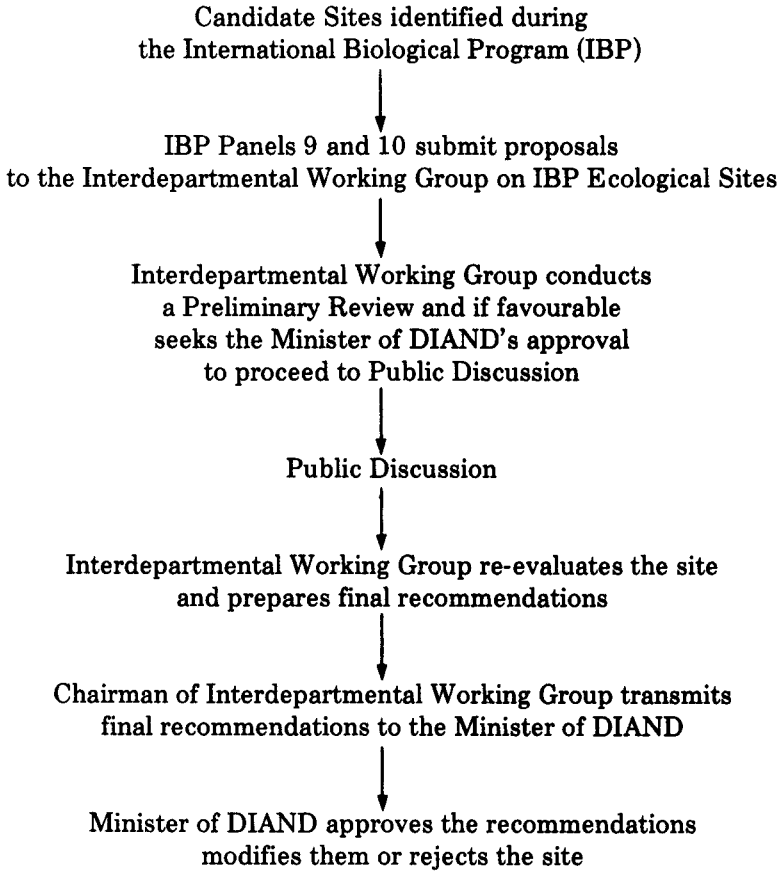
Following ERAC approval an interdepartmental review is undertaken to determine conflicting land uses, resource commitments and resource values. This is the major problem identification stage. If problems are identified efforts are made to solve them by adjusting boundaries, removing prior commitments, etc. Failure to resolve one or more problems causes rejection of the proposal unless time is expected to eliminate the problem through expiration of a commitment. In this case the proposal is held on file for further consideration when the commitment has expired.

Proposals having no problems or for which problems have been resolved are forwarded through the administrative hierarchy for preparation of an Order-in-Council, Cabinet approval and establishment of reserve status.

NEW BRUNSWICK

New Brunswick process starts with the identification of the province's ecosystems. The identification of prospective alternate and additional proposals for consideration then follows. Subsequently, priorities are set for proposals and selections made for consideration in the annual Ecological Reserves program. Selected proposals are field checked by the Environmental Council's Resource Committee, a management plan is prepared and a public meeting held to discuss establishment of the proposal as an ecological reserve. The end result of these steps, which have incorporated problem identification, is either rejection or qualified

Figure 2. CANADA: DECISION MAKING/ESTABLISHMENT PROCESS



NOTE: This is the process utilized to Spring 1982. It may be subject to revision in the context of the emerging comprehensive conservation policy and the new northern land use planning policy.

Figure 3. MANITOBA DECISION MAKING/ESTABLISHMENT PROCESS

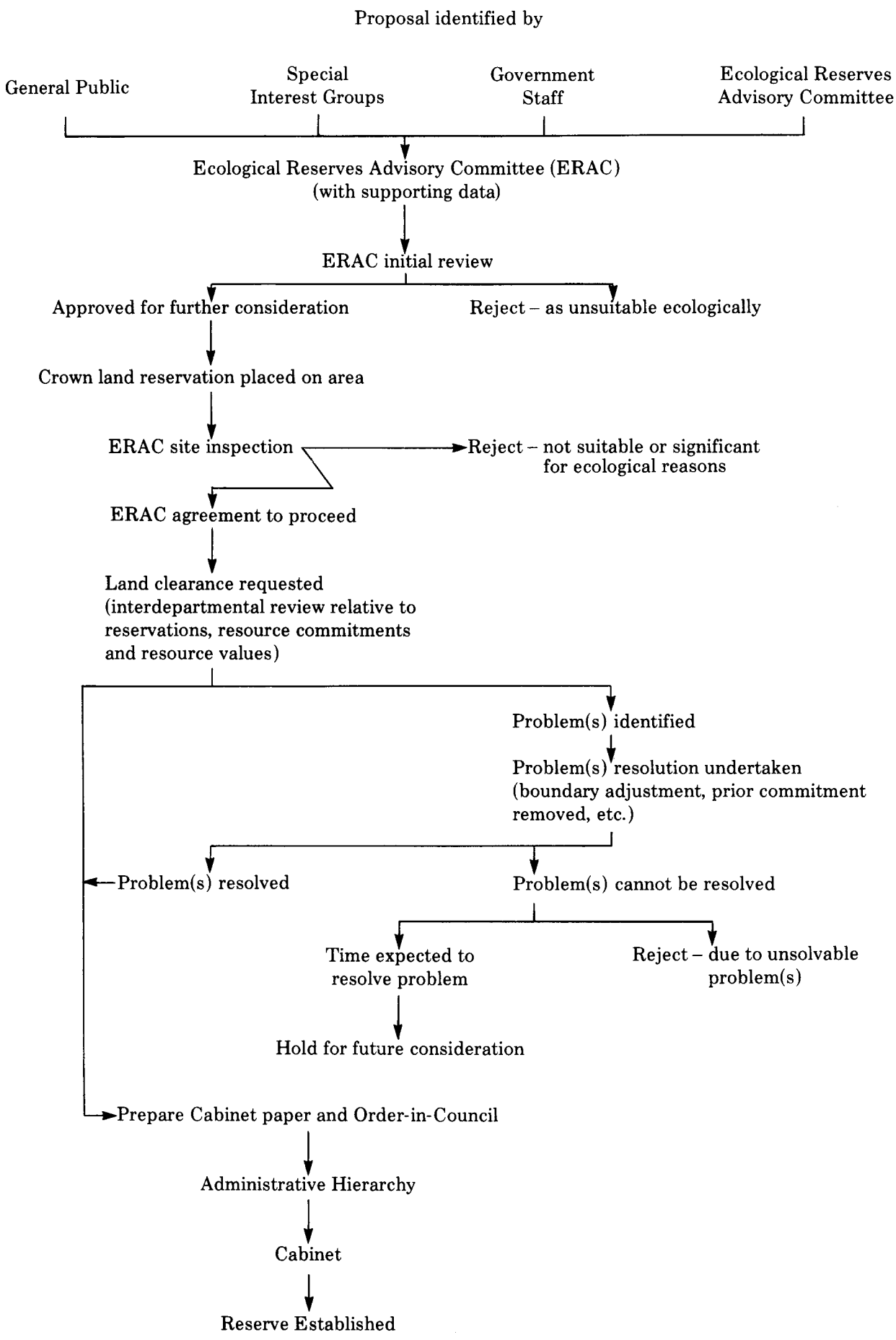
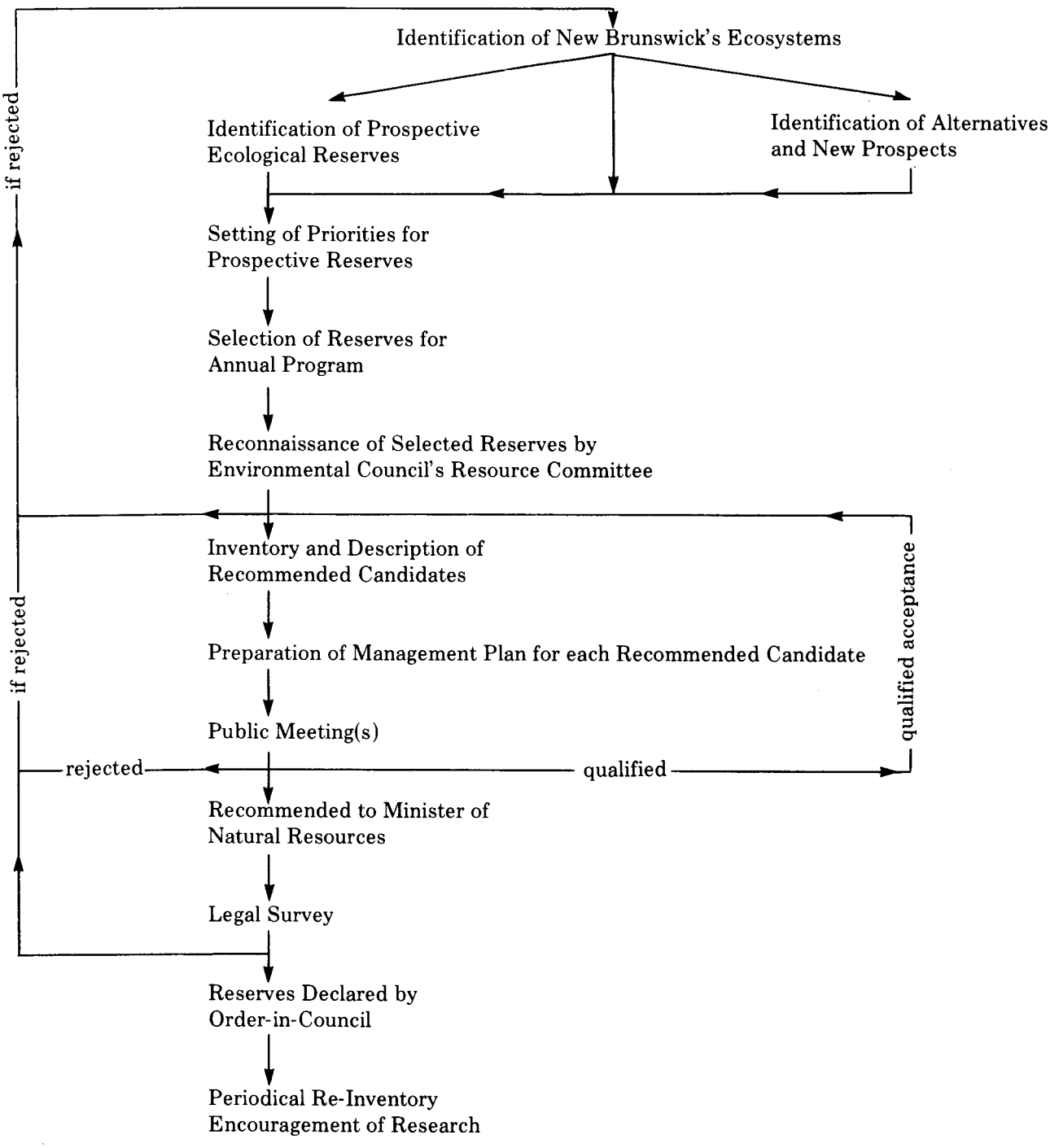


Figure 4. NEW BRUNSWICK: DECISION MAKING / ESTABLISHMENT PROCESS



acceptance. Proposals receiving qualified acceptance are recommended to the Minister of Natural Resources for establishment. The proposal area is then surveyed to establish its exact location and declared through Order-in-Council. Following establishment, the area having reserve status is re-inventoried on a periodic basis and research is encouraged on an ongoing basis.

CASE STUDIES

Successful

Doc English Bluff, British Columbia. The reserve is a limestone bluff area supporting rare flora and fauna. It was proposed by the Williams Lake Field Naturalists, the B.C. Ministry of Forests, a University of British Columbia professor and by the Ecological Reserves Unit.

A review of the site identified both a flooding reserve, to 475.5 m ASL, and an archeological reserve on parts of the area. The archeological reserve was not considered to present a problem according to the regional archeologist hence could be disregarded in the decision making process. The flooding reserve did constitute a problem which was resolved by placing the area boundary above 475.5 m.

A question of recreational use of the area was raised and resulted in rejection of the proposal by the Regional Resource Management Committee. This appeared to kill the proposal, however, the local naturalists presented a resolution to the Federation of British Columbia Naturalists who wrote the Minister of Environment. The Minister of Lands, Parks and Housing, who is responsible for Ecological Reserves, then agreed to review the proposal. At about the same time the local naturalists wrote the Regional Land Manager in support of the area indicating that they were advocating the reserve status for recreational reasons. The Regional Resource Management Committee then approved the proposal on condition that the boundaries be changed to eliminate all grazing land.

The final problem encountered was that the local MP, who was also a provincial government Minister, objected to Ecological Reserves in his constituency. He was contacted by the Williams Lake Field Naturalists who requested his support. The Order-in-Council was then prepared and passed to establish the reserve.

Wampum Red Pine, Manitoba. The area is a mature stand of red pine within Sandilands Provincial Forest in Southeastern Manitoba. It was recommended by the Southeastern Regional Director of the Department of Natural Resources.

Gravel is common in the vicinity hence the land clearance procedure required discussions with the Department of Mines and the Department of Highways. This resulted in an assessment of the site for gravel by the Department of Mines and an estimation of future gravel demands in the vicinity by the Department of Highways. The result of both activities resolved the gravel issue so that mineral rights were withdrawn from the area under consideration and the reserve was established.

Reindeer Island, Manitoba. Reindeer Island is located in the north basin of Lake Winnipeg. It is approximately 142 square kilometers in area and possesses a variety of ecosystems and land forms. The island is an IBP site and as such was recommended by the Ecological Reserves Advisory Committee.

Efforts to place a Crown land reservation on the island brought to light the only problem encountered in the establisment process. This problem related to a proposal that a commercial fishing station be located on the island. It was resolved by adjusting the boundaries of the proposal to exclude the proposed fishing station site and to establish a buffer between the fishing station site, its harbour and the main part of the island which now constitutes the reserve.

Glazier Lake Mixed Forest, New Brunswick. The area is located in northeastern New Brunswick. It was inventoried as an IBP site and recommended on that basis.

The decision making process flowed smoothly and quickly including the public meeting. Support was received from both the local people and the local pulp and paper company. It is considered that the key to success was through preparation by the Ecological Reserves staff.

Unsuccessful

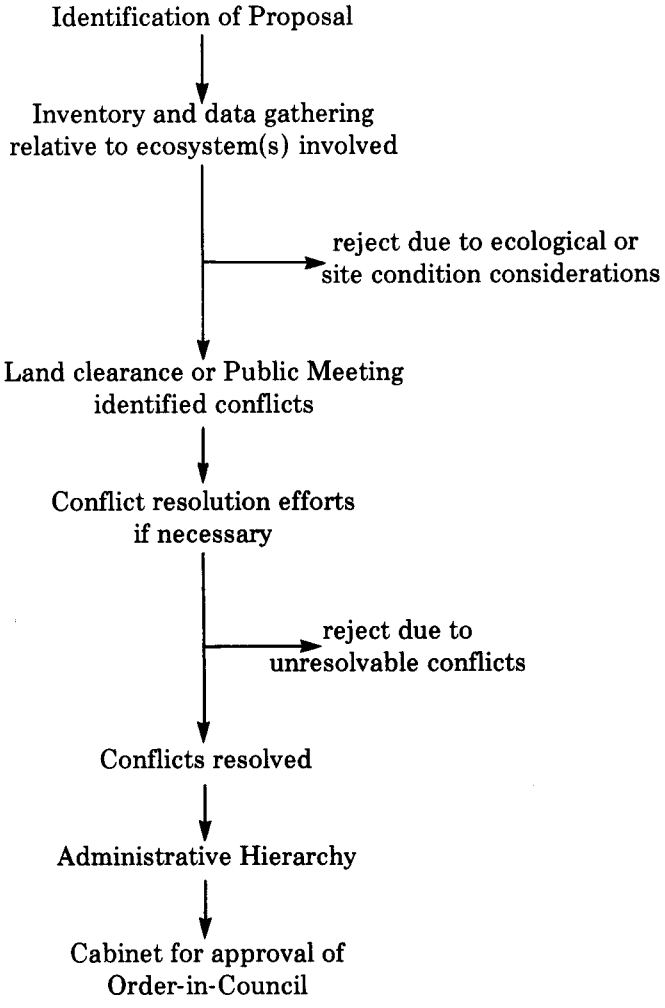
Browning Inlet, British Columbia. The proposed area included foreshore, backshore, tidal lands, and subtidal lands around Browning Inlet and Grants Bay plus intervening forest lands. It was identified by the Ecological Reserves Unit.

An initial status check on the area showed that it included part of a Provincial Forest, a pulp lease and a possible archeological site. The presence of a cabin and trail suggested recreational use of the area. The pulp lease holder objected to the proposed reserve status due to the loss of timber within the area and to access limitations relative to reserve status which would result in a timber loss outside of the area.

A meeting was held to discuss and clarify the issues relevant to the proposal. These included recreational use of Grant's Bay, hunting restrictions proposed for Browning Inlet and restrictions on shellfish harvesting as well as the logging issues previously identified. Attempts were made by the Ecological Reserves Unit to re-locate a proposed road inland because of the road's impact on mud flats. These were unsuccessful.

The Ecological Reserves Unit then suggested

Figure 5. OVERVIEW OF DECISION MAKING / ESTABLISHMENT PROCESS



eliminating Grants Bay from the proposal. Subsequently approvals were received from the Fish and Wildlife Branch, Marine Resources Branch and Federal Fisheries. However, local people sent a petition to the Ecological Reserves Unit opposing reserve status for the area. Forest interests remained negative and Fish and Widlife Branch withdrew its support because of the loss of local hunting opportunities. The widespread objections to the propsal caused it to be rejected.

Landry Lake, Manitoba. The area proposed included a small island in Landry Lake and an adjacent shore which supported ecosystems typical of the Saskatchewan River Delta in west central Manitoba. Landry Lake was on IBP site and as such was recommended by the Ecological Reserves Advisory Committee.

Land clearance procedures identified that the lake was commercially fished with a fish camp on the island and that road access was planned which would result in increased local recreation pressure. Attempts made to close the fishery and relocate the proposed road were unsuccessful.

An alternative location, having similar characteristics, was identified about 24 km to the southeast. The Landry Lake proposal was abandonned and the process initiated on the alternative area. This process resulted in the establishment of Red Rock Lake Ecological Reserve.

Coastal Sphagnum Bay, New Brunswick. The proposed area is an offshore island dominated by sphagnum bog in the northeast corner of New Brunswick. Local residents are dependent upon the bog as a fresh water supply. It was recommended for reserve status through IBP.

The decision making process was successfully completed to the public meeting stage at which time ownership problems were identified. These related to the local survey fabric which was such that ownership of the area could not be determined. A secondary problem, access for hunting, could have been resolved through the management plan.

As a result of the ownership problem the area was rejected and an alternate area 0.4 km south was identified for consideration.

SUMMARY

Decision Making Process. The elements common to the decision making processes described earlier are shown in figure 5. All processes start with the identification of a potential area. This is followed by an inventory and data gathering step which could result in rejection based on ecological or other considerations. The third step includes a land clearance procedure and/or public meetings. This is the major problem identification step. It is followed by a problem solving step during which areas considered for reserve status which have unsolvable problems are rejected. Proposals without problems or for which problems have been solved proceed into and through the administrative hierarchy to the approval step by Order-in-Council or other appropriate vehicle.

Case Studies. Similarity of problems and solutions existed between the case studies provided. Problems related to previous commitments of the required land through alienation from the Crown by grant, sale or lease or through the establishment of Crown reserves. Solutions involved boundary adjustment or re-location of the area proposed for reserve status. Use of the boundary adjustment approach related to successful attempts to establish specific areas. Use of the relocation approach related to unsuccessful second attempts to protect the ecosystems of concern through establishment of an area at a different location.

Major people problems were documented from British Columbia. These were overcome in one case through countervailing people pressure. In another case they had to be accepted and efforts to establish reserve status discontinued.

Ecological Reserves and Northern Conservation:

Comments of the Canadian Council on Ecological Areas[2]

INTRODUCTION

1. The Canadian Council on Ecological Areas is an incorporated, non-profit, independent, national organization whose purpose is to foster the selection, protection and stewardship of a comprehensive system of ecological reserves in Canada. Its interests have evolved from those of the International Biological Programme (IBP) (1965-1974) and the National Research Council Associate Committee on Ecological Reserves (1974-1978). The Council draws its membership from Federal, Provincial and Territorial Governments, non-governmental organizations, universities, research institutes and private citizens.
2. In this submission CCEA reviews factors relevant to the establishment of a system of ecological reserves in Canada's North and recommends steps to be taken in the process.

BACKGROUND TO THE ESTABLISHMENT OF ECOLOGICAL RESERVES IN THE NORTH

3. CCEA has examined the issues and information pertaining to conservation in northern Canada,

[2]Contributors to this paper include R. Revel, J. Shay, C. George, D. Fowle, R. Thomasson and D.A. Munro. This paper draws on an earlier paper to which the major contributors were G. Nelson, T. Fenge and J. Theberge. January 1984.

including particularly what is set forth in the draft discussion paper *"A Comprehensive Conservation Policy and Strategy for the Northwest Territories and Yukon,"* Department of Indian and Northern Affairs, 1982, and concludes that conservation generally and the designation of conservation sites in particular are seen by the responsible agencies as important objectives for government. CCEA further concludes that the designation of conservation sites within the context of comprehensive land use planning should begin immediately.

4. As the discussion paper records, DINA, the lead federal agency for land management in the Territories, has made several commitments to establish a network of ecological areas in the North, and to facilitate sound resource development while ensuring that the social, environmental and resource values of the North are properly maintained. Environment Canada also has stated that review and protection of the ecological sites identified by IBP is one of its priorities. Both departments have stressed the need to work in close cooperation with the Yukon Territorial Government and the Government of the Northwest Territories, recognizing that as the Territorial Governments acquire greater autonomy the administration and management of ecological areas within their boundaries will become the responsibilities of those Governments.

5. Native people recognize the importance of designating and managing conservation areas, including ecological reserves, and want to be involved in the selection and management of such areas. These points have been articulated in "agreements in principle" with respect to at least two northern comprehensive claims. The IBP panels worked very closely with native organizations, as well as industrial interests, and received notification in writing of agreement in principle from a number of the groups.

6. Most of the areas that are considered as candidate ecological areas in the North are those that were identified by panels established under IBP. It is, therefore, relevant to recall certain aspects of the work of the panels. IBP ecological sites were selected and proposed by scientists primarily on the basis of their scientific experience in the North. The selection and establishment of sites was looked at as being in the interests of all Canadians. It is important to note that the IBP panels did not intend that the full extent of all the sites they proposed should be totally protected; it is for that reason that some of the proposed sites were large. It was the view of the panels, as it is of CCEA, that compatible industrial or other uses would be acceptable within parts of many of the proposed sites, that the acceptability of proposed uses should be judged individually for each site and that for each site there should be management plans that would reflect the particular purposes for which the site was selected. Finally the IBP panels were aware that the sites that they recommended as being representative of northern ecosystems were not the only appropriate sites. They realized that alternate sites might be found but considered it impractical to inventory the entire area of the Territories before recommending specific areas. It is for that reason and since more work relevant to the selection of sites has been undertaken since the panels concluded their work, that the consideration of candidate sites now need not be restricted to those named by the IBP panels, although it is likely that the ones named by IBP are the best documented.

POLICY FRAMEWORK FOR THE ESTABLISHMENT OF ECOLOGICAL AREAS IN THE NORTH

7. There is little new that needs to be said about a comprehensive conservaion policy and strategy for the Northwest Territories and the Yukon. DINA enunciated many of the relevant points in its discussion paper "A Comprehensive Conservation Policy and Strategy for the Northwest Territories, DINA, Environment Canada, and native organizations, as well as individual scientists and others, elaborated and refined the concepts of the paper at the Northern Conservation Policy Workshop in Whitehorse in February 1983.

8. What needs to be emphasized is that a network of ecological reserves should be established and managed within the context of a comprehensive system of land use planning and management, based upon the premise that development that is to be sustained for the benefit of local people depends upon conservation. Conservation principles should, therefore, be taken fully into account in designing and managing such a system. Within that sort of system there would, of course, be designated a number of categories of land use and land management, of which ecological reserves would be but one. The establishment of the various categories should be in response to clearly defined objectives for each area.

9. Broad policy on the designation and management of specific geographic areas, including ecological areas, has been clearly established by DINA and at the broad level seems to be accepted by the other elements of Government concerned (Environment Canada, Government of the Northwest Territories, Government of the Yukon Territory). Two aspects of the policy require further development. One is that policy development should, in due course, be carried to the level of detail where it can provide a widely applicable basis for action. Since it seems

unlikely that the policy can be thus elaborated and perfected until a bit more practical experience in the designation and management of ecological areas has been accumulated, it is inappropriate to delay first steps in implementing the policy. DINA has a clear mandate to establish ecological reserves and CCEA therefore urges the Minister of Indian and Northern Affairs to establish a significant number in the near future. But this should be done in full consultation with the other elements of government, representatives of industry, citizens and public interest groups concerned, perhaps through the mechanism of a broadly-based Commission or Council which would serve as a mechanism for negotiating and integrating the various points of view. This high level consultative mechanism should in due course be supplemented by Committees that would provide advice to the administering agency with respect to each site or groups of sites in a region.

CCEA's EXPERIENCE IN ESTABLISHING ECOLOGICAL AREAS

10. Eight provinces have enacted ecological area legislation and nine have ecological area programs under way. A review of the methods used by the provinces for the selection and designation of ecological areas suggests the following generalizations:

    a) The administrations which have been most active in establishing ecological areas have been those where the governments and the responsible ministers have been committed to establishing a network of ecological areas. Responsible departments have acted promptly and with determination, and also with appropriate consultation, to remove any administrative roadblocks to the designation of ecological areas, before arranging for legislative dedication through Order-in-Council or whatever process is necessary in the jurisdiction concerned.

    b) The administrations which have had the greatest success in establishing ecological areas are those which have acted on the basis of recommendations by knowledgeable scientists and have avoided endless cycling of recommendations through committees. In short, expert advice has provided the primary basis for action.

    c) Administrations which have attempted to develop and approve a detailed site evaluation system prior to designation of ecological areas have had very limited success.

    d) By the same token, in successful jurisdictions, the selection and dedication of ecological areas has preceded the development of detailed policies, strategies and management regimes. As ecological area programs expanded and first hand experience was gained in their evaluation and management, more sophisticated administrative and management structures evolved. The least contentious ecological sites were designated first and, through experience with them, the administrative and management tools necessary to deal with more complex sites were developed.

    e) It has been found very useful to have broadly based advisory committees to assist in the selection of sites and in the development of policies and management procedures.

    f) Successful jurisdictions have involved the public directly in the day to day monitoring, policing and management of specific ecological areas.

SUMMARY AND RECOMMENDATIONS

11. In summary, the experiences reported by the members of CCEA suggest that a successful ecological areas program is based upon firm political will and is developed and refined on the basis of practical experience.

    CCEA makes the following recommendations:

    a) DINA should establish a representative consultative mechanism and proceed immediately with designation of ecological areas in the Territories, the least contentious sites being designated first and the more difficult ones later as the responsible administrations gain experience and the concerned public develops a better understanding of the concept and the effects of its practical application.

    Such a Committee or Council would be a significant component of the ongoing mechanism to assist responsible agencies in the development of policy for, and in the selection, evaluation and management of ecological areas. The body should be broadly based, including representatives of the various elements of government concerned, of industry and of citizens groups including native organizations. It would also be useful if one or more members of the former IBP panels were invited to become members.

    b) For major sites, or for groups of sites in a district, advisory committees should be established. These would consist mainly of local residents who would be encouraged to become involved in the day to day policing and

management of established ecological areas. This is particularly important in the Territories where the land base is extensive but populations and financial resources are small.

c) Detailed policy and procedures for the administration and management of ecological areas should be formulated as experience with actual sites is acquired.

CCEA hopes that its review of the situation regarding the establishment of ecological areas in the Territories and its consequent recommendations will be useful to the Task Force. If invited to do so, CCEA would be pleased to contribute further to the work of the Task Force.

Biological Field Stations in Canada

The following statement was approved at the Council meeting held at York University in Toronto in November, 1982.

The Canadian Council on Ecological Areas (CCEA) aims to further the conservation of natural ecosystems through establishment of ecological areas. These are segments of landscapes containing examples of characteristic or rare plant or animal communities. This interest in conservation arises from the realization that sound management of our biosphere requires an understanding of the structure and functioning of the many different ecosystems that comprise it. Thus, ecological areas are "outdoor laboratories" for scientific research and education.

During the past 15 years, efforts of governments and private groups have laid the foundation for a network of such ecological areas across the country.

Biological field stations are frequently important adjuncts to ecological areas and, by providing laboratories and accommodation close to some sites, they facilitate relevant and efficient research. Furthermore, many field stations have a distinguished record of research and long-term ecological monitoring of local natural communities. They also provide excellent opportunities for training field biologists and others in the natural sciences.

Today, many Canadian field stations are being closed, or are threatened with closure as a result of current financial constraints. Such closure would, in all likelihood, be permanent and result in an irretrievable loss of research and educational opportunities, as well as the termination of important data collection that in some cases spans several decades.

The CCEA recognizes and supports the vital role of field stations in providing facilities for research and education. The CCEA deplores the threatened reduction and the elimination of funding for such facilities. This will break the continuity of research and withdraw training opportunities, both at great detriment to the national interest.

It is particularly inappropriate to reduce the national capability to train natural scientists at a time when civilization is awakening to the rapidly increasing need for wisely managed natural resources.