

THE UNIVERSITY OF CALGARY

**THE DEVELOPMENT OF A CONSERVATION ACTION PLAN**

by

David Frederick Stephen Leman

A MASTER'S DEGREE PROJECT  
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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

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(ENVIRONMENTAL SCIENCE)

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# **The Development of a Conservation Action Plan**

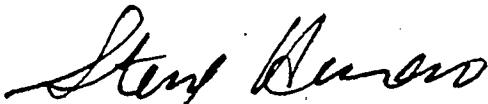
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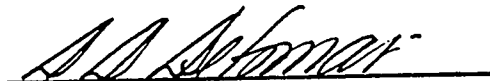
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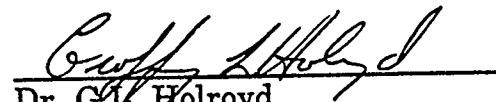
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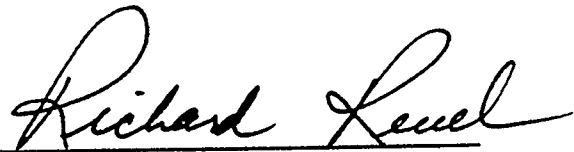
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DFSL

And God saw everything that he had made, and behold, it was very good. (Genesis 1:31)

O Lord, how manifold are thy works! In wisdom hast thou made them all; the earth is full of thy creatures. (Psalm 104:24)

## ABSTRACT

### THE DEVELOPMENT OF A CONSERVATION ACTION PLAN

by

David Frederick Stephen Leman

Completed in partial fulfilment of  
the requirements for the degree  
Master of Environmental Design (Environmental Science)  
Supervisor: Dr. S. Herrero  
Faculty of Environmental Design  
University of Calgary  
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There is an urgent requirement for conservation action in Canada's prairies. From global, national and regional perspectives, the native grassland and parkland ecosystems and species are very valuable, but are also severely threatened owing to human activity. Because they provide a rational framework for action, Conservation Action Plans are a valuable tool being used, in Canada and around the world, to help solve problems concerning the loss of species, habitats and ecosystems. This study examines one such plan, discussing its development and implementation.

Three documents are contained in this volume: *Let's leave some Wild in the West: Prospectus for a Prairie Conservation Action Plan*; the *Prairie Conservation Action Plan* (PCAP); and *The Development of a Conservation Action Plan*. The *Prospectus* was developed to introduce the *Prairie Conservation Action Plan*. The PCAP, designed to provide a blueprint for prairie conservation activities and published in 1988, is now being implemented. This author was the coordinator and primary author of both the *Prospectus* and the PCAP.

This third document, *The Development of a Conservation Action Plan*, provides a retrospective assessment of the development of the *Prospectus* and the PCAP, examines the initial implementation of the PCAP, and, based on lessons learned, offers some tentative conclusions and recommendations concerning these plans. Aspects of the development of the PCAP are examined under four chapter headings, relating to the main elements of the plan: conservation, the prairies, plans, and action.

There are several critical steps to good planning. Defining the problem well is essential, as is having a clear vision of a desired outcome to the problem. Practical, achievable goals must be set, which address the root causes of the problem. The action program based upon the goals must also be practical and achievable. Implementation strategies should be built into the plan at an early stage - a plan that cannot be implemented is of little value. A plan is most likely to be implemented effectively when those who will be affected by the outcome of the plan are involved in the design process - both planning and implementation. And to be successful, a plan must also be clearly and effectively communicated. A well-designed plan will reflect an effective problem-solving approach, and will therefore facilitate action.

**KEY WORDS:** conservation action plans; conservation strategies; conservation - habitat and species; prairie conservation; planning for conservation; problem-solving and conservation.

## PREFACE

This study is about Conservation, the Prairies, Planning, and Action. It is also about problem-solving. It began with an invitation by World Wildlife Fund Canada for Western Canadians to participate in a major conservation program on behalf of endangered prairie species and habitats in Canada. With a mandate for conservation action, the *Prairie Conservation Action Plan* was developed to provide a blueprint for such action over a five-year period (1989-1994). It is now being implemented in Canada's three prairie provinces. This study, then, presents the *Prairie Conservation Action Plan*, and outlines why and how it was designed.

Conservation Strategies and Action Plans are rapidly being developed in many parts of the world to address urgent conservation challenges. Well-designed plans have a crucial role to play in the justification for and protection of wildlife and wild lands. As a relatively new kind of endeavour, these strategies and plans must be evaluated - their effectiveness must be measured - in order to ensure their usefulness. Adequate and proper action is less likely to occur without careful planning. We need to *think* (plan) before we *act*. Plans are necessary. In the end, though, it is the **action** that these plans generate which **matters** - action to preserve and enhance life on earth.

This text has been written so as to introduce the student or non-specialist to some of the problems and issues involved in preparing a plan such as the *Prairie Conservation Action Plan*. It is hoped that this document will also be a useful guide to anyone who may wish to design a



conservation action plan to solve a conservation problem - not by providing a precise, detailed, step-by-step 'how-to manual', but rather by indicating some of the essential problems, questions, processes, methods and ideas upon which such a plan may be built. Both the process of development and the content of the *Prairie Conservation Action Plan* are discussed. The Action Plan is set in the context of: problem-solving as a basic human occupation; the global need for environmental conservation activities; various kinds of plans being employed to solve environmental problems, with an emphasis on conservation action plans; and some planning models which may be useful for conservation purposes.

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1. **Let's leave some Wild in the West:** Prospectus for a  
Prairie Conservation Action Plan [Insert]
2. **Prairie Conservation Action Plan** [Insert]

\* \* \*

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BINSEY POPLARS

*felled 1879*

My aspens dear, whose airy cages quelled,  
Quelled or quenched in leaves the leaping sun,  
All felled, felled, are all felled;  
Of a fresh and following folded rank  
Not spared, not one  
That dandled a sandalled  
Shadow that swam or sank  
On meadow and river and wind-wandering weed-  
winding bank.

O if we but knew what we do  
When we delve or hew -  
Hack and rack the growing green!  
Since country is so tender  
To touch, her being so slender,  
That, like this sleek and seeing ball  
But a prick will make no eye at all,  
Where we, even where we mean  
To mend her we end her,  
When we hew or delve:  
After-comers cannot guess the beauty been.  
Ten or twelve, only ten or twelve  
Strokes of havoc unselfe  
The sweet especial scene,  
Rural scene, a rural scene,  
Sweet especial rural scene.

Gerard Manley Hopkins (1844-89)

"...the whole region, as far as the eye could reach  
was covered with buffalo, in bands varying from  
hundreds to thousands."

Captain John Palliser  
- travels in 1857, '58, and '59

## 1. INTRODUCTION TO A PROBLEM

### 1.1 Context

This study consists of three documents: *Let's leave some Wild in the West: Prospectus for a Prairie Conservation Action Plan*; the *Prairie Conservation Action Plan*; and *The Development of a Conservation Action Plan*. The *Prospectus* and the *Prairie Conservation Action Plan* were developed as components of a World Wildlife Fund Canada-sponsored prairie conservation program, named Wild West, which operated in the years 1986 to 1989. The *Prospectus* was circulated early in 1987 to inform its readers of the development of the *Prairie Conservation Action Plan* (PCAP), and to solicit input to it. The PCAP was developed over the next two years, and published in 1988.

The *Prairie Conservation Action Plan* was designed to generate action to protect some of Canada's endangered spaces - the prairie grasslands and aspen parkland ecoregions. It also provides species protection goals. The Plan describes the nature of the prairie problem; provides a vision of what the prairie landscape could be, given protective measures to conserve its biological diversity; provides a broad range of goals chosen to address the primary causes of the problem; and sets forth a comprehensive action program to achieve the goals. This author served as the coordinator and primary author both of the PCAP and its *Prospectus*, though these documents reflect the contributions of numerous individuals and organizations.

This third document, *The Development of a Conservation Action Plan*, stands as a retrospective view and assessment by this author of the prior

two documents, outlining why and how they were produced, and offering some initial observations, conclusions and recommendations following upon this assessment. The range of problems encountered have been indicated under four chapter headings derived from the title of the plan, describing: Conservation (a foundation for action), the Prairies (understanding the problem), Planning (building an effective plan) and Action (from idea to implementation). A description of the role this author played in preparing the *Prospectus* and the PCAP is found in Appendix 2.

## **1.2 Acknowledging a Crisis**

For the first time in history, the human race as a whole is facing the frightening reality of the overwhelming impact of our species upon the planet. The world is changing quickly at our hands. Grave concern about serious environmental problems is widely expressed. It seems clear that some of the greatest challenges facing this and the next few generations will be how to sustain our high standards of living without slowly undermining and perhaps destroying the natural systems upon which our wealth and our very survival depend. Even as our scientific knowledge, technological sophistication and social organizations grow, so do the problems which are created, in part, by them. We are continually faced with new challenges and new problems to solve, many of them 'environmental'.

Barely two hundred years ago, some of the earliest scientific explorations by Europeans were being undertaken in the biologically rich and virtually unknown (scientifically speaking) lands of South America, Africa, Asia, and North America itself. The primary task of scientists in

that era was to explore and describe these mysterious new places - and at that, usually to find resources to exploit.

Now, a scant two hundred years later, while there is yet an abundance of basic biological research to be done, the essential, most urgent problems are changing. We are fighting to conserve some of the ever-decreasing species and native areas of the planet before they are completely over-run and altered by human populations. In many places, such as the profoundly complex ecosystems of the South American rain forests or the simpler but radically altered landscapes of the Canadian prairies, we no longer have the time to ask "What is it? How does it live? How does it fit into its environment?" *before* we must ask "How can we protect some of it before it disappears forever?" There is an urgent global need for *applied* research into the ways and means of protecting our life-supporting ecosystems and the earth's biological diversity.

The scope of the environmental problems we face is enormous. The questions being raised are complex and difficult, and on every side there is uncertainty and conflict. Absolute answers are hard to come by. But we know that we must ACT.

Conservation action plans are needed to address those environmental problems that demand urgent, rational action. This study is about Conservation, the Prairies, Plans, and Action. It began as a response to an urgent, 'real-world' conservation problem. The Canadian prairies have been so transformed by human activity over the past century that little of the native prairie remains; what does remain is threatened by further alteration. Consequently, many of the threatened and endangered species in Canada are found in this region. The *Prairie Conservation Action Plan*

was developed to initiate a prairie-wide response to the conservation problems of the Canadian prairies.

Conservation action usually stems from a perceived biological problem or set of problems - something to do with one or more species, including human beings, or their environment(s). And so the questions we ask initially are those for which one might expect to find answers somewhere in the field of biological sciences - biology, ecology, conservation biology, and so on. But in fact, most major conservation problems are highly complex in nature, and almost invariably involve much more than 'mere biology'. They involve people, our values, natural resources, and land uses - and they therefore require attention in their social, political, economic and spiritual dimensions, among others. The problems are therefore interdisciplinary or multidisciplinary in nature. To answer the relevant and important biological questions, then, is only to take the first steps in finding a solution to these complex problems.

Subsequent to identifying those kinds of questions that might be addressed through 'basic research', these problems call for action, and this leads to the problems and questions of *applied* research. A conservation action plan attempts to bring together diverse interests to solve complex problems. It combines the knowledge and direction derived from both basic and applied science with the values and concerns of those in the social context, and demands the skills of dedicated researchers, managers, planners, designers and other problem-solvers.

By resolving a large problem into its constituent elements, the problem-solving process might be simpler, clearer, more efficient and effective. To produce the *Prairie Conservation Action Plan* required identifying and



solving problems concerning each of the subjects suggested by its title.

Some of the general questions the designers of the plan needed therefore to answer were:

- Prairie** What species, ecosystems, and human activities occur on the prairies? What are the causes and consequences of the loss of native prairie species, habitats and ecosystems? Which species and habitats are endangered, and why? What are the biological and ecological problems? What social, economic, political and management factors are important? What is the *vision* of the Wild West Steering Committee for prairie Canada? What research information already exists about these species, habitats and ecosystems, and where can it be found? What prairie conservation programs and projects already exist? What new ones are needed?
- Conservation** What justification is there for conservation action? What is biological diversity, and why conserve it? Which species, habitats, ecosystems or landscapes need to be conserved? What kind and degree of conservation action is required in prairie Canada? What are the best means for protecting prairie species, habitats and ecosystems?
- Action** How can the PCAP be implemented? What is needed to ensure action results for this problem? What are the *goals* for this plan? How can they be achieved? What resources exist to achieve them? Who should do what, when, where, why, and *how*? What are the *priority needs* for action? What options and opportunities do we have for action, and which options are (i) likely to be effective, and (ii) likely to be implemented? What constraints to action exist? [In retrospect: Is the implementation effective?]
- Plan** What planning *process/es* will effectively help solve prairie conservation problems? Who should be involved in the planning? What kind of *document/s* should be prepared, such that it/they will be effective? Who will use the plan? How can the document be designed to best suit the needs of the users? What document design problems must be solved? Who is going to pay the bills?

### 1.3 Problem-solving

Most of what we do in life can be thought of as 'problem-solving' - from meeting our basic needs for such things as food, water, clothing and shelter, to designing complex buildings or resource utilization technologies, to resolving interpersonal conflicts and finding effective means of 'getting along with' others.

When solving problems, we want to know **what works?** How do we get the results we want? The following steps may be a useful guide to solving many problems:

- 1) **Problem identification:** Understand and define the problem(s). In order to be effectively solved, a problem must be understood. This generally involves asking 'the right questions' about the problem. Why is it a problem? Why does it need to be solved?
- 2) **Assessment:** Understand and define the issues in respect to the problem. What factors contribute to the problem, or are affected by it?
- 3) **Goal-setting:** Define goals to solve the problem. What end result is desired?
- 4) **Action-planning:** Devise appropriate methods, procedures and actions to meet the goals. Evaluate options for action based on (i) effectiveness, and (ii) likelihood of implementation. The basic questions to help frame the response to a problem are "Who, What, When, Where, Why, How, and How Much(\$)?"
- 5) **Implementation:** Undertake the appropriate actions. Stop asking questions (temporarily) and get on with solving the problem! *Act.*
- 6) **Monitoring:** Observe progress and evaluate the outcome. What worked, didn't work, and could be improved? Where to go next?

Beyond these basic steps, a range of other knowledge, skills and 'tools' may be employed to solve problems. Effective problem-solving involves applying the right knowledge, skills and tools to the problem at hand.

#### 1.4 Problem-solving and Design

One way of solving problems is through the processes of *design* - the activities we undertake when we contrive, plan, propose or intend.

"Everyone designs who devises courses of action aimed at changing existing situations into preferred ones."<sup>1</sup> There are a number of thinking processes necessary in problem-solving or design, *all* of which are (at times) important:<sup>2</sup>

**observation** - careful and accurate seeing

**perception** - perceiving a problem; proper problem definition

**conception** - conceiving a solution; coaxing an idea into reality

**intuition** - insight; immediate apprehension without reasoning

**conceptualization** - the process of forming ideas

**reasoning** - reaching conclusions by connected thought; expressing ideas in logical form

**imagination** - ability to form (usually *visual*) images from ideas

**analysis** - resolving something into simpler, constituent elements

**synthesis** - reconstitution or putting together into a connected whole

**judgement** - exercise of critical faculties and discernment

**creativity** - power of invention

**communication** - ability to share ideas, knowledge, and attitudes

An effective design (problem-solving) process will incorporate these various thinking processes at different stages. A wise problem-solver or designer will learn when and how to best use these thinking skills.

## 1.5 Conservation as Problem-solving

There is presently throughout the world a much increased awareness of the impacts human beings are having upon their environments. There are many kinds of 'environmental' problems that need to be solved, and this will always be so. The need for conservation of nature and natural resources is widely understood and accepted as a necessary activity.

A conservation action plan may be thought of as an exercise in problem-solving. Effective conservation might be considered as *the art and science of doing **what works*** - to maintain ecosystems, species, and biological diversity for the benefit of all people and for life itself. In order to do this, there are often non-biological - as well as biological - problems to be solved. These include social, political and economic factors, and problems of design, project management, and cost.

## 1.6 Defining Conservation

The first problem to solve when dealing with conservation is its definition. 'Conservation' is a broad concept, and there is no single, universally accepted definition of the term. It has different meanings for different people in different times and circumstances. The ecologist, economist, engineer, architect, planner, environmental activist, and politician will all use the word with a definition - or an understanding - suitable to their own occupation.<sup>3</sup> This ambiguity, and the resulting danger of misunderstanding or equivocation, is inherent in the common use of the word in society.

Indeed, in the context of this study, the word conservation has been used in two ways; in a general, broad sense, and in a stricter, more technical sense:

(1) In the broader sense, conservation here means a concern to protect in some way native species and habitats, or any natural resources. This definition embraces the concepts *both* of conservation and preservation as separately defined below. (Etymologically, conservation and preservation are from the same root word, and mean the same thing). It is in this broad sense that the word has been used in the title of the *Prairie Conservation Action Plan* (PCAP).

(2) Conservation as distinct from preservation. Both words have their root in the Latin verb *servare* - to keep or to save; and they are often used interchangeably. But it is useful and sometimes *important* to make a conceptual distinction between conservation and preservation, at least in regard to our relationship to the 'natural' (as opposed to man-made) environment.

In the *Concise Oxford Dictionary* the following subtle distinction is made between the two words: Conserve - keep from harm, decay or loss, especially with a view to later *use*. Preserve - keep safe from harm or decay; retain quality or condition. The latter definition implies that *no use* of an object or resource may be appropriate. The Australian philosopher John Passmore, among others, has accepted this distinction, and discusses the implications of these two concepts in his book *Man's Responsibility for Nature*. Following Passmore, conservation in its stricter sense is herein defined as "the saving of natural resources for later consumption" or some form of *use*; and preservation is used where "the saving is primarily a

saving *from* rather than a saving *for*, the saving of species and wildernesses from damage or destruction"<sup>4</sup>, where *no direct consumptive use* of the resource is desirable.

There are occasions when 'conservationists' or 'environmentalists' call for the wise use of natural resources, and there are occasions when it is quite appropriate to consider that no consumptive use whatever should occur - such as when even the smallest human intervention in a certain wildlife habitat might cause the extirpation or extinction of a species. Because these two concepts - one calling for the continued but wise use of resources, and the other for very limited or no use of them - are often confused, not only by the public and by politicians, but even among land managers and conservationists themselves, misunderstandings may arise which complicate or even prevent the resolution of conflicts in resource management problems. Good communication - where two or more parties clearly understand one another - is one of the essential 'tools' for problem-solving. Therefore, it is useful to define at the outset the intended meaning of these words (and any others that may inhibit understanding or cause confusion) whenever they are used. Throughout this paper, and in the *Prairie Conservation Action Plan*, the word conservation has been used in its broad sense unless otherwise indicated.

## 2. CONSERVATION - SAVING LIFE

### 2.1 A Planet in Trouble - Environmental Breakdown

We find ourselves living on a planet, the only planet that we know of so far, that has evolved in such a way as to provide the conditions necessary to support and sustain life - human life, and all other life. But now we humans are undermining some of that capacity by disrupting essential ecological processes and life-support systems, destroying biological diversity, and failing to utilize species and ecosystems sustainably. In our quest to maximize our comforts and desires, we are pulling not only the rug, but also the floor out from under our feet. Life on planet Earth is in jeopardy.

Towards what ultimate point is society tending by its industrial progress? When the progress ceases, in what condition are we to expect that it will leave mankind?

John Stuart Mill, 1857

... we have to deal with the earth within the limitations that the earth imposes on us. We have to deal with the earth on *its* terms. The earth's not going to deal with us on *our* terms, that's certain, and we're seeing now how much damage we are doing by not listening to what the earth is telling us.

Fr. Thomas Berry, 1990

It is generally assumed that humans are the most intelligent of all creatures. Mankind now has the intellectual capacity, the power of technology, and sheer force of numbers to change the world rapidly and

radically to suit short-term human purposes. Indeed, the power of the human presence and the impacts of technology have begun to look like a global assault upon the land, air and water. The negative impacts of technology are often unforeseen, as well as unintended. Such is the case with acid rain, for example, or the depletion of the ozone layer in the earth's upper atmosphere. Our incessant and increasing demands upon Earth, to exploit and manipulate its resources, are pushing the health and stability of many ecosystems to their limits, and sometimes beyond. Ecosystems are greatly resilient to change and abuse, but they are nonetheless vulnerable, and all have limits to the amount of stress they can absorb. It sometimes seems as though humans have become the captives of their own ingenuity, technology and power.

The biosphere is that part of the earth in which life exists. The conditions which permit life to exist are finely-tuned and delicate: the various cycles of energy, water, carbon, oxygen, nitrogen and minerals are all vulnerable to disruption. Too great an alteration in any one of these cycles could have serious consequences for life on earth. And all of these cycles are presently affected by human activity; for example, by the introduction of new and often harmful substances into the environment:

At present the artificial injection of some elements in a mobile form into the ocean and atmosphere is occurring much faster than it did in preindustrial days; new cycles have come into being that may distribute very widely and in toxic quantities elements such as lead and mercury, as well as fairly stable new compounds such as insecticides and defoliants. It should be obvious that the possible action of all such substances on the tenuous and geochemically inefficient green mantle of the earth demands intense study if life is to continue in the biosphere.

G.E. Hutchinson, 1970 <sup>5</sup>



The boundaries of biomes and ecosystems do not necessarily respect the political boundaries between nations, states or provinces. Major environmental problems are frequently transnational in their effects, and some of the most severe problems have global repercussions. For example, acid rain is a problem unhappily shared between neighbours, and which has been taking on global dimensions. Likewise, the continued burning of fossil fuels and progressive deforestation contribute to the 'greenhouse effect', the buildup of atmospheric carbon dioxide, which may result in a global warming of temperatures and other accompanying environmental problems, including possible adverse effects upon species and ecosystems.<sup>6</sup> The scope, complexity and urgency of many of these environmental problems will require the combined efforts and cooperation of governments, intergovernmental bodies, private organizations, and individuals to work together on integrated and coordinated management and action programs.

'Development' - in the simple sense of some kind of change - is essential and inevitable. But what is development? Like conservation, development has many meanings. The *Concise Oxford Dictionary* offers such definitions as: gradual unfolding; further working out; growth; evolution; stage of advancement. These follow from the root verb, to develop, defined variously as: to unfold, reveal; to bring from a latent to an active or visible state; to make known or bigger; to construct (buildings, etc.), or convert (land) to new use, so as to realize potentialities; to make progress; to come or bring to maturity. A 'developing country' is a "poor or primitive country that is developing better economic and social conditions." Development of this kind is often equated with growth, and growth is usually deemed to be good.

But unlimited economic and industrial growth, even were they desirable, are impossible. A finite world can accommodate only limited growth, in these terms. So 'sustainable development', understood as sustainable *growth*, is impossible.

Humans, like all other living things, need to use resources from the environment in order to survive, and then to thrive. But development (in the sense of our building things, and thereby changing environments) sometimes is characterized by short-sightedness, greed, lack of long-term planning or attention to the future, or by lack of integration between development and conservation - and subsequently by some otherwise avoidable environmental problems or other undesirable consequences. The irony is, the degradation of ecosystems may eventually inhibit or even prevent any further 'development'. Careless development is self-defeating. If, however, development is understood as change and progress, and if progress can include the possibility of a reduction at times in the demands human beings place upon the Earth, rather than constant economic or industrial growth - then 'development' is possible. We must be able to understand development as change and *improvement in quality*; material growth may not necessarily be progress.

The reality of limited resources, and of the carrying capacities and limits of tolerance to disturbance of ecosystems, must be taken into account if development is to be sustainable. Conservation is, among other things, an art and science of using resources sustainably. Development and conservation are equally necessary for our survival, and for the survival of future generations.

## 2.2 Loss of Biological Diversity through Human Activity

*What is biological diversity, and why conserve it?*

In simple terms, **biological diversity** (or 'biodiversity') is "the wealth of life on earth, the millions of plants, animals, and micro-organisms, the genes they contain, and the intricate ecosystems they help build into the living environment."<sup>7</sup> It is the biological wealth which makes human life possible, and upon which the quality of human life and welfare depends. The components of biological diversity are:<sup>8</sup>

1. **Genetic Diversity** - Genes are the biochemical packages passed on by parents that determine the physical and biochemical characteristics of their offspring. Although most of the genes are the same ... subtle variations occur in some genes. The result of these variations may be easy to see, such as size or colour, or may be invisible, for example, susceptibility to disease. Such genetic diversity has made it possible to produce new breeds of crop plants and domestic animals, and in the wild allowed species to adapt to changing conditions.
2. **Species Diversity** - A group of organisms genetically so similar that they can interbreed and produce fertile offspring is called a species... Species usually are recognizably different in appearance, allowing an observer to distinguish one from another, but sometimes the differences are extremely subtle. Species diversity is usually measured in terms of the total number of species within discrete geographical boundaries.<sup>9</sup>
3. **Ecosystem Diversity** - An ecosystem consists of communities of plants and animals and the non-living elements of their environment (soil, water, minerals, air, etc). The functional relationships within and among the communities and their environment are frequently complex, but they are the mechanisms of major ecological processes such as the water cycle, soil formation, nutrient cycling and energy flow. These processes provide the sustenance required by the living communities and so a critical interdependence results. Two different phenomena are frequently referred to under the heading of ecosystem diversity:
  - i. the variety of species within different ecosystems: the more diverse ecosystems contain more species;
  - ii. the variety of ecosystems found within a certain biogeographical or political boundary.

There are two fundamental reasons for conserving biological diversity: practical (or utilitarian) and moral (for intrinsic, aesthetic, ethical or spiritual values). The wealth of life on earth serves humanities' needs for food, medicines, industrial and technological products, recreational opportunities, and so on; and they support the ecological processes which allow life on earth to continue. Without some minimal level of biological diversity, there can be no future for humankind. Our survival depends on it. The moral argument draws attention to the dimensions of human caring and responsibility, as well as the intrinsic value of things. If we *care* about our own lives and the lives of other beings, human or non-human, we will make efforts to respect and protect them; and in any case, we have the moral *responsibility* to do so.

These arguments for conservation provide the primary justification for any program of conservation action. But they may not be enough to induce or motivate action. It is not so difficult to understand the values of biological diversity and the importance of conserving it. What is much more difficult is to determine the exact causes of the loss of biodiversity, and how to slow, halt or redirect those forces. The practical and beneficial consequences of conservation must often be demonstrated to decision-makers and the local human communities to be effected by such action. This is one role that conservation action plans can play.

## 2.3 Species and Ecosystems

We stand at the threshold of worldwide extinctions and an attendant reduction in biological diversity without precedent in human existence. Tropical rainforests are falling to machetes, chain saws, and bulldozers; desertification is accelerating; and wetlands continue to be drained. By wiping out huge numbers of species, we are not only erasing the evidence on which to build our knowledge of biology, we are also losing undiscovered medicines, foods, and valuable products - to say nothing of these species' contributions to critical ecological processes. The question of species diversity is no longer the arcane business of mathematical ecologists but a central social concern.

Thomas E. Lovejoy, 1985 <sup>10</sup>

Not long ago, the Dawson Caribou, the Sea Mink, the Great Auk, the Labrador Duck, the Passenger Pigeon, the Blue Walleye and the Longjaw Cisco were residents of Canada. Today they are extinct, no longer existing *anywhere*. Within the past five years, two more species once found in Canada have become extinct - the Deepwater Cisco and the Banff subspecies of the Longnose Dace. These names mean little to most people, their absence goes unnoticed, and the reply to their extinction might well be "So what?" Does extinction matter?

The problem is not just that extinctions occur. Extinction is a natural process, as old as life itself; *change* is almost the definition of life history. But the *rate of change*, the rate of extinctions brought about by human activity, particularly within the last century, is truly alarming. Biological diversity is in a state of crisis, states Harvard professor E. O. Wilson, one of the pre-eminent American zoologists today:

Quite simply, [biodiversity] is declining. Environmental destruction, a worldwide phenomenon, is reducing the numbers of species and the amount of genetic variation within

individual species... No comfort should be drawn from the spurious belief that because extinction is a natural process, humans are merely another Darwinian agent. The rate of extinction is now about 400 times that recorded through recent geological time and is accelerating rapidly. Under the best of conditions, the reduction of diversity seems destined to approach that of the great natural catastrophes at the end of the Paleozoic and Mesozoic Eras, in other words, the most extreme for 65 million years. And in at least one respect, this human-made hecatomb is worse than any time in the geological past. In the earlier extinctions, possibly caused by large meteorite strikes, most of the plant diversity survived; now, for the first time, it is being mostly destroyed.<sup>11</sup>

Edward O. Wilson, 1985

Since then, Professor Wilson has been monitoring the rapid destruction of the world's tropical rainforests. His 1989 estimation of the rise in the rate of extinction shows that the present rate will be multiplied by many times within the next century, as the rainforests disappear:

Already the forest has been reduced to approximately 55 percent of its original cover..., and it is being further reduced at a rate in excess of 100,000 square kilometers a year. This amount is 1 percent of the total cover, or more than the area of Switzerland and the Netherlands combined... I have conservatively estimated that on a worldwide basis the ultimate loss attributable to rain-forest clearing alone (at the present 1 percent rate) is from .2 to .3 percent of all species in the forests per year. Taking a very conservative figure of two million species confined to the forests, the global loss that results from deforestation could be as much as from 4,000 to 6,000 species a year. That in turn is on the order of 10,000 times greater than the naturally occurring background extinction rate that existed prior to the appearance of human beings.<sup>12</sup>

E.O. Wilson, 1989

Such projections, if accurate, indicate the potentially serious consequences of the human intervention in natural landscapes.

It is not only the loss of *species* that is of great concern. Recently, ecologists and conservationists have become increasingly concerned about the damage to or loss of entire *communities of species*, and to the natural environment supporting them - that is, to *ecosystems* and *ecological processes*. This shift in thinking and emphasis is reflected in most of the recently developed conservation strategies and action plans. It is also being reflected in the 'sustainable development' literature, such as the Brundtland Commission's report *Our Common Future*:

... the scope for species to make a fast-growing contribution to human welfare in myriad forms - is a major justification for expanded efforts to safeguard Earth's millions of species. Equally important are the vital life processes carried out by nature, including stabilization of climate, protection of watersheds and soil, preservation of nurseries and breeding grounds, and so on. Conserving these processes cannot be divorced from conserving the individual species within natural ecosystems. Managing species and ecosystems together is clearly the most rational way to approach the problem. ...all species should be safeguarded to the extent that it is technically, economically, and politically feasible.<sup>13</sup>

*Our Common Future*, 1987

## **2.4 Land Use, Land Abuse**

Because land is one of the most valuable and sought-after resources, options and opportunities to preserve natural landscapes are increasingly limited. Species conservation usually necessitates conservation of habitats or ecosystems. The concepts 'habitat' and 'ecosystem' imply land use - whether by individual species or communities of species, as well as human use. In one respect or another, most conservation problems involve land use conflicts.

Some of the 'land use conflicts' between humans and other beings - conflicts that have resulted in great losses to earth's biological diversity - are in theory avoidable. We could learn to use land in different, less harmful ways; but the practical problems of major changes in land use habits are enormous. Of particular concern presently is the rapid destruction of the world's tropical rainforests, which house up to half of the species on earth, for short-term economic and agricultural gains. When land is abused by humans, it often results in serious and sometimes irreversible damage to the natural community.

Therefore, a comprehensive and effective conservation action plan must address the relevant political, social and economic as well as biological and ecological concerns - insofar as any or all of these refer to land and its uses. This is especially so now that the world has become 'small' - where true wilderness is rapidly disappearing, and virtually all land is owned, utilized and in some way exploited. A conservation action plan should detail ways and means of solving land use problems as they relate to species and ecosystem conservation.

## **2.5 Economics and Conservation**

It is commonly supposed that 'economics' (when taken to imply economic *growth*) and 'ecology' (when taken to imply the *conservation* of nature) are antithetical. It is ironic that economics and ecology both take as their root the Greek word *oikos*, house. But this coincidence may be both conceptually and strategically advantageous for those who would seek to find some common ground between the two. A brief comparison of definitions (from the *Concise Oxford Dictionary*) may be illuminating:



- ecology:** branch of biology dealing with organisms' relations to one another and to their surroundings. [f. Gk *oikos* house; *-logia* subject of study]
- economy:** (administration or condition of) concerns and resources of a community; careful use of resources, frugality. [f. Gk *oikonomia* f. *oikonomos* steward (*oikos* house, *-nomos* f. *nemo* manage)]
- economic:** maintained for profit, on a business footing; practical and theoretical science of the production and distribution of wealth; condition of a country as regards material prosperity.
- economical:** saving, thrifty, avoiding waste.

Both the practice of 'economics' and 'ecology' (or ecological management) imply that *values and attitudes, as well as knowledge, are important*. Some of the ideas and values normally associated with economics are: money, wealth, goods, services, profits, and Gross National Product. But as defined above, economics may also be thought of as *stewardship*, 'looking after one's house'. Ideas and values associated with ecology are: life, interrelationship, interdependency, species richness, ecosystem complexity, biological diversity, and life-support systems. Ecology, like economy, is about 'the household; home'. Ecology, though, expands our view of 'home'. Home is no longer only a box with four walls, but the living and non-living environment that surrounds the box. Or, an ecological view invites an expanded view of the interdependencies and relationships which make homes possible, which support the whole community. It invites a respect and appreciation for the entire neighbourhood or community - and for the factors that make the community *work* - as well as for one's own household. Home *is* the community. It may be possible to reconcile the 'economical view' we have

of looking after our own household affairs, with the 'ecological view' of respecting the extended household, the community, and our reliance upon it. The link is 'eco', our sense of home.

Most ecologists and conservationists would agree with E.O. Wilson that "conservation must be closely coupled with economic development."<sup>14</sup> One of the central messages of both the *World Conservation Strategy*<sup>15</sup> and the Brundtland Commission report *Our Common Future* has been that we must come to understand the necessary interrelationship between economics and development on the one hand, and ecological realities and conservation on the other. The PCAP identifies various practical and beneficial consequences of conservation, and attempts to link economic well-being with conservation.

The cost of protecting species and ecosystems is high, but the cost of losing them may prove far higher. Insofar as both economics and ecology are about values, they pose to us the questions "What do we really care about? What kind of a world do we want to live in?" Presumably a world in which we can both survive and thrive. To do so, action must be taken to safeguard and care for both ecosystems and species.

## **2.6 Conservation Biology**

One of the emergent disciplines that seeks to address the new nature of biological and ecological problems is conservation biology.

Conservation biology... addresses the biology of species, communities, and ecosystems that are perturbed, either directly or indirectly, by human activities or other agents. Its goal is to provide principles and tools for preserving biological diversity. ... Conservation biology differs from most other

biological sciences in one important way: it is often a crisis discipline. ... In crisis disciplines, one must act before knowing all the facts; crisis disciplines are thus a mixture of science and art, and their pursuit requires intuition as well as information. A conservation biologist may have to make decisions or recommendations about design and management before he or she is completely comfortable with the theoretical and empirical bases of the analysis. Tolerating uncertainty is often necessary.

Michael E. Soulé, 1985 <sup>16</sup>

The fundamental assumptions of conservation biology are: (1) the *fact* is that we are inextricably interdependent with the health and stability of the species and ecosystems with which and through which our own survival as a species depends. The nature of these interdependencies are complex and not always fully understood, but that certain environmental relationships sustain us is unquestionable. Therefore, on the basis of *this* certainty, if no others, we know that we must protect and sustain the elements of the earth that protect and sustain *us*. We must conserve essential elements of the bio(*life*)sphere or eco(*home*)sphere.

(2) Life is valuable, whether we think only of our own lives, or extend our concern to the lives of other beings; and because it is valuable - intrinsically and for utilitarian reasons - it is worth protecting. The meaning and implications of these words may be endlessly debated, but *that life is valuable*, for whatever reasons and to whatever degree, *is an axiom of conservation biology*. Resource conservation carries value-oriented judgments; "...ethical norms are a genuine part of conservation biology, as they are in all mission- or crisis-oriented disciplines."<sup>17</sup> It is a basic premise and unavoidable conclusion of the conservationist that life itself, both human and non-human, is good and holds value, and that life is

worthy of protection. To conserve life is to declare that life is valuable. Conservation is life-affirming.

## **2.7 Thinking Globally, Acting Locally**

Human beings, in their quest for economic development and enjoyment of the riches of nature, must come to terms with the reality of resource limitation and the carrying capacities of ecosystems. This is the message of conservation. For if the object of development is to provide for social and economic welfare, the object of conservation is to ensure Earth's capacity to sustain development and to support all life.

*World Conservation Strategy*, 1980.

Because humans are so quickly and drastically altering their environments, and because the effects of these alterations may have widespread and serious consequences for the biosphere itself and for mankind's own future development, it is imperative that comprehensive conservation strategies are developed and carried out.

The *World Conservation Strategy* (WCS), first published in March, 1980 by the International Union for the Conservation of Nature and Natural Resources (IUCN), the United Nations Environment Programme (UNEP) and World Wildlife Fund (now the Worldwide Fund for Nature - WWF), represents the first comprehensive global conservation strategy to be developed to date.<sup>18</sup> It has become the model or basis for numerous national and subnational conservation strategies. It is "a realistic and unemotive restatement of the evidence that conservation of our natural resources is essential to the economic and social welfare of society and is entirely compatible with sustainable development."<sup>19</sup>

The *World Conservation Strategy* was developed to "help advance the achievement of sustainable development through the conservation of living resources." The Strategy broadly outlines why living resource conservation is vital to human survival and to sustainable development; what some of the priority conservation issues are and the main requirements for dealing with them; and what activities may be initiated to effectively achieve the Strategy's aim.

The three main conservation objectives of the *World Conservation Strategy* are listed below:

1. Maintain essential ecological processes and life support systems.
2. Preserve biological diversity, which is being dangerously impoverished. (Originally published as 'genetic diversity'.)
3. Ensure the sustainable use by us and our children of species and ecosystems.

The WCS urges national governments to establish their own conservation/development strategies based on these requirements, and to participate in international conservation efforts.

The environmental problems we face arise from the nature of the biosphere itself: many natural resources are limited, demands due to population growth are high, and ecosystems are fragile. The solutions to these pressing problems must be found in coordinated resource management efforts and effective conservation programs. The *World Conservation Strategy* provides an outline of the kinds of management efforts and conservation programs required on a global basis. The challenge now is to develop practical programs which will achieve these

conservation objectives, and make possible the goal of sustainable development at national, regional, and local levels of organization.

## **2.8 Types of Plans for Conservation**

A plan is primarily the processes undertaken and the conceptual framework (organized set of ideas) developed to solve a problem. Planning entails controlled design and development of buildings, land or resources. People plan in order to achieve desired results in a rational, orderly, comprehensible and effective manner. A planning document is merely the representation (in verbal and pictorial form) of the guiding ideas, principles, purposes and intended processes of the plan.

A wide array of planning documents have been developed and employed to address conservation problems. They go by various names; the terms are flexible, and their content is often similar and over-lapping, as the nature of these plans evolves. For example, there are: conservation strategies, conservation action plans, species survival plans, species recovery plans, habitat or species management plans, and (integrated) resource management plans. All share the essential characteristic aims and methods of any plan: to propose and undertake desired action in a rational, orderly, purposeful way. The following section summarizes the general characteristics of each of these types of plan.

### **2.8.1 Conservation Strategies - Planning the Campaign**

Conservation strategies tend to be broadly-scoped documents which set forth the *general principles, policies and goals* for action to conserve species, ecosystems or resources. The term strategy comes from the Greek

word meaning "to lead an army." A strategy is a plan to manage a project or campaign advantageously, by setting the preferred place, time, and conditions for action to achieve the chosen ends. The pre-eminent example of such a strategy is the *World Conservation Strategy* of 1980 (being revised and updated as the "*World Conservation Strategy for the 1990's*.")

The *World Conservation Strategy*, the *Botswana National Conservation Strategy (1990)*<sup>20</sup>, and the *Alberta Conservation Strategy*<sup>21</sup> (being prepared by the Public Advisory Committees to the Environment Council of Alberta) are good examples of global, national, and regional conservation strategies respectively.

The development of broadly-scoped conservation strategies indicates our general recognition that "something must be done" to conserve natural resources. They are a good first step, in that they show the direction that societies must follow to ensure a secure future with respect to our relationship with our environments - but they are not the detailed blueprints for action that are necessary to effect the needed change. For practical purposes, the details of action most often have to be worked out at the national, regional and local levels of planning and organization (with increasing emphasis on the latter). Hence the need for conservation strategies to be followed up by concrete Action Plans.

### 2.8.2 Conservation Action Plans - from Strategy to Tactics

Conservation Action Plans are generally 'the next step down' in the level of detail for planning after the conservation strategy. This does not mean that a conservation action plan is always based upon a preceding conservation strategy; frequently they are not. Some conservation action

plans are very similar in form and level of detail to a conservation strategy: for example, the initial publications of the *Tropical Forestry Action Plan*.<sup>22</sup> The intent of the conservation action plan is to describe *what* should be achieved, as stated in a set of goals, and, most importantly, *how* those goals should be achieved. While a conservation strategy may be very broad in scope, a conservation action plan, because of its requirement to show how practical action is to be carried out, must be narrower in scope.

### 2.8.3 Resource Management Plans

This is a very broad category of plans which includes, for example, national and provincial park management plans, ecological reserve management plans, and regional resource management plans. Resource management plans provide current research on the status of regional resources, and outline policy, goals and current management actions for these resources.

### 2.8.4 Habitat Management Plans

These are plans especially focused on maintaining or preserving plant or wildlife habitat. They are similar in their content and structure to resource management plans, and may be understood as a subset of them. The *North American Waterfowl Management Plan*<sup>23</sup> is the pre-eminent example of this type of plan.

### 2.8.5 Species Recovery Plans

Species Recovery Plans are usually a kind of action plan. They are designed specifically to address the requirements of individual species or groups of species, with a view to maintaining or enhancing their



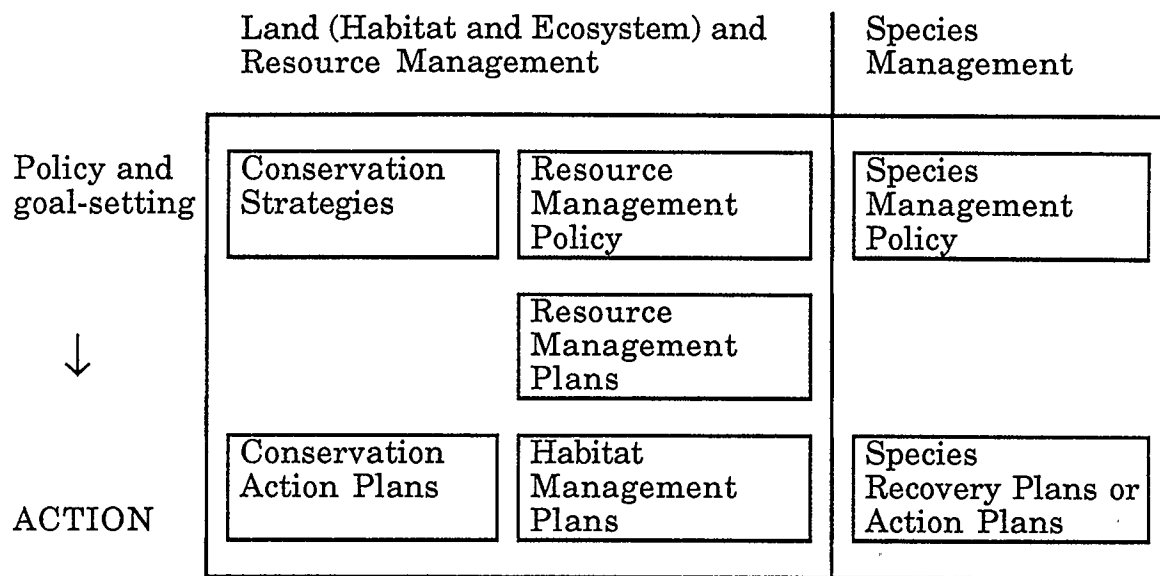
populations. They very commonly are structured to present in detail what a species needs, and what concrete measures should be taken to arrive at the management goals. A few of the most recent and well-designed of these species recovery/action plans are: *Dolphins, Porpoises, and Whales: An Action Plan for the Conservation of Biological Diversity: 1988-1992*; *Tortoises and Freshwater Turtles: An Action Plan for their Conservation*; *Asian Rhinos: An Action Plan for their Conservation*; and the *Anatum Peregrine Falcon Recovery Plan*.<sup>24</sup>

The IUCN Red Data books on threatened and endangered species indicate the kind of information that may be useful in species recovery or conservation action plans. The 'Inventory Report Forms' for the mammals, for example, include the following information<sup>25</sup>:

1. Country (from which the report originates);
2. Date;
3. Reporter (Name and Address);
4. Taxon (Scientific and Common Names);
5. Distribution (Present and Former);
6. Population;
7. Habitat and Ecology;
8. Threats to Survival;
9. Conservation Measures Taken;
10. Conservation Measures Proposed;
11. Captive Breeding;
12. Remarks;
13. References.

#### 2.8.6 The Roles of Various Plans for Conservation

The following diagram illustrates the general role, from establishing policy to determining action requirements, played by the various plans employed for conservation purposes.



## 2.9 Conservation Action Plans

An Action Plan is a plan which sets out in specific terms the methods by which action will be taken: it describes what will be achieved in answer to the questions "Who, what, when, where, why, how and how much?" In its simplest form, an Action Plan (1) identifies a problem or set of problems; and (2) describes how to solve it, detailing and justifying the proposed actions. Therefore, a Conservation Action Plan sets out the aims, methods and procedures to attain desired conservation goals.

Solutions to conservation problems lie in the domains of applied science and politics; they can only be solved by the combined efforts of people of various disciplines, politicians and government bureaucrats, economists, resource managers, environmental conservationists, landowners and the public - anyone with a stake in resource management decisions.

Conservation arises from the demand by these various interest groups for solutions to perceived environmental problems.

As stated above, one of the most pressing environmental problems today is the loss of species and their habitats - with the attendant loss of genetic or biological diversity. The need for action in light of this present crisis is not controversial. The specific actions to be taken are. But "we must view uncertainty about which action to take in light of the certainty of ecological deterioration if we fail to act."<sup>26</sup>

The development of a Conservation Action Plan is usually an interdisciplinary activity with applied science as its basis. The process of applied scientific method is generally:

- (1) selecting real-world problems, and corresponding hypotheses to test,
- (2) testing the hypotheses,
- (3) interpreting the results of the tests, and
- (4) applying the results to solve problems.

It is *often* the case within applied science, however, that testing is impossible or impractical, and so inference is relied upon to guide decision-making. Frequently "a decision is made based on scientific/socio/political factors and then existing science is brought in to help achieve the desired result (this is technology in a sense). Occasionally original research is needed. The method may be applied, but ecosystems have so many uncontrollable variables that 'good' science is seldom possible."<sup>27</sup>

Researchers must strive for objectivity, but "objectivity is relative, and never fully attainable. Intuition and values always play important roles, both in identifying problems and in solving them."<sup>28</sup> Therefore, "action planning is as much ART as science."<sup>29</sup>

The basic value assumption employed in the conservation action plan, which guides objective research, is that biodiversity is worth maintaining. This may be justified in either normative or descriptive terms. A descriptive ("objective") argument would entail demonstrating that the conservation of a species, ecosystem, or population will have measurable beneficial effects upon the environment or human community. A normative (value-based) argument will provide moral, aesthetic, social, economic, cultural, personal and such similar justifications for conservation.

Conservation action plans have been designed for conservation problems of varying degrees and natures. Some of these plans are **global** in their scope, involving the protection of ecosystems as well as individual species. For example, *The Bali Action Plan* (prepared during the World Parks Congress held in Bali, Indonesia in 1982) contains recommendations which "provide the basis for future action directed towards conservation and sustainable development within and around protected areas" on a global basis, and, in addition, a list of priority actions for each biogeographic realm.

Some action plans are national or regional in scope. The *Prairie Conservation Action Plan* is an example of a **regional** action plan, where the region is defined by both ecological and political boundaries. Other action plans are **taxonomic**, intended for individual species or groups of species, such as those listed in section 2.8.5 above.

Ecosystem or protected area conservation is generally more complex than single species conservation. For example, the following concepts and principles have been proposed by the Canadian Council on Ecological Areas

(CCEA) as criteria for selecting ecological areas<sup>30</sup>: **Representational concepts**: natural terrestrial ecosystems; natural aquatic ecosystems; floristic/faunistic sites; special habitats; palaeoecological sites; physiographical and geological sites; modified ecosystems. **Functional principles**: diversity; rarity; size; environmental integrity; condition; endangerment; fragility; distribution; replication; significance. **Utilitarian values**: scientific value; educational value; nature appreciation; accessibility. **Administrative considerations**: legal and institutional concerns such as ownership and deposition of land; land use conflicts; management costs; enforcement needs; other custodial arrangements.

The level of detail written into a conservation action plan should be appropriate for (1) the *scope* of the program, and (2) the specific needs of the users of the document.

### 3. PRAIRIE CONSERVATION - Averting a Crisis, Saving a World

#### 3.1 The Prairie Problem - No Room for (Bio)Diversity

The Canadian prairie still supports a wide variety of plants and animals. But the biological diversity found on the prairies has been eroded and jeopardized by the last one hundred years or so of land use practices on the prairies. What was once a wild and vast expanse of grasslands and woodlands greater than the great plains of East Africa, with a migration of bison that surpassed in numbers any migration ever seen in the Serengeti, has been largely transformed into a cultivated, grazed, urbanized, or otherwise domesticated landscape. Human beings have completely dominated (as far as any species has the power to dominate) the prairies.

When the *Prairie Conservation Action Plan* was launched, about one third of the nationally designated rare, threatened and endangered species in Canada were from the prairies. The loss of and threats to biological diversity on the prairies have become a serious problem. The subsequent problem, then, for resource managers and all who are concerned about the loss of biological diversity is "What can be **done** about it?"

We all need some space to live. But there is less and less space, it seems, to go around. Many species have been 'squeezed out' of their homes by human activity, or their homes have been destroyed. Loss of habitat (living space and resources) is the most critical problem facing species in the world today. Therefore the *primary* means of saving endangered species anywhere in the world lies in protecting large enough tracts of their habitats to sustain their populations and meet their needs. In the prairies, this means protecting and maintaining the few remaining large tracts of

native landscapes, and as many of the remaining small pockets of wildlife habitat as possible.

### 3.2 Endangered Species - The List Gets Longer

The following table indicates the number of species listed under various categories of endangerment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for the five-year period 1986 to 1990.

**Table 1. Canadian Endangered Species, 1986 and 1990**

	Year	Mammals	Birds	Herptiles	Fish	Plants	Totals
Endangered	1986	7	7	1	3	14	32
	1990	9*	8	2	3	17	39
Threatened	1986	5	7	-	1	10	23
	1990	8	8	-	10	21	47
Rare**	1986	9	14	1	16	10	50
Vulnerable	1990	17	16	3	34	21	91
Extirpated	1986	2	-	-	-	-	2
	1990	4	1	-	2	1	8
Extinct	1986	2	3	-	2	-	7
	1990	2	3	-	4	-	9
Downlisted	(1988)	(1)					
Delisted	(1987)		(1)				
Totals	1986	25	31	2	22	34	114
	1990	40	36	5	53	60	194

\* includes three separate populations of beluga whales.

\*\* category changed from Rare to Vulnerable in 1990. Definitions are approximately the same.

**Extinct:** Any indigenous species of fauna or flora formerly indigenous to Canada no longer known to exist elsewhere.

**Extirpated:** Any indigenous species of fauna or flora no longer known to exist in the wild in Canada but existing elsewhere.

**Endangered:** Any indigenous species of fauna or flora that is threatened with imminent extirpation or extinction throughout all or a significant portion of its Canadian range.

**Threatened:** Any indigenous species of fauna or flora that is likely to become endangered in Canada if the factors affecting its vulnerability do not become reversed.

**Vulnerable:** Any indigenous species of flora or fauna that is particularly at risk because of low or declining numbers, occurrence at the fringe of its range or in restricted areas, or for some other reason, but is not a threatened species.

**Delisted:** A species previously designated by COSEWIC whose national status is no longer vulnerable, threatened, endangered or extirpated.

**Downlisted:** A species previously designated by COSEWIC whose national status moves from one category to a less-vulnerable category.

The figures above show an additional 80 listed species (or populations) from 1986 to 1990, or a 70.2% increase. With the exception of birds, the number of species under each category has roughly doubled. Much of the increase appears under the threatened and vulnerable categories. This data, however, does not in fact reflect any certain pattern, trend or rate of species decline, but rather the results of a focused research effort to determine the status of species, primarily in the Carolinian forest zone in Ontario. Nonetheless, the figures suggest that as new information about the status of species becomes available from the various committees assigned to the task of species inventory, and as that information is processed by the relevant bureaucracies, the picture we have of the status of wildlife in Canada will only be more precarious and worrisome than it is now. As the World Resources Institute reports, "...while the list of endangered species grows, no assessment of the distribution of biological richness, relative to the location of management areas, exists from which to determine the scope of our global conservation need."<sup>31</sup> The urgency of



the task of protecting native species, their habitats and prairie landscape/ecosystems becomes only more apparent.

Dr. Kenton Miller, former Director General of IUCN, argues that protecting large native areas is critical: "Conservation of biological diversity and preservation of wilderness values rely upon the establishment of relatively large areas. Currently the vast majority of established areas are less than 100,000 hectares in size..."<sup>32</sup> Building a protected areas program upon data supplied by asking the right questions from the outset is also important: "IUCN and UNEP recently completed a four-year continent-wide assessment of the system of protected areas in Africa. Conservation biology principles were used to answer three basic questions." The questions are listed below, adapted for prairie Canada:<sup>33</sup>

- What are the most important areas in prairie Canada according to biological diversity criteria?
- How well do existing protected areas cover the full range of prairie Canada's diverse natural heritage?
- Where are the underrepresented bio-units and the gaps in the system?

The PCAP represents a 'first cut' attempt to answer questions such as these for the prairies. Like the World Wilderness Inventory, the *Prairie Conservation Action Plan* "should serve as a benchmark, to be refined where appropriate; against which measurements of future trends in the status of wilderness stocks and updated inventory results will be evaluated."<sup>34</sup>

### **3.3 Putting the Problem in Perspective**

Complex problems touch human lives on many levels. Likewise, these problems may be analyzed and understood from different perspectives. The

following section looks at the loss of grassland ecosystems from a global to a local point of view.

i. A **global** perspective:

The first published results of the World Wilderness Inventory<sup>35</sup>, as presented at the 4th World Wilderness Congress in 1987, indicate that from a global perspective, conservation of significant tracts of the world's temperate grasslands should be a priority in order to safeguard some of their biodiversity.

For practical purposes, the Inventory was designed to recognize only those wilderness areas of 400,000 hectares (1,000,000 acres) or more in size. Land was characterized as wilderness if it "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." By this definition, 34% of earth's land surface is still wilderness. Twenty-three temperate grassland wilderness areas (totalling 310,000 sq. km/556.8 km<sup>2</sup>) were identified, representing only 0.6% of the total world wilderness area, *none of it outside of the Palearctic Realm* (comprising Europe, North Africa, and Asia, except India and S.E. Asia. Most of the temperate grassland is in central Asia). Only two of thirteen biomes, evergreen sclerophyllus forests and mixed island systems (based on Miklos Udvardy's *Classification of the Bio-geographical Provinces of the World*, IUCN, 1975), ranked lower than the temperate grasslands in percentage of the total wilderness area.<sup>36</sup> The *World Conservation Strategy* (1980)<sup>37</sup> lists the temperate grasslands of Asia as a conservation priority, among those biogeographical provinces "in which national parks or equivalent reserves protect a total area smaller than 1000 km<sup>2</sup>." The native temperate grasslands of the world, owing to their fertility and suitability for

agriculture and human habitation, are in high demand and short supply. Their biodiversity is therefore highly endangered.

ii. A **national** perspective:

Canada currently has 35 national parks or park reserves (areas awaiting full park status before Parliament) in its system, together totalling 182,000 sq. km (or 426.6 km<sup>2</sup>):

As such, they represent less than 2 percent of the Canadian landscape. In fact, on a world scale, Canada ranks a disappointing twenty-second in percentage of protected land... Only 21 of Canada's 39 natural land regions (that is just over half) are now represented in our parks. Even the Auditor General ...warns that the opportunities to establish parks in these 18 natural regions are vanishing as fast as farmland near Toronto: "In fact, it may already be too late to represent certain regions in their natural state."<sup>38</sup>

Canada does not as yet have a gazetted national park (NP) in the prairie grasslands or aspen parkland regions. Grasslands National Park, in the Mixed Prairie/Shortgrass Prairie ecoregion in southern Saskatchewan, has not yet been finalized. Waterton NP in southwestern Alberta includes a small portion of fescue prairie, but only borders the southernmost edge of this ecoregion. Elk Island NP near Edmonton and Riding Mountain NP in Manitoba both lie just outside the aspen parkland zone, in the boreal mixedwood ecoregion.

Only four parks in Canada's national park history have been disbanded. All four were in western prairie ecoregions. Nemiskam (1922-38) and Wawaskesy (1922-38) in Alberta, and Menissawok (1922-30) in Saskatchewan, were designed to protect the then diminishing pronghorn antelope population; when the antelope numbers rebounded, the parks were gone. The 200 square miles of Buffalo NP (1908-47) in Alberta were

transferred to the Canadian military as a training base, after all the large mammals in the park were shot (1,806 elk, 113 moose and 242 deer) or transferred (2,918 bison moved to Wood Buffalo National Park) following an outbreak of disease.<sup>39</sup>

iii. A **regional** perspective:

The *1988-89 Annual Report of Alberta Forestry, Lands and Wildlife*<sup>40</sup> (the provincial ministry which, along with the Ministry of Parks and Recreation, is charged with the responsibility of stewardship over these resources) states: "A significant portion of Crown land in Alberta has been given protected status, designated for conservation, recreation, ecological and other purposes." The total amount of this 'protected' land (consisting of Provincial Parks, Wilderness Areas, Recreation Areas, Willmore Park, Natural Areas, and Ecological Reserves), the land devoted to 'conservation and ecological purposes', amounts to exactly 1.2% (7561 km<sup>2</sup>/2919 mi.<sup>2</sup>) of the land base of the entire province, or a little less than 2% of provincial Crown lands (p.23). (Federally controlled lands in Alberta, including national parks, research stations, Department of National Defence, and so on, comprise 9.5% of the total area.) The report also states that:

In 1985, the government embarked on a forest industry diversification strategy for Alberta's economy. One component of this strategy was the increased utilization of Alberta's uncommitted timber resources. Although the province had an established and successful policy of sustained yield management, the opportunities offered by the available forest resources needed to be developed. To achieve its goal, the government had to actively attract new projects but overcome investment barriers such as lack of infrastructure, high transportation costs and the enormous capital required to develop the resource (p.13). ... In 1988, in an unprecedented move, the Forest Industry Development Division attracted \$3.5 billion of new capital investment in Alberta's forest industry,

based largely on new technologies and the utilization of our abundant aspen resource (p.2).

The few millions of dollars spent on wildlife and habitat management and protection programs in Alberta (as elsewhere on the prairies, even considering the North American Waterfowl Management Plan funding) do not come close to matching the billions of dollars spent over similar periods of time to exploit the land, harvest its resources and change the landscape. The scales are grossly out of balance.

iv. A **local** perspective:

E.H. Maunsell who accompanied the original force of [North West] Mounted Police and remained to become a rancher, told of camping on Milk River Ridge when a snow storm was in progress on September 22, 1874. In the morning, when visibility returned, the countryside was "covered with buffalo" for as far as men could see. Assistant Commissioner Macleod and Captain James Walker estimated the buffaloes within sight to number a million head. Another mounted policeman, riding from Fort Macleod to Fort Qu'Appelle a short time later, said he was never out of sight of herds on the entire trip. And Reverend John McDougall told of standing on Spy Hill, on the present outskirts of Calgary, in 1875 and seeing what he believed to be a half a million of the great critters at one time... Slaughter by Indians to meet normal needs made only slight and temporary inroads upon the big and prolific herds but when buffalo hides became a source of revenue - a dollar or two dollars per skin - destruction commenced. Fifty thousand hides were taken from Fort Macleod in the single year, 1875, and the scale increased annually... When the North West Mounted Police made their historic trek in 1874, there was no hint of decline in buffalo numbers; 10 years later the herd had disappeared.<sup>41</sup>

The above passage, written by former City of Calgary mayor Grant MacEwan, indicates the tremendous *loss of life* that has taken place in the area of the city over the past century; a wildlife and wilderness spectacle that we can now only barely imagine. So much of the local environment

has been changed, and yet few Calgarians realize just how great the change has been.

Fortunately, a few vestiges of the once 'endless' majestic prairie landscape remain, in or near the city. For example, Nose Hill, part of the same escarpment as Spy Hill mentioned above, has been set aside as a 'natural area park' by the city. But it, like many of the world's protected areas, is only a small island in what has become a vast sea of human-modified landscapes. For that matter, Nose Hill too has been considerably altered from its only recently native state, by over-grazing and surface mining. But enough of its native character has persisted, its plant and animal communities, to make it a very valuable treasure of biological, historical and cultural richness. It retains one of the few places *anywhere*, in the midst of an urban landscape, where someone can walk through a grassland without buildings, roads, and most other human artifacts being anywhere in sight, so that some shadow or glimmer of the sights, sounds and feelings that met the original travellers in this place can still greet the modern city-dweller. Unfortunately, this very spot, the old quarry site near the center of the park, is planned to embrace a parking lot for about 500 vehicles, to serve the large interpretive centre and equestrian stables which may be built in the center of the natural area that will be interpreted.

#### **Summary of observations:**

Global view: The biodiversity of temperate grassland ecosystems is endangered. Few large protected areas exist.

National view: Grassland and aspen parkland ecosystems are underrepresented in Canada's national park system. Only one park, in the mixed prairie ecoregion, is being created.

Regional view: There is no balance between resource exploitation and utilization activities versus conservation and protection programs within the prairie provinces.

Local view: The City of Calgary has a rare opportunity to preserve a significant tract of native prairie in Nose Hill Park, but its natural values may be severely compromised by park development plans.

### 3.4 The Beginning of a Conservation Program

"Within one human lifetime, the prairies have passed from wilderness to become the most altered habitat in this country and one of the most disturbed, ecologically simplified and over-exploited regions in the world. The essence of what we risk losing when the grasslands are destroyed is not a species here or a species there, but a quality of life, the largeness and wildness that made this country remarkable."<sup>42</sup>

These are the opening words of the *Prairie Conservation Action Plan*. They mark the beginning of a new and major conservation effort by Canadians on behalf of a seriously threatened part of Canada - the prairies. They represent a statement of loss, and a call to action.

In January of 1986, in an address at the Endangered Species of the Prairie Provinces Workshop in Edmonton, Alberta, Mr. Monte Hummel, president of World Wildlife Fund Canada, proposed a landmark prairie conservation program. He called attention to two urgent issues: the loss of prairie wildlife, and the loss of native prairie landscapes.

One cold fact: over half the birds and mammals now listed by the Committee on the Status of Endangered Wildlife in Canada are found in the three prairie provinces. In a nutshell, this is the price we have paid for extensive habitat loss in western Canada.

There will inevitably be a clustering of endangered species wherever there are endangered habitats, and the west represents the Canadian hotspot in this regard. I notice that a

report to Wildlife Habitat Canada identifies the native grassland prairies as endangered habitats since they are being lost or converted at an extremely rapid rate. For example, the Short-grass Prairie is over 80% gone. There is less than a quarter of the Mixed-grass Prairie left. You'll look hard for the remaining 20% of Fescue Prairie. Well over three quarters of the Aspen Parkland is gone, and there is virtually no Tall-grass Prairie left at all.

...we have on our doorstep in western Canada an urgent conservation challenge that is not only the top priority in national terms, but also extremely important in world terms. What can be done to preserve this resource?

[The] first task ... involves drafting a blueprint or a strategy for protecting the most important prairie habitats that are western Canada's 'life support system.'<sup>43</sup>

Therefore, in the spring of 1986, World Wildlife Fund Canada (WWF Canada) initiated the Wild West conservation program in order to take action on the serious problem of the rising number of rare, threatened and endangered prairie species, and on the rapidly declining amount of native prairie in Canada. Culminating three years of work by the Wild West committee, the *Prairie Conservation Action Plan* was launched "to influence policy and attitudes so as to conserve the biological diversity found in the Canadian prairies."



## 4. A PLAN FOR PRAIRIE CONSERVATION

### 4.1 The Planning Process

4.1.1 The following major steps were taken in the process of developing the *Prairie Conservation Action Plan*:

#### 1. Mandate for Action

World Wildlife Fund Canada perceived a need for a regional conservation program in prairie Canada, owing to the high number of species in jeopardy in this area, and the small amount of native prairie remaining. The President of WWF Canada announced this regional conservation program at the Endangered Species of the Prairie Provinces Workshop in Edmonton, 1986 - a public forum for prairie conservation efforts.

#### 2. Project Steering Committee

A steering committee for the Wild West program was formed, which included representatives of both government and non-government conservation-related organizations, wildlife experts, and prairie landowners. The aim of striking such a diverse committee was to ensure a wide representation of opinion and membership, entirely prairie-based (with the addition of the president of WWF Canada). This committee began to meet on a twice-yearly basis for the three-year duration of the program.

#### 3. Program Objectives

The steering committee defined three main objectives for the program: (1) to draft a conservation strategy for endangered and threatened prairie

habitats and species as a blueprint for conservation action for the next five years. This plan would be founded upon the second of the three main conservation objectives of the *World Conservation Strategy*: to preserve biological diversity; (2) to initiate demonstration projects for the recovery of endangered species; and (3) to increase public awareness of what can be done to conserve species and habitats through cooperative conservation projects with other agencies and private landowners. Some of the demonstration projects began immediately with the inception of Wild West, while the other objectives were developed over the course of the program.

#### 4. Strategy Subcommittee

A coordinator for the conservation strategy was appointed (this author), and a subcommittee was formed to support the coordinator and oversee the production of the strategy. The subcommittee likewise reported to and worked with the support of the steering committee. The subcommittee was composed of the action plan coordinator, steering committee representatives from the three provincial wildlife agencies and the federal wildlife service, the chairman and executive coordinator of the Wild West program, and an agriculture representative.

The role of the coordinator in this planning process was to:

- provide leadership and guidance to the action plan team;
- provide expert knowledge on developing a conservation strategy;
- provide organizational, planning and project design skills;
- undertake research and personal communications concerning the plan;
- pull together 'the big picture' of the scope of the plan, synthesizing the research information;
- employ writing skills as primary author of the documents to be produced;

- provide expert knowledge in document design;
- perform various tasks that other members of the Steering Committee would, owing to other commitments, be unable to do.

## 5. Initial Research

The action plan coordinator began the initial research for the plan, reviewing past research, past and present conservation efforts in the area, relevant literature, and contacting numerous experts and officials for comment, advice and information.

## 6. Prospectus for the Draft Action Plan Document

As a first step in the development of a conservation action plan, a prospectus for this action plan was proposed, prepared and distributed widely across the prairies (see the accompanying document, *Let's leave some Wild in the West*). This prospectus was designed to:

- convey an impression of prairie wildlife and wild places
- describe and define the problem: loss of these species and habitats
- describe the nature and purpose of the Wild West program
- provide a tentative outline of the proposed PCAP
- invite comment, criticism and action ideas from all interested readers.

A tentative outline for the prospectus was drafted by the action plan coordinator. The action plan subcommittee carefully defined the intended audience - those whom the subcommittee determined to be potential decision-makers and stakeholders in the outcome of the PCAP - both for the prospectus and later for the PCAP. Following comment by the steering committee, the prospectus was re-drafted, and finally approved by the committee. The coordinator worked closely with a graphic designer to

ensure that the document would well communicate its messages, striving for clarity, conciseness, comprehensibility, and visual attractiveness both in its text and graphic illustrations.

A mailing list was generated by drawing upon the previous mailing lists of several environment-oriented organizations and programs, and by accumulating lists of key individuals, organizations and agencies identified by the the subcommittee. The audience for the prospectus was considered to be much wider than that of the action plan.

Nearly 10,000 copies of the prospectus were circulated. All the replies - approximately 300 - were carefully considered by members of the subcommittee, and, where appropriate, incorporated in the drafts of the PCAP. The entire process, from the decision to develop a prospectus to the final analysis of responses received, was completed in one full year (July '86 - July '87), at a cost of one full-time coordinator, office and administrative support, and about \$10,000.00 for document printing. Office space and secretarial support was donated by the Canadian Wildlife Service, which also absorbed many related expenses, such as distribution costs of the document. Provincial wildlife agencies also donated labour and covered some expenses.

**Comment** - A prospectus may be very useful to inform a chosen audience about the facts of a problem, to explain why action is needed and propose processes to solve the problem, and to invite participation in the problem-solving process. Because people have to live with the decisions made by authorities, they want and need to be involved in major planning schemes. Having an opportunity to be involved in the planning and decision-making process may ensure support for a plan and its

implementation, benefiting everyone involved. A prospectus provides an opportunity for a broad audience to participate in the planning process, and helps to generate additional ideas and information concerning a plan, before the plan is presented publicly. But the process is costly, requiring considerable time, labour and funding.

Because the role of a prospectus is to communicate effectively, informing the public and inviting discussion, comment and participation, it should be well-designed to achieve these ends. The text and illustrations should be appropriate for the level of understanding of the intended audience. It should be clear to the reader how to respond, simple to do, and clear what the reader's response will achieve. (Further design considerations are outlined in section 4.2 below.)

## 7. Draft Action Plan Documents

Based in part on the response to the prospectus, the action plan subcommittee prepared several drafts of the PCAP. Each draft of the plan was reviewed by all of the members of the Steering Committee for their input. Difficult policy and planning issues were thoroughly debated - particularly regarding the approach to ecosystem management to be proposed in the plan. At one of the later steering committee meetings, the committee agreed upon a clearly defined, provisional set of goal statements to form the core of the document, corresponding to the identified areas for action; specific action statements were then generated for each goal.

The Steering Committee wished to obtain the greatest degree of input and consensus possible among all the cooperating agencies, organizations and other decision-makers upon the plan. Near the end of the design

process, therefore, 300 copies of the draft plan were again circulated to outside interests for comment upon the vision, goals and action statements of the plan. The process of external review took six months to complete (April to September 1988). The Steering Committee agreed to delay the publication of the PCAP to allow for this critical feedback. These comments were then incorporated into the final draft document, which was reviewed and approved by the Steering Committee. The entire process of preparing drafts of the *Prairie Conservation Action Plan* covered about 14 months (July 1987 to September 1988).

**Comment** - After presenting the prospectus, the second major decision point in the planning process was the release of a final draft for comment and review by the primary decision-makers outside of the Steering Committee. This draft action plan was a vehicle to solicit comment from a select audience, before final commitments in the plan (goals and action statements) were published. The role of this draft therefore was to:

- receive input from the major decision-makers
- generate further participation and consensus
- confirm or challenge the ideas of the Steering Committee
- pull ideas together to form a comprehensive action program
- prevent errors or implementation delays - as it is very costly to make changes to a final, published document.

Circulating a draft PCAP allowed major actors/decision-makers to be involved directly in the development of the action plan, increasing the sense of 'ownership' of the plan and its outcome. Such building of ownership should increase the likelihood that the plan will be implemented.

The role of the *Prairie Conservation Action Plan* itself was to:

- make a set of conservation values, goals and actions concrete
- provide common ground for decision-makers to work from
- provide a blueprint for actions over a five-year period
- provide a record of where, why and how action was initiated
- set a benchmark against which to measure future actions

An action plan therefore can provide guidance, information, education, a blueprint, a benchmark, a tool for evaluation, consistency, concreteness, consolidation of ideas, consensus, and a record of action.

- effective distribution - get the plan in the hands of those who will use it.
- build consensus - gain the support and, if possible, agreement of agencies, organizations and individuals. Support may come from shared values and goals, and through involvement in the planning process.

#### 8. Final Editing and Design of the Action Plan Document

The final draft of the plan was edited by a professional editor, while the coordinator oversaw the design and layout of the completed document - a further two-month process. The final design of the document was approved by selected members of the steering committee, and the *Prairie Conservation Action Plan* was then printed (November 1988).

**Comment** - The entire document design process, moving from a complete draft of the text to printed copies, will take a minimum of one and one half months. If possible, at least three months should be allotted to this design stage, to allow for the production of visual materials and as a hedge against unexpected difficulties and delays. To the greatest extent possible,

authors of action plans should work in close consultation with professional designers throughout the design process to ensure that the most accurate and effective document is produced.

## 9. Document Distribution

The printed document was released to the national press in conjunction with its distribution to key government officials. The document was publicly endorsed by political leaders in each of the prairie provinces, and was then widely distributed to relevant government and non-government individuals; to the media; and to select members of the public, particularly prairie landowners.

## 10. Implementation Phase

The implementation of the action plan began immediately, with political endorsements and then high profile review at a second workshop for endangered prairie species and spaces, organized and supported by numerous organizations and individuals. An implementation committee for the action plan was formed, and the Steering Committee agreed to reconvene to review the progress of action, as needed. Each of the prairie provinces is following its own implementation approach to the plan.

### 4.1.2

Two of the most important steps that occurred in the development of the PCAP were (1) defining the problem, and (2) reaching consensus on a set of goals.

It is often said that 'a problem well-defined is a problem partially solved'. Before the PCAP could take shape, the Steering Committee had to



resolve important questions about the nature and scope of the action that would be undertaken under sponsorship of the Wild West program and the PCAP. What were the most pressing problems, for species, habitat or ecosystem conservation, with which the committee should deal? With limited time, labour and resources at the committee's disposal, which prairie problems could practically be addressed? What were our priorities? What would be the most expedient form for the document, the action plan? What kind of protected area strategy should be devised? When such questions as these were at least provisionally resolved - the process running nearly two years into the program - the *Prairie Conservation Action Plan* was quite quickly produced.

Following general agreement upon the nature of the problem and how it would be addressed, the committee was able to define and reach consensus on a number of goals. Doing so was a 'watershed event', allowing the committee to move quickly forward with drafts of the plan, which could be circulated for review, discussion and elaboration. As the goals were established, action ideas were very quickly generated by which they might be attained.

#### 4.1.3

Another of the important steps early in the process was to identify the 'target audience' of the plan, both those who should be involved in preparing the plan (those to whom the Prospectus and drafts of the PCAP would be distributed), and those who would be responsible for implementing it (to whom the PCAP would be issued). In complex, multidisciplinary problems, the 'decision-makers' or 'stakeholders' come

from a variety of professions, disciplines, or walks of life. All of the groups listed below were considered by the PCAP Steering Committee to be potential actors or problem-solvers with a role to play in the development of the PCAP, having knowledge, skills, access to resources or information, or decision-making power. Individuals from these groups were contacted personally by members of the Steering Committee, or received copies of the Prospectus or the PCAP for their comment or use. The table indicates roughly how these groups have participated in the PCAP to date, whether by contributing to the background research and data-gathering, policy, planning and design, or implementation of the plan.

**Table 2. Actors in the *Prairie Conservation Action Plan* to August, 1990.**

	Potential Actors and Problem-solvers	Research and data gathering	Policy, Planning and Design	Action
<b>Prairie</b>	Landowners	√	√	√
Knowledge of the prairies	Land managers	√	√	√
	Farmers		√	√
	Ranchers		√	√
	Public		√	
	Politicians		√	√
	Sportsmen		√	√
	(Bio)geographers	√	√	
	Economists	√		
	Educators			√
	Lawyers	√		
<b>Conservation</b>	Biologists	√	√	√
Conservation-related expertise	Ecologists	√	√	√
	Conservationists	√	√	√
	Agriculturalists		√	√
<b>Planning</b>	Steering Committee	√	√	√
Primary planning, policy and design responsibilities	Planners	√	√	√
	Govt. employees	√	√	√
	Graphic designers		√	

It is important to consider *who* might be an important actor in solving a problem, and *how* and *where* these actors might be involved. Leaving out a key actor from some important step in the problem-solving process might debilitate the best of plans.

## **4.2 Document Design**

*Why take the trouble to design a good document? What kinds of elements contribute to good design?*

A conservation action plan document may play several different roles: to draw attention to a problem; to communicate problem-solving information; to provide a record against which future actions may be measured; to motivate and facilitate action; to generate funding. The document is an important tool for communication, and should therefore be designed to suit the needs of the intended audience. The level of detail included in the plan should fit the *scale* of the problem or kind of action undertaken.

### **4.2.1 Text and Contents**

The purpose of the *Prairie Conservation Action Plan* is "to influence policy and attitudes so as to conserve the biological diversity found in the Canadian prairies." It was written to explain to Canadians the nature of the problem facing native prairie wildlife and wild places, to explain the intrinsic and utilitarian values of native prairie, and the urgency, wisdom and practicality of acting to conserve it; and thus to influence the policy and

attitudes which govern the use or misuse of native prairie resources. Thus the Action Plan document was designed to:

- |                   |  |
|-------------------|--|
| <i>Inform</i>     | the intended audience and the public about the critical loss of native prairie in Canada, and the resulting rise in the number of rare, threatened and endangered species. |
| <i>Persuade</i>   | the readers of the necessity and urgency for conservation action.  |
| <i>Guide</i>      | decision-makers and resource managers on what to do, by proposing a complete set of conservation goals and priorities, with action steps to achieve the goals.             |
| <i>Facilitate</i> | action by being clear, concise, accurate and motivating.   |
| <i>Measure</i>    | the effectiveness of action over the following five years, by providing a blueprint and timeline for action, against which future actions may be measured.                 |

The following principles were employed when drafting the text of both documents:

*Content:*

- informative
- accurate
- comprehensive - containing all the relevant issues and information
- credible - cite authorities: backing organizations, quotations by eminent biologists
- influential (encourage care and action)

*Style:*

- clear
- concise
- easy to read

- minimal jargon
- define difficult or unusual terms
- style appropriate for the intended audience

*Design considerations:*

- Sponsoring agencies of the program listed near the beginning of the document to acknowledge their support and indicate program credibility.
- Text begins with a statement of the 'Vision' of the program, to make clear the issues, purposes, and possibilities for action.
- Each goal or heading stated briefly at the head of a page, and followed by a brief explanation or justification.
- Headings, goals and important points highlighted in **bold** print.
- All action statements clearly related to one goal.

#### 4.2.2 Visual Design

Graphic design elements in a plan play several valuable roles, including:

- **Good illustrations provide *a picture of the object* of study and action** - which words alone cannot convey. The reader thereby is able to more quickly grasp the object of the inquiry. For example, the photographs and drawings throughout the PCAP allow the reader to quickly appreciate the kinds of plants and animals being dealt with. Maps are very useful to convey an understanding of geographic space, such as species range maps in a recovery plan. In the PCAP, maps identify ecological and habitat regions within political boundaries.

- **Illustrations and colour enhance the aesthetic and emotional content of a document.** These values should complement the rational, verbally expressed arguments and information being offered. Persuasion does not only occur on the basis of scientific data and rational argument; important decisions may be made on the basis of value judgements, feelings, and aesthetic appeal. In the PCAP, a colour bar runs across the top of each page, suggesting the golden-yellow colour of prairie grasses, and the sense of spaciousness in the prairie landscape.
- **Some information is most efficiently and effectively conveyed pictorially.** The simplicity and economy of a good illustration may be very valuable; "one picture is worth a thousand words." For example, the top photograph on page 32 of the PCAP, subtitled "Prairie for tomorrow", quickly 'tells a story' - and encourages both an intellectual and emotional understanding - that would be tedious to convey in words.
- **Relationships, proportions and quantities are efficiently expressed pictorially.** For example, a bar graph or pie chart gives an instant impression of the relationships between groups of data. Maps are employed in the PCAP to indicate the relative sizes and locations of ecoregions (page 13) and amounts of remaining native prairie in habitat subregions (inside back page insert).
- **Individuals think differently, and respond to different kinds of information.** Graphic design broadens the range of communication in a plan. Different individuals will have a (perhaps subconscious) *preference* for different sources of information: such as verbal,

numerical, pictorial, or tactile. Some ideas and problems are best understood or expressed visually/pictorially. Many people are more visually than verbally oriented; a well-illustrated document will reach a wider audience. The PCAP includes verbal argumentation and statement; pictorial references; some numerical figures (including lists of endangered species which may be added numerically); and a quality of paper heavy enough to 'feel substantial' in the hands of the reader.

A 'balanced' document, therefore - one that communicates in several different ways - may appeal to a broader audience, as well as being more interesting and informative for most readers. The better the communication, the more likelihood of interest on the part of the reader; the more interest, the more comprehension and, hopefully, motivation to pursue action.

*Design considerations:*

- At least one illustration per open (2-page) spread.
- An optimal amount of blank space per page, both for ease of reading and comprehension, and to suggest the openness of the prairies.
- A horizontal colour bar at the top of each page, the colour suggesting the rich yellow-gold of prairie grasses, and the broad prairie grassland horizon.
- A small silhouette of a bison, perhaps the most recognizable and powerful animal symbol of the prairies, in the upper right corner of most pages to suggest that with proper management the survival of endangered species is possible, but also a reminder of the loss of what once was.

- Every photograph or drawing relevant to the text on that page.
- Headings and goals clearly visible (provided by large, **bold** print).
- Quotations *italicized* and set apart in the text.
- Each action statement highlighted by the word '**action**' in bold print.

The graphics and illustrations - photographs, drawings, maps and tables - were carefully chosen and placed in the document to:

- 1) Illustrate the surrounding text.
- 2) Create a broad visual image of the 'Wild West' landscapes and program to complement the text. Numerous illustrations were chosen to cover a range of visual information and themes:
  - a. **species:** both common or representative, and rare or endangered. Mammals, birds, fish, insects, herptiles, trees, grasses, flowering plants.
  - b. **ecoregions/habitats:** each of the five major ecoregions was illustrated, plus examples of significant habitat areas, such as riparian habitats, wetlands, sand hills, and marginal farmlands.
  - c. **species-habitat links:** each illustration of a plant or animal contains at least a suggestion of the habitat the species requires.
  - d. **the problem:** photographs indicating some threats to prairie species and ecosystems.
  - e. **people/prairie links:** illustrations of people using or enjoying the landscapes and wildlife.
  - f. **conservation in action:** showing some of the work being done, and people involved.
  - g. **prairie symbols:** recognizable, emotive symbols - of the landscape, its beauty, its problems, what has or is being lost, what can be done to help, and hope for the future.
  - h. **maps:** to place the area of activity in a national and regional perspective.



A simple formatting technique, not used in the PCAP but which might be useful elsewhere, would allow the user of an action plan to visually identify and 'check off' action items which have been implemented, by inserting a box ( ☐ ) in the text before (or after) each action statement. This format is illustrated below:

**Actions:**

- ☐ By 1990, each province should identify currently protected areas that can serve as ecosystem reserves, and should incorporate this concept into the management of the sites.
- ☐ By 1990, each province should identify habitat subregions where areas should be protected for ecosystem reserves.
- ☐ Native prairie that is public land should not be sold if needed in the system of protected areas. Non-native prairie areas could be traded for significant habitat.
- ☐ Within the next five years, habitat management plans for riparian ecosystems should be developed.

#### **4.3 Planning as a Problem-solving Process**

There is both an art and science to doing good planning - planning that achieves the desired results. The art of good planning lies in being able to comprehend the nature and complexities of problems and arrive at appropriate solutions. The skills involved include the practice of intuition, induction, assessing values, setting goals, good communication, and managing people, time, projects and conflict. The science of planning involves establishing rational methods, models, procedures and actions.

Strategies and plans are often devised in *response* to perceived problems or challenges. They are often *not* prepared in *anticipation* of major

problems.<sup>44</sup> In the world of environmental problems, and, in relation to this paper, of conservation problems specifically, the problems tend to be complex, with many unknown factors, and urgent in nature; and they usually require and entail comprehensive, multidisciplinary planning and action. In practice, the planning carried out is at times *ad hoc*, with little or no reference to established planning methods or models to guide the planning process. Ideally planning should be undertaken on the basis of rational planning formulae or models - models to help guide the planner(s) through efficient and effective processes to effective results.

Plans are successful to the degree that they are effective in achieving the desired results. In order to be effective, a plan must above all be appropriate for the context and circumstances surrounding the problem(s) being addressed. Various planning models have been developed to help guide planners through a planning process. The following are several of the predominant planning models, elements of which may be employed to help solve environmental problems.

#### **4.4 Some Useful Planning Models**

##### **4.4.1 Conventional Comprehensive Planning**

Comprehensive planning, according to planner Reg Lang<sup>45</sup>, takes a holistic perspective on planning problems. It presents a broad view "that takes more sectors and interests into account in an attempt to satisfy a wider range of needs and values." This kind of planning functions best under rather ideal conditions; where, for example, strong consensus exists regarding what should be done (ends) and how best to go about it (means);

uncertainty is at a minimum; the impacts of alternative courses of action are known, or at least are knowable; there is a high degree of central control over the action space; and there is ample time, money, staff and other resources to prepare a plan. Comprehensive planning has definite strengths, but it also has certain weaknesses: extensive study of the problems and possible solutions are necessary before action can occur; circumstances can change over the planning period; this kind of planning carries high costs; broadly based plans tend to be difficult to implement, and they are politically risky.

#### 4.4.2 Incremental (Coordinated) Planning

Incremental planning, sometimes referred to as political "muddling through", is most suited to the realities of politics and organizations. Among its strengths, it allows opportunities to be seized and problems to be dealt with as they arise. "The focus is on producing limited issue-by-issue agreements, which can then result in quick action. Decision-makers have maximum flexibility, which they value highly."<sup>46</sup> The weaknesses of this type of planning, according to Lang, are that piecemeal actions treat only symptoms of problems; systemic effects and real, long-term needs may be overlooked; it tends to be oriented to the status quo, and therefore not innovative; it tends to omit those interests without power; and it promises only limited results.

The conditions suited to comprehensive or incremental planning do not always exist; rather, many problems, environmental or otherwise, must be solved under conditions that are far from favourable: when desirable ends

are unclear; when there is ambivalence about the means; when problems are ill-structured; when knowledge is grossly insufficient, when information is scanty and when constraints prevent the necessary research from being done; and when the action space is highly fragmented. For such conditions, Lang recommends an *integrated* approach to planning; integrated because it attempts to combine the best elements of both comprehensive and incremental planning, while avoiding their weaknesses. This approach has two distinctive dimensions; it is both interactive and strategic.

#### 4.4.3 Interactive Planning

The interactive style of planning, Lang states, "focuses on mobilizing support for action rather than manipulating data for planning", and measures its success by the level of agreement on action, and by resulting change, rather than on the achievement of the plan's objectives. Moreover, it "assumes that better decisions result from open, participative processes. Planners engage directly with stakeholders to identify issues and define problems so that they may be capable of solution. Planners seek common cause and look for solutions that are both acceptable and capable of being implemented. Often this requires the planner to assume a value-committed activist stance." Thus, integration "involves sharing and coordinating the values and inputs of a broad range of agencies, publics and other interests when conceiving, designing and implementing development policies, programs or projects." Being sensitive to the needs and values expressed by others, Lang says, "minimizes the chance of

making serious errors in judgement, makes it easier to reach compromises, improves communication, and boosts the credibility of planning processes and planners."

#### 4.4.4 Strategic Planning

Strategic planning often takes place in response to specific 'environmental' circumstances relevant to an organization's planning. Planning does not take place in a vacuum. Existing forces and factors external to the immediate plan are taken into consideration, and strategic planners try to anticipate or react effectively to such changes in the socio-economic-political environment as might effect the outcome of the plan. These changes will present an organization with new planning opportunities, or threats and constraints which will make it more difficult for the planners to attain their goals. Strategic planning is not only *reactive* to external forces and factors, but is also *proactive* in setting a value- and goal-oriented direction for the planning process. It describes both the desired outcome of a plan, and how to achieve that outcome. Strategic planning has these four essential characteristics:

- (1) It is **action-oriented**, such that planning and implementation become a single process.
- (2) It provides an **early focus** on what is to be investigated. Issues are identified and analyzed, and only then are data collected in order to answer specific questions. Values are seen to guide the collection of data, rather than follow from the data; an explicit mission statement may likely guide the entire planning process.

(3) It is **flexible and adaptive**, keeping options open, remaining responsive to unforeseen change, and allowing the process to adapt to new demands and circumstances.

(4) It **builds capacity**, "closely involving in the planning those responsible for implementation", so that managers and decision-makers all develop planning skills, and are enabled to "develop a sense of ownership in and commitment to the plan and to the planning process."

**Comment** - The conditions under which the *Prairie Conservation Action Plan* was initiated and developed were certainly much like those stated above for which Lang recommends interactive and strategic planning. And while the Action Plan Subcommittee and Wild West Steering Committee were not operating consciously and explicitly under the guidance of any particular planning model, the process carried out was similar to those of both interactive and strategic planning.

#### 4.4.5 Research-Policy-Action Model

The following analysis of conservation activity by Joseph L. Fisher may serve as a useful model for various planning problems:

I look upon research-policy-action ... as a circle: research and analysis open the possibilities for policy; and policy provides the broad framework for fruitful action including some which occasionally may overturn current policy and perhaps even some of the institutions through which all organized effort tends to flow. To complete the circle, the successes and shortcomings of action programs redefine the problems and challenges for another round of investigation and research. ... the key to a good and long future for us all is the integration of research, policy and action for dealing with our conservation

problems of land, water, air, raw materials, wildlife, and natural beauty.<sup>47</sup>

Fisher's model may be especially useful for its simplicity. It shows a simple, logical progression from data-gathering and analysis of a problem, to goal-setting, to action.

Fisher observes that the "weakest leg of this tripod" may be policy; for national policies are often full of inconsistencies, and tend to be developed in response to political pressures, rather than from planning or organization. But a thorough planning program will call for an integration or balance between these three fundamental activities.

The development of the *Prairie Conservation Action Plan* can be seen as having followed essentially this process. In the early stages of its development, the main task to undertake was the basic research of the problem - answering such questions as 'What is the actual extent of the loss of species and habitat on the prairies?' 'What information about prairie habitats and species already exists? What do we know, and what don't we know?' 'What action programs are already being undertaken, and what still needs to be done?'

Following upon this initial period of information gathering, it became necessary to establish a set of goals (policy statements) to guide the action steps, based upon the results of the initial research. Ten goals were chosen, each with a further set of action statements to attain the goal. The Action Plan itself is a policy document, insofar as it represents a statement of desired results, and a blueprint and benchmark for subsequent action.

Finally, the implementation of the plan was initiated. And meanwhile, during the entire duration of the Wild West program, a large number of

practical, in-the-field, demonstration projects were carried out to ensure that action results were being achieved.

#### 4.4.6 Developing a Conservation Action Plan

In his report *User's Guide to Conservation Strategy Development*, John McCormick has drafted some very useful guidelines for the development of conservation strategies, including the preparation of action plans to implement a strategy.

The typical conservation strategy (CS) process, he suggests, can be split into three phases: (1) **Initiation** - time needed: 1-6 months; (2) **Preparation** - time needed: 24-36 months; (3) **Implementation** - time needed: continuous. Further, a strategy should include these four basic components:<sup>48</sup>

- 1) A **Forum** for bringing together people from different sectors and levels (e.g., public, technical, administrative and policy-making) to undertake the CS process.
- 2) A **Framework of Guidelines** to help in analysing resource issues, drawing up options, defining priorities, and ensuring consistency and comprehensiveness.
- 3) A **Process** through which the forum prepares the CS using the framework of guidelines, which should provide for:
  - integration of information gathering, analysis, discussion and decision-making throughout the preparation of the CS, to ensure comprehensive coverage.
  - promotion of 'multi-sectoral dialogue'.
  - promotion of public awareness.
  - flexibility as the CS develops.
- 4) "**Products**" or **Outputs**.

The following plan for monitoring and evaluating the implementation of a conservation strategy has also been provided by McCormick<sup>49</sup>, and may be useful (where practical) for the monitoring and evaluation of many



conservation action plans. Monitoring and evaluation, McCormick says, should *concentrate on the anticipated results of the Strategy*. This plan operates on three levels, suggesting *how and where to look for results*:

*Level 1: Implementation of the Action Plan*

- a) Projects funded and other direct and research actions taken to implement the CS Action Plan.
- b) Changes in legislation and institutions as a result of the strategy.
- c) Concrete evidence of increased awareness/understanding of and consensus on the issues covered in the strategy.

Progress is measured by the following **Indicators**: for items 1a and 1b above, the direct action and research priorities of the plan, within the time frame of the action plan. Item 1c can be monitored through public opinion surveys. It is important that pilot surveys be designed and tested early in the preparation of a strategy (as part of the public information and consultation programs), to set benchmark data against which any subsequent changes in awareness, understanding and consensus can be measured.

*Level 2: Field or biological results*

- a) Direct field results, that is, changes in the status of ecological processes, biological diversity, or harvested resources directly attributable to the Strategy.
- b) Indirect field results, that is, changes in the status of ecological processes, biological diversity, or harvested resources that would probably have been achieved without the Strategy, but which the Strategy accelerated or otherwise helped.

**Indicators:** The time-frame at this level will vary with the indicator; some biological systems recover quickly, while others may take decades. Suggested indicators:

- Ecological processes: The distribution of key land-use types.  
Land quality
- Biological diversity: Ecosystem diversity  
Species diversity  
Genetic diversity
- Harvested resources: Level of sustainability

### *Level 3: Socioeconomic results*

- a) Direct socioeconomic results, that is, changes in social and/or economic conditions directly attributable to the Strategy (including those attributable to the above field results).
- b) Indirect socioeconomic results, that is, changes in social and/or economic conditions influenced by the Strategy (including those attributable to the above field results).

**Indicators:** These should include standard social and economic measures, such as employment, income and inflation. They should also include indicators of the values of communities and other interest groups. Such indicators should be selected and developed through consultation with the communities and interest groups themselves during the public consultation program.

## **4.5 Policy: Setting the Agenda to Protect Life on Earth**

Policy statements outline a broad course of action to be followed.

A policy can be defined as a plan of action adopted or pursued by an individual, a government, or an institution. Policy formulation is normative in the sense that it formulates recommendations and rules based on the standards and values of the society within a country. ... Most environmental policies are usually developed in response to the need for regulation, and result from extensive consultation and negotiations. Regulations are demanded when the use of natural resources and the environment generates social and economic externalities, imposes social costs, threatens the quality of the environment, and jeopardizes the very existence of resource stocks. Consultations and negotiations are necessary to make sure that any policy is based on facts, and to accommodate the interests of different members of society.<sup>50</sup>

The *Prairie Conservation Action Plan* takes as its primary source of policy the *World Conservation Strategy*. The Action Plan, through its goals and action items, recommends policy changes for governments and institutions. These policies are primarily directed towards protecting and enhancing the biological diversity of the prairies.

## 5. FROM IDEA TO ACTION - IMPLEMENTING THE PLAN

### 5.1 Implementation: Planning for Action

Conviction, were it never so excellent, is worthless till it  
convert itself into Conduct.

Thomas Carlyle

The supreme misfortune is when theory outstrips  
performance.

Leonardo da Vinci

When all is said and done, a lot more is said than done.  
Anon.

If they are to be meaningful, plans and decisions must be put into effect - and it is often here that they fall short. Implementation is the stage of a plan when knowledge, values and goals are translated into **action**.

Certain elements of the design process cannot be completely formalized, structured, planned and controlled; namely, the subjective elements of human response to problems, such as creativity, intuition and innovation. Nevertheless, an effective design (problem-solving) process will optimize opportunities for these elements to be expressed and developed.

The subjective reactions of individuals (and institutions) to design problems must also not be underestimated. Problems are frequently solved upon the condition of those directly affected by them having an active role in their solution. For example, a decision on whether or not to create a new park in an agricultural area may be finally dependent upon the acceptance of the plan by all the local landowners. Inviting individuals to participate in the design/planning process will often increase the likelihood of a plan's success; especially where the success of the plan is really contingent upon

the approval of the plan by those affected by it. When the stakeholders have an input into the design/planning process, it is much more likely that they will support the goals and outcomes of the plan.

Implementation is a critical step in good planning. "The biggest problem with strategies and action plans is lack of implementation, and this relates in turn to the process through which they are prepared. Experience has demonstrated conclusively that action plans - whether for an area, a species, a nation, or a region - need to be developed in the closest possible collaboration with those who are most directly affected by the action proposed."<sup>51</sup>

It is often valuable to state the obvious. A plan should not be designed so as to produce a plan, but to *solve the problem 'out there.'* This is a subtle but important point. Of course a good solution to a problem will likely follow from a well-designed plan. But to produce a good plan, one with 'an elegant fit' to the solution, the mind of the problem-solver should be focused pre-eminently upon the larger problem at hand, where action is really needed, rather than upon related problems (like document design) that are component parts of the solution. In short, always keep the primary problem, and its possible solutions, in mind.

Likewise, if there are useful guidelines for certain plans, these guidelines are good not so much because they lead to good plans, but because they lead to effective solutions to real-world problems.

## **5.2 Solving the Problem?**

To initiate the implementation of the *Prairie Conservation Action Plan*, World Wildlife Fund Canada arranged for public political endorsements of

the PCAP by the premiers of Manitoba and Saskatchewan, and by the Minister of Forestry, Lands and Wildlife in Alberta. These endorsements were possible owing to the complete involvement of representatives of the provincial wildlife agencies in the design and planning process - through membership in the Wild West Steering Committee. This was followed by a high profile review of the PCAP at the 1989 Endangered Species Workshop in Regina, organized and supported by numerous organizations and individuals, two months after the plan was published and distributed. Several members of the original Steering Committee formed an implementation subcommittee for the action plan, and the Steering Committee agreed to reconvene to review the progress of implementation, as needed.

Implementation of the plan has followed a different path in each of the three prairie provinces. The approach being taken in Alberta seems to be particularly proactive and effective, and is described below.

World Wildlife Fund Canada opened a new office in the provincial capital, Edmonton, and enlisted a new Coordinator for the follow-up program to Wild West in Alberta, called 'Prairie for Tomorrow'. An Alberta Implementing Committee for the PCAP was formed through the support of the provincial government, and has expanded to become the Prairie Conservation Co-ordinating Committee (PCCC), with a membership (as of March, 1990) of over fifty individuals representing forty-two government and non-government agencies and organizations within Alberta. The membership includes provincial, regional and municipal governments, agriculture, environmental and conservation organizations, and the academic and business communities. This committee will be

meeting several times yearly through 1994 to oversee the implementation of the PCAP in Alberta.

Significant among the decisions recently reached by the PCCC was the adoption of the following operating principles:<sup>52</sup>

1. The PCCC recognizes that the goal of prairie and parkland conservation has both habitat protection and habitat development components.  
*Explanation:* While modified environments are not a substitute for irreplaceable native environments, they are indispensable if the goal of retaining biological diversity is to be achieved. The overriding interest of the PCAP is the retention of nature conservation values. In achieving this intent, the retention of existing remaining native ecosystems (protection *and* management) and the development of modified environments that provide nature conservation values (e.g. DU projects) are complementary components of the same task.
2. The PCCC subscribes to the three international principles of the *World Conservation Strategy*.  
*Explanation:* Resource utilization and resource protection can both achieve nature conservation objectives. Over most of prairie and parkland Alberta the greatest potential gains can be made by placing emphasis on man conducting resource consumptive and utilization activities in a manner consistent with the retention of viable species, communities and habitats.
3. The PCCC members recognize and respect the legitimacy of different values and viewpoints.  
*Explanation:* We define a resource as a part of the environment that society values, but as a society and as individuals we value things differently. While espousing our own values, it facilitates our dealings with others if we recognize the legitimacy of other views and refrain from imposing our values as truths or imputing others as base.
4. The PCCC will focus its energies in areas where there is the greatest degree of emerging consensus and where the most progress toward realizing the goals of the PCAP can be made.
5. The PCCC will attempt to work with all stakeholders and will espouse cooperative and non-confrontational approaches. The committee will pursue its objectives in a way that respects the livelihood and lifestyles of rural residents.
6. The PCCC subscribes to the principles of integrated resource management.  
*Explanation:* The work of the committee will be characterized by adopting a holistic perspective on issues, sharing information and decision-making, undertaking consultation before action and encouraging co-ordination amongst stakeholders.

It is noteworthy that, as a further development of the problem-solving approach to an environmental problem, the above principles indicate the importance of:

- (1) adhering to a clearly defined set of goals (here, those of the *World Conservation Strategy* and the *Prairie Conservation Action Plan*).
- (2) communication, cooperation and consensus among all the concerned actors in reaching these goals.
- (3) enabling and ensuring the involvement of the stakeholders.
- (4) undertaking realistic and achievable actions.

While this paper is not intended to present complete results of the implementation of the *Prairie Conservation Action Plan*, the following short list of action results, compiled from information received from World Wildlife Fund Canada and personal communications, is included to indicate where some action is being achieved in each province to date, and where further action is needed.<sup>53</sup> Each action item below, listed as related to the PCAP goals, has followed directly from the plan, or could in the future be related to the implementation of the plan.

### **Implementation of the PCAP, to August 1990**

#### **Alberta**

Goal 1    An inventory of the remaining prairie riparian ecosystems  
(PCAP)    is underway.

Goals    The provincial government has been working with WWF and  
3 & 8    the Special Areas Board in eastern Alberta to protect native  
          prairie within the jurisdiction of the Board.

- Goals 4 & 5 World Wildlife Fund Canada has, in cooperation with the government, initiated a follow-up program to the Wild West program entitled 'Prairie for Tomorrow'. About one million dollars have been allocated to this program, through commitments from WWF, the provincial government, and several corporate sponsors. Under this program, twenty-one projects totalling over \$166,000 have been completed to date, including sixteen endangered species management plans drafted or completed.
- Goals 5 & 8 Following a similar successful project in Saskatchewan, and operating through the Prairie for Tomorrow program, the Alberta Fish and Game Association is sponsoring a Burrowing Owl Project, a volunteer program whereby landowners undertake agreements with the sponsoring agency to protect burrowing owl habitat on private lands. Participating landowners receive public recognition by, for example, obtaining a plaque of recognition for wildlife conservation.
- Goal 7 (i) The Minister of Forestry, Lands and Wildlife publicly endorsed the PCAP in December 1988. (ii) The provincial government has subsequently endorsed the implementation of the PCAP by sponsoring and coordinating the Prairie Conservation Coordinating Committee. This committee has representation by more than fifty groups and individuals, including government agencies, conservation organizations, agriculture groups, and corporations. *An extensive implementation strategy is being prepared*, listing numerous action items for each goal which will be implemented by the individual member groups.
- Goal 9 A pilot education project about endangered prairie species and habitats has been developed and tested for implementation in Alberta schools.

## Manitoba

- Goal 1 (PCAP) The inventory of tallgrass prairie has essentially been completed. About two and one half square miles (4 sq. km) of tallgrass prairie have been protected; another 30-35 quarter sections of land are under consideration for purchase or lease. The Endangered Spaces Program recently announced by the Premier will provide, in cooperation with WWF Canada, sufficient funding of \$25,000 per year over ten years to purchase all the tallgrass prairie tracts required within the provincial program. The Resource Allocation Branch of the Department of Natural Resources will make information available to sister government agencies on species and habitat requirements. A



strategy is being developed to protect a major area in the 'Poverty Plains' region in the southwest corner of the province, to protect endangered grassland species through land purchase or lease.

- Goal 2 The government, in partnership with WWF, has initiated the Critical Wildlife Habitat Program. Two tallgrass prairie sites have been protected under this program. CFB Shilo has been advised of the PCAP and will be guided by the plan through the Shilo Environmental Advisory Committee.
- Goal 3 Funds for the North American Waterfowl Management Plan are being used to help implement some of the related PCAP action steps in southern Manitoba. Private landowner agreements ensure protection of wildlife habitat on these lands.
- Goal 4 Currently protected public land and the Ecologically Significant Areas Program are being incorporated into site management planning for prairie vegetation. An Interdepartmental Committee composed of members of the departments of Highways and Natural Resources has been formed to look at use of native prairie grasses for seeding road allowances. A number of Winnipeg firms are using prairie vegetation for landscaping. A prairie seed farm is now operating in the Winnipeg area.
- Goal 5 Manitoba is a full partner in RENEW. A Long-tailed Weasel Recovery Team is currently being formed. Preliminary discussions regarding reintroduction of the Greater Prairie Chicken are being held. Manitoba has obtained Endangered Species Recovery Fund (ESRF) monies for work on the recovery of the Piping Plover, Burrowing Owl, Loggerhead Shrike, Baird's Sparrow, Ferruginous Hawk, and Northern Prairie Skink.
- Goal 6 Many Manitoba participants attended the 1989 Endangered Species Workshop in Regina. The Coordinating Committee for the 1992 Endangered Species Workshop is planning for the meeting in Brandon, Manitoba. Prairie staging and production areas of shorebirds are being identified.
- Goal 7 (i) The Premier publicly endorsed the PCAP in December 1988. Copies of the book *Endangered Spaces: The Future for Canada's Wilderness* were distributed by the premier to all of Manitoba's cabinet ministers in 1989. (ii) The province passed the "Endangered Species Act" in 1990.
- Goal 8 The Departments of Environment and Agriculture have sent out brochures asking landowners not to spray grasshoppers with Furadan in Burrowing Owl nest sites.

- Goal 9 The Department of Natural Resources is promoting the values of prairie ecosystems in the summer visitor program at the Oak Hammock Marsh Centre. Manitoba is actively promoting Project Wild; a Wildlife Branch representative has presented several talks related to WWF's Operation Lifeline. In addition to the St. James Prairie Museum, Winnipeg has Omand's Creek Prairie Conservation Area, and several other small protected prairie sites, which can be used for interpretive purposes.
- Goal 10 A University of Manitoba student is assessing the protected fescue prairie site in Riding Mountain National Park.

### **Saskatchewan**

- Goal 1 (PCAP) The Saskatchewan Department of Parks and Renewable Resources is purchasing computer equipment to place the Terrestrial Wildlife Habitat Inventory on a geographic information system (GIS) where it can be updated as data is gathered.
- Goal 2 Creation of the Grassland National Park achieves the large mixed grass prairie reserve called for. Moose Mountain Provincial Park stands as a large reserve in the aspen parkland; it is managed on a multiple use basis, and has not yet received any degree of protection it did not previously have.
- Goal 3 While the Department has a number of areas protected under The Parks Act and a number of wildlife lands plus large areas protected under The Critical Wildlife Habitat Protection Act which could be part of such a system, there is no current systematic protection of lands in each habitat subregion.
- Goal 4 The Wildlife Branch of Parks and Renewable Resources is developing a discussion paper on management of wildlife lands in cooperation with Wildlife Habitat Canada. The Branch is also working with the Prairie Farm Rehabilitation Administration (PFRA) on a pilot project to develop an integrated management plan for a PFRA pasture. The Parks Branch have prepared vegetation management plans for two parks, and are developing others.
- Goal 5 The Saskatchewan Endangered Species Recovery Fund has been created, with shared funding by the government and WWF of \$300,000 over the next five years. Several survey projects have been completed, including those for the endangered piping plover, and raptors of the South Saskatchewan River. Recovery plans are

being prepared, completed or implemented for such species as the prairie rattlesnake, yellow-bellied racer, sage grouse, white pelican, greater prairie chicken, and black-footed ferret.

- Goal 6 A draft list of vulnerable wildlife is being completed by the Wildlife Branch. Research into the effects of pesticides on wildlife has also been supported. A joint project between the Wildlife Branch and the Canadian Wildlife Service (CWS) may lead to the creation of some International Shorebird Reserves in the province.
- Goal 7 (i) The Premier publicly endorsed the PCAP in December 1988.  
(ii) The provincial Department of Environment has created a Round Table which is developing a provincial conservation strategy. Committee members have been made aware of the PCAP.
- Goal 8 The Department of Parks and Renewable Resources is working with agriculture agencies on a soil conservation initiative and the North American Waterfowl Management Plan to achieve this goal.
- Goal 9 The Project Wild program is being upgraded and implemented; it has been incorporated into the science curriculum in all public schools. A Department ecologist is currently studying urban wildlife; completion of the research should lead to initiation of an urban wildlife program.

#### **Implementation concerns:**

- There has been little progress to date in protecting any large, representative ecoregion areas in any of the three prairie provinces. (PCAP, Goal 2)
- The progress in finalizing the Grasslands National Park in Saskatchewan continues at a slow pace. (PCAP, Goal 2, action)
- There have been no major government initiatives in any of the three prairie provinces to protect major sites on crown lands. (PCAP, Goal 3)
- What specific, *on-the-ground* efforts are being made by the three prairie province governments to follow up on their public commitments to implement the PCAP?

### 5.3 Plan for a Solution

The *purposes* of both a planning process and a planning document are to facilitate the achievement of action results - to solve a problem.

Therefore, implementation considerations should be built into the design and planning processes. *What kind of planning processes are effective? What makes a conservation action plan effective? How are successful plans implemented?*

The authors of *Conserving the World's Biological Diversity* conclude that some particularly important factors that may contribute to the utility of biodiversity strategies and action plans are:

- the degree to which the action plans were prepared by those who will be responsible for implementing them (the 'bottom-up' approach usually being more effective than the 'top-down' approach);
- the degree of political and financial support for the plan, among both governments and other institutions that may be able to contribute;
- the extent to which the action plan addresses real needs, either of the areas or species concerned or the implementing institutions;
- the effectiveness of mechanisms to follow up on the recommended actions, and to generate the necessary funding; and
- the degree to which the strategy or action plan contains both necessary and sufficient activities to solve the problems being addressed.<sup>54</sup>

The following implementation recommendations should also be considered:

- Any plan must be **implementable**. Ensure that goals and action statements are clearly defined, practical and achievable.
- Ensure that the plan addresses the **root causes** of problems. The problem(s) must be understood. To the greatest extent possible, the plan's authors should have '**on-the-ground experience**' of the problem.
- Build a **shared vision** of the desired outcome of the plan.

- Develop an **implementation strategy**.
- Establish **priorities for action**, and work towards achieving priority items first.
- Place the **best available information** in the hands of those who can use it to the best advantage. Ensure **good communication** takes place.
- Ensure that adequate **funding** is in place for the entire duration of the plan.
- Ensure that program **infrastructure** is in place. For example, there should be a forum for committed individuals to communicate frequently, to share their ideas and information, and to maintain or boost morale and enthusiasm. Program managers should ensure that good work is rewarded.
- Ensure that the appropriate **political support** and **commitments** have been attained. To the greatest extent possible, all key decision-makers, stakeholders, or others with power to act should be involved in or in support of the plan. Build ownership of the plan.
- Ensure that the plan is **visible** - seen and known by the right people. The **credibility**, **viability** and **urgency** of the plan should also be promoted.
- Involve and **motivate** individuals at the 'grass roots' level.
- Take advantage of **opportunity**, for example, new funding sources, or the enthusiasm of new individuals or groups who support the program. The plan should be **flexible** and open to creative alternatives.
- Ensure **availability of essential resources** to complete the plan (personal contacts, funding, logistical support).
- Establish **monitoring, evaluation** and if necessary **re-planning** early on in the implementation phase.

Strategies and action plans can be very useful in presenting an agreed agenda for attention by various institutions and individuals. They are most successful when they are generated by those who are closest to the problems, and who are involved in implementing solutions.<sup>55</sup>

## 6. THE LAST WORD

### 6.1 General Observations

Two hundred years ago, vast areas of the planet were virtually unknown to science. Today, the human species threatens to alter every part of the surface of the earth - land, air, water and soil; every forest, grassland, marsh and shore.

Conservation involves solving certain kinds of problems - those that are (usually) concerned with maintaining or preserving natural resources. Therefore, **successful conservation is dependent upon effective problem-solving practices and techniques**, which address *both* the problem-solving *process(es)*, and the *products* or outcomes (such as planning documents) which are designed along the way.

The kinds of problems that must be addressed are not strictly, and perhaps not even essentially, those of biology and ecology. Resource or environmental management problems often require a broad consideration of social, economic and political conditions; and they always take place in the context of human interests and interactions, and the demands and opportunities of the moment. Most problems will have both 'objective' components, based on knowledge and facts - which will answer to the biological and technical questions involved, in *managing nature*, and 'subjective' components based on values and attitudes - which answer to the social questions involved, and are directed essentially to *managing people* and the various 'human factors' of a problem.

A simple problem-solving approach to management and planning is often effective. Managers of natural resources or environmental designers and planners might ask these problem-solving questions:

*Is it a problem?*

*Why is it a problem?*

*What are my values and desires?*

*Is it a priority problem?*

*How urgent is the need for action?*

*What are the sources of the problem?*

*Who is involved?*

*How should the problem be solved?*

*What are my goals?*

*What range of tools and resources are available to solve the problem?*

*What are the possible alternative courses of action?*

*Which is the best course of action?*

*How much will it cost?*

*How can action be implemented?*

*Where should priority action take place?*

*When should given action steps be completed?*

*How is the implementation working?*

*Is the problem solved?*

There are a variety of approaches to planning that might assist those who are involved in conservation efforts. Within the complex realities of our current global situation, planning approaches that foster a shared vision about the course(s) of action to follow, and communication, cooperation, and consensus-building among those with an interest in solving a given problem, are likely to achieve the most success. Solutions to complex problems are not designed 'overnight', nor are they quickly achieved. Good planning requires careful work, attention to detail, patience, and perseverance.

There are a range of planning documents which have been developed to assist in solving conservation problems. 'The right tool should be chosen to do the right job.' It should always be clear in the minds of those who

produce such documents that the documents themselves are only an intermediate step to the solution of the problem; they are not the solution itself. The effectiveness and success of any plan, whether as a process or a document, is measured entirely by the **results** achieved 'on the ground.' The 'bottom line' is **action** for **results**.

Conservation Action Plans can be an effective tool to employ. The range of problems to be solved, and the methods available to solve them, are wide. Standard guidelines or outlines for such plans will be possible, and most helpful, where the scope of the problems and the range of action requirements is more limited - for example, as with Species Recovery Plans. The larger the problem, the less it will lend itself to standard, 'quick-fix' solutions. Problems occur in the context of dynamic, ever-changing conditions, and so the planning processes and approaches must also be dynamic and flexible. The common elements to all these plans must lie in (1) their general evaluation of the kinds of problems to be solved, and (2) their general approach to solving these problems. Specific problems must of necessity be addressed on a per-case basis.

But having arrived at this conclusion, it nevertheless remains that many of the problems will be similar in nature or have over-lapping elements. Successful models may therefore be useful as guides in other problem-solving situations. The most useful models will likely be those which (1) have been successful in dealing with very similar problems, and (2) exemplify successful problem-solving processes and procedures.

The goals of the *Prairie Conservation Action Plan* are yet to be fully realized, but the ACTION to achieve them has begun. If the plan is successful, future visitors to the Canadian prairies will find a land where



the cry of the prairie falcon can still be heard, the scent of a white-fringed orchid still enjoyed, and where a walk through a prairie grassland will still reveal the sights, sounds and sensations that it would have to those newcomers who first passed this way only a few generations ago.

## **6.2 The Plan and its Outcome: Some final conclusions and recommendations**

The following comments represent a brief retrospective view of the PCAP process and implementation from two years beyond the release of the plan.

### **Critical Assessment:**

- the planning process took longer than anticipated, delaying the implementation phase of the program, and creating additional funding and planning problems. The actual three-year planning horizon for this action plan, however, was compatible with the scale of the problem.
- there have been fewer tangible, on-the-ground results to this point than would be desirable, in terms of protecting ecosystems and habitat areas. While the species protection efforts seem to be going well (see section 5.2 for some examples), it is more difficult and costly to adequately conserve ecosystems. Specific land acquisition targets and strategies might have been valuable in the PCAP, or at least should be prepared as the 'next level of detail' to implement the plan. Further, more detailed action plans to protect specific species and habitats should be developed, and may be developed by individual organizations or agencies.
- the action plan subcommittee didn't adequately resolve the habitat subregion problem (that is, how and where to establish a *system of protected areas*). To achieve the recommended level of habitat protection *on the basis of habitat subregions* as management units is probably

unrealistic, at least within the five-year time frame. It may have been more effective in the short term to target more specific sites, and to propose specific means to protect these.

- Follow-up to the PCAP has been marginal in two of the three provinces. Little in the way of commitments of manpower, time and funding *specifically for the implementation of the plan* were generated before the Wild West program was completed. Adequate follow-up procedures and infrastructure are vital to any plan. An implementation strategy or plan should be developed as an integral part of the overall plan, from the earliest possible planning stages.
- the Wild West program did not have a high profile in the public eye throughout its duration, and there has been little advertisement of follow-up activities. A large plan without profile is likely to be less effective than one that is well-advertised.

**Recommendations (based on lessons learned):**

- define clearly and precisely the nature of the planning problem at the outset, in terms of "What is the real-world problem?" and "What does the planning team *want*?"
- ensure that there is expertise among the planning team in project design and implementation.
- establish the program vision and goals *early* in the planning process, to minimize the time between planning and action.
- design for *implementation* right from the beginning.
- ensure that there are ample opportunities for interaction and communication between researchers, planners, decision-makers and stakeholders. Good ideas are vital to any plan, but they are only effective to the degree that they are well-communicated. Good communication, whether verbal or through visual design, is essential.
- ensure that there is adequate public, political and financial support for the program.

- take full advantage of "good people" in design, planning and implementation - people with energy, drive, enthusiasm, insight, commitment, idealism, and access to decision-making processes.
- make every effort to develop consensus among stakeholders and decision-makers on goals and key action requirements.

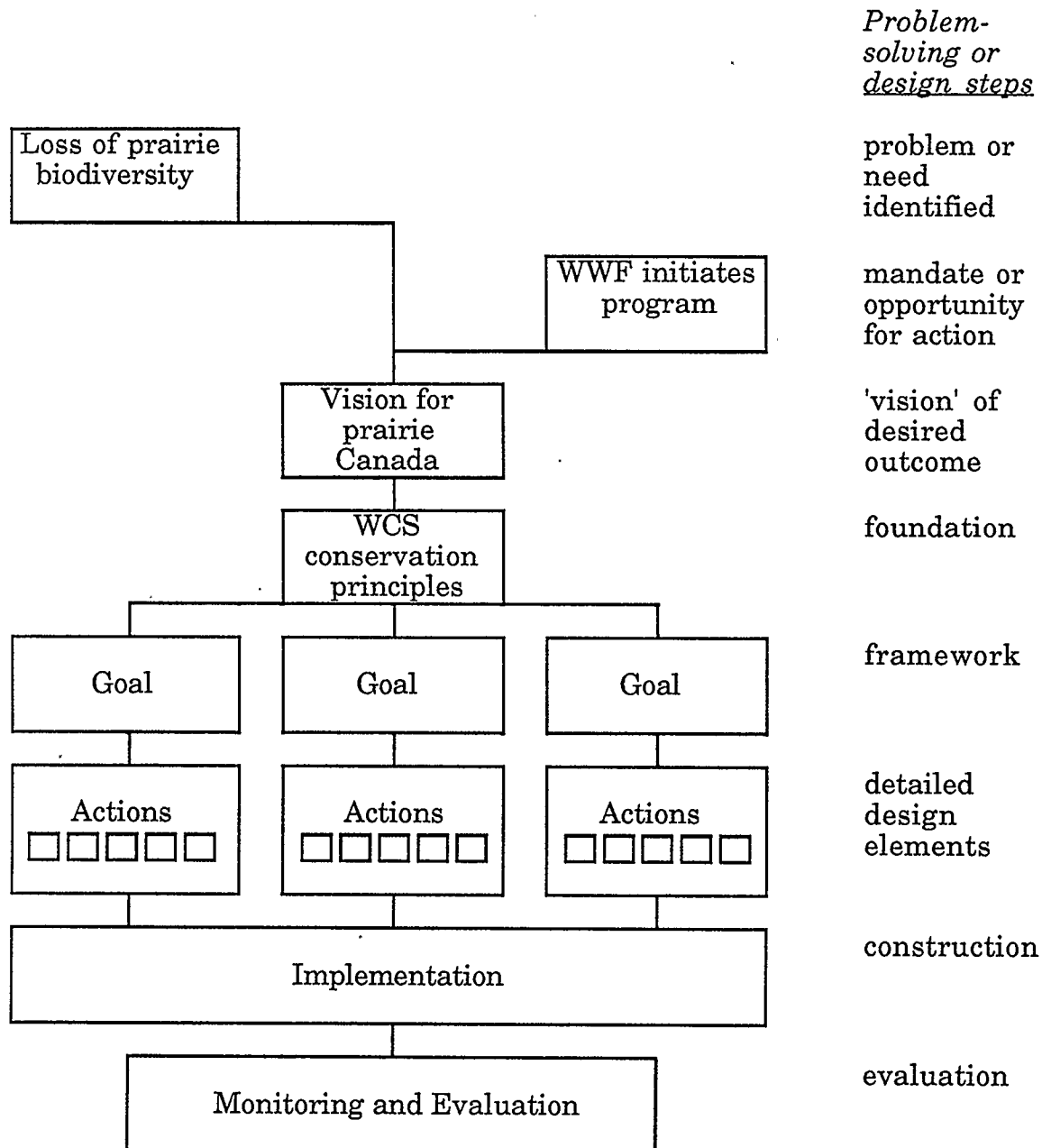
### **6.3 The Construction of a Conservation Action Plan**

The process of developing a conservation action plan may be likened, by way of analogy, to the process of constructing a house. The process of building a house will normally involve these design steps:

- Problem identified: There is a need for housing.
- There may be a mandate or an opportunity to build.
- A building program requires a coherent, rational, complete and practical architectural plan. The plan begins with a *vision* of the kind of structure that may be built, or the desired outcome of action. The vision must be backed up with all the labour, tools, supplies and dollars required to do the job.
- A strong foundation provides the ground strength to support the house.
- A strong framework becomes the skeleton around which the house is built and by which it is supported.
- The detailed design follows, providing the architectural elements that fill in the framework and complete the house.
- Construction - the plan is useless if the house is not built.
- Evaluation: Does the solution, this particular house, answer the need? Is the problem solved?

The following illustration shows a simplified view of the process of building a house, or a conservation action plan, described above:

**The construction of the *Prairie Conservation Action Plan*.**



What emerges from the above is a construction - a completed design. The design began with the recognition of a problem, namely the loss of biodiversity and native landscapes in the Canadian prairies. An opportunity for action arose when World Wildlife Fund Canada initiated the funding and program structure to begin a prairie-wide campaign to solve the problem. From this program, *Wild West*, a vision grew of what the prairies could be if action is taken immediately.

A good conservation action plan, like a good house, must be built on a strong foundation. That foundation, in the case of the *Prairie Conservation Action Plan*, consists of the conservation principles, values and science described in such strategies as the *World Conservation Strategy* and the Brundtland Commission report *Our Common Future*, and emerging from such disciplines as conservation biology and environmental science.

The framework of the Action Plan is a set of ten goals which outline what needs to be done to conserve the biodiversity of the prairies. The action statements generated under each goal form the detailed design elements of the house. Both were arrived at through a process of wide consultation, governmental, professional and public input, and consensus upon goals and actions.

The plan is now being implemented across the prairies. Its success will be measured by the action results achieved - by whether we will find within a few years' time more protected native prairie and species than existed when the plan began.

The *Prairie Conservation Action Plan* has been designed with the hope that the outcome of the plan - 'the house' - meets the needs of those who will live in it. When those who will be affected by the outcome of a plan - those

who will live in the house - have an opportunity to participate in the planning, the chances are greater that the plan will be a success. The PCAP has had the input of many Western Canadians. Its success is now in our hands.

\* \* \*

#### **6.4 A New Ethic?**

John Passmore has stated that "the major sources of our ecological disasters - apart from ignorance - are greed and short-sightedness, which amount to much the same thing. (The greedy man pursues the object of his greed in a manner which is indifferent to the means employed and to the wider consequences of his pursuit. The short-sighted man, more commonly described as 'practical', displays that special form of indifference to consequences which refuses to look beyond the present or the immediate future.)"<sup>56</sup> Ignorance can be addressed through education. But what are the solutions to greed and short-sightedness?

Many conservationists and environmentalists have called for 'a new (environmental) ethic.' But is that the necessary solution for our ecological crises? Passmore does not think so. "There is no novelty", he says, "in the view that greed is evil; no need of a new ethic to tell us as much... The traditional moral teaching of the West, Christian or utilitarian, has always taught men ... that they ought not so to act as to injure their neighbours. ... conventional morality, without any supplementation whatsoever, suffices to justify our ecological concern, our demand for action against the polluter, the depleter of natural resources, the destroyer of species and wildernesses.

...new modes of behaviour are much more important than new moral principles."<sup>57</sup>

But it is quite probable that we will have to learn to live with less, materially; and not only by necessity, but by choice. Passmore argues that people "must now moderate their zeal for possessions, must give up what have been highly profitable pursuits, must surrender established economic rights... Every free society has been a commercial society, and the connection is not a merely accidental one. But certainly there is little hope for us unless we can moderate our desire to possess. We shall do so, however, only if we can learn to be more sensuous in our attitude to the world, more ready to enjoy the present moment for itself, as an object of immediate pleasure, instead of frenetically seeking the power and security that possessions offer."<sup>58</sup>

For worse or for better, *we are by choice creating or designing the world in which we and future generations will live*. A conservation action plan is one tool that may be used to help bring our desires for a rich, diverse, balanced and healthy environment into being. These plans involve processes of growth, change, and commitment. **Knowledge** is the first step. Setting goals and working cooperatively towards them are essentials. But no conservation action plan can be effective if we do not have the wisdom and the will to *act* where action is most needed - through the exercise of responsibility and care. The last word is **love**.

Every part of the earth is sacred to my people. Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing, and humming insect is holy in the memory and experiences of my people... What is man without the beasts? If all the beasts were gone, men would die from a great loneliness of spirit. For whatever happens to the beasts, soon happens to man. All things are connected... So if we sell you our land, love it as we have loved it. Care for it as we have cared for it. Hold in your mind the memory of the land as it is when you take it. And with all your strength, with all your mind, with all your heart, preserve it for your children, and love it ... as God loves us all.

This we know: The earth does not belong to man; man belongs to the earth. This we know: All things are connected like the blood which unites one family... Whatever befalls the earth befalls the sons of the earth. Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself.

Chief Seattle of the Duwamish tribe, 1854



## NOTES

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## **APPENDICES**

### **Appendix 1      Sample contents of 2 Conservation Action Plans**

- I.      Objectives of *The Bali Action Plan*
- II.     Precis of *Tortoises and Freshwater Turtles: An Action Plan for Their Conservation*

### **Appendix 2      The Role of the Action Plan Coordinator (a personal account)**

## Appendix 1      Sample contents of 2 Conservation Action Plans

### I.      Objectives of *The Bali Action Plan*

The Bali Action Plan has ten Objectives. Under each objective is a series of Activities, and under each activity is a series of Priority Projects; the lists of projects are far from exhaustive, but they do indicate the sorts of projects that will be necessary for the activity to be carried out.<sup>59</sup>

#### **The Bali Action Plan<sup>60</sup>**

- Objective 1.    To establish by 1992 a worldwide network of national parks and protected areas, to cover all terrestrial ecological regions.
- Objective 2.    To incorporate marine, coastal and freshwater protected areas into the worldwide network.
- Objective 3.    To improve the ecological and managerial quality of existing protected areas.
- Objective 4.    To develop the full range of wildland management categories.
- Objective 5.    To promote the linkage between protected area management and sustainable development.
- Objective 6.    To develop the full capacity to manage protected areas.
- Objective 7.    To develop economic tools for supporting protected areas.
- Objective 8.    To implement an effective inventory and monitoring service.
- Objective 9.    To implement international cooperation mechanisms.
- Objective 10.   To develop and implement a global programme to support protected area management.

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<sup>59</sup> Cf. McNeely, Miller, Reid, Mittermeier and Werner, pp.140-46.

<sup>60</sup> *The Bali Action Plan*. 1987. Ottawa: Commission on National Parks and Protected Areas (CNPPA), IUCN.

## II. *Precis of Tortoises and Freshwater Turtles: An Action Plan for Their Conservation*

### **Tortoises and Freshwater Turtles: An Action Plan for their Conservation<sup>61</sup>**

**Foreword :** (by the co-chairmen of the Specialist Group)

- scope and aim of this action plan.
- who is involved, what they have been doing *re* this subject.
- brief acknowledgements.

**Acknowledgements** (by the action plan compiler)

**Introduction :**

- basic information on the subject : tortoises and freshwater turtles
- "This action plan is not an academic reference document. It is a working tool expressly aimed at ensuring that appropriate conservation action for chelonians actually does happen." (p.iii)
- basic reasons given for concern about decline of many chelonian species; why this conservation action is needed.
- the two overriding and immediate concerns of the Specialist Group:
  1. To ensure the protection survival of all the threatened and vulnerable species of tortoises and freshwater turtles throughout the world.
  2. To achieve effective protection and management of selected areas supporting a high diversity of chelonian species and/or an abundance of individuals.
- explanation of the ways in which the Specialist Group can contribute, and declaration of the limitations of the Group - those things it cannot do, and statement of who could.

#### **1. Checklist of Species : Tortoises and Freshwater Turtles**

- statement of taxonomic difficulties, and approach taken in this action plan.
- definitions and abbreviations for checklist categories.
- species checklist, arranged by:
  1. taxonomic order
  2. biogeographic Realm
  3. Red Data Book status
  4. CITES status
  5. Action Plan Rating : according to the nature of the conservation action required.

#### **2. Conservation Priority Ratings**

- explanation of the meaning and limits of the action plan rating system.
- definitions of priority rating categories. ("All projects presented in this action plan are considered important. The different categories



accorded to each species are a reflection of the nature of the conservation action required, not the relative urgency of the projects." p.10)

- 2.1 Lists of species by priority rating categories.

### **3. Regional Distribution of Species in Need of Conservation**

- explanation of table
- table indicating "which realms [geographic areas] and families [taxonomic groups] hold the species most in need of conservation." (p.13)
- discussion of results of the table: which realms and species should receive the thrust of conservation action.

### **4. Current Conservation Action for These Species: Tortoises**

- statements, by project, of what action is already being taken - including contact person(s) for reference, plus statements of further funding required for each project.

### **5. Conservation Action**

#### **5.1 General Recommendations**

##### **A. Short-term or Fixed Duration Projects**

- species status surveys
- protected areas: explanation of source area concept. Sanctuaries for "complete protection for a breeding nucleus of a population." (p.18)

##### **B. Long-term or Permanent Projects**

- special species reserves: explanation
- hatcheries and nest-area protection
- captive breeding

##### **C. General Action Points**

- closed seasons
- market monitoring
- protection and law enforcement
- research and liaison
- education

#### **5.2 Status Survey Guidelines for:**

- A. Ecological field work
- B. Locally related research
- C. Groundwork for future conservation program
- D. Reporting
- E. Species Report Format

#### **5.3 Regional Conservation Workshops**

- A. Proposal for training workshops for project workers and wildlife managers.

### **6. Specific Conservation Projects**

- projects listed by:
  - A. biogeographic realm

B. species-specific needs:

1. title of proposed project
2. short description of proposed project: background, need
3. list of specific actions to be taken
4. contact person(s)
5. budget
6. graphic: species distribution maps shown

**Appendices**

1. Regional Species Lists - a table indicating:
  - a. biogeographic realm
  - b. species, in taxonomic order
  - c. Red Data Book (1988) rating
  - d. Action Plan Rating
2. Policy Statements - of the Species Specialist Group, concerning:
  - a. trade
  - b. museum collecting
  - c. captive breeding
3. Suggested Revisions in Protected Listings of Indian Freshwater Turtles
  - table with explanation of proposed changes.
4. Recently Published Name Changes - of species
5. Addresses of Project Contact Persons

**References**

- main identifiable reports and publications consulted.

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<sup>61</sup> D. Stubbs. 1989. *Tortoises and Freshwater Turtles: An Action Plan for their Conservation*. Gland: IUCN/SSC.

## **Appendix 2      The Role of the Action Plan Coordinator (a personal account)**

The following section outlines the role this author played in preparing the *Prospectus* and the *Prairie Conservation Action Plan*, establishing the relationship between these two documents and *The Development of a Conservation Action Plan*, the three of which combine to form this Master's Degree Project for the Faculty of Environmental Design.

In the spring of 1986 I was chosen by the Wild West Steering Committee to take on the role of Coordinator of what was to become the *Prairie Conservation Action Plan*. The Wild West Steering Committee had previously agreed upon the three guiding objectives of the Wild West program, one of which was "drafting a blueprint or a strategy for protecting the most important remaining prairie habitats that are western Canada's 'life support system'."<sup>62</sup> The primary responsibilities of the coordinator were to provide leadership and guidance to the project steering committee regarding the preparation of such a plan, and to compile, write and design the plan with their support.

I was immediately faced with considerable challenges: namely, designing and coordinating a multiprovincial conservation strategy for prairie Canada, though I had little field knowledge of conditions in the prairies, a limited academic background in biology and ecosystem management, and no previous work experience of the kind. I had, however, a good grounding in the history and philosophy of conservation strategies and in the foundations and practice of environmental design,

through graduate work in the Environmental Design (Science) program at the University of Calgary. I also had demonstrated skills in leadership, organization, and synthesis of complex information. And I had the keen interest in and commitment to wildlife and wild places to dedicate myself to the job.

My first task, as I saw it, was to examine all the background information on the Wild West program and its World Wildlife Fund Canada predecessors that I could find. I also wished to become more fully informed about the nature of the problems regarding habitat and species loss in the Canadian prairies.

The primary model for action that I initially worked with was WWF's Carolinian Canada program and strategy. But the Wild West program was addressing an area which was geographically much larger - and probably also ecologically much more complex. Furthermore, this geographical area concerned four major political jurisdictions - three provinces and the federal government - each with its own agenda and rules of operation. It soon became apparent to me that to follow the intensive Carolinian Canada approach across the three prairie provinces would require a massive effort, one perhaps beyond the abilities of the Wild West Steering Committee, given the constraints of time, manpower and budget that we faced. My first problems, then, were to determine the exact nature of the 'prairie problems' that we faced, and to determine the scope of action we would be able to undertake to help address these problems.

After considering the problem for several months, as I gathered information from various sources, it became my conviction that a broadly-scoped document, with goals touching on a range of key 'action areas'

(such as policy, land use, education, and research, as well as species and ecosystem management), would best serve the needs of the program. It was also my conviction that a document that was fairly small in size and which 'looked good' would more likely be read and used. I wanted a document that would do more than simply outline an action program. I wanted a document that would 'paint a broad picture of the prairies', not only describing the nature of the problem and outlining possible solutions by the use of words or numbers, but also a plan which would evoke for the reader an impression of the wealth of life and landscapes on the prairies, and a sense of the values and 'experiences' being lost. I wanted it to convey a sense of transition, crisis, and hope. Finally, I wanted the document to be both accessible and motivational to the wide audience of individuals who would be able to take action upon it. This, perhaps, was the strongest role that I was able to play: that of synthesizing visual images and design with the important 'hard data' and science necessary to describe a serious, urgent problem and to prescribe a course of action to solve it.

That the PCAP became an *action plan* as such was at the outset almost an accident. The province of Alberta was in the early stages of preparing a provincial conservation strategy, and in order to prevent possible confusion between this strategy and our 'Prairie Conservation Strategy', the chairman of the strategy subcommittee and I cast about for another name which would be distinctive. The *Prairie Conservation Action Plan* seemed to fit - and thus was born not only a plan but a certain kind of plan. Soon after deciding upon the name, I began to investigate other 'action plans' that had been produced (though I was already familiar with a number of 'conservation strategies'). This led me to the conclusion that a broadly -

scoped action plan would be the most suitable kind of plan for us to employ - a happy coincidence of circumstance and need.

As my early research for the plan progressed, I was struck by the apparent usefulness of the *Prospectus for an Alberta Conservation Strategy*. I believed that a prospectus would similarly suit the purposes of our *Prairie Conservation Action Plan*, and the Steering Committee agreed. I was able to prepare the first draft of our prospectus within a relatively short period of time, gathering ideas and information from the other Steering Committee members and through some simple literature research. It was my responsibility to write the draft, based on the information I had received. Following comment upon the first draft by the Steering Committee, I was able to write and design the final draft. I also contracted and worked very closely with a professional graphic designer, to produce a simple, coherent, convincing and attractive document. Our prospectus included a 'mail reply card' (by which readers could send in their responses to our World Wildlife Fund office in Calgary). Following the circulation of the prospectus, I was charged with the responsibility of collecting and analysing the public responses to it.

My next task was to write the first, and subsequent drafts of the PCAP. Again, I relied upon my research and personal contacts with a wide range of experts from various disciplines to prepare the drafts. Investigation of a number of conservation-related action plans helped me to formulate a picture of the potential shape of our own plan. I was able to propose to the Steering Committee a format for our plan: it would be built upon a clear problem statement, a vision of what could be achieved, a rational framework of conservation principles, a set of goals to attain our vision, and

a number of practical actions which could be undertaken to reach each goal.

Our progress was discussed and ideas were debated at our twice-yearly Steering Committee meetings, after each of which I was able to synthesize the ideas to form a new draft. The Steering Committee members were each able to contribute their own knowledge, expertise, and the perspective of their organizations, agencies, or personal backgrounds (as academics, naturalists, landowners, bureaucrats, and so on). As in any interdisciplinary exercise, the differing knowledge, skills and insights of each individual provided a unique and valuable contribution to the whole. It was incumbent upon me to discern and take advantage of each individual's knowledge and strengths, coordinating the research and forming a unified plan from a diversity of views and material. The result, if nothing else, was a true team effort. "Interdisciplinarity is at the *core* of action planning."<sup>63</sup>

Having completed the action plan drafts, again I acted as the primary author of the final document, though working closely and cooperatively with members of the action plan subcommittee.

After the text of the action plan had been written, I undertook responsibility to oversee the physical design of the document. After conceiving an approximate form for it to take, I again contracted professional graphic designers who I believed could help produce the kind of document that I envisioned. I worked closely with these people, developing ideas with them and ensuring that the documents retained the kind of 'presence', character and content that I believed would be effective. I contributed substantially in the design decisions about which photographs

or drawings should be included, their relative placement to the text in the documents, and the page format and layout. For example, I concluded that only one central idea (such as a goal) should be stated per page or per two-page spread.

Rough drafts of the document design were circulated to the committee for comment and approval; though in order to prevent 'design by committee paralysis', the coordinator was able to function with considerable independence on this point. When all had been approved, it remained only for me to supervise the printing and distribution of the *Prairie Conservation Action Plan*.

Authors of conservation action plans would do well to remember always to *keep the desired field results foremost in mind*, and to build programs and prepare documents so as to achieve this end. One's primary aim should *not* be to produce 'a good document', as though the document were an end in itself ("When I've done this, I've completed my job"). Rather, one's aim should be to *obtain the desired results*. The *actual conservation* of native prairie is the primary and proper end of the *Prairie Conservation Action Plan*. Therefore, the proper question to ask is not so much "How can we produce a good plan?" as "What kind of plan will best serve to help achieve a solution to the problem?" Doubtless, well-conceived plans and documents are those which will have this effect, but the important, if subtle point is that the authors think first and foremost of the 'real world' problems to be solved, and not of the plan *per se*.

The development of the *Prairie Conservation Action Plan* required the combined knowledge, skills, insights, expertise, resources, time and



dedication of a large, diverse and committed group of individuals. (Many of their names are listed on the back page of the Plan.) Good plans reflect the abilities of good people. But a good plan is not complete until it generates appropriate action. The care that is given to implementing these plans is the final statement and decisive element that makes it all worthwhile - is the world itself a little better place than it was before, for what we have done?

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<sup>62</sup> M. Hummel. 1986. "Prairie Conservation", from the proceedings of the *Endangered Species in the Prairie Provinces* workshop, ed. G.L. Holroyd et al., p.24.

<sup>63</sup> Dr. Stephen Herrero, personal communication.

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