

**WETLAND CONSERVATION IN BRITISH COLUMBIA:
THE ROLE OF ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS IN
BURNS BOG**

By

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ABSTRACT

This thesis examines the role of environmental non-government organizations in relation to the role and responsibility of government for wetland conservation in British Columbia. The role of a small community-based environmental organization called the Burns Bog Conservation Society in decisions about Burns Bog, a large privately-owned wetland located in the Lower Mainland, is analyzed.

Drawing from a broad range of literature on environmentalism and conservation, the thesis begins with an historical account of the environmental movement, giving a broad view of environmental conservation and the role of environmental organizations. A typology of roles and analytical framework is subsequently derived from a study of environmental non-government organizations involved in managing water resources in British Columbia's Fraser River Basin.

Three main roles, advocacy, supplemental and transformative, are discussed as they relate to activities prior to and during the Burns Bog Analysis, a provincially established land use study of Burns Bog. This research found that a small community-based environmental organization, through advocacy, can ensure that ecological integrity is not neglected as a result of poor planning and decision-making. The case study demonstrates that a small environmental organization can pressure governments to broaden their view of land-use and environmental issues, assuring more informed decision-making. An environmental organization can also supplement the regular roles and responsibilities of government, first by supplying a service that government is unable or unwilling to provide, and second by participating in and legitimizing consensus-based decision-making processes. The case study demonstrates how a small environmental organization can provide and review information and participate in creating options and solutions in land-use decisions. Finally, an environmental organization can influence, over time, the fundamental restructuring of government

planning and decision-making processes and transform the way society thinks and operates.

The thesis concludes that environmental non-government organizations have an important role to play in ensuring the recognition and conservation of British Columbia's wetlands in government planning and decision-making processes; in informing and educating government and the public about ecological systems and their values; and in counter-balancing strong economic, political and development interests.

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Long dismissed as noxious, unprofitable places, wetlands are now prized as one of the richest ecosystems on earth...yet their destruction continues. (Mitchell, 1992:3)

We may not need something new, but reawaken something very old, to reawaken our understanding of earth wisdom. (Devall and Sessions, 1985:ix)

The at least implicit logic of environmentalism, of environmental politics, is to realize [a] new kind of administration. (Pehlke, 1990:291)

INTRODUCTION

Alternatives Vol. 19 No. 1 1992

Only if people through government can cooperate in informed, collective, firm self-discipline, can they overcome threats to the integrity of the biosphere. (Caldwell, 1990:59)

British Columbia is endowed with rich and diverse landscapes supporting a wide array of habitats and wildlife. These landscapes also provide the natural resources that contribute to the quality of life that British Columbians and Canadians enjoy. British Columbia, however, is experiencing pressure from population growth, urban expansion, and industrial and natural resource development. Population projections for the Lower Mainland, and for areas in the Interior, forecast a doubling of current populations over the next 30 years. There is increasing evidence that population growth and development are causing significant loss of biological diversity and the erosion of ecological systems that humans not only depend on for survival but need to maintain socio-economic health. One can assume that pressure from growth in the province will increase over time. Associated with

these pressures are serious implications for protecting ecological integrity and maintaining a healthy natural environment for all British Columbians.

Throughout the last century, growth and development have resulted in significant loss of an important natural heritage: British Columbia's wetlands. Wetlands are among the most productive ecosystems in the province but they are also among the most threatened. Because they are still perceived by many people to be wastelands, wetlands are drained, filled and converted to more 'productive and profitable' uses. Coastal British Columbia, for example, has lost over 80% of its historic wetlands (Ward, 1993). Little is yet known about the loss of wetlands in the rest of the province.

Although great strides have been taken towards environmental conservation over the last few years, degradation and destruction of wetlands continues at an alarming rate. Government planning and conservation efforts have not resulted in the sustainable utilization of land and its natural resources, nor have they minimized the destruction of British Columbia's wetlands.

Looming threats to British Columbia's ecosystems combined with the public's perception that government is not dealing effectively with land-use and environmental problems has catalyzed a prominent environmental movement in the province. This movement has become an important aspect of politics and governance in British Columbia.

1.1 PURPOSE AND OBJECTIVES

This thesis examines the role of environmental organizations in wetland conservation in relation to the role and responsibility of government for wetland conservation in British Columbia.

Relatively few studies have been undertaken in Canada concerning the role of environmental organizations in planning and decision-making and fewer yet concerning the role of these organizations in wetland conservation. Because of this, much of the literature on environmentalism and conservation that was drawn upon for this study was based in the United States and Western Europe. In one of the few comprehensive studies of environmental non-government organizations and their role in protecting the aquatic environments of the Fraser River Basin, Gardner (1991a) completed a thorough review of this literature. Gardner's study and results are extensively drawn upon in this study.

The objectives of this thesis are to:

1. examine environmental non-government organizations and the roles they play in environmental, and particularly wetland, conservation,
2. outline the institutional and policy framework for wetland conservation in British Columbia, and
3. analyze the roles played by an environmental non-government organization in decisions about Burns Bog, a wetland in the Lower Mainland.

The case study of Burns Bog focuses on the role of a small community-based environmental organization called the Burns Bog Conservation Society in making decisions about the future of the bog. The Burns Bog Conservation Society is dissatisfied with the way government is carrying out its responsibilities for protecting Burns Bog.

Burns Bog is a large, privately-owned wetland located in North Delta, a suburb of Vancouver. The bog is surrounded by agriculture and urbanization and is increasingly threatened by agricultural and urban development. Land-use and environmental issues related to Burns Bog are mired in complexity, uncertainty and unclear government responsibility. It presents an ideal case for studying environmental organizations and their role in decision-making processes.

The main argument of this thesis is that environmental non-government organizations have important roles to play in ensuring the recognition and maintenance of ecological integrity by government planning and decision-making processes, informing and educating government and the public about ecological systems and their values, and counterbalancing what are normally strong economic, political and development interests.

1.2 METHODS

The analytical framework for this study is derived from Gardner's (1991a; 1991b) study that investigated the roles of environmental non-government organizations in managing water resources in the Fraser River Basin. The typology of roles developed in Gardner's study has been adapted for this study and is outlined in greater detail in Chapter 3.

Information for the Burns Bog case study was generated from the following sources:

- the final report of the Burns Bog Analysis, a provincially initiated planning exercise established in 1992,
- minutes from the Burns Bog Analysis meetings, and
- Government of British Columbia documents and memos.

In addition, formal, open-ended interviews were conducted with three members of the Burns Bog Analysis process, including the Chair of the Burns Bog Analysis committee, the regional Fish and Wildlife Manager for BC Environment and the President of the Burns Bog Conservation Society. These interviews were focused on representatives from the Burns Bog Analysis table that had responsibilities for wetland conservation (see Appendix 1 for list of interviews). Because the Canadian Wildlife Service (Environment Canada) was not present at the Burns Bog Analysis table, information about the agency's position and roles was drawn from letters between the Burns Bog Analysis Committee and the

Canadian Wildlife Service.

A seven-hour hike across Burns Bog with Don Demill, a wildlife biologist and expert on the bog, was valuable to the author's understanding of Burns Bog land-use issues and the efforts of a small community-based group to protect this area. Other informal discussions were held with various members of the Burns Bog Analysis Committee (see Appendix 1). These communications, in addition to written communications between the Burns Bog Analysis committee and BC Parks, the City of Vancouver, the Greater Vancouver Regional District, Western Delta Lands, the Ministry of Agriculture Fisheries and Foods, and the Agricultural Land Commission were drawn upon when necessary to help the author develop a better understanding of the dynamics among the different stakeholders, the issues, the role and responsibility of government, and the role played by the Burns Bog Conservation Society.

In addition, the author observed four of the six Burns Bog Analysis meetings held between September 1992 and March 1993.

The purpose of the interviews and document analysis was to:

- clarify the role and responsibility of government in protecting British Columbia's wetlands with a particular focus on Burns Bog,
- identify and define their principal limitations to protecting Burns Bog, and
- identify and clarify the role played by the Burns Bog Conservation Society prior to and during the Burns Bog Analysis.

1.3 ORGANIZATION

The study begins, in Chapter 2, with an historical account of the environmental movement and its philosophical foundations, starting with the early conservation movement at the turn

of the century. The purpose of this chapter is to give the reader an understanding of the origins of the contemporary environmental movement, its evolution and how different perspectives on the 'environment' have influenced the way society and governments operate, and have consequently affected approaches to environmental conservation.

Chapter 3 examines the roles of environmental organizations in environmental conservation. The chapter begins by defining environmental conservation and environmental non-government organizations and goes on to discuss the formation of environmental organizations, defining three main roles played by these organizations in environmental conservation. The chapter develops a framework for analysis which is applied to the case study of Burns Bog. The main argument presented in this chapter is that environmental organizations have important roles to play in wetland conservation, promoting and implementing change and ensuring sustainable use of the environment.

Chapter 4 reviews the institutional and policy framework for wetland conservation in British Columbia. The roles and responsibilities of both the federal and provincial governments for wetland conservation are outlined. Following this is a more general discussion of wetland conservation in British Columbia, outlining current initiatives in the province that either influence or specifically focus on wetland conservation. The purpose of this chapter is to clarify the federal and provincial jurisdictions and provisions for wetland conservation in British Columbia. It provides a basis for a better understanding of the roles and responsibilities of government for wetland conservation, their limitations, and the related roles of environmental organizations.

The study of Burns Bog is introduced in Chapter 5. It begins with an overview of the environmental and land-use issues, including the ecology, current land-use and proposed developments. Following this overview is a synopsis of the Burns Bog Analysis, a provincially initiated planning exercise established in 1992. The purpose, stakeholders, stages and results of this process are outlined.

Chapter 6 analyzes the role of the Burns Bog Conservation Society in promoting the conservation of Burns Bog using the framework outlined in Chapter 3. Two stages are examined. First, the role of the organization is analyzed during the period leading up to the Burns Bog Analysis, and second, their role is analyzed during the Burns Bog Analysis itself. The purpose of this chapter is to demonstrate that environmental non-government organizations like the Burns Bog Conservation Society may have a significant role to play in ensuring recognition and protection of British Columbia's wetland resources.

The thesis concludes by presenting general implications for more effective wetland conservation in British Columbia and more effective participation and integration of environmental organizations in future government decision-making processes.

CHAPTER 2

CONSERVATION AND ENVIRONMENTALISM: AN HISTORICAL PERSPECTIVE

In wildness is the preservation of the world.

(Henry D. Thoreau 1851, taken from Paehlke, 1989:14)

2.0 INTRODUCTION

Looming threats to global ecosystems and the perceived inability of society and governments to mobilize change have catalyzed an environmental movement aimed at influencing, even transforming, existing social and government systems. The environmental movement is a 'social' movement encompassing individuals and organizations that coalesce around common environmental concerns and interests. The movement is a manifestation of "growth in public interests which, in various ways, challenge economic individualism and the market ideology" (Cotgrove, 1982:V).

Since the turn of the century, the environmental movement has dramatically changed and evolved. This Chapter gives an historical account of these changes, focusing mainly on the philosophical underpinnings of the earlier and later environmental movements. The purpose is to understand the roots of the contemporary environmental movement and the different perspectives on conservation that have evolved. Recognizing the existence of differing 'world views' about the natural environment will help to build an understanding of the role of environmental organizations in conservation.

2.1 THE EARLY CONSERVATION MOVEMENT

Awareness of the over-exploitation of biological resources and the impact of human development on the environment is not a new phenomenon. In 1864, George Marsh wrote a book which exposed the wasteful aspects of human development and the relentless destruction of wilderness. Marsh "established links between the cutting of the forests and the erosion of soil, between the draining of marshes and lakes and the decline in animal life,...and even between human activity and climate" (Paehlke, 1989:16).¹ His work clearly illustrated that human affluence, health, and even survival depended on an understanding and respect for nature and its natural processes (Paehlke, 1989). Marsh was not alone in expressing his concerns about nature and human impact upon it. The emerging concerns of his era were the roots of the conservation movement.²

The conservation movement of the early 20th century was characterized by two opposing ideological camps: the "wise-use conservationists" and the "wilderness preservationists." Wise-use conservation was coined by Gifford Pinchot, who was appointed advisor on natural resources during the Theodore Roosevelt administration in the United States (Norton, 1991). Pinchot, a forester by trade, was concerned about the over-exploitation of natural resources and deforestation. He believed that natural resources should be controlled in a scientific and economically responsible manner. From this perspective, resource extraction was considered legitimate so long as it advanced economic growth and development in the national interest (Norton, 1991; Paehlke, 1989). Pinchot's wise-use ethic was widely accepted by governments and conservationists alike.

Although wilderness preservationists carried a similar concern for the over-exploitation of natural resources, they believed that humans had little right to destroy wilderness for the sake of human progress and development (Norton, 1991; Paehlke, 1989). Preservationists believed in bio-centric equality where all life has an equal right to exist. Consequently, environmental protection was considered to be a high priority, and

independent of economic and development interests.

John Muir, writer, philosopher and influential environmentalist, is recognized throughout conservation and natural resource management literature for his debates with Pinchot over the preservation of wilderness areas and his active campaigns against deforestation (Norton, 1991). Muir's great contribution to the early conservation movement was his "vision of the essential oneness of the earth...his expression of bio-centric [equality] and his active leadership in issues of public policy affecting wilderness" (Devall & Sessions, 1985:104).

Muir was by no means the only contributor to the preservationist side of the movement. Ecologists, including Aldo Leopold, Eugene Odum, Fraser Darling and others, have more recently supported wilderness preservation and greatly contributed to the field of ecology and the early development of bio-centric philosophies (Devall & Sessions, 1985).

Leopold supported Muir's views by illustrating in ecological terms how humans were but one element of complex biotic communities and part of a larger interactive global system (Paehlke, 1989). Leopold maintained human activities were acceptable only if they "preserv[ed] the integrity, stability, and beauty of the biotic communities" (Leopold, 1966:240). Human activities that did otherwise were simply considered inappropriate and wrong because they endangered not only human communities but the integrity of the global system. Preservationists expressed a common theme, albeit in different ways. The dangers of environmental degradation necessitated that environmental integrity become a primary consideration in the way humans use the biosphere (Devall & Sessions, 1985; Norton, 1991; Paehlke, 1989).

The wise-use conservationists, on the other hand, were opposed to these bio-centric philosophies. Pinchot argued that the preservation of wilderness meant locking-up natural resources in reserves. He considered this gross mismanagement. According to Pinchot,

a wilderness reserve precludes any potential economic benefits society can gain from its resources; the environment and its resources should be valued according to their ability to enhance quality of life and prosperity (Norton, 1991; Borrelli, 1988; Passmore, 1974). Conservation, from this wise-use perspective, is "a way of allocating natural resources more efficiently through scientific management and the manipulation of natural systems" (Devall & Sessions, 1985:133).

The debates between Muir and Pinchot epitomized the opposing ideological camps and value structures, and consequently different perceptions about the natural world. Both individuals were respected in the fields of ecology and natural resource management, and both recognized that a problem existed with the unrestrained and shortsighted manner in which society utilized natural resources. The differences between Muir and Pinchot were not simply about the solutions to perceived problems, but the philosophical essence; the lens through which they visualized the natural world.

Muir's perspective reflected a great appreciation for nature and the aesthetic world and the spiritual values of natural landscapes. He observed a need to protect wildlife habitat and healthy ecosystems from the relentless machine of growth and development. Muir, and others of that time, became the founders of "the ecology movement," a term coined by Arne Naess (1973) in his publication, "The Shallow and the Deep, Long-Range Ecology Movements."³ Pinchot, by contrast, visualized a world that can be managed rationally and efficiently to maximize humanitarian benefits and prosperity; *utilitarian* values were paramount.

The first great fact about conservation is that it stands for development. There has been a fundamental misconception that conservation means nothing but the husbanding of resources for future generations. There could be no more serious mistake....The first principle of conservation is the use of the natural resources now existing on this continent for the benefit of the people who live there now. (G. Pinchot, cited in Devall & Sessions, 1985:133)

Although their discussion illustrates two very different points-of-view, there was no doubt at the time that Pinchot's view was more widely accepted. Individuals like Leopold and other ecologists, however, were increasingly promoting holistic philosophies and influencing the strong utilitarian views held by Pinchot. This evolution was greatly enhanced by scientific research and the findings of scientists like Vladimir Vernadsky.

In 1945, Vernadsky revolutionized people's understanding of the earth's history, ecology and the functions of the biosphere (Alker & Haas, 1993). Vernadsky re-enforced preservationist arguments by illustrating the importance of species diversity through ecosystem dynamics. He illustrated the many trophic levels of an ecosystem, emphasizing the important links and interdependencies within and between ecosystems and the global ecosphere. Vernadsky argued that the destruction of a single species can "disrupt these links and can entail the extinction of other species, not to mention the diminution of the genetic pool of living nature" (Alker & Haas, 1993:142).

Vernadsky's most important contribution, however, was his physical and holistic comprehension of the relationships between natural systems with human understanding and use of these systems. Vernadsky called this the Noosphere: "the realm [of] concerted human social and political practices" meeting with global ecological understanding (Alker & Haas, 1993:142). The Noosphere is an "inseparable but analytically distinguished part of the biosphere where humankind collectively and rationally works [towards] the sustainable development of itself."⁴

In a retrospective analysis of human intellectual and political relationships with nature, Alker & Haas (1993) illustrate how the early conservation movement described above, despite a rapidly growing body of knowledge about ecology and biophysical systems and progressive insights into human and environment relationships, did not encourage any substantial change in the way people perceived or utilized the natural environment.⁵ Although the early conservation movement stimulated many philosophical debates over

the use and management of the natural environment, scientific discoveries and human insights did not catalyze into a movement until the second half of the twentieth century. This new movement is referred to as the environmental movement.

2.2 THE ENVIRONMENTAL MOVEMENT

The environmental movement may be the single most important social movement of this century. (Caldwell, 1990)

It was not until 1962, when Rachael Carson published her book Silent Spring, that the environmental movement began to gain significant momentum (Borrelli, 1988). Carson's sobering commentary about a looming ecological disaster is acknowledged throughout the literature as the springboard to the environmental movement's first wave (Borrelli, 1988; Israelson, 1990).⁶ Although Carson was not the first to write about environmental degradation and pollution, the impact of her book on government, industry and the general public was dramatic, both in Canada and the United States (Israelson, 1990).

The dramatic increase in public awareness and concern for the environment through the 1960s and early 1970s cannot be attributed solely to the works of activists like Carson. Awareness and concern was also prompted by the considerable progress in the "interdisciplinary scope, scientific depth...and the popular understanding of ecological systems and science" (Alker & Haas, 1993:139). This decade saw a surge of publications and scientific reviews, including studies on critical environmental problems, human impact on climate, and a great emphasis on limits-to-growth debates. Moreover, ecology was evolving to reflect more human-related attributes (Tolba et al., 1992).

The 1972 United Nations Conference in Stockholm on the Human Environment is considered

the most important event in the growth of environmental awareness....It all came about because of public pressure, backed by scientific findings about the impact of industrial emissions, pesticides and other pollutants in the late 60s...it all stimulated political will. (Tolba et al., 1992:664)

Perceptions of environmental issues were broadening throughout North America, establishing themselves as permanent features of national and international policy.

In response to growing awareness and pressure, the Canadian government established its first environmental ministry in 1971 and applied increasing resources towards environmental management. New policies and programs were established to deal with threatening environmental problems, including new legislation for pollution abatement (MacDonald, 1991).

The advent of the energy crisis catalyzed the realization that the world's natural resources are finite and being depleted at alarming rates. Even though environmental consciousness was growing throughout Canada, enthusiasm for environmental conservation deflated by the mid-1970s due to the realities of a recession. Issues of unemployment and inflation became national priorities. Environmental conservation issues, on the other hand, were a lower priority and in many cases were considered a constraint to the re-establishment of a healthy economy (MacDonald, 1991). The first wave of the environmental movement was waning.

The second wave of the environmental movement did not emerge until the mid-1980s. As the political, economic and social ambience within Canada and on the international front were changing, so were people's concerns and values and, consequently, the character of the environmental movement. Cotgrove (1982) refers to this change in people's concerns as the "new environmentalism." People were increasingly aware and troubled by global environmental problems such as ozone depletion, global warming, the destruction of tropical forests and the loss of biodiversity. Furthermore, earlier debates

over wise-use conservation and preservation were re-emerging. This wave of new environmentalism is still alive today, although some signs would suggest that economic and employment concerns of the mid-1990s are forcing the movement to wane.

2.3 HOLISTIC ECOLOGICAL THOUGHT

Human perceptions of the environment and attitudes toward it have evolved as an integral part of the long history of human interactions with the rest of nature. (Tolba et al., 1992:660)

There is little doubt that progress in the science of ecology has provided better knowledge and a deeper understanding of biophysical systems. Throughout this century, a coherent strain of thought has evolved concerning ecology. Yet, the broadening of ecological science along with the numerous scientific discoveries and overwhelming evidence of human impact on biophysical systems has not catalyzed "the basis for a cooperative global politics of environmental utilization, conservation...and transformation" (Alker & Haas, 1993:139). This process did not influence the genesis of an accepted *ecologically-centred* world view (Tolba et al., 1992; Alker & Haas, 1993). Udall (1962) refers to this lag in response as "the quiet crisis." Tolba et al. similarly express " [the] curious paradox that the development of ecological science had only a belated impact on the modern environmental movement" (Tolba et al., 1992:663).

Udall identifies a "lack of historical and political scholarship" concerning environmental issues, illustrating how human-environment relationships have largely been ignored by academic and political institutions despite evidence of a growing environmental crisis. Prior to the 1970s, ecology was considered a 'pure' science. Consequently, ecologists and academics were more inclined to study natural systems in isolation from the variables of human development and their impacts (Tolba et al., 1992; Devall & Sessions, 1985). With the exception of early works by Vernadsky and others, as pioneers in progressive

ecological thought, few attempts were made to examine social and institutional systems from biophysical perspectives. The "quiet crisis" has greatly influenced the way society views ecology and environmental conservation. It, in turn, created an imbalance whereby political, administrative and economic systems have not responded rapidly enough to increased knowledge, awareness and pressure from both the public and the ever-increasing number of environmental activists.

A different perspective is presented by Rees (1991a) who argues that human-based systems, such as the economy, have been commonly perceived as independent components separate from the larger biophysical reality. In other words, as seen in Figure 1, economic and social systems operate independently from those of the environment, removed from the laws of nature.

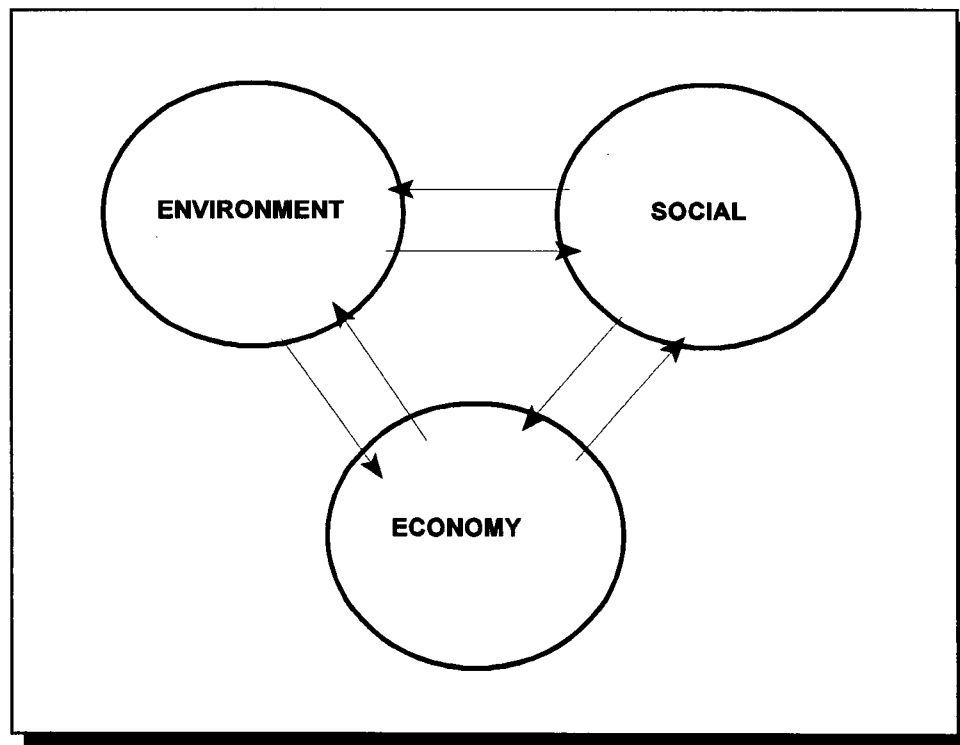


Figure 1: HUMAN SYSTEMS REMOVED FROM ENVIRONMENTAL REALITIES

The roots to this perception are complex. Capra (1982), in his book The Turning Point: Science, Society and the Rising Culture, illustrates how these perceptions of the world have evolved from the mechanistic world view of Newtonian Physics. He suggests the mechanical and scientific approach has been a powerful influence on the development of today's socio-economic and government systems.

The closer scientists could come to emulating the methods of physics, and the more of its concepts they were able to use, the higher the standing of their disciplines in the scientific community. In our century, this tendency to model scientific concepts and theories after those of Newtonian Physics has become a severe handicap in many fields....Present-day economics is characterized by the fragmentary and reductionist approach that typifies most social sciences. Economists generally fail to recognize that the economy is merely one aspect of a whole ecological and social fabric; a living system composed of human beings in continual interaction with one another and with their natural resources, most of which are, in turn, living organisms. The basic error of the social sciences is to divide this fabric into fragments, assumed to be independent and to be dealt with in separate academic departments. Thus political scientists tend to neglect basic economic forces, while economists fail to incorporate social and political realities into their models. These fragmentary approaches are also reflected in government, in the split between social and economic policies. (Capra, 1982:188)

The dangers to this conceptual model of the world are that environmental issues and their ecological characteristics can be reduced to matters of belief and opinion, because not everyone is operating within the same model of reality. Furthermore, it allows society to "ultimately arrive at a politically *practical* interpretation" of ecology and sustainable use of natural resources and allows environmental integrity and natural resources to become 'special interests' within the democratic process, subject to the processes of negotiation and compromise (Rees, 1991a). Rees (1991a:454) explains:

Historically, the economy has always been considered the independent variable and environmental quality the dependent variable....From this perspective, maintaining a healthy environment is seen largely in terms of society having to choose between certain ill-defined aesthetic and other

intangible values on the one hand and measurable material economic gains on the other. When framed in this way, ecological factors are generally 'traded off' against economic growth in the belief that the resultant tangible economic benefits exceed any likely ecological costs.

Nature's reality is that it "imposes certain inviolable conditions" that establish a set of absolute requirements for resource use and generally maintaining a sustainable existence, whatever the political and socio-economic character (Rees, 1991a:453).

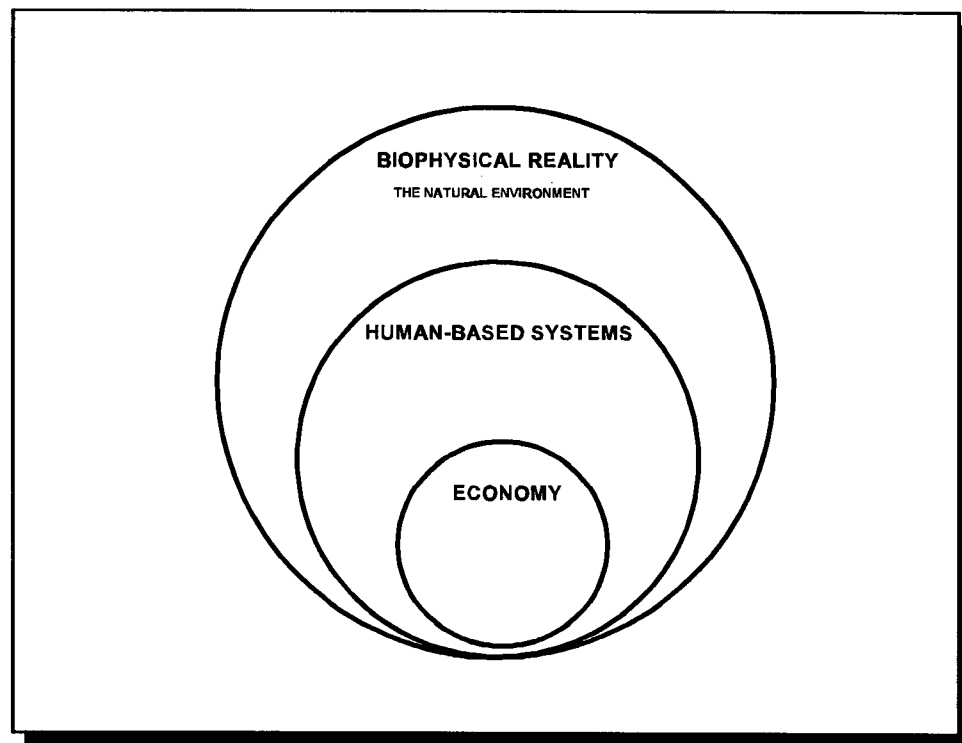


Figure 2: CONCEPTUALIZATION OF SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEMS

(Adapted from Dorsey, 1991a:550)

Figure 2 illustrates a conceptual model where the economy and other human-based systems operate within the same biophysical realities and constraints.

Human perceptions of the natural world have a significant influence on how society governs its activities. The following section illustrates the paradox between the knowledge

and science of ecology, and people's perceptions, attitudes and management approaches concerning the environment and natural resources. This complex subject is more easily understood through the concept of *paradigms*.

2.4 COMPETING PARADIGMS

We believe we have only facts as revealed by science and that we no longer have a need for a story. We fail to perceive that we do use a story that assumes the primacy of the human who has the right to dominate nature for his own benefit. The story ignores the dependency of humans on the continued good functioning of the ecosphere and the intimate connection between the human story and the cosmic story. We are failing as a society because our story is far out of step with reality. (Milbrath, 1989:115)

A paradigm is a *world view*; a collective of values, beliefs, habits, and norms, all forming a frame of reference for society. It influences the way people perceive and interpret the world around them (Milbrath, 1989). Perlmutter and Trist (1986) describe paradigms as 'mental models' that underlie institutional structures and government processes. Paradigms are social constructs of reality - a cultural lens - through which society, as a whole, interprets reality and consequently influence people's behaviour.

Academics and philosophers often view paradigms as the foundation to many environmental and social problems confronting society today. Milbrath (1984) features two opposing paradigms concerning human perceptions of the natural environment: the Dominant Social Paradigm (DSP) and the New Environmental Paradigm (NEP).⁷ These paradigms can be visualized on a spectrum with the DSP valuing material wealth and resisting social change at one end (the technocentrics), and the NEP advocating social change and valuing a safe and clean environment at the other end (the ecocentrics).

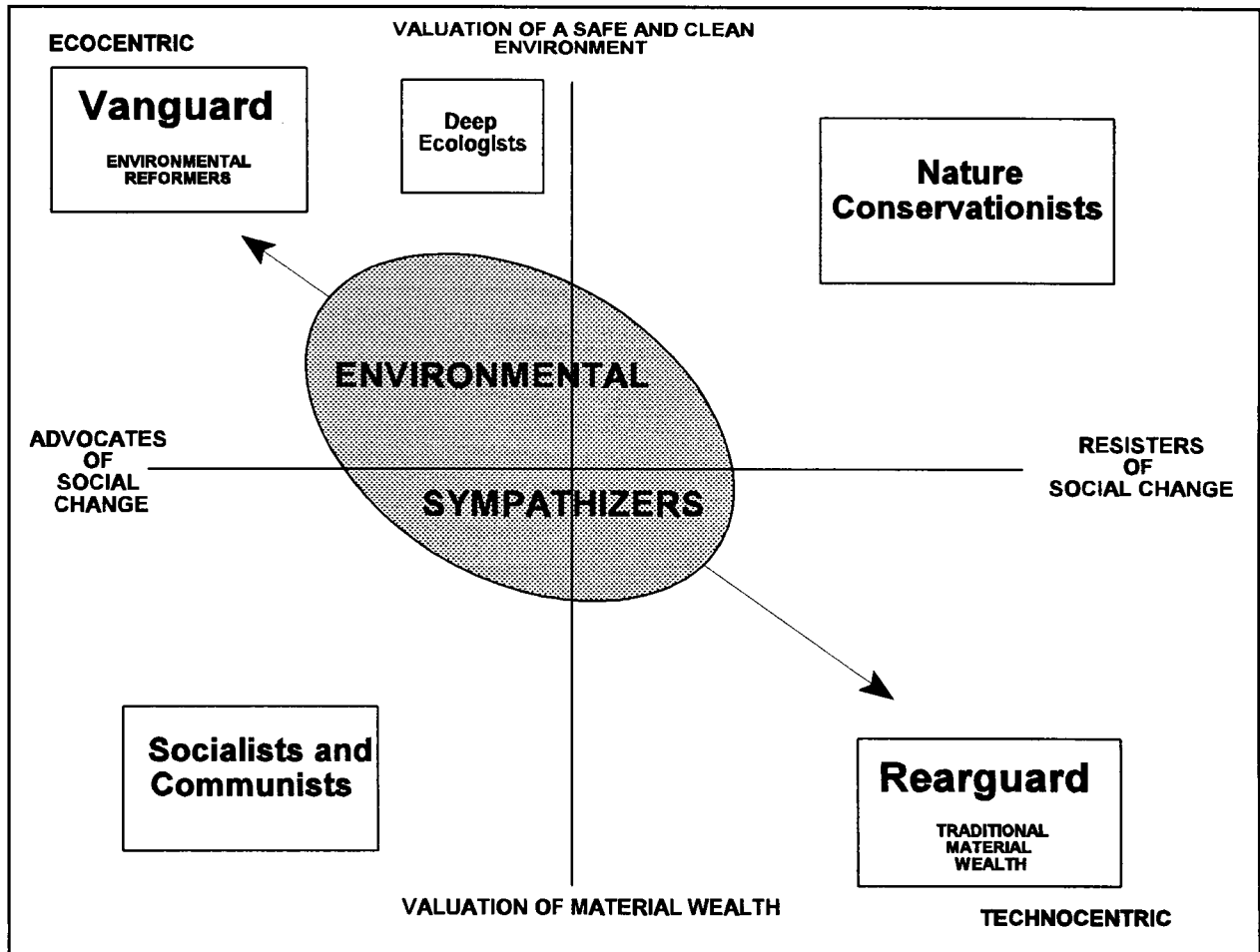


Figure 3: MAIN POSTURES TOWARDS THE ENVIRONMENT (Milbrath, 1984:24)

This model characterizes two extremes, from the technocentric to the ecocentric with Environmental Sympathizers occupying an area somewhere in the middle. The shaded area has progressively grown since the 1960s and is becoming increasingly skewed towards the Vanguard. For example, the deliberations of the United Nations Conference on the Environment in 1972 and the Brundtland Report of 1987, have significantly influenced the 'increase' in numbers of the environmental sympathizers.

2.4.1 THE DOMINANT SOCIAL PARADIGM

The DSP, as the name suggests, dominates much of the natural resources management literature from the last 10 to 20 years and has strongly influenced the way government processes operate (Milbrath, 1984 & 1989; O'Riordan & Turner, 1983). Milbrath (1984) characterizes the DSP as the Rearguard, those believing in and supporting economic growth, market mechanisms and the reliance on technology to resolve many environmental natural resource problems. They believe in no *real* limits to growth.

The main characteristic of the Rearguard is the high value placed on human prosperity as compared to environmental values and protection. Milbrath believes this quality is central to distinguishing the Rearguard - the defenders of the DSP - from the proponents of the new evolving environmental paradigm, described in the *Vanguard for a New Society* (Milbrath, 1984).

O'Riordan and Turner (1983) present a similar characterization for the dominant paradigm, referring to "cornucopian technocentrism." This position similarly supports exploitation and material growth with the belief that "market mechanisms in conjunction with technological innovation will ensure infinite substitution possibilities to mitigate long-run real resource scarcity" (Dorcey, 1991a:536).

2.4.2 THE NEW ENVIRONMENTAL PARADIGM

[W]ith respect to phenomena such as population growth, economic growth, technological development, and environmental degradation...reality is changing. (Milbrath, 1989:115)

Milbrath and others claim that society is in the midst of a paradigm shift towards a New Environmental Paradigm (NEP). This shift has been catalyzed by the challenges and pressure from a growing body of environmentalists who believe society must change from

its traditional ways (Milbrath, 1989; O'Riordan and Turner, 1983). The NEP means a change in philosophy, that encompasses:

- a higher valuation of nature,
- more compassion for natural systems,
- recognizing limits to growth,
- careful planning, implementation and monitoring,
- new schools of thought and a new way of conducting politics,
- participation and cooperation, and
- stewardship.

The following table summarizes the general differences between the NEP and DSP.

TABLE 1: COMPETING PARADIGMS

<u>VANGUARD</u> The New Environmental Paradigm	<u>REARGUARD</u> The Dominant Social Paradigm
<u>HIGH VALUATION OF NATURE</u>	<u>LOW VALUATION OF NATURE</u>
<ul style="list-style-type: none"> • value environmental integrity and protection over economic growth 	<ul style="list-style-type: none"> • value material wealth and economic growth over environmental protection
<u>GENERAL COMPASSION TOWARDS NATURE</u>	<u>LIMITED COMPASSION</u>
<ul style="list-style-type: none"> • greater concern for biodiversity, ecosystem integrity, people and future generations 	<ul style="list-style-type: none"> • concerned with production, material wealth, and profit - operate according to the laws of supply and demand
<u>MINIMIZED RISK THROUGH CAREFUL PLANNING AND MONITORING</u>	<u>RISK ACCEPTABLE TO MAXIMIZE PROSPERITY</u>
<ul style="list-style-type: none"> • develop soft technologies, enact sustainable legislation and regulations, and promote stewardship 	<ul style="list-style-type: none"> • rely on hard technology, market forces and the 'laws' of economics
<u>LIMITS TO GROWTH</u>	<u>NO LIMITS TO GROWTH</u>
<ul style="list-style-type: none"> • recognize resource shortages, overpopulation and the need for conservation 	<ul style="list-style-type: none"> • no real shortages exist because technology will overcome these • population is not a threat
<u>NEW POLITICS</u>	<u>OLD POLITICS</u>
<ul style="list-style-type: none"> • work within biophysical realities, emphasize the public good and health, and promote openness, cooperation and participation. • encourage community stewardship 	<ul style="list-style-type: none"> • current system works • believe in hierarchy, efficiency, markets, competition, and economic growth • Individual rights rein supreme • bureaucracy is acceptable

Source: summarized from Milbrath, 1989:119

The main challenge to the DSP has been from the 'Accommodators' or what Milbrath calls the environmental sympathizers (see Figure 3). Accommodators are sympathetic towards

the need for change and value environmental integrity. They see themselves as conservationists, rejecting the notion that technological innovation will protect society from resource scarcity. Although sympathetic towards a need for change, they do not want to give up material wealth, maintaining that sustainable growth can be accommodated within the existing institutional system through policies, stringent laws and more regulations aimed at protecting the environment (O'Riordan & Turner, 1983).

The crusade for reform by the Vanguard and Deep Ecologists is regarded by many as extremist and even sensationalist. Dorsey (1991a) argues that the more ecocentric and deep ecology movements have not gained as much public support as the accommodators. The accommodators have gained recognition by promoting the concept of sustainable development and drawing attention to more compatible and integrated forms of management. Dorsey (1991a) cites the Brundtland Report as a success in this regard, as it catalyzed awareness and change through already well-established institutions. To the great majority of people, the accommodating approach is more palatable than rapid reform and social change.

2.5 SUMMARY

Awareness of environmental over-exploitation is not a new phenomenon. Ecologist George Marsh warned of alarming trends in the way humans used natural resources in the mid-1800s. Essentially, writings by Marsh and others of that era, and the debates of the early conservation movement, make up the roots of the contemporary environment movement - the new environmentalism.

The aftermath of the industrial revolution brought about a dramatic increase in environmental problems and people became progressively aware and knowledgeable about these problems. As people's values changed, greater emphasis was placed not only

on the inherent values of wildlife and their habitats, but also on the aesthetic values of natural landscapes. With growing evidence of potential ecological disasters looming on the horizon, the public became increasingly vocal and active, propagating environmental organizations worldwide.

A paradox remains. The myriad of scientific discoveries, gained knowledge and understanding about natural systems, and the growing waves of environmental awareness and activism have only resulted in slow change in the way human society operates. Some may even argue that little has fundamentally changed. Society, governments and economic systems, in general, still function with principles that are far removed from the realities of the natural environment and the impacts of human activity. Operating within recognized biophysical realities and maintaining ecological integrity as a basis for decision-making has not yet become a corner-stone to human socio-economic and institutional systems.

Albeit slow, environmentalism is creating change towards a new world view and a new balance. An increasing portion of society recognizes that:

- there is a need for change,
- ecological integrity of natural systems cannot continue to be degraded for the sake of economic growth and development - there are limits to growth,
- there are biophysical realities within which society must operate,
- science and technology have limits in themselves - they are not solutions, only tools, and
- uncertainty and lack of knowledge are characteristic of a complex world.

The many individuals, groups and formal organizations that make up the environmental movement believe the dangers of environmental degradation necessitate that environmental integrity become a primary consideration in the way humans use the biosphere. Environmentalism has become an important aspect of politics and the governance of natural resources in British Columbia. Chapter 3 discusses more

specifically the formation of environmental non-government organizations and their role in environmental conservation.

The challenge thus lies in achieving development that is both people-centred and conservation-based and that uses natural resources in a sustainable way. (Tolba et al., 1992:676)

NOTES

1. The book published by George P. Marsh is called Man and Nature: Physical Geography as Modified by Human Action. Marsh exposes the wasteful and relentless destruction of wilderness in the United States of America in the late 1980s. For a brief review of his work and his role as an early conservationist, see Norton (1991) and Paehlke (1989).
2. For a comprehensive historical account of the conservation and environmental movements, see Norton (1991); Paehlke (1989), (1990), (1992); Ehrenfeld (1978). For a thorough history of conservation and wildlife management in British Columbia, see the Centennial Wildlife Society of BC (1987).
3. See Naess (1973).
4. The realm of human social and political practices within the biosphere is what Vernadsky calls the Noosphere: "the sphere of the mind [which] is an inseparable but analytically distinguished part of the biosphere where human kind collectively and rationally works for the sustainable development of itself in balance with the rest of the biosphere." See Vernadsky (1945); Alker & Haas (1993).
5. For a retrospective analysis of human intellectual and political relationships with nature see Alker & Haas (1993).
6. R. Carson (1962) offered "a fable for tomorrow"; a story of a community exterminated from toxic pollution. Israelson (1990) explains: "what made Silent Spring so different was the intense public reaction", for the public became very frightened about the realities of pesticide use and toxic waste. See Carson (1962); Israelson (1990).
7. For additional readings on paradigms, paradigm shifts, and schools of thought see: Cotgrove (1982); Devall and Sessions (1985); Dorsey (1991a); Naess (1973); O'Riordan and Turner (1983); Paehlke (1992); Perlmutter and Trist (1986).

ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS AND THEIR ROLE IN CONSERVATION

[Environmental organizations] serve as pervasive and necessary links in the processes of communication that bind government and people. (Pross, 1975:1)

3.0 INTRODUCTION

Environmental organizations were described in Chapter 2 as manifestations of a social movement that evolved over 150 years. Draper (1972), as a result of her research on environmental organizations, questioned whether they would have a significant and lasting impact on policy and decision making in British Columbia. She felt they may "merely be an outlet for social and political frustrations" which would change and possibly diminish with time (Draper, 1972:4). Twenty-two years later, however, environmental organizations and their members have become increasingly important elements of contemporary political culture.¹

This chapter examines environmental organizations and their role in environmental conservation. Environmental non-government organizations are potentially an important force counter-balancing what are usually strong development forces that often dominate planning and decision-making processes. From this perspective, environmental organizations may well be the 'front line' for environmental conservation by catalyzing and implementing change and ensuring the sustainable use of the environment.

This chapter begins by defining conservation and environmental non-government organizations (ENGOS), and is followed by a discussion about the formation of environmental organizations. The chapter then defines the different roles played by environmental organizations in conservation and presents a framework for analysis which is subsequently applied to the case study of Burns Bog.

3.1 ENVIRONMENTAL CONSERVATION: A CONTEMPORARY DEFINITION

Many definitions throughout the literature imply that conservation includes deliberate planning of human activities and resource use to prevent over-exploitation and environmental degradation (Rueggeberg, 1983). The Wildlife Policy for Canada (1990) defines conservation as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations, while maintaining its potential to meet the needs and aspirations of future generations" (Canada, 1990c:29). From this perspective, conservation includes preservation, maintenance, sustainable use, restoration, and enhancement of wildlife habitat. This definition is based on the following conservation principles:

- to maintain ecosystems and associated processes upon which wildlife and humans depend,
- to preserve genetic diversity,
- to ensure the sustainable use of the environment.

These broad principles are reiterated in Canada's Green Plan as national objectives promoting clean air, water, land, sustainable use of natural resources, protection of special spaces and species, and environmentally responsible decision making (Canada, 1990a).

Conservation, then, can be defined as the application of measures that control the use of resources and land to ensure maintenance of essential natural properties, or what is often referred to as ecological integrity. These measures, whether a government applying some form of control on resource use or development, or a non-government organization (NGO) involved in ecosystem restoration or a salmon enhancement program, require integration, cooperation and a holistic approach to planning and management to be effective.

While today's planning and policy initiatives are rapidly evolving, governments encounter limitations that hamper efforts for environmental conservation. Governments in British

Columbia, as elsewhere, are faced with shrinking financial resources. In addition, a lack of clear policy and priorities for environmental protection (such as wetland conservation), fragmentation of jurisdictional powers and institutional mechanisms for environmental protection, and poor integration and communication between government agencies frustrate the best of intentions (Fox, 1991a; MacDonald, 1991; Sadler, 1984). The main argument presented in this research is that environmental organizations have a critical role to play in conservation because governments alone are unable to ensure sustainability and minimize environmental degradation.

3.2 ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS

In the literature, environmental organizations are variously referred to as interest groups, pressure groups, citizen groups, and lobby groups. For simplicity, the terms 'environmental group' and 'environmental non-government organization' are used interchangeably.

An environmental non-government organization is defined by Pross (1992) as a pressure group: an organization whose members promote an interest in the environment and coalesce to influence government and public policy. From this perspective, a group aims to persuade government or apply political pressure to make governments adopt environmentally sustainable policies or approaches to management. Persuasion can mean presenting well prepared and logical arguments to a government body, arousing public interest and concern, or organizing civil protest and disobedience to apply political pressure.

Gardner (1991a:323) defines an ENGO more specifically as a:

[C]itizen interest group whose activities include efforts for environmental conservation...where the membership of a group is voluntary [and] the group does not aim to be profit making...is autonomous (free to make its own decisions)...provides services, not material benefits, and it seeks changes, improvements on behalf of its members and the wider society.

There are many different types of environmental organizations, from small community-based groups to larger national and international organizations. Within British Columbia there are hundreds of environmental organisations ranging in size, scope and their capacity for conservation work. The most common characteristics of ENGOs are they:

- promote environmental conservation and stewardship,
- maintain a non-profit status, and
- maintain autonomy.

Often, environmental organizations are, in some way, disenchanted with the way governments are fulfilling their responsibilities for environmental protection. Consequently, they apply pressure on government and industry to be more responsible and act more sustainably. ENGOs educate government, industry and the public about environmental issues and community concerns. The main objective for many groups is to maintain a level of awareness and pressure on the community and government, with the hope that their activism will eventually lead to significant change. The long term goal for many environmental organizations is a transformation towards a new environmental paradigm. Gardner explains how environmental organizations may have "an essential role in the re-establishment of modes of human environment interaction that allow for development with conservation and conservation with equity" (Gardner, 1991a:313).

3.2.1 THE FORMATION OF ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS

In his book Group Politics and Public Policy, Pross (1986, 1992) describes how 'pressure groups' have not formed solely because of a concern for a particular interest: the environment. Pross argues that environmental groups have formed as a response to changing political and economic environments. An increasingly complex institutional framework (system of governance) has become ineffective in representing the public's needs and concerns (Pross, 1992). In other words, environmental organizations have evolved in response to:

- increasing environmental degradation,
- alienation of the public from decision-making, and
- perceived inability of government to grapple with growing environmental and social problems.

The structure and behaviour of these groups are a function of the political and institutional system in which they are located (Pross, 1992).

The formation of ENGOs and their influence on government and society is a dynamic and cyclical process (Pross, 1992; Draper, 1972). Environmental groups form reflecting the political and institutional environments within which they operate, and over time, may slowly and fundamentally change the way government and society operate. The following model illustrates three different stages in pressure group formation. It is called *The Funnel of Mobilization* (Pross, 1992).

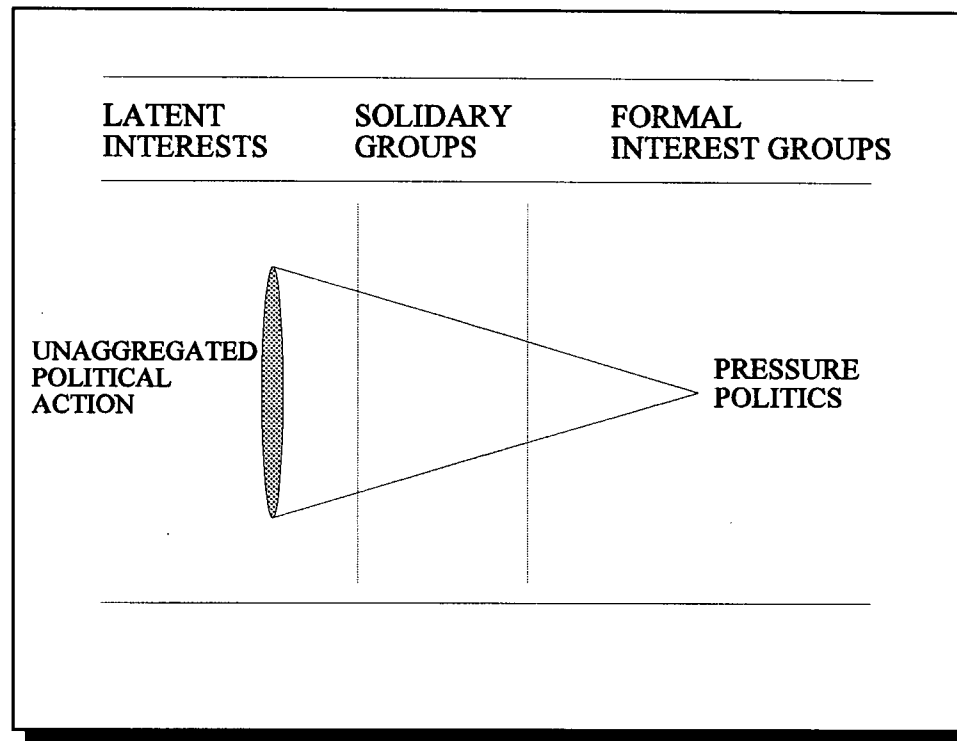


Figure 4: FUNNEL OF MOBILIZATION (Pross, 1992:7)

'Latent interests' are the first stage. These are 'unaggregated interests' that are poorly defined (Pross, 1992). Latent interests are mainly individuals promoting personal views and concerns at public meetings or local round tables. These interests are consequently dispersed and described as unorganized political action. Although innocuous in their unaggregated form, latent interests can have significant political impact if mobilized. Depending upon the characteristic of the environmental issue and the perceived threat to the community (sense of crisis), latent interests can mobilize rapidly and their impact can be unpredictable (Pross, 1992).

The second stage is the formation of 'solidary groups.' This stage consists of individuals with common interests that share a sense of identity. These individuals often act together but have no formal organization. The composition of solidary groups usually remains vague and their level of political action and influence is unpredictable (Pross, 1992).

Small community groups and political rallies with no formal organization or association fall into this category. If a particular issue persists, keeping a solidary group together, it can often lead to the formalization of an environmental organization. Numerous examples exist in British Columbia, including *Save the Georgia Strait Alliance* and the *Burns Bog Conservation Society*. Both these groups evolved from a small group of individuals (a solidary group) who saw a problem that needed to be addressed and consequently formalized.

The third stage is the formation of 'formal interest groups.' When individuals and small unorganized groups recognize their mutual interest and begin to collectively and actively promote this interest (carrying out organized activities), they will form an association, society or other formal group (Pross, 1992). This evolutionary process is also referred to as 'the spiral of institutionalization.' As government bureaucracy has grown in size and complexity, interest groups have acquired a higher degree of organization and formalization so as to effectively participate in the political process. Pross claims the growing bureaucracy in Canada, its power, and its political influence, *kindled* the "proliferation of pressure groups and their expanded role in politics"² (1986:40).

Environmental activists believe the most influential route to impact policy decisions and their administration is to organize and coalesce to pressure governments in advancing their interests. Coalescing of latent and solidary environmental interests remains strong in British Columbia; however, significant obstacles remain to the integration of formalized environmental groups (ENGOS) towards what are often similar goals. For example, environmental organizations are often protective of their 'turf' and may be reluctant to join forces with another group who may have a different interest and focus. The complexity of group dynamics and the tendency of small community-based environmental organizations to have a narrow focus can become a significant obstacle to cooperation towards what are similar conservation goals.

The question remains, How do we determine what is a legitimate, formalized environmental group? A legitimate non-government organization is defined by Pross (1992) as a group that is not directly associated to political and economic interests. Pross (1992) suggests an environmental group is legitimate if it:

- possesses a formal organization;
- derives its membership inclusive of the interest community and is self-elected from that community³;
- seeks only influence, not power;
- maintains autonomy in determining the use of its resources;
- determines its own common interest and long term goals.

These are important because an ENGO must be able to show that it speaks for the entire interest community, including its membership, and that it can elicit a significant portion of that support when needed. Furthermore, an ENGO must be able to maintain its credibility not only to its interest community but to decision-makers.

This type of analysis distinguishes non-government organizations that are associated with government organizations or political parties, which becomes significant when judging the source of 'policy' advice and value given to information against the sense of the public interest (Milbrath, 1989; Pross, 1992). An environmental group can attain a certain level of recognition or legitimacy not just from supplying quality information, but also from community support. "A group that is known to speak for its 'interest community' is listened to by government, regardless of the quality of the advice it tenders" (Pross, 1992:11). Secondly, a group that is not associated with a political party or a strong economic interest is more likely to be considered a legitimate source of information and less biased.⁴

Environmental issues and decision-making are recognized as involving complex relationships between political, economic, and social systems. If an environmental organization desires to influence change, it must attain a level of involvement with government planning and decision-making processes. Burton & Howlett (1992:3) claim

that "environmental groups, imbued with the righteousness of their cause, have at times ignored these facts of life, and thus have found themselves outside the walls of power, energy spent and little accomplished." Environmental organizations need to be part of the governing process to ensure balanced decision-making and to influence change but, at the same time, they cannot compromise their legitimacy as representative of the public. It is a balancing act.

Determining the level of influence of a non-government environmental organization in planning and decision-making is difficult, because it cannot be easily measured in quantitative terms. Instead the analytical framework developed below is qualitative, based on a typology of ENGO roles.

3.2.2 THE ROLES OF ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS

Extensive literature exists concerning environmentalism and conservation ranging from political science, interest group dynamics,⁵ public participation⁶ to sustainable development. Much of this literature, however, is from the United States and Western Europe. Few Canadian studies have focused on the role of environmental organizations and their effectiveness in influencing planning and decision-making processes. Draper's masters thesis is one of these studies.

Draper (1972) examined the strategies of environmental groups in British Columbia and found the efficacy of these groups in environmental decision-making depended on five influential factors: group goals, internal organization, main issue of interest, strategies, and the perceptions of decision-makers about the participation of environmental groups. Draper concluded that it is extremely difficult to effectively determine the level of influence of an environmental group on the outcome of a decision-making process. She found that the attitudes of decision-makers towards public participation and environmentalism were critically important in determining effective participation from an environmental group.

Public participation and attitudes in government towards interest groups have dramatically changed since Draper's research. A shift towards a more open government in British Columbia has allowed participation from a wider range of individuals and organizations in planning and decision-making processes. The last decade, in particular, has seen an opening of government processes to the public and interest groups in the form of public inquiries, commissions, boards, planning committees, and community round tables. These developments have dramatically changed the face of environmental decision-making and administration; ENGOs have become a familiar element to these processes.

In one of the first comprehensive studies of its kind in British Columbia, Gardner (1991a; 1991b) examined the role of community-based environmental non-government organizations in the sustainable use of water resources in the Fraser River Basin. Gardner's research concluded that ENGOs play a key role in the pursuit and maintenance of ecological integrity.⁷

A basin-wide survey revealed that the majority of environmental organizations acted as advocacy groups, lobbying and pressuring governments to fulfil their responsibilities to environmental conservation. Gardner did recognize a trend towards increasing political activism and confrontational approaches amongst a number of groups (Gardner, 1991b). This trend suggests a growing discontentment with the way government is dealing with environmental issues and frustration among environmentalists over the lack of response to their advocacy efforts. Despite the more radical trends, Gardner suggests that less radical community stewardship approaches are also "well-entrenched in the Fraser River Basin" (1991b,264).

There are numerous approaches used to categorize and consequently study ENGOs using membership characteristics (economic, political), financial and human resources (staff and voluntary support), organizational structure, and attitudes towards partisan politics (Pross, 1992). This research does not address the organizational and internal dynamics of

environmental organizations or the resources available for effective ENGO action. Although staff and financial resources can have a significant impact on what a group is able to accomplish, this study examines, more broadly, the key roles played by environmental organizations in:

- maintaining the ecological integrity of wetlands (and other ecosystems),
- ensuring a comprehensive analysis of ecological characteristics, and
- counter-balancing inevitably strong economic and political influences.

The role of environmental organizations is assessed here relative to governments' responsibilities and roles for environmental conservation. Analyzing ENGO roles will lead to a better understanding of the significance of environmental organizations as ambassadors for a healthy environment. The following typology expands on Pross's (1992) view of non-government organizations as advocacy group to include a wider range of roles.

The typology below is adapted from Gardner (1991a; 1991b) and defines three main roles:

1. Advocacy role
2. Supplemental role
3. Transformative role

The Supplemental role is expanded from Gardner's definition to better describe the level of cooperation and integration with government. To achieve this, two sub-roles are defined: a para-administrative role and a legitimizing role.

1. THE ADVOCACY ROLE

The advocacy role is characterized by a disenchantment with the way government is fulfilling its responsibility for environmental protection and management (Gardner, 1991b).

Although some environmental groups believe the current institutional framework is adequate in maintaining a certain level of environmental protection, they believe no system exists to keep government and resource managers accountable to their responsibilities and commitments for protecting ecological values.

The advocacy role is that of watch dog, scrutinizing government, industry, and the public. In this role, environmental organizations ensure industry's compliance with government standards, regulations and policies and ensure that ecological integrity is not lost in day-to-day human activities and development. Gardner suggests that strong participation from ENGOs could effectively counter-balance a government bureaucracy that tends to favour compromise and stability and is disinclined to radical change and action (Gardner, 1991a:326).

Further to the watch-dog role, advocacy means pressuring governments to broaden environmental considerations in planning and decision-making processes. Hodge and Hodge (1979) explain how the interaction of environmental groups with different government agencies enables ENGOs to observe and assess government roles and responsibilities from their own perspectives, and to communicate a broader picture of land-use problems, enhancing the government's ability for informed decision making. ENGOs also help promote more sustainable legislation, policies, and regulations.

Advocacy groups commonly use any of the following strategies:

- organize public demonstrations and protests;
- pressure, inform and educate government through letters, petitions, media articles, public service announcements, and phone calls;
- participate in public meetings and often advertise prior to these meetings to solicit public support and attendance;

- inform and educate the public, government and industry through presentations at public meetings;
- organize meetings with ministers or appropriate government agencies;
- prepare educational/awareness materials including brochures, newsletters, fact sheets and posters;
- initiate or participate in environmental assessments and judicial proceedings;
- research and evaluate government or industry activities, programs and policies, and to supply information to the aforementioned processes.

Environmental advocacy can be summarized as:

- *watching and scrutinizing* government and industry to ensure compliance with environmental protection standards, regulations and policies;
- *pressuring* governments to maintain an adequate level of environmental protection (accountability) and expand their consideration of environmental factors in planning and decision-making;
- *informing and educating* government and the greater community about environmental degradation and ecological values.

Gardner (1991a) maintains that effective advocacy work depends on organization and resources. Productive input into planning and decision-making processes relies on a solid information base, expert advice, and the one element lacking for many environmental groups, money.

2. THE SUPPLEMENTAL ROLE

The *supplemental role* is characterized by activities that supplement the regular responsibilities and activities of government. The supplemental role can be defined as one or a combination of the following:

- filling-in where government is unable or unwilling to fulfil its mandate and responsibilities to environmental conservation;
- performing activities that fall within government mandates and responsibilities, but are better performed by NGOs;
- performing activities that are not expected of government, falling beyond its scope of jurisdiction and responsibilities;
- creating partnerships where both government and NGOs feel the activities are best achieved in cooperation.

NGOs playing this role recognize that governments are not capable of ensuring environmental protection and ecologically sound management on their own. Furthermore, governments do not have *exclusive* responsibility for the environment (Gardner, 1991a). The public is increasingly recognized as having a significant role to play in environmental protection. Environmental organizations often see themselves as 'stewards' of the natural environment and feel they represent the general public and the common good of society.

The supplemental role can be divided into two sub-roles: the para-administrative role and the legitimizing role. The para-administrative role involves environmental stewardship (Pross, 1992). This role is described as a service that government is unable or unwilling to provide and one that is either based on 'voluntary stewardship' and what Gardner (1991b) refers to as hands-on conservation, or 'partnerships' with governments or other organizations to reach mutual conservation goals.

Voluntary stewardship⁸ can be a community-based program or a program initiated by an environmental organization that relies on volunteers and fund raising to achieve on-the-ground conservation work. A good example is a community stream enhancement program, where a community or school decides to restore a local fishery with their own human and financial resources. These groups operate independently from government with initiatives that "fall beyond the scope of government responsibility, their mandates" and even, at times, beyond their capability (Gardner, 1991a:329). It is considered here a *para-*

administrative function because it provides services beyond those provided by government (Pross, 1992). This role encompasses environmental education programs, independent programs illustrating sustainable resource and land use (Gardner's 'modelling' role), and independent research and monitoring initiatives.

Conservation and stewardship programs can also be based on cooperative partnerships with government and other organizations working towards a common conservation goal. An ENGO, for example, can supplement government roles and responsibilities by implementing a government-funded ecosystem or resource rehabilitation program (e.g. salmon enhancement program) or by monitoring resource activities and environmental degradation. British Columbia's *Interior Wetlands Program*⁹ is an example of a federally funded initiative that is administered and implemented by Ducks Unlimited Canada (an ENGO). The federal government has neither the resources nor the expertise to see such a program to fruition, whereas Ducks Unlimited is considered an expert in the field of wetland conservation and restoration. This illustrates a partnership created between an environmental organization and government to fulfil a program that is best achieved as a cooperative venture.

Establishing partnerships with government does raise concern over the loss of autonomy of environmental organizations and the potentially strong influence from funding agencies or legal agreements (Pross, 1992; Gardner, 1991a). ENGOs need to be aware of the benefits in establishing working relationships and partnerships with government while realizing their susceptibility to economic and political forces. At the same time, environmental organizations do need partnerships with governments to support more financially intensive stewardship programs and activities.

Gardner (1991a:330) claims "there is clearly potential for significant contribution to the maintenance of ecological integrity from these stewardship activities...[providing] an efficient and effective alternative to public agencies in the delivery of programs."

Stewardship and conservation programs do require, however, healthy financial resources and the staff to make them work. Small community-based organizations do not usually have these kinds of resources.

The legitimizing role is what Pross (1992) refers to as a *semi-political* function and is similar to advocacy. ENGOs are continually researching information on particular issues and evaluating the responsibilities and actions of government and industry. As legitimizers, environmental groups participate in government planning and decision-making processes. They provide and review information and partake in developing options and solutions. The legitimizing role differs from advocacy in that it reflects integration into cooperative, consensus-based planning and decision-making. As legitimizers, ENGOs do not attempt solely to pressure and influence government from the outside, but actually partake in these government processes.

If an environmental organization has a well documented case and strong support from the 'expert' community, the organization can become an effective legitimizer to a government planning and decision-making process. From this perspective, ENGOs can be valuable allies to government (Pross, 1992). The legitimizing role can build credibility for an environmental organization and consequently lead to significant influence within a decision-making process. Furthermore, these types of relationships, built on cooperation and respect, can begin to significantly minimize opportunities where landscapes and resources are not utilized in the public interest. Such relationships create sensitivities that make it easier for governments to err on the side of caution, rather than succumb to strong political and economic influences.

The distinction between advocacy and the legitimizing role and the commonalities between the two will become more evident in chapter 6.

The supplemental role encompasses strategies similar to those used in the advocacy role, however, most strategies are geared towards cooperative initiatives and on-the-ground conservation, including:

- demonstration and stewardship projects working with industry, government, and the public to illustrate sustainable and viable land-use practices, including: habitat enhancement, restoration, and mitigation;
- information and education programs for the public, government and industry;
- participation in government planning and decision-making processes, legitimizing decisions and activities through participation and consensus building;
- research and evaluation, and supplying information and expert advice to government and industry.

The supplemental role can be summarized as follows:

- An ENGO can supplement the regular responsibilities and activities of government through voluntary, community-based stewardship or through establishing partnerships with government for conservation and educational programs.
- An ENGO can legitimize government planning and decision-making by direct participation in these processes, providing and reviewing information, evaluating government roles and responsibilities, and providing viable options and solutions.

3. THE TRANSFORMATIVE ROLE

The *transformative role* is characterized by activities that aim to fundamentally restructure the institutional system and the way society thinks and operates. This role is aimed at changing the dominant world view. Generally speaking, transformation represents disgruntlement with government and the way people do business and live their lives. Some of the transformative strategies tend to be more confrontational such as civil protest and civil disobedience (Gardner, 1991a). This approach is perceived by many people as

'radical environmentalism.'

Gardner (1991a) argues that transformation does not necessarily have to be confrontational. On the contrary, many 'transformative' strategies do focus on social learning and the modelling of sustainable practices. This is similar to environmental stewardship where groups develop demonstrations for learning by experience and experimentation (Gardner, 1991a). Ultimately both the aforementioned roles (advocacy and supplemental) aim to transform society to some degree.

The transformative role is distinguished by the fundamental belief that society must change from its traditional ways. Milbrath (1989) describes this position (Chapter 2) as the Vanguard for a new society, the environmental reformers. The transformative role advocates social change and eco-centric approaches to planning and decision-making. Therefore, transformative strategies strive to operate within new environmental and social standards, rejecting the normal or accepted way of doing things. The difference between advocacy, supplemental and transformative roles is the degree of transformation desired and the reason for the desired change. In many cases, time is a key factor. Serious disgruntlement with government and the belief that time is running short often leads to more confrontational strategies.

The transformative role encompasses the following strategies:

- demonstration projects that work with industry and government to illustrate sustainable and viable alternatives;
- information and education programs;
- protest and civil disobedience.

To summarize, the transformative role aims to fundamentally alter the way society and government operates through protest, civil disobedience, education and demonstration.

3.2.3 ENGO STRATEGIES

Although certain strategies have been outlined for each of the aforementioned roles, environmental organizations will use different roles and strategies depending on their short and long term goals and the particular environmental issues they encounter and choose to act upon. An organization that mainly plays a non-confrontational advocacy role will change to a supplemental role, establishing partnerships with government, or towards more confrontational advocacy and transformative roles when needed (see Figure 5). The Burns Bog Conservation Society, the small community-based environmental organization featured in the case study played mainly an advocacy role but, as the opportunity presented itself, the group began to play a stronger supplemental role. Many small community-based organizations will play mainly an advocacy role, but will take opportunities as they present themselves to play more involved supplemental roles. Environmental organizations, while emphasizing advocacy or supplemental roles, often also work towards broader societal influence and transformation.

The different roles played by an environmental organization can be further explained by the extent of political activism or environmental advocacy. The degree of advocacy hinges on the type of environmental problem or issue involved, the level of threat and risk to society, the extent to which government takes a proactive approach to resolve a problem and, very importantly, the degree to which a community or group feels they are part of the planning and decision-making process. A more passive stewardship group that plays a para-administrative role, may eventually end up on the street in civil protest if they feel strongly that government is not taking appropriate action and is excluding them and the rest of the community from deciding what is best for them.

Arnstein's Ladder of citizen participation is a framework developed to examine the degree of participation in planning and the decision-making power given to particular individuals or groups (Arnstein, 1969). Below is a simplification of Arnstein's eight rungs, illustrating

three main levels of participation:

- Level 1: Manipulation - *non-participation*
- Level 2: Consultation or placation - *token participation*
- Level 3: Partnerships and delegated power - *community self-determination*

A high degree of individual or group participation and decision-making power is only afforded at the third level. Level 2 represents token participation which results in people feeling manipulated and alienated from important decisions. It is this deficiency that can lead environmental groups to increasingly confrontational, if not radical, environmentalism.

Political activism of environmental groups can be visualized on a linear spectrum with partnership and confrontation at opposing ends. Partnerships and cooperative approaches are at one end, where groups are integrated as part of the planning and decision-making process. The opposite end of the spectrum illustrates alienation and confrontation, representing direct actions such as protest and civil disobedience. This behaviour is often the result of frustration and the perceived lack of participation and decision-making power. In between are different levels of cooperation, from higher integration to varying levels of consultation and placation (token participation) (Gardner, 1991a; Sadler, 1980).

Many ENGOs adopt non-confrontational approaches because they believe they will be more effective in the long term. This is true both for larger ENGOs like Ducks Unlimited who are involved in partnerships with government agencies to deliver conservation programs, and for the smaller community-based environmental organizations. The Canadian Parks and Wilderness Society clearly expresses this view:

[Our] policy has always been to work with government and industry in a spirit of cooperation. We believe this is the best way to get results...we are with the decision-makers, directly influencing the future of Canada's ecosystems. (CPAWS, cited in Gardner, 1991a: 328)

At the same time, some ENGOs like Greenpeace believe strong advocacy roles (a high level of political activism) will be more effective. Radical environmentalism has drawn attention from the media and the public, reinforcing sentiments that the environmental movement is 'extreme' and 'unproductive.' However, many of the more 'radical' groups that focus mainly on advocacy, have been very effective in creating dramatic change. The many types of environmental organizations, from radical groups to community stewardship groups, are equally important because they all work towards influencing and creating change in their own way.

3.3 SUMMARY

Over the last twenty years, environmental non-government organizations have become important players in planning and decision-making involving the use and management of natural resources and the conservation of natural heritage. Environmental organizations potentially have significant role to play in conservation, including:

- maintaining the ecological integrity of wetlands (and other ecosystems),
- ensuring a comprehensive analysis of ecological characteristics, and
- counter-balancing inevitably strong economic and political influences.

Environmental organizations provide information, skills, knowledge and the people needed for on-the-ground conservation work. They enhance planning and governance by reviewing information and initiatives. ENGOs also act as catalysts for action, keeping government accountable to their commitments and policies.

In summary, environmental organizations can play the following roles:

ADVOCACY ROLE

- To *watch and scrutinize* government and industry to ensure compliance to environmental protection standards, regulations and policies.
- To *pressure* governments to maintain an adequate level of environmental protection (accountability) and expand their consideration of environmental factors in planning and decision-making.
- To *inform and educate* government and the greater community about environmental degradation and ecological values.

SUPPLEMENTAL ROLE

- To *supplement* (para-administrative) the regular responsibilities and activities of government through voluntary, community-based stewardship or through establishing partnerships with government or other organizations for conservation and educational programs.
- To *legitimize* government planning and decision-making through direct participation in these processes, providing and reviewing information, evaluating government roles and responsibilities, and providing viable options and solutions.

TRANSFORMATIVE ROLE

- To fundamentally *transform* the way society and government operates through protest, civil disobedience, education and demonstration.
-

Only if people, through government, can cooperate in informed, collective, firm self-discipline, can they overcome threats to the integrity of the biosphere. (Caldwell, 1990: 59)

NOTES

1. For a general overview and insight to Canadian environmental issues -environmental costs and political responses, see Israelson (1990).
2. For a comprehensive study of Canadian Pressure groups and the part they play in making public policy, see Pross (1992). Pross addresses the following questions: What are pressure groups? Why have they acquired so much influence? Do we really need them and why? Do they pose danger to a democratic society?
3. Membership is what makes a legitimate pressure or interest group. Membership is defined as willing supporters who contribute financially through dues and are listed as participants. Pross suggests a group derives legitimacy from membership by showing that it speaks for its membership. See Pross (1992).
4. For more information on pressure groups and their role with political parties, cabinets, legislatures and bureaucratic agencies, see Pross (1992).
5. Paehlke (1989) studies environmentalism as a political ideology, looking at the environmental movement as an evolving set of political ideals. Milbrath (1984) through elaborate surveys in the United States and Europe examined people's urgency about environmental problems along with the perceived adequacy of governmental action. He found that a high level of urgency about environmental problems did not necessarily translate into effective action. In addition, the majority of the public surveyed did perceive that governmental action was more often inadequate than adequate. For other studies see Pross (1991), (1986); Gardner (1991a), (1991b); Sadler (1984); Susskind & Elliott (1983).
6. There are many models of public participation. Arnstein's ladder of citizen participation illustrates eight levels of participation and 'citizen power.' From manipulation to informing is considered non-participation, and consultation and placation is referred to as 'token' participation. In Arnstein's model, citizen power is only acquired through *partnerships* and delegated power from government. Of course, complete citizen control ensures maximum power. A similar model has been developed by Sadler (1980). Sadler identifies three types of participation that have evolved over the last 30 years: participation by invitation (pre-1960's), participation by intervention (1960's), and participation by integration (1970). For a thorough review of public and interest group participation see Sadler (1980); Gardner (1991a) and Susskind and Elliott (1983).
7. Gardner found that ENGOs have key roles to play in:
 1. The pursuit and maintenance of ecological integrity,
 2. The pursuit of equity,
 3. Thinking globally while acting locally, and
 4. Increasing social self-determination.
 Gardner claims these are the key principles for sustainable development. See Gardner (1991a), (1991b).
8. A general definition of stewardship is used herein to mean the voluntary conservation of wildlife habitat through education, the development and promotion of a new land ethic through hands-on activities and the demonstration of new and innovative approaches to land use and management. Stewardship really means achieving conservation through individual action, cooperation and partnerships.

9. The Interior Wetlands Program was introduced in 1992 as a federal initiative part of the Fraser River Action Plan. This program has set out to encourage landowners and resource managers to incorporate wildlife habitat concerns in land-use practices and management plans. The program objectives are to promote land-use practices that: 1) maintain and protect habitat for migratory birds and other wetland dependent wildlife, 2) protect water supply and water quality, and 3) encourage sustainable agriculture.

**INSTITUTIONAL AND POLICY FRAMEWORK FOR WETLAND CONSERVATION
IN BRITISH COLUMBIA**

4.0 INTRODUCTION

Wetlands, once considered noxious and unprofitable places, are now internationally recognized as the richest ecosystems on the earth. In Canada's *Green Plan for a Healthy Environment* the federal government made a commitment to work with the public to prudently manage environmental resources and encourage environmentally sensitive decision-making. Canada is steward to 24% of the world's remaining wetlands. The federal government has stated that wetlands are "an important part of our landscape and harbour perhaps the richest mix of wildlife of any group of complex ecosystems in the country" (Canada, 1990a:81). But at the same time it has expressed a growing concern for their rapid disappearance. In spite of rhetoric and explicit commitment to wetland conservation, wetland degradation and loss continues across Canada at unprecedented rates.

British Columbia, with 6% of its land area considered wetland habitat, does not have a clearly defined policy on wetland conservation or direct legal provisions for its protection. Jurisdiction over wetland resources is divided between federal and provincial governments. It is recognized that both federal and provincial governments have an important responsibility and a role to play in providing leadership and guidance concerning the conservation of what is considered a global heritage.

Evidence suggests that governments alone, in light of tremendous population and development pressures, are not able to ensure the protection of British Columbia's wetlands. The immediate challenge is to promote cooperative and integrated efforts for wetland conservation that draw on the enthusiasm and expertise of government, non-

government organizations and the public so as to achieve desired socio-economic goals while maintaining acceptable levels of wetland protection.

To understand the linkages presented in this thesis between government roles and responsibilities for environmental conservation and those of environmental organizations, it is essential to clarify federal and provincial provisions for wetland conservation. This will help to put into perspective the roles of environmental organizations (advocacy, supplemental and transformative) relative to those of government.

This chapter outlines the roles and responsibilities of both the federal and provincial governments for wetland conservation in British Columbia. The chapter is divided into three parts. The first reviews federal roles and responsibilities and the federal agencies concerned with wetland conservation. The second reviews provincial roles and responsibilities and the provincial agencies concerned with wetland conservation. The third more generally reviews wetland conservation in British Columbia, outlining some important initiatives currently under way in the province that either influence or specifically focus on wetland conservation.

4.1 FEDERAL ROLES AND RESPONSIBILITIES FOR WETLAND CONSERVATION

Canada's rich biological diversity must be a major component of our legacy to future generations. (Canada, 1990a:79)

Federal jurisdiction is outlined in the Constitution Act (1982) declaring that the federal government has jurisdiction over the protection and conservation of marine and inland fisheries, shipping, navigation, harbours, defence, international relations, communications, interprovincial undertakings, and transboundary (international) issues (Dorcey, 1986; Gamble, 1989). Furthermore, all matters not expressly delegated to the province, namely concerns for peace, order, and good government are also federal jurisdiction (Dorcey,

1986).¹ The Canadian constitution does not allocate specific federal jurisdiction over the *environment*.

The federal government has formally recognized the national and international significance of wetlands and, in 1981, became signatory to the Ramsar Convention. This convention acknowledges and promotes conservation of internationally significant wetlands, especially those important to waterfowl and migratory birds (Ward et al., 1987). However, a Ramsar designation is not a legal form of protection, it is only a formal recognition. A wetland then, requires formal protection as an ecological reserve or park before a Ramsar designation is possible. To date only one Ramsar designation, the Alaksen National Wildlife Area, has been established in British Columbia.

Canada is also signatory to the World Heritage Sites Convention. In 1972, the general assembly of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), adopted the Convention protecting world culture and natural heritage. Similar to a Ramsar designation, formal protection of an area must first be established before it can be designated as a heritage site (Ward et al., 1987) (see Appendix 2).

The federal government has formally recognized the values of wetlands and its responsibility to environmental conservation in general. Canada's *Green Plan for a Healthy Environment* outlines the following principles (Canada, 1990a):

- governments are accountable for wildlife management,
- the maintenance of natural populations of wildlife should always take precedence over their use by people,
- genetic viability or biodiversity shall not be compromised.

These are all strong indications of a commitment to wetland conservation, however, federal responsibility and capacity for protection are not clearly defined. Given the broad spectrum of federal powers, there are direct and indirect provisions for federal involvement in wetland conservation. Two federal policies are of significance to wetland conservation in British Columbia.

4.1.1 WILDLIFE POLICY FOR CANADA

The Wildlife Policy for Canada, adopted in 1990, provides a framework for the federal, provincial, territorial and non-governmental policies and programs that affect wildlife (Canada, 1990c). The policy "provides for guidance on the many species of wildlife [including all organisms] not covered by existing policies and supports an ecosystem approach to conservation" (Canada, 1990c:6). The main goal is to maintain and enhance the health and diversity of Canada's wildlife (Canada, 1990c). To achieve this goal, the federal government has outlined some strategies, including:

- directly protecting valuable wildlife habitat,
- promoting action towards conservation through financial support of relevant government and non-government initiatives and programs including research and recovery programs with universities and environmental organizations,
- improving wildlife science by promotion and development of knowledge necessary to make better wildlife management decisions.

This policy, although not as specific as the wetland policy (described below), does outline some significant strategies that benefit wetland conservation in British Columbia. The most significant, apart from direct federal action to protect nationally significant wetlands, is the financial support to governmental and non-governmental initiatives and programs.

4.1.2 THE FEDERAL POLICY ON WETLAND CONSERVATION

The Federal Policy on Wetland Conservation was adopted in 1991 as a supplement to the wildlife policy. The main objective of this policy is to promote the conservation of Canada's wetlands and to sustain their ecological and socio-economic functions in 'perpetuity' (Canada, 1991). The policy aims to provide direction, support, and possible tools for the 'wise use' and protection of Canada's wetlands.

This federal policy identifies wetlands as a *critical* federal responsibility because they support internationally important migratory bird populations, inland and ocean fisheries, and they are critical ecosystems for the maintenance of environmental quality and biodiversity. Although the management and conservation of wetlands falls within different jurisdictions, the federal government acknowledges that it has a special role to play in their management and protection. Four goals from the Federal Policy on Wetland Conservation are summarized here (Canada, 1991:7):

- maintenance of wetland functions and values and the recognition of these functions and values in resource planning, management, and economic decision-making in all federal programs, policies, and activities;
- securement of significant wetlands;
- *no net loss* of wetland functions;
- rehabilitation of wetlands in areas that have sustained critical losses or deterioration.

In conjunction with these goals are strategies suggesting that the federal government will (Canada, 1991:9):

1. Improve federal policies, programs, and regulations to promote wetland conservation and minimize degradation and to commit to the goal of 'no net loss' of wetland functions on federal lands and waters.

2. Participate in and promote the establishment of a comprehensive network of secured wetlands, representing a full range of wetland functions and types.
3. Implement its responsibilities to international conventions and agreements and promote international action towards global conservation of wetlands.
4. Enhance cooperation between the different levels of government, and where necessary, develop 'new' mechanisms for the resolution of inter-jurisdictional conflicts involving wetlands.

The key point here is the commitment to enhancing cooperation and action towards more effective wetland conservation at the different levels of government. This becomes very important in the forthcoming case study and discussion about Burns Bog.

4.2 FEDERAL AGENCIES WITH RESPONSIBILITY FOR WETLAND CONSERVATION

The international conventions and policies outlined above are only as good as the government agencies who implement them and the mechanisms through which policies are transformed into action. In other words, conventions and policies do not protect wetland habitat. Two federal departments have the mandate and the enabling legislation required for the conservation of wetland habitat, Environment Canada (EC) and the Department of Fisheries and Oceans (DFO).

4.2.1 ENVIRONMENT CANADA

THE CANADIAN WILDLIFE SERVICE

The Canadian Wildlife Service (CWS) is responsible for the management and protection of nationally significant wildlife, wildlife habitat, migratory birds, endangered species, and associated wildlife research (Tashereau, 1985). Wide discretionary powers are granted

to the Minister for management, development, and land uses upon federal lands. The CWS administers both the Canada Wildlife Act and the Migratory Birds Convention Act.

CANADA WILDLIFE ACT

The Canada Wildlife Act enables the federal government to manage and conserve wildlife and supporting habitat and, if necessary, to do so in cooperation with other government agencies, private interest groups, and the public. This act empowers the federal Minister to acquire land for the conservation, interpretation, and research of migratory birds or other significant wildlife by establishing, through Order-in-Council, National Wildlife areas. (Gamble, 1989; Morrison et al., 1994)

MIGRATORY BIRDS CONVENTION ACT

The Migratory Birds Convention Act enables Environment Canada to protect migratory birds (an obligation under the Canada/USA convention). Although this Act does not empower the Minister to acquire lands for the purposes of protecting migratory birds, it empowers the Minister to develop and implement regulations that ensure the protection of migratory birds during their passage through Canada (Migratory Birds Convention Act, 1970).

Under the authority of the Canada Wildlife Act, the CWS can purchase or lease lands for the purpose of establishing *National Wildlife Areas* (NWA) to protect migratory birds, wildlife and their habitat. NWAs are established through an Order-in-Council and are managed individually, depending upon the purpose for preservation. Some areas are managed as sanctuaries, where human interference is kept to a minimum. Other areas are altered or rehabilitated for the purpose of increasing the area's value to wildlife. Another form of wildlife area can be established for recreation or education, and includes interpretive facilities (Ward et al., 1987; Morrison et al., 1994).

In addition to NWAs, the federal government can enter into a joint agreement with the province to establish *Cooperative Wildlife Areas*. These areas are managed the same way as an NWA (Tashereau, 1985). An important point is that, under the Wildlife Act, the federal government is not required to own the land it manages (Ward et al., 1987).

The *Migratory Birds Convention Act* does not enable the acquisition of wetlands, but provides for the management of birds and their habitat, once an area has been protected, in one form or another.

PARKS CANADA

The main purpose of Parks Canada is to protect representative samples of Canada's natural heritage for present and future generations. Canada is divided into 39 natural regions, all to be represented in the national parks system (Morrison et al., 1994).

Parks Canada administers the National Parks Act. A national park is established by amending the National Parks Act, which involves a federal-provincial agreement to transfer the administration and control of the requested land from the province to the federal government. This transfer of administration includes terms and conditions for how the land will be used and managed.

NATIONAL PARKS ACT

The National Parks Act empowers the federal government, through an act of parliament, to add or change the already existing schedule of national parks. A national park is established to preserve nationally significant geographical, geological, scenic and ecological features for the benefit, education, and enjoyment of the Canadian people, and to maintain these significant features unimpaired for future generations. (Ward et al., 1987)

The national parks system provides for five different types of parks or zones. The zoning system is a resource-based system which provides for the planning, development, and management of the park. Zones are identified according to the need for protection and the park's ability to accommodate human use and influence. Identifying zones is strictly a management tool and has little legal status. The zone categories include: special preservation, wilderness, natural environment, outdoor recreation, and park services (Ward et al., 1987).

4.2.2 DEPARTMENT OF FISHERIES AND OCEANS

The Department of Fisheries and Oceans (DFO) is responsible for administering the Fisheries Act.

FISHERIES ACT

The Fisheries Act has one provision relating to the destruction of fish habitat (fish habitat is defined as spawning grounds, nursery areas, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes). This Act empowers the Minister to halt any activity that may "result in the harmful alteration, disruption or destruction of fish habitat." (chapter F-14) (Gamble, 1989)

Generally, the Fisheries Act provides for the management and conservation of fish and the habitat that supports them. Human activities that might impact on coastal waters, salt marshes, streams, river beds, lake shores, or marine offshore areas that sustain fish populations fall within the jurisdiction of the DFO. The DFO, with its "no net loss" policy for productive fish habitat, aims to prevent reduction of existing productivity, to restore degraded habitat and, where loss of habitat is unavoidable, to replace it (Gamble, 1989).

Although the DFO has substantial powers for protecting fish habitat, it does not have the ability to protect wetlands as a natural heritage or for uniqueness. Unfortunately, not all wetlands in the province have a direct and/or clear influence on Pacific fisheries and fish stocks. Although the federal government claims it will play a major role in advocating wetland conservation, there are many political and constitutional barriers that hinder effective cooperation at the provincial level. This will become clear when discussing the conservation of Burns Bog.

4.3 PROVINCIAL ROLES AND RESPONSIBILITIES FOR WETLAND CONSERVATION

Out of BC's 94 million hectares, 95% of this land is owned by the provincial government (Munro, 1993:106). As defined by the Constitution Act (1982), the province is granted broad powers over (Dorcey, 1986):

- natural resources including land, minerals, water, wildlife, and fishes;
- management and sale of crown lands and all the timber/wood thereon;
- property and civil rights; and
- all matters of a local or private nature within the province.

The 'protection' of the natural environment by the provinces is not a concept explicitly recognized within the Constitution of Canada. Although there are national policies and provisions for conservation of wildlife, migratory birds, endangered species and fish habitat, no formal provincial policies are mandatory. British Columbia currently has no provincial policy on wetland conservation.

The Environmental Action Plan for BC declares the preservation of biodiversity and natural heritage a priority for the Government of British Columbia (BC, 1991). The government, then, recognizes the legislative ability to control and manage land-use activities that may directly or indirectly influence wetlands and the wildlife they support. However, control of land use and activities that cause environmental degradation is not clearly defined and is subject to the political whims of the day. A fundamental issue concerning wetland conservation in BC is the question of ownership. All problems and solutions begin with ownership and this becomes very evident in the following case study.

4.4 PROVINCIAL AGENCIES WITH RESPONSIBILITY FOR WETLAND CONSERVATION

The Ministry of Environment, Lands and Parks (MELP) has authority over land use and the protection of BC's environment and wildlife. The MELP is responsible for the protection, management, and enhancement of BC's environment, while sustaining the quality of life in the province. Two agencies are directly responsible for the management and protection of the environment, wildlife, and ecology: BC Environment and BC Parks. In addition, the Ministry of Tourism and Culture may have an increasingly important role to play in the conservation of natural heritage.

4.4.1 BC ENVIRONMENT

BC Environment has a mandate to protect and conserve clean air, fresh water and land, and to nurture and protect the natural areas, wildlife, and scenic beauty of the province (BC, 1991). Specific powers are granted to this department by the Land Act (1979) that provides for the protection of BC's wildlife and ecological resources.

LAND ACT

The Land Act allocates broad powers to the Provincial Cabinet and the Minister of Environment, Lands, and Parks for the purpose of regulating the disposition of crown lands. The powers include:

- the authority of Cabinet and the Minister to temporarily withdraw Crown land from disposition,
 - the authority of the Minister to impose restrictions on crown lands for specific uses,
 - the authority of Cabinet to transfer the administration and management of crown lands to any Ministry, and
 - the authority of Cabinet to transfer the administration and management of provincial crown land to the Federal government subject to terms and restrictions. (Land Act, 1979)
-

The Land Act empowers the Minister of Environment, Lands and Parks to withdraw *crown lands* from disposition for the purpose of habitat protection. Three provisions may be used for the purpose of wetland conservation, these are: Order-in-Council Reserve, Order-in-Council Land Transfer, Map Reserve or notation-of-interest (Gamble, 1989).² An Order-in-Council Reserve is the strongest form of land tenure under the Land Act and remains administered through the MELP, Wildlife Management Branch. This type of land reserve has terms and restrictions for land use and a legally established management mandate.

One obvious limitation of these provisions is that they deal solely with crown land. A significant portion of provincial wetland loss is occurring on private land through urban development, agricultural encroachment, hobby farms and recreation. Proposed development on crown lands are reviewed by the MELP through what is called the crown land referral process. Munro (1993) argues that this process is the 'front line' concerning wetland conservation in BC, and is an important tool for habitat protection, however, it is a reactive process and only leads to recommendations that may or may not be accepted by BC Lands in their land-use decision-making process. Munro explains:

While the crown land referral system enables us to respond to development which may threaten wetlands on crown property, it is essentially a reactive process, and therefore somewhat symbolic of our opportunistic approach to wetland conservation (Munro, 1993:106).

THE WILDLIFE MANAGEMENT BRANCH

The mandate of the Wildlife Management Branch (WMB) is to manage wildlife resources and to maintain an 'optimal' balance between the ecological and socio-economic needs of the province. The main objective of this branch is to maintain and enhance wildlife and wildlife habitats to ensure abundant, diverse and self-sustaining wildlife resources. The WMB has general powers to act on all matters affecting resident or migratory wildlife and the protection of resident and anadromous fish and supporting habitats (BC, 1991).

Under the Wildlife Act, the WMB is able to secure control over lands for the purpose of managing wildlife and their supporting habitats.

WILDLIFE ACT

The Wildlife Act empowers the Provincial Government to conserve and manage wildlife resources and their supporting habitats. It allows the Provincial Cabinet and the Minister (MELP) to control, protect, and acquire land through purchases, leases, donations, expropriation, and the transfer of lands (from other jurisdictions) for the purpose of conserving and managing wildlife resources and their habitats. The Act is administered by the Wildlife Management Branch, MELP. (Wildlife Act, 1982)

Land may be acquired, transferred, or expropriated for the sake of conservation, however, this must be done upon recommendation from the Minister (MELP) and is subject to approval from the Provincial Cabinet. The Habitat Conservation Fund (HCF) was established to ensure that the Ministry has appropriate funding for land acquisitions, habitat enhancement and reclamation. The HCF has contributed more than \$1.5 million towards these efforts (Munro, 1993). Two provisions are available under this Act that may be used to protect a wetland area: a Wildlife Management Area (WMA) or a Critical Wildlife Area (CWA) designation (Morrison et al., 1994)

A Wildlife Management Area is normally designated for the general purposes of wildlife conservation and management. The land use within these management areas is subject to restriction and regulation. There are 12 WMAs in the province, six of which specifically protect wetland habitat: a total of 9000 Hectares (Munro, 1993:107).

A Critical Wildlife Area designates land within an already established WMA for the purpose of protecting habitat for an endangered or threatened wildlife species.

The important point here is that the provincial cabinet has the authority to secure land for conservation purposes without consent from any other governing body. This means that Cabinet can technically establish a WMA upon recommendation of the Minister or any

other legitimate body including an NGO with the support of the public.

4.4.2 BC PARKS

The mandate of BC Parks is to plan and develop a park and ecological reserve system to achieve representation from the diversity of ecosystems found throughout the province, including areas that have outstanding physical, biological, and cultural features (Ward et al., 1987). Under the Park Act and the Ecological Reserves Act, this department is responsible for administering and managing all matters concerning provincial parks, recreational areas, and ecological reserves.

PARK ACT

The Park Act empowers the Provincial Cabinet to establish provincial parks for the purpose of preserving the environment and ecology, preserving features of scientific, historic or scenic nature, and offering recreational and enjoyment opportunities to the public. The Act is administered by BC Parks, MELP. Once a park is established by an Order-in-Council, the agency is responsible for designating the purpose and class of the park and for the planning and management of the park, respective of its designation. (Park Act, 1979)

ECOLOGICAL RESERVES ACT

The Ecological Reserves Act empowers the provincial Cabinet to reserve crown lands for the purposes of: scientific research, ecological benchmarks, the maintenance of genetic pools, and the preservation of endangered plants and animals and their habitats. The Act is administered by BC Parks. (Ecological Reserves Act, 1979)

PROVINCIAL PARKS

A provincial park may be established under the Park Act by an Order-in-Council of the provincial cabinet. Once a park is established, its purpose and class is determined and respectively managed by BC Parks. Three classes of park are designated under the Parks Act (Ward et al., 1987):

- 1) Class A Park: established for preservation, recreation, and enjoyment. Receives a high degree of protection from other human uses.
- 2) Class B Park: established for recreation and the protection of natural features. Some activities *may* be considered through a permit system if not deemed detrimental to recreational and other values of the park.
- 3) Class C Park: established for general recreational use, namely small community recreational areas. Receives little protection.

NATURE CONSERVANCY AREAS

A Nature Conservancy Area may also be established within already established park boundaries and is usually designated (through an Order-in-Council) for the protection of significant wilderness and ecology. A conservancy area receives the highest degree of protection (Van Hees, 1983).

ECOLOGICAL RESERVES

Ecological Reserves are crown land reserves established to preserve natural areas primarily for the preservation of endangered plants and animals and their habitat and for scientific research. Ecological reserves are protected from human influence to allow nature to exist and evolve under natural conditions. These are not recreational areas, but public use is allowed for educational and other non-consumptive and destructive uses.

An Ecological Reserve is established through an Order-in-Council under the Ecological Reserves Act. The Act enables Cabinet to establish, cancel, or amend an ecological reserve. The act also enables nature conservancies under the Park Act to be established as ecological reserves (BC, 1994; Van Hees, 1983).

BC Parks is the key agency for establishing ecological reserves. Great progress has been made towards the protection of unique, rare and sensitive ecosystems, habitats, species

and natural phenomena within BC. Over 131 ecological reserves have been established, making it the most successful in Canada (BC, 1994:375). There are, however, significant gaps and imbalances in representation of geographical areas as well as biogeoclimatic zones. Occurrences of rare species, habitats or natural phenomena on private lands can be protected by government once the lands have been purchased by or for the crown.³ Neither the Park Act nor the Ecological Reserves Act afford direct powers for wetland protection. In most cases lands have to be purchased and/or transferred from crown lands or other jurisdictions.

4.4.3 MINISTRY OF TOURISM AND CULTURE

The mandate of this Ministry, other than promoting tourism, is to promote cultural and historic resources for the benefit of British Columbians. The Heritage Conservation Branch, under the Heritage Conservation Act, has the responsibility for protection, conservation, and presentation of the province's historic resources (Ward et al., 1987). A heritage resource is defined as an historic, architectural, archaeological, palaeontological, and scenic representation of the province (Ward et al., 1987). The goals of the Heritage Conservation Branch that are of significance to wetland conservation are:

- to conserve representative samples of the natural heritage for scientific, educational, and recreational purposes for present and future generations; and
- to ensure the consideration of BC's heritage resources in development proposals.

Although this Act has never been used for protecting wildlife areas as natural heritage, the Ministry may have a significant role to play in the future.

4.5 WETLAND CONSERVATION IN BRITISH COLUMBIA

The health of many critical wetlands in BC is directly attributable to partnerships....The future of wetland conservation, indeed all conservation, lies in cooperative partnerships between governments and non-governments which have common conservation goals. (Munro, 1993:107)

The aforementioned agencies have direct responsibilities for, and key roles to play in wetland conservation in British Columbia. However, other government agencies and organizations also have significant and important roles for wetland conservation. For example, the Ministry of Agriculture, Fisheries and Food (MAFF) and the agricultural community may well be the front line for wetland conservation over the next decade. Agricultural development usually takes place in areas where wetlands are abundant, and consequently, agriculture has contributed significantly to wetland degradation. The agricultural community is in a position, however, to strongly influence wetland conservation through changing agricultural practices. Similarly, the Ministry of Forests with changing forest practices and regulations, could significantly influence how the forest and agricultural industries use wetlands and particularly riparian areas. Lastly, municipal governments could play a much more aggressive role in protecting 'urban' wetlands. Their lack of participation is a weak link in wetland conservation because each municipality has autonomy over the wetland areas within their jurisdiction. The following paragraphs take a brief look at government and non-government initiatives involving wetlands conservation.

Numerous initiatives throughout the province reflect the great effort and shift towards an increasingly pro-active stance on environmental conservation and land-use planning. The recent renewal of legislation includes:

- revisions made to and proposed for the Water Act,
- development of a new Environmental Assessment Act, and
- development of a new Fish, Wildlife and Endangered Species Act.

These efforts will undoubtedly have a significant impact on wetland conservation through improved water management, and better screening of developments that threaten environmentally sensitive areas and special habitats for wildlife and fish, particularly those supporting endangered species. Only time will reveal how this new legislation is interpreted and implemented.

In addition to legislative renewal, there are many planning initiatives currently establishing themselves throughout the province. The table below indicates the breadth of planning and conservation initiatives being implemented in British Columbia. It is quite staggering and the list is by no means complete.

PROVINCIAL PLANNING INITIATIVES

1. Commission on Resources and Environment (CORE)
2. Land and Resource Management Planning (LRMP)
3. Protected Areas Strategy (PAS)
4. British Columbia Treaty Commission
5. British Columbia Forest Practices Code
6. Forest Renewal Plan

FRASER RIVER BASIN PLANNING INITIATIVES

1. Fraser River Estuary Management Program (FREMP)
2. Fraser River Action Plan (FRAP)
3. Burrard Inlet Environmental Action Plan
4. Fraser Basin Management Program (FBMP)
5. The GVRD Livable Region Strategy
6. Boundary Bay Environment and Land-Use Analysis

WETLAND CONSERVATION INITIATIVES

1. The Pacific Coast Joint Venture (PCJV), as part of the North American Waterfowl Management Plan (NAWMP)
 2. Pacific Estuary Conservation Program (PECP)
 3. Interior Wetlands Program (IWP)
-

The provincial planning initiatives, namely the Commission on Resources and Environment (CORE) and the Land and Resource Management Planning (LRMP) are important processes attempting to assimilate the diverse environmental, social, economic and

natural resource values that are affected by land-use practices and decisions. While CORE is developing a provincial strategy to provide broad objectives for land and resource management plans, LRMPs are integrating these objectives into a planning framework that will guide resource development and site-specific planning also called sub-regional planning (BC, 1993). LRMPs will translate the provincially established and agreed upon principles and policies into practice. From a wetland conservation perspective, LRMPs are the level where managers in the field will have the capacity to apply measures and ensure that wetland values are maintained.

The Protected Areas Strategy (PAS) is also significant because it attempts to (Munro, 1993):

- protect viable, representative examples of marine, freshwater ecosystems and hydrological patterns,
- protect rare and endangered species and their habitats,
- protect outstanding and unique botanical and zoological features.

Since its inception, the PAS has been very controversial throughout British Columbia. Industry sectors, such as ranching, have argued that the PAS is aiming to 'lock-up' large tracts of land (rangelands) and valuable resources (grass and trees) into 'reserves' essentially rendering their operation unviable. Fortunately, the initial bumpy road has smoothed itself out through some of the LRMP processes where stakeholders have come to consensus over the future use and management of particular areas.

What is important about the PAS is its attempt to establish a mosaic of special management and multiple-use areas, along with a representative network of reserves and parks. This initiative is significant for wetland conservation in that it brings industry and people closer to planning and management decisions that adversely affect natural landscapes and sensitive wetland ecosystems.

The Forest Practices Code (regulations, standards and guidelines for forestry operations) is another significant development for wetland conservation. Although little is yet known about how this code will be implemented in the field, the new standards call for the maintenance of biological diversity, the assessment and the mitigation of adverse and potentially cumulative effects, and generally for an increase in environmental sensitivity in forestry operations such as road building.

Further to these legislative changes, numerous wetland conservation initiatives exist around the province where partnerships are being formed between government and environmental non-government organizations to implement conservation programs. The following are three important programs worth mentioning:

1. The Pacific Coast Joint Venture (PCJV) is the implementation arm of the North American Waterfowl Management Plan. It is an agreement between Canada and the USA to restore North American waterfowl populations (since 1986). PCJV is securing wetlands through direct purchase or acquiring tenure of crown owned wetlands. An additional goal is to reduce wetland degradation by increasing awareness and implementing educational and demonstration programs (NAWMP, 1990).
2. The Pacific Estuary Conservation Program (PECP) is a partnership including the Ministry of Environment, Department of Fisheries and Oceans, Canadian Wildlife Service, Ducks Unlimited Canada, Wildlife Habitat Canada, and the Nature Trust of BC. This was the first coordinated effort at wetland conservation in BC. PECP mainly purchases private wetlands and consequently uses these lands to secure adjacent crown lands where possible (Munro, 1993).
3. The Interior Wetlands Program (IWP) is the first program to extend into the Interior of British Columbia, covering the Interior Fraser Basin. The IWP was introduced as part of the Fraser River Action Plan in 1992. Environment Canada is the main funding body and Ducks Unlimited Canada is delivering the program. The objectives of this program are to promote land-use practices that maintain and protect habitat for migratory birds and other wetland dependent wildlife, protect water quality and supply, and generally encourage sustainable agriculture. The program is providing information, developing demonstration projects, and implementing research in

cooperation with the agricultural community (Ducks Unlimited, 1994).

These are only a few programs that focus on wetland habitat. Numerous other initiatives are currently underway that may significantly promote wetland conservation including the Stream Keepers Program and the Provincial Stewardship Program.

4.6 SUMMARY

Jurisdiction and responsibility over wetland resources in British Columbia is divided between federal and provincial governments. Although the provincial government has broad powers over natural resources, wildlife and habitat, the federal government does have some powers and responsibilities.

Two key federal agencies have a significant role in the conservation of wildlife habitat. The first is Environment Canada, namely the Canadian Wildlife Service. This agency is responsible for the management and protection of nationally significant wildlife, wildlife habitat, migratory birds and endangered species. Through the Canada Wildlife Act, wetlands can be purchased or leased for conservation purposes. The evidence of threatened or endangered species makes it easier for a federal agency to get involved when provincial lands are in question.

Second, the Department of Fisheries and Oceans is responsible for protecting fish habitat and water quality and has a "no net loss" policy on productive wetland habitat and functions. The aim of this policy is to prevent the reduction of existing productivity and restore or replace degraded habitat. In most cases, however, the DFO only gets involved when direct influences to fish or their habitat are clearly evident. In the case of wetlands that do not clearly illustrate their values to the Pacific fishery or to water quality that may adversely affect fish, the Department is often unwilling to flex its federal muscles in areas

of provincial jurisdiction and even more so at the municipal level. The DFO does not have the power to protect wetlands simply for the sake of valued wildlife (other than fish), biodiversity or uniqueness.

The federal government does possess some indirect but significant roles for influencing provincial wetland conservation. The most significant of these is promoting action towards wetland conservation through financial support of relevant government and non-government initiatives, and programs including research and recovery programs with universities and environmental organizations. A good example is the Interior Wetlands Program.

Ninety percent of the provincial land base is controlled by the provincial government which has broad jurisdiction over natural resources, wildlife and habitat. Although many government agencies may acknowledge in some way that wetlands are valuable, this recognition has never been pulled together into one overall, integrated and compatible statement: a provincial policy on wetland conservation. In short, wetlands in British Columbia have no 'legal' protection in their own right.

Although no formal provincial policy exists, the provincial government does have some legislative capacity for direct conservation. The Ministry of Environment, Lands and Parks is the key authority concerning matters that affect resident and migratory wildlife and the habitats upon which they depend. The provincial Wildlife Act enables the purchase or securement of wetland habitats of significance to migratory birds and other wildlife. Provincial parks and ecological reserves, however, can only be established through an Order-In-Council where crown land or previously purchased land is designated. There are no 'direct' provisions for the Minister to purchase or secure wetland areas, other than what is afforded under the Wildlife Act.

The current institutional system for wetland conservation in British Columbia is still very fragmented and poorly defined. In a political climate where capital is increasingly scarce, governments are having to cut back their roles and responsibilities, making their capacity for direct conservation increasingly limited. Despite direct power to purchase lands, this option is unaffordable and increasingly unpalatable in the political sense. Governments are being constrained by economic and social realities.

This is not a gloomy scenario; what it means is that economic, social, political and environmental realities are changing. Governments alone cannot take sole responsibility for British Columbia's wetlands. Instead, all the stakeholders, governmental and non-governmental, must assume the responsibility for protecting BC's natural heritage. British Columbian's can make more informed and more appropriate decisions collectively and cooperatively so that the mistakes of the past are not repeated.

The following case study illustrates the importance and the potential of cooperation and integration between governments and non-government organizations in working together towards conservation and sustainable development goals. Such partnerships can play a critical role in shaping British Columbia's response to wetland conservation in the future.

NOTES

1. The provincial government has jurisdiction over natural resources including land, minerals, water, wildlife, fish, and generally all matters of a local or private nature within the province (Gamble, 1989).
2. For a detailed description of the provision under the Land Act for wetland conservation, see Appendix 3.
3. Private land can also be protected through conservation covenants, imposed by the landowner. However, the effectiveness of this approach, over the longer term, is still uncertain and is being tested through organizations like Ducks Unlimited Canada in protecting wetland areas. Private and municipal approaches to wetland conservation are not covered in this thesis.

CHAPTER 5

CASE STUDY: BURNS BOG

Burns Bog is the largest greenspace left in the lower Fraser Delta and the largest domed peat bog on the Pacific Coast of the Americas. (CBA, 1993: B1-4)

5.0 INTRODUCTION

Burns Bog, located in North Delta south of the main arm of the Fraser River, covers 10,000 acres and is surrounded by agriculture and urbanization (see Figure 6). The Lower Mainland is growing rapidly with the population expected to reach 3 million by the year 2025. As the last remaining large tract of 'un-urbanized' land, Burns Bog is increasingly threatened by urban and industrial growth. Burns Bog is being consistently whittled away by agricultural development, solid waste disposal, transportation corridors, and proposed golf courses and race tracks. The bog's worst enemy is the perception that it is a waste land, devoid of life.

Recognition of Burns Bog as a unique ecological feature that is significant to wildlife has grown dramatically over the last decade. This increase in recognition can be attributed to a growth in public awareness and rising pressure from interest groups like the Burns Bog Conservation Society (BBCS), a small community-based environmental organization. Although they are not the only group responsible, the BBCS has played a significant role in raising the profile of Burns Bog both in the community and in government. This consequently lead to the government action featured in this Chapter, namely the Burns Bog Analysis.

This chapter begins with an overview of the environmental and land-use issues of Burns Bog, including the ecology, current land use and proposed developments. Following this is a synopsis of the Burns Bog Analysis, which outlines the purpose, the stakeholders, the different stages and results of the process. This builds the foundation for Chapter 6

which takes a closer look at the process and analyzes the roles of the Burns Bog Conservation Society using the framework outlined in Chapter 3.

5.1 THE ECOLOGICAL VALUES OF BURNS BOG

You will not find such a large self-contained, raised bog with the same species anywhere else in the world....Burns Bog is an exceptional ecological treasure. (Hebda, cited in CBA, 1993)

Burns Bog began more than 6000 years ago as a shallow, water-filled depression over the silty deposits of the Fraser River Delta (Biggs, 1976). Today, Burns Bog is a 'dome' peat bog covering an area ten times the size of Stanley Park with organic peat moss nearly six metres thick (see Figure 7). In fact, the bog acts like a giant organic sponge, drawing water to the surface to create what is called a perched water table. In this unique phenomenon, the water table is raised above normal levels, perpetuating upward growth while drawing water up with it. This development has created a bog that is a unique ecological feature both in composition and size.

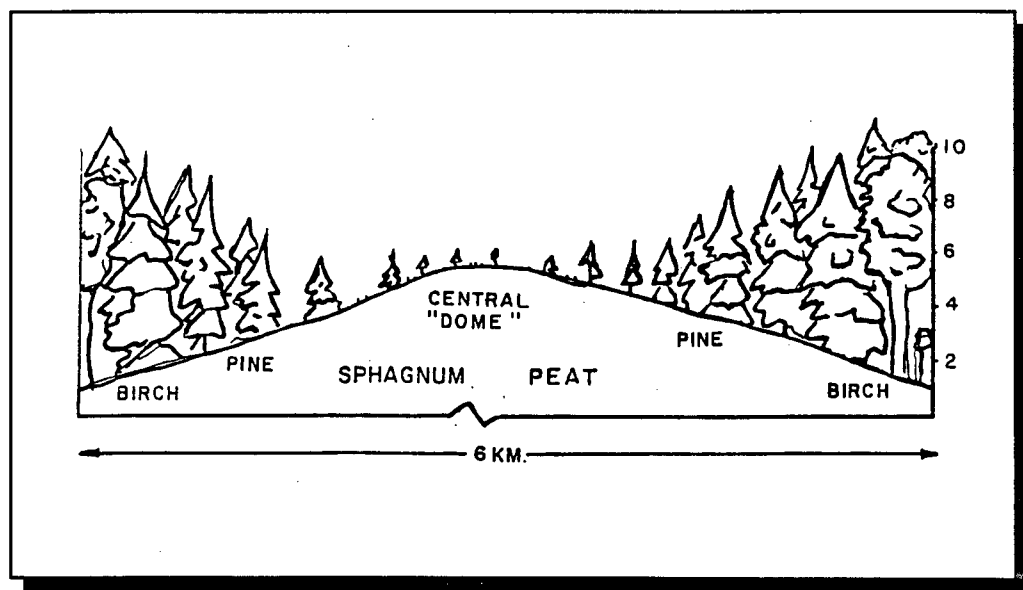


Figure 7: CROSS-SECTION OF BURNS BOG (BIGGS, 1976:17)

The ecological values of Burns Bog are poorly understood and contentious among experts. Dr. G. Rouse, a well known botanist and plant paleontologist from the University of British Columbia, claims that portions of Burns Bog have been so dramatically altered by human activity they can now be considered wasteland (Gulyas, 1992b). This, however, is not the commonly held view among other biologists, nor is it a view accepted by local communities and community groups. The following sections outline the ecological characteristics of Burns Bog, including vegetation, wildlife and ecological functions. This will provide the reader with a better understanding of the ecological values and the complexity of issues concerning Burns Bog.

5.1.1 VEGETATION

A sphagnum (moss) heathland occupies the centre portion of the bog and is surrounded by pine woodlands and mixed deciduous forests. Many species of fungi, lichens, mosses and other plants are found throughout the bog which "demonstrate interesting adaptations to the bog environment, and floristically the area represents an ecosystem quite unlike the remaining undeveloped areas of the Fraser River Delta" (Biggs, 1976:132). Rare species of plants like Sundew can also be found. These unusual plant communities are largely attributed to the special biophysical characteristics of the bog.

Demill (1993) explains how Burns Bog has rainfall and salinity characteristics that are not found anywhere else in the surrounding region. The Bog has its own particular micro-climate which has influenced the development of plant communities normally found in the muskeg regions of Canada. These characteristics make the bog a unique ecosystem and little is yet known about its special features and floristic significance.

5.1.2 WILDLIFE

Few comprehensive wildlife studies have been completed on Burns Bog. Consequently, information and understanding about the significance of the bog to wildlife is incomplete and even contentious.

There is growing recognition that Burns Bog plays an important role in supporting migratory birds and other wildlife and is considered an important habitat corridor extending from Boundary Bay to the Fraser River Estuary. Biggs (1976), Hebda et al. (1981), and others, claim that the bog provides vital habitat for a variety of birds and animals, not only for feeding and resting on yearly migrations, but also for breeding. The significance to wildlife appears to be related to its large size and relative remoteness from urban development (Biggs, 1976).

Many wildlife species utilize the bog, including:

- 150 species of birds, eleven of which are listed as sensitive or vulnerable species (see Appendix 5). The Sandhill Crane is currently being reviewed as a potentially threatened species due to its dwindling numbers in British Columbia. Only two breeding areas are known in the lower mainland for Sandhill Cranes. One is Burns Bog and the other is Pitt Meadow (CBA, 1993 ; Demill, 1993). Other birds that use Burns Bog include swans, Northern Pintail, Mallards, and many species of songbird;
- 28 species of mammal including: Black Bear, Coyote, Bendire Shrew, Shrew Mole, and the Northwestern Jumping Mouse (the last three are considered vulnerable species); and
- 4 species of amphibian and reptile,¹ and unknown numbers of rare insects.

5.1.3 ECOLOGICAL FUNCTIONS

Burns Bog plays an important role in filtering and purifying water and air, and storing carbon. These biophysical functions may be of great value to society in the long term, but are poorly understood and, in many cases, not fully realized by decision-makers.

Water filtration and purification

Little is known about the relationship between the hydrological regime of the bog and the adjacent Fraser River. Given the characteristics and size of Burns Bog and its proximity to the Fraser River, the significance of the bog to water quality of the estuary and associated fisheries is likely quite high.

Air filtration

This function is not well recognized due to the inability to measure the assimilative capacity of the bog vegetation. However, the bog may play a very significant role in recycling air pollution and carbon in the Lower Mainland (Demill, 1993).

Biodiversity

The bog plays an important role in the maintenance of genetic and species diversity in a region that is increasingly pressured by development and other human activities. The bog provides critical habitat for various sensitive and vulnerable species, and possibly others not yet recognized (CBA, 1993; Hebda et al., 1981).

Carbon storage

Peat bogs sequester and store carbon and consequently may play a significant role in regulating global climatic systems. Bogs also store and cycle methane gas (Gulyas, 1992; CBA, 1993). The role of Burns Bog on a global scale may be nearly inconsequential, but the cumulative destruction of bogs around the world becomes significant.

5.2 LAND USE OF BURNS BOG

Located along the shores of the Fraser River, Burns Bog was historically used by aboriginal people for hunting and fishing. The extent of aboriginal use is still uncertain due to the lack of archeological surveys (CBA, 1993).

Between 1940 and 1980 peat moss was in great demand as an organic supplement for gardening. Burns Bog, the largest peat reserve on the west coast, was extensively harvested. Peat moss, originally extracted by hand, was removed by more efficient mechanical and dredging methods from the 1950s to the 1980s² (Biggs, 1976; CBA, 1993).

Peat extraction greatly altered the physical characteristics of Burns Bog, creating a 'strip and patch' landscape with numerous shallow ponds and strips of moss and shrubs between them. Ironically, the landscape altered during the fifties and sixties has become a benefit to waterfowl and other wetland dependent wildlife (Demill, 1993). There are, however, large areas harvested during the 1970s, that appear very barren. These areas will need at least three or four decades to recover (Demill, 1993). Although the majority of Burns Bog is zoned for peat extraction and processing, little or no harvesting is currently in progress (CBA, 1993).

5.2.1 EXISTING TENURES AND LAND USE

The land base for Burns Bog is broken down as follows (see Figures 8 & 9):

Western Delta Lands (WDL)

A large portion of Burns Bog is owned by Western Delta Lands (in Fee Simple) most of which is zoned for peat extraction. The land is not actively harvested but is used for seasonal hunting activities. The total area is 2283 hectares or 57% of the bog land area (CBA, 1993).

City of Vancouver

Owns 627 hectares (16%), 268 hectares of which are currently used as the Vancouver landfill (CBA, 1993).

The Corporation of Delta

Owns four parcels of land: Delta Nature Reserve (60 hectares), SPCA lands, the 'Sherwood Forest' (a small parcel of forest which was recently logged to build a new radio tower), and the Sunbury School property (CBA, 1993).

Various public and private owners

Includes the Ministry of Transportation and Highways, the Fraser River Harbour Commission, and other small landowners. Land uses include: agriculture (cranberry farming), commercial, industry, industrial landfill, recreation and one small area that is being used for peat processing.

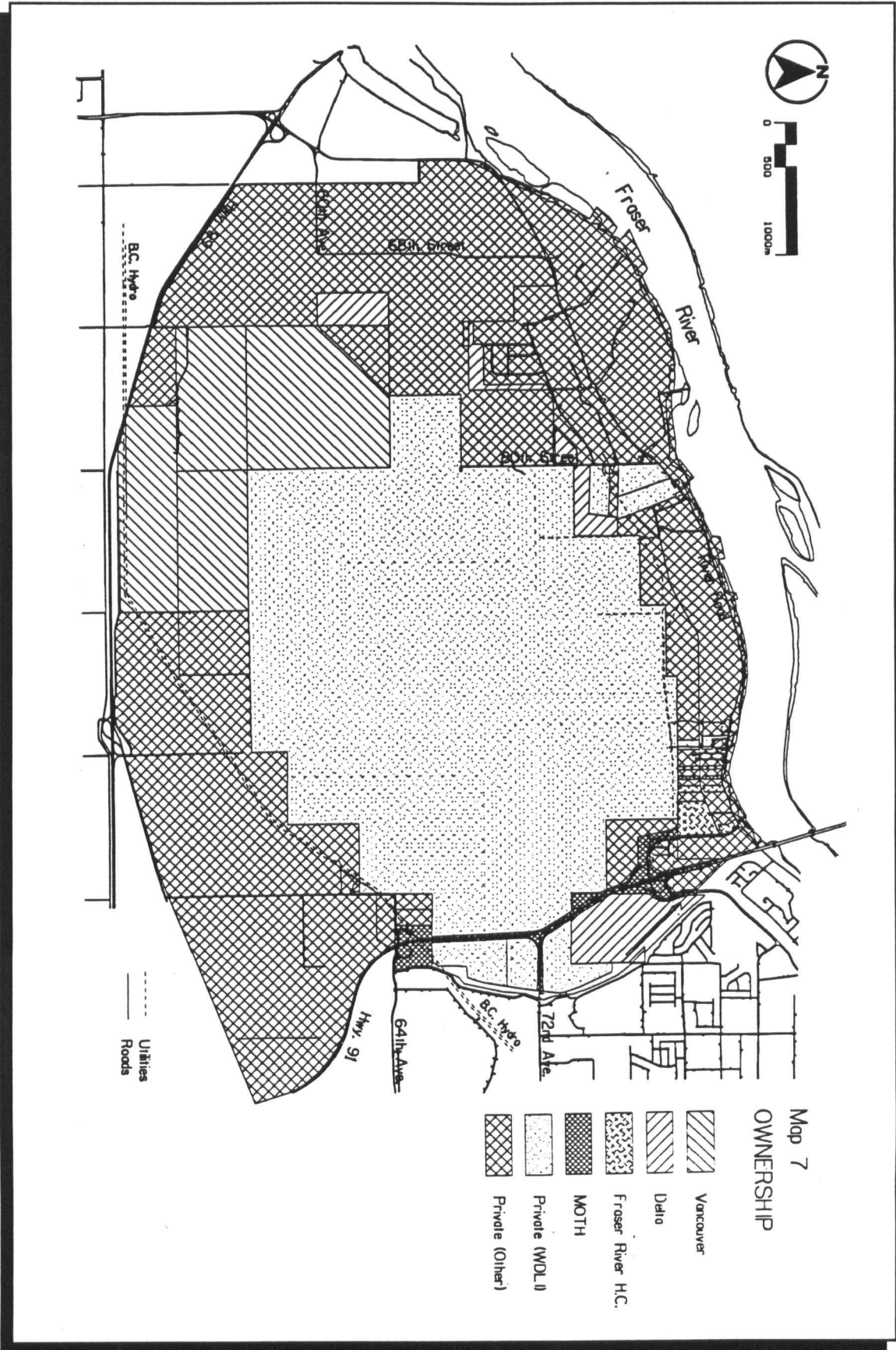


Figure 8: OWNERSHIP MAP OF BURNS BOG (CBA, 1993)

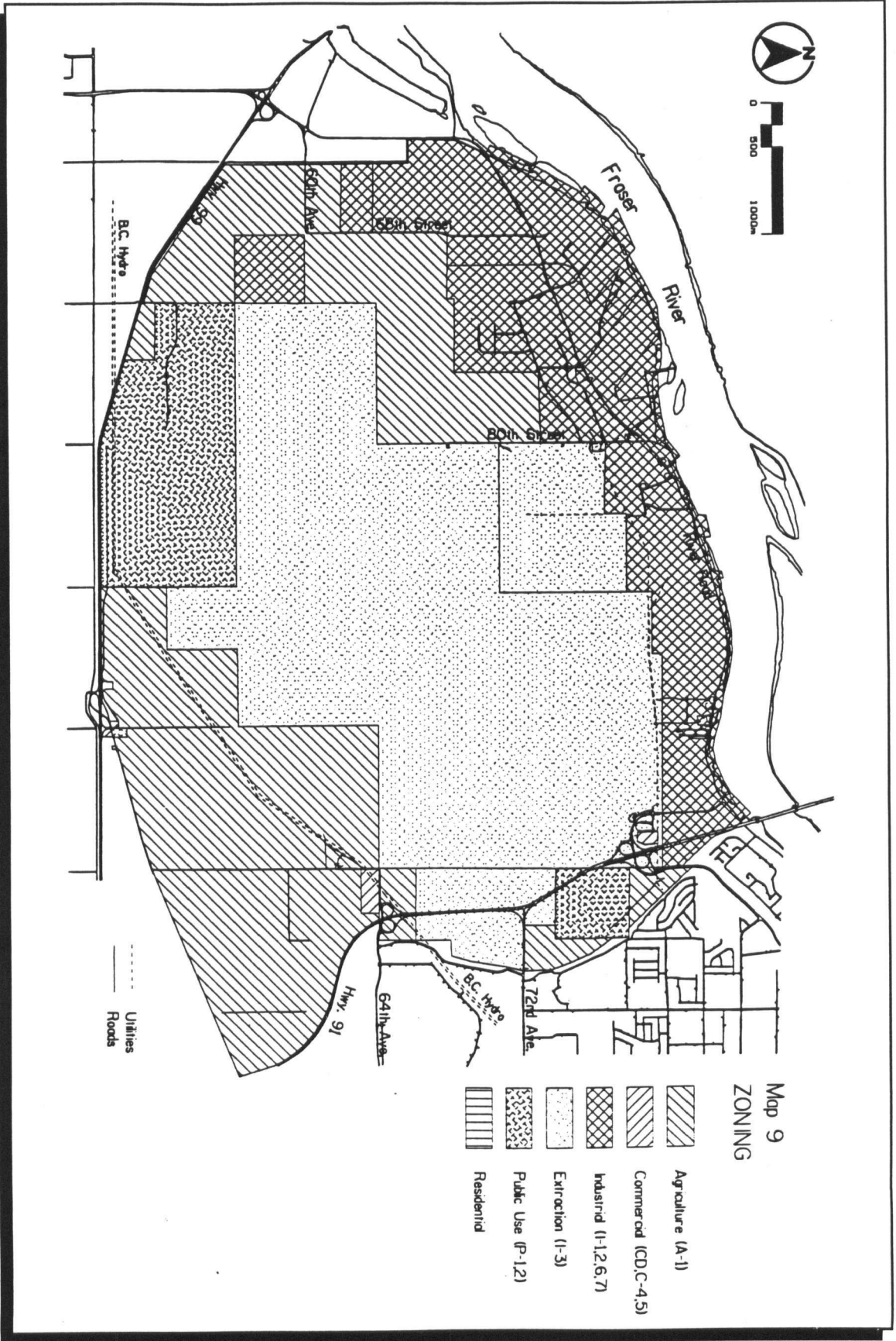


Figure 9: ZONING MAP OF BURNS BOG (CBA, 1993)

The map illustrates clearly the significance of WDL, as a private stakeholder, for any land-use planning process and to those groups that want Burns Bog protected. Western Delta Lands owns what is considered the 'bog proper,' most of which has no current industrial use. The land is actively used by hunters during hunting season.

5.2.2 PROPOSED DEVELOPMENTS

Since the 1970s Burns Bog has been a source of inspiration and futuristic ideas for urban and industrial architects. In 1988, a landmark proposal came forward featuring a plan "to turn the bog into a multi-million dollar port and industrial development" (Robb, 1988:A18). This 12 billion dollar development, needing up to 30 years to complete, would create 85,000 jobs. The proposal illustrates a common perception among politicians, developers and even the public,³ that the bog is largely a wasteland and can be put to better economic use. Bruce McLintock, then president of Western Delta Lands, states:

The only thing left to do with the bog is to develop it...there isn't enough wildlife in the bog to make it a problem, because 80% of it is made up of acidic water that can not support life...the water is more of a problem than wildlife. (Robb, 1988: A18)

The Burns Bog Conservation Society (BBCS), founded during this period due to the increase in development threats to the bog, raised the issue before Delta Municipal council and the community. Eliza Olson, the president of this community-based environmental organization, actively lobbied against the port development proposal. Although the environmental organization was accused of being sensationalist and extremist, the group had significant influence on the community. The BBCS and local MLA Norm Lortie arranged to have David Suzuki speak at a public meeting concerning the port development, drawing a crowd of 800 people. This event placed Burns Bog and its land-use issues on the political agenda at both the provincial and municipal levels.

On January 19, 1988 Delta Municipal council reviewed the development proposal and by June 2 it was rejected (Olson, 1993). The port proposal was only the beginning of a series of threats to Burns Bog. Over the past decade numerous developments, from golf courses to industrial developments, have been proposed on various portions of the bog. The most significant of these are:

- a race track,
- the Vancouver dump expansion,
- golf courses,
- agricultural developments, and
- an incinerator.

Though Burns Bog is a unique feature and a valued wetland, the ecological values of this bog have not been fully realized in land-use planning and decisions, fundamentally because of a lack of information and knowledge about the ecology and value of Burns Bog. Furthermore, until relatively recently the bog has been perceived by provincial and federal governments as a local land-use issue and they were, therefore, reluctant to get involved. The following section outlines events that led to the involvement of the provincial government in the Burns Bog land-use issue. The Burns Bog Analysis is outlined, including the purpose, the stakeholders, the process and its results.

5.3 THE BURNS BOG ANALYSIS

The government did not have a position on Burns Bog. The position, if there was one, was a series of completely independent positions by different agencies....BC Parks, who sort of got it tucked away in the back of their minds that it might be nice to look at it as an ecological reserve, really have not had the time to get around to it. (Roberts, 1993: pers. Comm.)

In late 1980s, with pressure from Delta residents and interest groups, and with growing controversy over various development proposals for Burns Bog and Boundary Bay, the

provincial government decided to take action. This resulted in a massive burst of energy over the bog. Roberts explains that even the federal government got involved; "they parachuted in one day to make an announcement that Boundary Bay and Burns Bog had to be preserved" (Roberts, 1993: pers. comm.).

This high level of interest propagated the formation of a small group, including representatives from the Canadian Wildlife Service, the Municipality of Delta, and environmental organizations who set up the terms of reference for a grand study of the Boundary Bay Area. A study proposal was formally presented to the province in 1990, where full participation from the provincial government was solicited. After review, the province rejected the proposal on the basis that it was too focused on agricultural and wildlife interests (Roberts, 1993). Disagreement over the breadth of the study and how it should proceed lasted two years.

In 1992, a tour of Burns Bog was arranged for John Cashore⁴, then Minister of Environment. After the tour, the Minister suggested creating an entity to coordinate an integrated study of Burns Bog and the Boundary Bay region. The provincial government then proposed a plan for a comprehensive study of the Boundary Bay area. Money was committed for a number of studies aimed at providing the necessary information for a Boundary Bay Environment and Land-Use Analysis. The studies were to reflect the new approach to government and decision-making introduced by the NDP government, consisting of *multi-stakeholder* groups driven by an inter-agency steering committee. The Boundary Bay Studies are as follows:

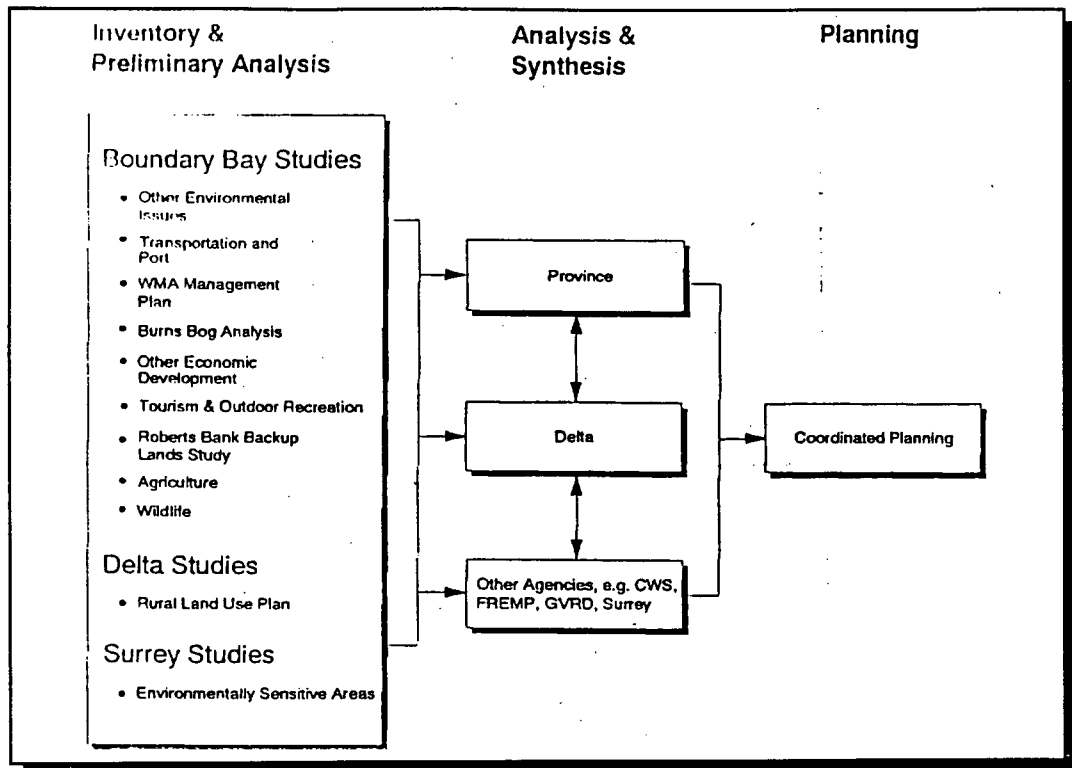


Figure 10: BOUNDARY BAY STUDIES AND THE BURNS BOG ANALYSIS

Other studies also resulted from this initiative, including a literature review by the UBC Centre for Human Settlements for the Municipality of Delta and bird studies conducted by the Canadian Wildlife Service and BC Environment (Norecol, 1994).

The Burns Bog Analysis (BBA) is one of seven Boundary Bay studies completed. The main goal was to assimilate the information and knowledge required to establish a provincial position concerning Burns Bog. Furthermore, the results of the Burns Bog Analysis would assist future land-use planning and decision-making processes in the Boundary Bay region. For example, the Delta Rural Land Use Study (DRLUS) would integrate the findings of the BBA in developing a vision and land-use plan for both urban and rural Delta. Similarly, the information would be incorporated into the Protected Area Strategy and other sub-regional planning processes. The Burns Bog Analysis was an ambitious initiative aimed at informing and directing integrated planning processes.

The Burns Bog Analysis had three objectives (CBA, 1993):

1. To review existing studies on the natural resources and human activities in Burns Bog, to verify them as required, and to determine what additional information is required.
2. To conduct a preliminary analysis of the study area, focusing on the information required to address and resolve the primary issues identified.
3. To collate the above information into a set of maps and a report.

A multi-stakeholder study team was established, represented by the following (CBA, 1993):

- BC Lands (D. Roberts: Coordinator and Chair)
- BC Environment (B. Cox)
- BC Parks (J. Millar)
- Ministry of Agriculture Fisheries and Food (G. Games)
- Ministry of Transportation and Highways (D. Parkes)
- Agricultural Land Commission (M. Hornell)
- Greater Vancouver Regional District Parks (D. Watmough)
- Greater Vancouver Regional District Waste Management (R. Buggelin)
- Corporation of Delta (J. Lemaistre)
- Delta Environmental Advisory Committee (D. Young)
- City of Vancouver (B. Davies)
- Burns Bog Conservation Society (Eliza Olson)
- Delta Farmers Institute (A. Weaver)
- Western Delta Lands (T. Johnson)

The Burns Bog Analysis involved three stages with numerous round-table meetings over a period of seven months (September 1992 to March 1993), including:

1. INVENTORY AND REVIEW

Collected and reviewed existing studies and information concerning natural resources and land use in Burns Bog. Verified information as required and determined information gaps where additional studies may be needed.

2. PRELIMINARY ANALYSIS

Developed various land-use concepts for Burns Bog and its protection. The following land uses were analyzed:

- Burns Bog as a protected area,
- existing and potential recreational activities,
- agricultural suitability,
- peat extraction,
- waste management, and
- other land-uses.

3. PUBLIC INVOLVEMENT

One public open house was held for review and comments.

The Burns Bog land-use issue involves numerous stakeholders with diverse interests and values, ranging from strong economic and development interests to strong preservationist interests. This range of interests and values made it essential to explicitly identify and define all of the environmental and land-use issues concerning Burns Bog. Although the group recognized that it would not be possible to tackle all of the issues, acknowledging their importance for future planning initiatives was deemed important. The following sections summarize the outcome of this process.

5.3.1 INVENTORY AND REVIEW

Available biological and land-use information was collected from photographs, maps and other sources, and a gap analysis was conducted to determine where information was missing. Where possible, information was checked with on-site reconnaissance and where serious gaps were identified, specific studies were initiated to acquire the missing information.⁵ The results of the inventory were placed on a Geographic Information

System (GIS).⁶

The inventory of Burns Bog was broken down into the natural resources of Burns Bog and human activities found within the bog. The inventory of human activities (land use, zoning, etc.) was relatively straight forward and required little debate or negotiation. Consideration of the natural resources category, on the other hand, was at times, very confrontational. Negotiation and consensus building became integral to the successful completion of this process.

The inventory of natural resources was fundamental in directing the committee towards what was considered the 'bottom-line': what are the true ecological values of Burns Bog? The process demonstrated very clearly how complexity and uncertainty over environmental issues can significantly influence planning and decision-making processes, the individuals involved in these processes, and conservation efforts in general.

The natural resources inventory was divided into six categories, namely: bog boundaries, soils, hydrology, vegetation, wildlife and biological functions. Only key points are highlighted below. Soils are not discussed due to the group having reached a quick consensus with little debate.⁷

THE BOG BOUNDARY

The first difficult issue was the bog boundary. Both from an ecological and planning perspective one question dominated: Where does one draw the line that dictates the outer perimeter of the bog? This could have significant implications for what areas are protected or developed. This was a contentious issue because the committee needed to agree on what defines a bog ecosystem.

In light of the fact that Burns Bog has been significantly influenced by human activity for decades, it was not surprising that no two experts would draw the same boundary. G. Rouse, for example, a botanist, plant paleonologist, and consultant for Western Delta Lands, argues that certain areas of the bog have been so dramatically altered by peat extraction that these areas can no longer be considered a pristine bog ecosystem (CBA, 1993). Demill (1993), on the other hand, as a wildlife biologist, claims that although certain areas look barren from peat extraction activities, there is significant evidence to show that these areas are regenerating and therefore maintaining their ecological functions. These areas could take up to 40 years to reach full recovery, but Demill maintains that they are of great value to wildlife and can still be considered part of a functional bog ecosystem (Demill, 1993).

After many heated debates, the committee agreed to delineate the boundary using historical information from vegetation surveys taken in the late 1800s, along with more recent soil surveys.⁸ The historical information was brought forward by the Burns Bog Conservation Society. Few members of the Burns Bog Analysis group were aware that this information existed, but once introduced, it facilitated consensus on a bog boundary.

HYDROLOGY

The hydrological characteristics of the bog were also a difficult issue. Few comprehensive studies existed due to the size and nature of the bog, leaving a great deal of uncertainty. The hydrological regime of the bog and its relationship to the Fraser River was neither documented nor well understood. Much of the hydrological information gathered to date has been in the form of engineering studies geared mainly towards proposed highway construction. The great void of information and knowledge in this area led the committee to commission a study that would look at the hydrological regime of Burns Bog.

This study, however, was not completed in time to be incorporated into the BBA, but will be used for later land-use or protected area decisions. The primary source of information for the Burns Bog Analysis was extracted from a study on the drainage characteristics of the Vancouver Landfill by Piteau & Associates (CBA, 1993). The main conclusion was that hydrology of the bog was not fully understood.

VEGETATION

Vegetation cover of Burns Bog was a controversial topic. Small studies on bog vegetation were completed by Biggs (1976) and Hebda and Biggs (1981), based mainly on vegetation surveys. Although there was general agreement that unique plant species exist in the bog, determining the values of these plants and the plant communities was problematic.

There was little vegetation growth to inventory in areas that had been harvested in the 1970s and 1980s. In fact, some areas looked like dried-up mud flats. However, as previously mentioned, these areas may achieve full recovery in less than forty years and may re-establish as a properly functioning ecosystem. The debate among different interests became one of definition.

G. Rouse (botanist and consultant to WDL), argued that recovery means regeneration of vegetation cover to the bog's original state (Gulyas, 1992b). The main argument presented by the development interests, namely WDL, was that the damaged portions of the bog would not return to their 'original' state and therefore could not be considered pristine. Because of this, development interests felt these areas could be put to better economic use. Demill and the BBCS (conservation interests) perceived recovery to mean something very different. This group felt that if the bog returns to an ecologically 'productive state,' where ecological functions are maintained and the available habitat has value to wildlife, the bog is recovering (Demill, 1993; Olson, 1993). Because of the lack of solid information, the provincial government, namely BC Environment and BC Parks, did

not take a strong position on this issue.

It was a difficult and contentious exercise. Without consensus on vegetation and ecological classification, little progress could be made towards determining the ecological value of Burns Bog. Emerging from these debates were special meetings between key 'experts' on bog ecosystems including: R. Hebda (Ecologist), G. Rouse (Botany & Plant Paleontology), A. Grass (Naturalist, BC Parks), J. Millar, (Resource Officer, BC Parks), Don Demill (Wildlife Biologist). After some additional fieldwork, the group arrived at a consensus on vegetation communities, boundaries and general descriptions (see vegetation maps in CBA, 1993).

WILDLIFE

No comprehensive wildlife surveys or studies have been completed for Burns Bog. In reviewing wildlife studies on Burns Bog, Bernard (1988) cited three studies including Biggs (1976), Beak (1982), and AIM (1983). With the exception of Biggs, these studies were designed and funded by development interests. Most research has been superficial and the results were likely interpreted by individuals who had little or no background in wetland ecology or biology (Bernard, 1988). Information concerning wildlife use of the bog was seriously deficient and what was available was not considered very dependable. Consequently, two studies were initiated through BC Environment. The first studied the use of Burns Bog by Sandhill Cranes, and the second compiled a list of all the 'blue listed species' (sensitive and/or vulnerable) and the 'yellow listed species' (species not at risk, but in need of management) that use the bog.⁹ Although these studies were initiated during the Burns Bog Analysis, the results were not available prior to the completion of the analysis. The results of these studies will be incorporated into future land-use planning initiatives (Protected Area Strategy).

The BBA Committee acquired its information from:

- aforementioned studies by Biggs (1976), Beak (1982) and AIM (1983);
- observations from people who frequent the bog, including wildlife biologists (D. Demill), the BBCS, BC Environment and local farmers; and
- the results of bird inventories conducted by Terra Planning Ltd., a contractor working for Western Delta Lands on WDL property.

Although the latter created some controversy with conservation interests, the committee came to a consensus on a total of 178 species, 14 of which are sensitive or vulnerable species comprised of 11 birds and 3 small mammals (see CBA, 1993).

ECOLOGICAL FUNCTIONS

Of all the issues outlined above, the ecological functions of the bog are the least understood and probably the most important. Because so little information was available and appropriate studies could not be commissioned due to time and financial constraints, the Burns Bog Analysis committee focused its attention on a literature review, examining the roles of peat bogs in global warming and their ability to sequester atmospheric carbon.

The literature revealed that bogs do sequester carbon from atmospheric carbon dioxide and therefore are significant carbon sinks (CBA, 1993). It was concluded, however, that there is not enough information about the role of peat bogs in general to evaluate the specific role of Burns Bog in controlling atmospheric carbon in the region (CBA, 1993).

An interesting point needs to be raised here. Discussions and the aforementioned study were mainly the result of pressure from the Burns Bog Conservation Society. Otherwise, the time spent discussing ecological functions would have been very limited due to the lack of information and the uncertainty surrounding these issues. Serious concerns from conservation interests instigated discussion on the possible impact on water quality of the

Fraser River Estuary and associated fisheries from potential developments on Burns Bog. Little is known about the relationship and dynamics between Burns Bog and the Fraser River Estuary, and the committee had neither the resources nor the means to commission studies. However, at least the issues were identified and the need for future studies was recognized. The fact that the BBCS supplied important information on the ecological function of Burns Bog is significant to later discussions on the role of environmental organizations in Chapter 6.

In summary, information and knowledge about the natural resources and ecology of Burns Bog is very limited. Much of the past research on Burns Bog was undertaken by proponents of major developments and therefore the information is somewhat narrowly focused. Few studies have taken a broader look at the bog's ecology and its biophysical relationships with surrounding areas and the region as a whole. Due to time and financial constraints, much of the information used in the BBA had to be compiled from already existing sources and consequently limited the depth of analysis.

5.3.2 PRELIMINARY ANALYSIS

The second stage of the Burns Bog Analysis used the information gathered to analyze the existing and potential land-uses of Burns Bog. The discussion below is divided into two parts. The first outlines the results from the analysis of Burns Bog as a potential protected area. The second relates to the suitability of Burns Bog for recreation, waste management, agriculture, and peat extraction.

BURNS BOG AS A PROTECTED AREA

With guidance from BC Environment and BC Parks, the BBA Committee determined that the bog satisfied various criteria for the establishment of an ecological reserve, a wildlife management area and a provincial park. It was recognized at the outset that any such

designation would require the provincial government to acquire ownership of the land and the associated mineral rights (CBA, 1993).

Three main characteristics were identified, making Burns Bog a suitable candidate for an ecological reserve (CBA, 1993):

- potential for scientific research and education, particularly the recovery of land from human modification;
- potential for study of rare and unusual species (Sandhill Cranes, Sundew and amphibians);
- a unique ecological feature: a domed peat bog.

An ecological reserve, however, could only be established if the long term ecological viability of the bog is ensured.

Burns Bog is a potential wildlife management area because it is one of only two Sandhill Crane habitats in the Lower Mainland (Pitt Meadow is the other) and generally speaking, the bog has high wildlife values. Secondly, the bog is a unique ecosystem of regional, national and international significance (CBA, 1993). Along with potential recreational values, the bog makes a likely wildlife management area.

Burns Bog is also a potential provincial park due to its scientific, historic and scenic resources, and its recreational and its scientific opportunities which include wildlife viewing and the interpretation of unusual plants (CBA, 1993).

In accordance with the potential protected area status, five concepts were developed by the Burns Bog Analysis committee.

PROTECTED AREA CONCEPTS

CONCEPT A

To establish the entire bog as a protected area. This concept would include Western Delta Lands, Vancouver landfill, and other private lands. Total area would be 4040 ha.

BENEFITS: This approach would ensure the greatest protection of the bog, its unique ecosystem, and the wildlife it supports.

It would enable maximum research potential for wildlife, ecosystem dynamics and recovery from human activity.

COSTS: Highest acquisition and compensation costs. The exact amount is not known.

This concept would interfere with other potential land-uses and development proposals.

CONCEPT B

To establish the entire original bog as a protected area excluding the areas that are extensively developed such as the Vancouver landfill and the industrial area along the Fraser River, and some agricultural lands. Total area would be 2735 ha.

BENEFITS: Enables a significant degree of protection to the existing bog ecosystem and wildlife, but with some uncertainty about the long term impact of surrounding land uses upon the bog ecosystem. All Sandhill Crane habitat would be protected.

It would enable significant research on the bog ecosystem and recovery rates for areas that were disturbed by peat extraction.

COSTS: High acquisition and compensation costs.

CONCEPT C

To establish a protected area that includes a large unharvested portion, an area of old growth forest, and an area modified by peat extraction activities. This concept is based on maintaining the dome characteristic of the bog which is essential for its survival. Total area would be 2585 ha.

BENEFITS: This concept is deemed 'satisfactory' in terms of ecological viability. It offers some degree of protection to the bog ecosystem, although the influences from surrounding land use would be quite significant. The bog would not be protected in its entirety, therefore, the long term impact is quite unpredictable.

Some Sandhill Crane habitat is protected, but not in its entirety which could have significant impact on the productivity of these birds.

It would enable some research on recovery rates of modified areas.

COSTS: Third highest acquisition costs.

Significant planning and control over surrounding activities would be needed if the protected areas are to be maintained as a bog ecosystem (i.e. alteration of hydrological regime)

Maintenance of a 'domed peat bog' is questionable.

CONCEPT D

To establish a protected area, including a large unharvested and undeveloped portion, along with a small portion of the harvested area. The Vancouver landfill would be excluded. The total area would be 1219 ha.

BENEFITS: This protects the undisturbed bog south of the height of land (only the southern portion).

Lower acquisition and compensation costs.

COSTS: Some important habitat would be protected but significant loss of biodiversity is inevitable.

The northern portion of the bog, deemed unique, would not be protected.

Research possibilities are limited.

Continued viability of the bog ecosystems is unlikely and the domed feature would not be preserved.

CONCEPT E

No protected area status. Land use and development would proceed solely in accordance with Delta's planning and development controls.

BENEFITS: Low cost.

COSTS: No secure protection of bog ecosystem and wildlife habitat is possible.

(Summarized From CBA, 1993)

Achieving consensus in developing the protected area concepts was time-consuming and difficult. Many compromises were made by all members, including the exclusion of any 'true' boundaries and maps for the proposed protected area concepts. This was due to the 'no-compromise' position of the BBCS.¹⁰ Moreover, no economic analysis was conducted

in conjunction with concept development. Again this was due to pressure from conservation interests. The BBCS felt that imposing dollar values on the bog and associated concept development would send the wrong message. Their position was that decisions should be made from ecological, not economic and development perspectives (Olson, 1993; Roberts, 1993). Other groups, like Western Delta Lands, were eager to promote strong economic analysis and a process that would establish tradeoffs (Roberts, 1993).

Regardless, in determining Burns Bog as a protected area, the BBA committee achieved consensus on the following points:

- Burns Bog, or portions thereof, are suitable candidates for an ecological reserve, a wildlife management area and a provincial park;
- the outline of five concepts (A to E) for future land-use of Burns Bog;
- Burns Bog should be included into the provincial Protected Area Strategy.

DETERMINING LAND-USE SUITABILITY OF BURNS BOG

RECREATION

In addition to a protected area status, the group recognized that portions of Burns Bog have recreational and educational values. The bog currently has the resource base, if carefully managed, to support a number of activities including day hiking, nature viewing and other nature-oriented activities (CBA, 1993). The possibility for developing an interpretive centre and trails was discussed, but little background information was available. Consequently, an independent study on recreation values of the bog was commissioned by the committee. From this study, it was determined that limited recreation

currently exists, though much of it is on private land and not condoned by the landowners. Future recreation potential was considered favourable, however, the bog environment is sensitive to disruptions and it would be difficult and expensive to build facilities such as an interpretive centre and trails.

Although the bog was deemed suitable for recreation, the challenge would be to establish a balance between protected areas and separate areas for passive recreational use. The use of buffer zones with well planned and controlled land use was considered necessary for Burns Bog to maintain its integrity.

WASTE MANAGEMENT

Waste management is an important factor in determining the future land use of Burns Bog because it may well be the biggest threat to its ecosystem. The City of Vancouver and the Environmental Protection Department of the MELP were sceptical about the Burns Bog Analysis and were not readily buying into the process (Roberts, 1993). The Vancouver landfill has been in operation since 1965 and currently takes waste from five municipalities (CBA, 1993). It is a lucrative business for the City of Vancouver and they are obviously reluctant to see the landfill operation terminated.

The amount of waste generated in the Lower Mainland is growing rapidly and there is nowhere to dispose of it. In 1992, the Vancouver landfill had 450,000 tonnes of waste dumped into Burns Bog (CBA, 1993). In addition to the municipal landfill, other landfills exist along the northern edge of the bog where demolition materials are dumped. Little information was available regarding these operations.

The growing pressure for waste disposal is a very serious threat to Burns Bog. This concern stimulated lively discussion among all members of the committee, bringing forward important waste management issues. The Burns Bog Conservation Society, for

example, was instrumental in presenting documented cases of illegal dumping of solid waste along the edges of Burns Bog. From this information, BC Environment promptly acted to inquire further into the illegal activity.

The main waste management issues identified by the committee were:

- expansion of the dump into the northern areas causing loss of valued 'pristine' bog habitat,
- illegal dumping along the perimeter of the bog,
- pollution leaching into surrounding sloughs and consequently into the Fraser River Estuary, and
- concern over contamination of local cranberry farms.

Although it was recognized that Burns Bog is not suitable for a landfill, it was not spelled out in the final BBA document. In fact, due to an estimated shortfall in waste disposal capacity in the region for the late 1990s, there is a potential for greater use of Burns Bog as a dump site (CBA, 1993).

AGRICULTURE

In determining the suitability of Burns Bog for agriculture, contentious debates resulted between agricultural and conservation interests. Discussing agricultural 'capability' versus 'suitability' was problematic.

Examining the agricultural capability of Burns Bog meant determining the bog's 'potential' for crop productivity. A significant portion of Burns Bog is Class 7 land, which means it requires considerable improvement to render it productive (possibly up to Class 4 land) (CBA, 1993). Improvement, in this case, means altering the hydrological and soil characteristics of the bog which would significantly transform existing bog habitat.

Agricultural interests expressed that using portions of the bog for agricultural activity does not constitute 'development' because the land can easily be reverted back to a 'natural' state (Gulyas, 1992b). Conservation interests, on the other hand, perceived agricultural development as 'conversion' of the bog ecosystem, altering its natural dynamic and destroying the wetland ecosystem.

Recent cranberry cultivation in Burns Bog has raised some concern among those who value the bog in its natural state. This sensitive issue required a separate meeting to determine the agricultural suitability of Burns Bog. The consensus was that although the bog environment is not currently suitable for many crops without dramatic improvement, cranberries and blueberries do grow very well in bog environments (CBA, 1993). Berry production is of interest to many producers, but current economic conditions are not favourable for this type of production (CBA, 1993). It was also concluded that agricultural development of any kind will result in the removal of existing vegetation and changes in the hydrological characteristics of the bog, and could significantly impact wildlife habitat (CBA, 1993; Demill, 1993).

PEAT EXTRACTION

Peat is a valuable commodity for gardening and landscaping and few areas are so readily available as Burns Bog. Much of the land is currently zoned for this use. However, more alternative products are becoming available for gardening such as compost and biosolids, making peat extraction from Burns Bog less viable (CBA, 1993). The committee concluded that peat extraction activities are harmful to bog vegetation, hydrology and wildlife habitat, and are considered a threat to Burns Bog.

5.3.3 PUBLIC INVOLVEMENT

The third and final stage of the Burns Bog Analysis was to solicit public involvement through an open house. The purpose was to ensure that work and findings of the BBA were reviewed by the public and that they had an opportunity to comment. The open house included participation from all the Boundary Bay study groups.

The BBA committee decided that different stakeholders could present information at the open house, reflecting their own perspectives and interests. This meant the Burns Bog Conservation Society, BC Environment, the Ministry of Agriculture Fisheries and Food, the landowners and others could set up booths and present their own opinions. After months of heated consensus building and establishing a unified product endorsed by all members of the committee, presenting a mosaic of perspectives on the future land use of Burns Bog was, at the least, confusing.

The open house was attended by 160 people. Although there was great interest in the Burns Bog Analysis, only eight people actually completed the questionnaire that was made available. The results of public input were as follows, from the most frequently mentioned concern to the least (CBA, 1993:55):

- in favour of Concept A: establishing the entire original bog as a protected area;
- protect as much of the bog as possible;
- do not continue to use the bog as the Vancouver landfill site;
- opposed to the race track development proposal;
- stop all development on the bog, including farming;
- favour Concept B, since Concept A is unrealistic;

- save a small area for blueberry farming;
- motorbikes and ATVs should be banned;
- need more study on plant and animal species, the different land uses and the biophysical characteristic of the bog.

The BBA committee was, in general, pleased with the outcome of the open house. It is interesting to note that throughout the BBA process and in the final report, public participation and comment was only given 'token' recognition.

5.4 SUMMARY

Recognition that Burns Bog is a unique ecological feature and of great significance to wildlife has grown dramatically over the last ten years. The ecological value of Burns Bog is still poorly understood. The Burns Bog Analysis, however, was a significant step towards acknowledging and determining its value.

A key objective of the BBA was to achieve consensus concerning the values and future use of Burn Bog. The multi-stakeholder BBA committee was relatively successful in producing a document that all members around the table agreed with. Not only did the process allow for the review of issues and information concerning the ecology, natural resources and land use of Burns Bog, it enabled the development of future land-use concepts. Although no consensus was reached over how much of the bog should be protected and what type of land use should be allowed in surrounding areas, the process did lead to a provincial position concerning Burns Bog. This position was to include Burns Bog included in the Provincial Protected Area Strategy.

The Burns Bog Analysis accomplished the following:

- collected and reviewed existing studies and information concerning the ecology, natural resources and land use of Burns Bog,
- identified the main environmental and land-use issues concerning the bog,
- enabled the analysis of future land-use concepts and developed five scenarios describing future protection and land use of Burns Bog,
- established consensus regarding the suitability of certain land uses within the bog,
- ensured that Burns Bog would be included into the Provincial Protected Area Strategy.

The Burns Bog Conservation Society was instrumental in shaping this process. The following chapter examines more thoroughly the roles played by the Burns Bog Conservation Society.

NOTES

1. Few studies have been conducted on herpetofauna (reptiles and amphibians) and insects, consequently little information exists concerning the value of the bog to these species. For a list of species see Biggs (1976); Hebda and Biggs (1981); CBA (1993).
2. During the 1950s and 1960s, large machines were used to extract or scoop out peat from the bog. This created large depressions of irregular shape. Remains of these large machines can be found in the bog today. A second method used a hydraulic and dredge system. Large areas were flooded, causing the peat layers to separate and float. A machine then dredged the loose peat. This technique created large expanses, usually rectangular in shape and very flat.
3. The main problem with public perception, even today, is that few people know about the bog, what it is, its significance, and size.
4. The tour for the Minister of Environment was arranged by MLA Norm Lortie and the Burns Bog Conservation Society.
5. All of the GIS maps produced from the Burns Bog Analysis can be acquired through the final report, see CBA (1993).
6. 13 maps were produced and can be viewed in the final report, see CBA (1993).
7. The bog was found to have three main soil types, including: Triggs (very poorly drained, high water table, very acidic with living sphagnum moss on the surface); Lumbum (very poorly drained, highly acidic, deep partially decomposed peat); Annacis - Lumbum (very poorly drained, deep, well-decomposed peat over deltaic soils).
8. Historical surveys were taken by Royal Engineers 1858-1863 along with some provincial surveys taken 1873-1877. Margaret North prepared a map of the historical vegetation of the Fraser Lowlands (CBA).
9. See Appendix 5 for description of blue and yellow listed species.
10. The BBCS did not want any boundaries drawn other than the historical bog. Their firm position is that the bog should be preserved in its totality in perpetuity.

CHAPTER 6

THE ROLE OF THE BURNS BOG CONSERVATION SOCIETY

No single government or industry, however large, and no individual, however committed, can tackle our environmental problems alone. (Canada's Green Plan, 1990: 15)

6.0 INTRODUCTION

In 1988, a multi-billion dollar port development proposal for Burns Bog instigated the organization of a group of concerned citizens (the latent interests discussed in Chapter 3) who lobbied government to stop the mega-development. This was the beginning of a formal community-based interest group called the Burns Bog Conservation Society (BBCS). To the many people concerned for Burns Bog, the experience revealed the unfortunate reality that Burns Bog is often perceived as wasteland, devoid of life and therefore 'convertible' to more profitable land use. The Burns Bog Conservation Society has been contesting developments and questioning human activities in the bog ever since, while attempting to inform and educate the local community about the ecological heritage it possesses in its own backyard.

PROFILE THE BURNS BOG CONSERVATION SOCIETY

- promotes the conservation and stewardship of Burns Bog
 - a non-profit, charitable organization
 - over 800 members
 - over 30,000 associate members
 - staff mainly volunteer based
 - operational budget approximately \$100,000 per annum
 - maintains autonomy
-

The BBCS is dissatisfied with the way government is fulfilling its responsibilities for environmental conservation. The main goal of the Society is to stop development and the degradation of Burns Bog and to have it protected as an ecological reserve in perpetuity. Once the bog has been protected, the BBCS would like to become caretaker of the ecological reserve and possibly deliver more educational programs and help coordinate further research on bog ecology (Olson, 1993).

Chapter 3 presented a framework for analyzing the roles played by environmental organizations. These roles range from informing and educating communities, advocacy and catalyzing action, and legitimizing government planning and decision-making, to promoting social transformation. This Chapter applies the framework outlined in Chapter 3 to the Burns Bog case study to analyze the roles played by a small community-based environmental organization in promoting conservation.

The following analysis is divided into two stages:

1. The first stage analyzes the roles played by the Burns Bog Conservation Society in the period prior to the Burns Bog Analysis (as catalyst to the BBA), and
2. The second stage analyzes the roles played *during* the Burns Bog Analysis.

The purpose of this chapter is to demonstrate that environmental non-government organizations like the Burns Bog Conservation Society have potentially very significant roles to play ensuring the recognition and protection of BC's wetland resources.

6.1 CATALYST TO THE BURNS BOG ANALYSIS

Prior to the Burns Bog Analysis (BBA) the Burns Bog Conservation Society's primary role was advocacy. The Society informed and educated people in and outside of government to raise awareness of Burns Bog, its ecological values, threats from development and the potential cost to society if the bog were lost. These activities *catalyzed* the initiation of the Burns Bog Analysis which consequently established a provincial position on the value of Burns Bog and its potential future land-use. Although advocacy was the main role, a limited supplemental role was also performed.

6.1.1 THE ADVOCACY ROLE

The advocacy role is defined in Chapter 3 as:

- *watching and scrutinizing* government and industry to *ensure compliance* to environmental protection standards, regulations and policies;
- *pressuring* governments to maintain an adequate level of environmental protection and expand their consideration of environmental factors in planning and decision-making;
- *informing and educating* government and the greater community about environmental degradation and ecological values.

The Burns Bog Conservation Society was disgruntled with the way government was fulfilling its responsibilities for environmental protection; they were not confident that governments would ensure that the ecological values and functions of Burns Bog would be fully recognized in land-use decisions. In fact, prior to the BBA, the Society felt that Burns Bog had been ignored by the provincial and federal governments (Olson, 1993). Consequently, the BBCS became the watchdog, the informer and educator, and the catalyst that fostered action from government.

THE WATCHDOG

[NGOs] act as 'watchdogs' to make government meet its commitments and fulfil its responsibilities in their area of concern for the environment, by demanding that government agencies adhere to their stated environmental policies, follow through on programs that help maintain ecological integrity, and enforce existing environmental regulations. (Gardner, 1991a:326)

The Burns Bog Conservation Society was the watchdog for Burns Bog, scrutinizing various land-use practices such as the industrial activities along the north perimeter road, the Vancouver landfill and other practices that threatened the integrity of the bog ecosystem. When an activity like illegal dumping was discovered which did not conform to government standards or regulations, the BBCS acted.

In the spring of 1992, the BBCS found that Dow Chemical had used a chemical residue called reactor mass as fill in the construction of a road in Burns Bog during the mid-to-late 1980s (Demill, 1993). Since then, the toxic fill has been leaching into surrounding ditches and sloughs causing fish kill and damage to habitat. Much of the vegetation surrounding the contaminated site has been destroyed. The BBCS also learned that the Ministry of Environment had been fully aware of this activity since 1985 and had taken no action to stop it (Olson, 1993). Waste management and the destruction of wildlife and fish habitat is the responsibility of BC Environment (Environmental Protection and Fish and Wildlife Branches). The BBCS called for a full inquiry into the matter, which was covered extensively in the local papers. The outcome created enough pressure that BC Environment initiated an inquiry and had the sites tested by Dow Chemical.

Another circumstance presented itself where two permits were granted in April of 1993 for a proposed incinerator development within Burns Bog. BC Environment (Environmental Protection Branch) granted a permit to store hazardous waste, while the Greater Vancouver Regional District granted a permit to allow for the emissions from the incinerator (BBCS, 1993:2). On the basis that the development did not conform to national

guidelines for hazardous waste incineration and would be harmful to the local community, the Society lobbied the MLA for Delta North, the Minister of Environment, the Mayor of Delta and the local MP to stop the development. An article was published in the BBCS newsletter and in local papers describing the development and its potential threat to the community. The Society also requested community support. These two examples illustrate the 'watchdog' role of an ENGO. In both cases, the provincial government had permitted activities that were considered a threat to the ecological integrity of Burns Bog and to the community itself. The environmental organization effectively applied pressure which resulted in government action.

The watchdog role, however, means more than just 'watching' for inappropriate activities or development. The BBCS spent four years researching information on the biophysical properties of the bog and similar ecosystems, in an attempt to substantiate their position. Furthermore, the Society has been researching and evaluating government activities, legislation, policies and regulations (Olson, 1993). Effective advocacy relies on a solid information base and expert advice (Gardner, 1991a). The more knowledge an organization has about the institutional and policy framework within which it operates, the more effective it will be in pressuring the right politicians or agencies, and understanding their limitations. The more knowledge a group has about the issues themselves, along with 'experts' to support them, the more credibility and influence it will have (Pross, 1992; Gardner, 1991a; 1991b). Although the BBCS has occasionally been accused of being sensationalist and radical, it has brought critical information forward, both prior to and during the Burns Bog Analysis (this is discussed further in the following sections).

INFORMERS AND EDUCATORS

Public awareness raising is the main strategy used by the advocacy groups to increase the accountability of government without direct interaction. (Gardner, 1991b:251)

Ultimately, as a community becomes increasingly aware and informed the more likely it is to become politically active (see "reaching and mobilizing the latent interests" in Chapter 2). Therefore, supplying information and educating people, groups and governments about Burns Bog were key to the BBCS's success in aggregating political action and pressuring for the Burns Bog Analysis. The BBCS applied the following 'indirect' strategies (Olson, 1993):

- preparing and distributing educational and awareness materials including brochures, fact sheets, posters, news releases, public service announcements and newsletters;
- informing and educating the public, government and industry through presentations at public forums and open houses;
- advertizing up-coming public meetings along with the environmental concerns about proposed developments to solicit public support and attendance.

These strategies were aimed at informing both the community and government about the land-use issues, the ecological characteristics and values of Burns Bog. Although Burns Bog is a very large wetland, few people know about it and fewer understand its ecological significance (Olson, 1993). Wetland values, the impact of development, and environmental degradation are relatively intangible. Therefore, a critical role for the BBCS was to make the people who are involved in making land-use decisions that affect Burns Bog, and those who live in and around Delta, increasingly aware of the bog and its value to the community. One tactic used by the Society was to show how countries like Ireland have lost the majority of their original wetlands and how this has inflicted high cost to that society in the long run (Olson, 1993). Another has been to demonstrate that Burns Bog

is unique and only one of a kind in North America.

By acting as an informer and educator, and by ensuring that the views of experts are communicated at public forums and open houses and through other educational materials, the BBCS was able to apply pressure indirectly on government.

THE CATALYST

I would say the Burns Bog Conservation Society was an important catalyst. Although the bog has always been a very controversial topic, it clearly has gained high profile over recent years. (Cox, 1993 pers. comm.)

Direct advocacy strategies are the cornerstone of most small, community-based environmental organizations that strive to initiate relatively rapid governmental action (catalysts for action), as was the case with the Burns Bog Conservation Society. The strategies used by the Society include (Olson, 1993):

- direct communication through letters, phone calls and petitions;
- meetings with government officials, ministers, and MLAs, and
- participation in public meetings concerning proposed developments on the bog.

These strategies required the BBCS to be a strong 'watchdog' as well as an effective collector of information.

Prior to the Burns Bog Analysis, the Burns Bog Conservation Society targeted its advocacy efforts at the provincial government, Delta Municipal council, and, to a lesser degree, the federal government (Olson, 1993). Their direct advocacy role was based on the following information (Olson, 1993):

- The provincial government is responsible for the protection, management and enhancement of BC's environment, biodiversity and natural heritage;
- The Ministry of Environment, Lands and Parks has authority, under the Wildlife Act, to secure Burns Bog as a Wildlife Management Area through purchase, lease, donation, expropriation¹ and land transfer for the purpose of protecting and managing its wildlife and supporting habitats (see Chapter 4). The Wildlife Act, then, empowers the Minister of Environment to take 'direct' action towards the conservation of Burns Bog;
- BC Parks is the key agency for establishing ecological reserves, protecting unique, rare or sensitive ecosystems, habitats, species and natural features;
- Burns Bog is a unique and valuable feature that satisfies all the criteria for an ecological reserve and is not represented in the Georgia Depression ecoregion. There still exists significant gaps in provincial representation;
- BC's Environmental Action Plan declared that preservation of biodiversity and natural heritage was a priority;
- The Province (Cabinet) can, with the political will, legally impose a moratorium on any further development on the bog until the values of the bog are determined and future land-use options developed;²
- Burns Bog is recognized as a nationally and internationally significant wetland resource and heritage;
- As signatory to international conventions and treaties, the federal government has identified wetlands like Burns Bog as a critical federal responsibility because they support migratory bird populations and fisheries and they maintain environmental quality;
- Land-use decisions of Burns Bog are a municipal jurisdiction and in the case of the Agricultural Land Reserve, the Agricultural Land Commission is also involved.

The provincial and federal governments were perceived to be dragging their feet rather than taking action towards resolving the Burns Bog land-use issue. The Society felt that the provincial government had the greatest responsibility for the protection of Burns Bog, and consequently, much of their effort was spent pressuring at the provincial level, in an attempt to encourage provincial action (Olson, 1993).

A significant problem, prior to the Burns Bog Analysis, was that the provincial government did not have a united position on Burns Bog. Instead, there were numerous, independent positions held by different government agencies. Each government agency had its own tailored view of Burns Bog, and these views did not necessarily reflect a mandate for environmental conservation.

Although BC Environment and BC Parks recognized Burns Bog decades ago as a significant ecological feature in the Lower Mainland, recognition did not result in a unified conservation effort at the provincial level (Cox, 1993). Roberts explains that "Parks had it tucked away in the back of their minds that it might be nice to look at the bog as an ecological reserve, but really have not had the time or the money to get around to it" (Roberts, 1993 pers. comm.). In addition to time and money, the bog had never really been a priority due to the fact that it had been heavily impacted by peat harvesting and surrounding industrial development (Demill, 1993). Simply, Burns Bog was perceived as less significant than other areas because of already existing human influence. A similar sentiment existed in the minds of Environment Canada, where Burns Bog was no longer seen as a pristine wetland area (CBA, 1993; Demill, 1993).

Another important factor that influenced and limited the involvement of the provincial government was the fact that Burns Bog was privately owned and within the Municipality of Delta. This created significant barriers and sensitivities. In many cases, the provincial government was unwilling to claim responsibility for fear of sparking a potentially volatile political issue. In fact, Roberts recalls the Ministry of Environment Lands and Parks being explicitly told by the province to leave the Burns Bog land-use issue alone (Roberts, 1993).

In addition, the absence of a provincial policy for wetland conservation only encouraged further indecision and inaction.

A good example of the limited 'provincial' involvement can be seen in the agricultural development applications for Burns Bog within the Agricultural Land Reserve. These

developments are typically approved regardless of the fact that development may destroy wetland habitat. Because parts of the bog are zoned for agriculture and are generally considered suitable for cranberry farming, development will normally be approved by the Agricultural Land Commission and the Municipality of Delta in support of BC's agricultural industry (Roberts, 1993; Olson, 1993; Coles, 1993). Environmental conservation agencies do not generally get involved in such municipal land-use decisions involving the Agricultural Lands.³ Furthermore, as discussed in Chapter 5, agricultural development is not necessarily considered 'development' in the traditional sense of the word, because the land remains productive and in a somewhat natural state.

The main goal of the BBCS, then, was to get the provincial government more actively involved in municipal land-use planning and decisions concerning environmental matters of "provincial and national significance." The Society felt that if the government was given a reason and had the political will, then something could and would be done to protect Burns Bog (Olson, 1993). The Burns Bog Conservation Society also systematically lobbied Delta Municipal council on specific development proposals.

Starting in 1988, the BBCS pressured the provincial government and Delta Municipal council to stop a major port development. The society dramatically increased awareness within the community through various direct advocacy strategies. For example, the BBCS along with strong support from the MLA from Delta North, Norm Lortie, arranged to have David Suzuki speak about the ecological values of Burns Bog to a crowd of 800 people at a public meeting (Olson, 1993). It is difficult to determine how much impact this had on Delta council; however, concern from the community became evident enough that the development proposal was turned down. Similar examples exist with the numerous other developments that have been proposed for Burns Bog, including a horse racing track, an expansion to the Vancouver Landfill, two golf courses, and an incinerator.

In April 1992, the Premier of British Columbia was addressed by the BBCS through a letter which outlined the failure of his government to take action on a resolution passed during the New Democratic Party's convention in 1990 (Olson, 1992:7). The resolution stated that a moratorium on all non-agricultural developments be placed on Burns Bog and on ALR lands south of the Fraser River. This letter was accompanied by a petition that demonstrated community support for the preservation of Burns Bog. A total of 15,000 names were tabled in caucus⁴ (Olson, 1993).

Chapter 3 describes how environmental organizations can attain a certain level of legitimacy with government if the group can illustrate that it speaks for the larger community, using tactics such as petitions, protests, or other forms of advocacy. These tactics alone, however, cannot create the pressure needed for governmental action. Gardner (1991b), in her Fraser Basin study, found that the impact of advocacy strategies really depends on a combination of public support and support from key people in government who sympathize with the group's cause. Burgener, from the Nechako Neyenkut Society, supports this belief by suggesting that "even with lobbying, what you say has very little effect unless the particular group or person [in government] happens to sympathize with what you're saying" (cited in Gardner, 1991b:250).

While the BBCS was working to ensure that both governments and the community were informed, they were also building constituencies of support. Networking and building supportive relationships within government were key to successfully catalyzing interest in Burns Bog as a regional issue and, in consequence, establishing the Burns Bog Analysis. For many years the voices of concerned citizens fell on deaf ears. It was not until the Burns Bog Conservation Society was founded and began to acquire key support from individuals like Norm Lortie (MLA for Delta North), that both provincial and local governments began to listen. Olson has seen dramatic changes at the local level:

Burns Bog was a topic in one way or another at every one of the all-candidates meetings. It was question number two that was asked of the

candidates by the Surrey Leader newspaper....Almost every politician that was running had a position and a favourable position on Burns Bog. A few years ago, there may have been one or two. (Olson, 1993: Pers. Comm.)

Provincial recognition has also increased and Norm Lortie has played a central role in placing Burns Bog on the political map at the provincial level.

In September 1992, Lortie scheduled meetings with the Attorney General and the Ministers of Agriculture and Environment to discuss Burns Bog and get the ball rolling for a comprehensive study of the bog (Graziano, 1992).

'I want to talk to them about a strategy to acquire the bog,' said the first term MLA, who is also hoping the Ministers will agree to a moratorium on development in the bog until a comprehensive study is completed. 'We need money for a study that will show us the value of the bog, not only locally but also to the Lower Mainland and the province.' (Graziano, 1992, Aug. 7)

Along with these efforts, in cooperation with the BBCS, a tour of the bog was organized for the Environment Minister (Olson, 1993). At the completion of the tour, the Minister suggested an integrated study of Burns Bog and the Boundary Bay area. A dramatic increase in the profile of Burns Bog resulted from this as it became a hot political and media issue. The provincial government had finally realized that something had to be done (Roberts, 1993).

From its inception in 1988, the Burns Bog Conservation Society has confronted government with information and evidence to demonstrate the ecological value of Burns Bog along with the important responsibilities and commitments government has to wetland conservation. Although the BBCS targeted the provincial government and local governments, it also lobbied the federal government. The advocacy roles combined with building supportive relationships within government and other constituencies of support within the community were key to successfully arousing interest in Burns Bog and catalyzing the initiation of the Burns Bog Analysis.

6.1.2 THE SUPPLEMENTAL ROLE

Although advocacy was the focus of the BBCS prior to the Burns Bog Analysis, a limited supplemental role was also performed. The supplemental role is defined as:

- *Supplementing* the regular responsibilities and activities of government through voluntary, community-based stewardship or through establishing partnerships with government or other organizations for conservation and educational programs (the para-administrative role);
- *Legitimizing* government planning and decision-making through direct participation in these processes, providing and reviewing information, evaluating government roles and responsibilities, and providing viable options and solutions.

The legitimizing role was not evident prior to the Burns Bog Analysis and is, therefore, discussed in the following section. The para-administrative role, however, was apparent.

THE PARA-ADMINISTRATIVE ROLE

There is clearly potential for significant contributions to the maintenance of ecological integrity from these stewardship activities, and they can be a positive force for social self-determination as well. The actions of stewardship groups are pivotal in building local constituencies of support for environmental protection and they often underpin the success of ENGOs with broader mandates. (Gardner, 1991a:330)

Prior to the Society being involved with the Burns Bog Analysis, it played a small but growing para-administrative role. The para-administrative role is a service that government is unable or unwilling to provide and one that is based on voluntary stewardship or conservation through cooperative partnerships with government or other organizations. A voluntary stewardship program relies on volunteers and fund raising to achieve on-the-ground conservation work. However, cooperative partnerships can also be created to fund and deliver conservation or educational programs. Chapter 4 outlines one

example where Ducks Unlimited, under agreement with Environment Canada, is implementing a federal program called the Interior Wetlands Program. Due to increasing financial and human resource constraints, governments are not always capable of effectively delivering such programs on their own. Consequently, partnerships are formed that allow conservation projects to be implemented in a cooperative and effective way. This is considered a *para*-administrative role.

The Burns Bog Conservation Society is a much smaller scale community-based organization. The *para*-administrative role played by the Society prior to the BBA can be seen in the following activities (which have continued to date):

- Organizing tours (hikes) through Burns Bog for interested people and as educational tours for local schools. Although on a small scale, this is a very important activity for the Society and they try to involve local schools as much as possible. Because few people know about the bog, by getting more people to experience its uniqueness, more awareness will be gained of its values and beauty, and consequently, the need for its protection will be realized (Olson, 1993).
- Providing information and education programs about Burns Bog and other wetlands, including information packages, a video and lectures to schools. In addition, the Society is supporting research on the bog ecology.
- Acting as the official caretaker of the Delta Nature Reserve in partnership with the Municipality of Delta. Although funding from the local government has been relatively scant, the Society organizes voluntary stewardship activities for its membership and the general public to maintain and upgrade trails on the Delta Nature Reserve (Olson, 1993).

The influence of these roles on government is very difficult to determine. Their real significance is in educating the community about Burns Bog and its ecological significance, while informing people about the potential threats of development to the bog. When the community is more knowledgeable about ecology and the value of wetlands in general, it is more likely to support an ENGO in applying pressure to government for the protection of a unique wetland.

6.2 ROLES PLAYED DURING THE BURNS BOG ANALYSIS

The Environment Minister's tour of Burns Bog was the turning point for involvement by the provincial government in the Burns Bog land-use issue and also for the Burns Bog Conservation Society. Although the creation of the Burns Bog Analysis cannot be attributed to one small community-based organization, the BBCS did play a significant role as catalyst in the process. They also significantly influenced the scope and outcome of the Burns Bog Analysis.

6.2.1 THE ADVOCACY ROLE

We influenced the process and I don't think it would have come out the way it did if we had not been at the table. We brought certain people to the table such as Don Demill and Guy Gentner who did a great deal of research. What we found is that many of the things we brought up at the beginning were not taken seriously, but as time went on, government began raising the same issues and supporting us. (Olson, 1993 pers. comm.)

As an advocacy-oriented group, the BBCS remained very active as the watchdog for Burns Bog, scrutinizing government and industry to ensure compliance with environmental protection standards, regulations and policies. Collecting information and evidence of industry and/or governments in non-compliance was an important tool for pressuring government to maintain an adequate level of environmental protection and expand their consideration of environmental factors in planning and decision-making. Further to the watchdog role, the BBCS informed and educated government and the greater community about Burns Bog land-use issues and the current developments within the Burns Bog Analysis.

Before the BBA could even get underway, the committee had to establish the Terms of Reference for the process. This was possibly the most contentious stage of the BBA, due to the diverse positions at the table. These ranged from: "studies are needed to determine

the values of Burns Bog", "portions of Burns Bog should be protected as an ecological reserve or even a park", to "portions of the bog can be put to better use" and "tradeoffs are necessary" (CBA, 1993b; Roberts, 1993). Achieving consensus was a challenge.

The Society expressed serious concerns over the initial focus of the Burns Bog Analysis. They felt it was more of a land-suitability study (aimed at determining suitability for future development) than an ecologically-based land-use or environmental assessment of Burns Bog (Olson, 1993). The BBCS was, at times, dogmatic in asserting their position, namely:

We are concerned with the lack of environmental information and the focus on economic versus ecological functions. We feel it is important to protect Burns Bog in its entirety and it should be declared an ecological reserve or park. (CBA, 1993b)

Roberts explains that the dogmatic approach by members of the Society did slow the process down, "to them it was all or nothing...and the process could have broken apart, but in the end, we did not avoid any issues, they were all put on the table as were the options" (Roberts, 1993: pers. comm.).

Despite the difficulties that stemmed from such different perspectives and values, an agreement was reached and a full list of land-use and environmental issues was identified for future planning and decision-making. But shaping the terms of references for this process was only the first step. The advocacy role played by the Burns Bog Conservation Society and its significance is summarized below. The Society:

- Questioned the lack of involvement of various government agencies like the Canadian Wildlife Service and Parks Canada during the first two meetings. Because of this, the participation of both the CWS and Parks Canada was solicited (CBA, 1993b).
- Energetically promoted a thorough analysis of issues concerning the ecological characteristics of Burns Bog and its values. Although difficult to determine, some significant issues like the hydrological influence of Burns Bog on the Fraser River Estuary and the values of the bog as a carbon sink

may have been given lower priority or possibly even ignored had the environmental group not been present.

- Created a balance of perspectives and interests in a process that could have been largely negotiation and compromise between economic and development interests with weak environmental representation due to the lack of solid information and knowledge. The ecological values of Burns Bog were actively and consistently promoted by the society, bringing environmental issues to the forefront.
- Identified illegal dumping that was taking place in the bog and confronted BC Environment while discussing waste management issues with the committee. The Society was able to document these cases for the committee and consequently special meetings were organized to deal with the issue.

Often, while issues were brought up for discussion with the BBA committee (e.g. waste management), additional meetings were organized to take immediate action on specific environmental issues and problems. Furthermore, the BBCS was instrumental in supplying essential information on the use of Burns Bog by the Sandhill Crane. Some areas of Burns Bog that were originally perceived as "disturbed areas" and, therefore, not as valuable as the "pristine" areas were demonstrated through photography and personal experiences by the BBCS and biologist Don Demill to be key breeding areas for the Sandhill Crane.

This exemplifies a case where an environmental organization brings forward evidence on wildlife values that were not fully realized by responsible conservation agencies, in this case BC Environment and BC Parks (CBA, 1993; CBA, 1993b). The attention given to the Sandhill Crane by the BBCS had a significant role in having a wildlife study commissioned by the BBA committee to determine critical breeding areas.

Burns Bog is largely privately owned and is one of the last remaining undeveloped tracts of land in a region that is rapidly growing, and where land is becoming a scarce resource. This land-use issue offers many opportunities for negotiation and tradeoffs between various interests. Such tradeoffs, however, in the absence of strong checks and balances,

are not likely be based on ecological realities but on economic and political realities. The dominating factor in the Burns Bog land-use issue was simply the lack of information and knowledge to support a process of negotiation and tradeoffs, because the unknown ecological values would be traded-off against more tangible economic and political gains. The BBCS, as the only environmental organization in the BBA, was the key balancing force. The Society influenced the process by ensuring a stronger ecological perspective in land-use analysis, counter-balancing stronger economic and development forces. The BBCS, then, pressured governments to expand their consideration of environmental factors in the BBA, and informed and educated government and the community about current environmental degradation and important ecological values.

Advocacy did remain the dominant role, however, and with the initiation of the BBA, the Burns Bog Conservation Society began playing a supplemental role to government by participating in a cooperative, consensus-based planning exercise.

6.2.2 THE SUPPLEMENTAL ROLE

Many of the issues we brought forward early on were controversial. As time went on, various government agencies began supporting the same issues and our views. (Olson, 1993 pers. comm.)

The supplemental role is performed by an environmental organization when it supplements the regular responsibilities and activities of government. Prior to the Burns Bog Analysis, the Society played mainly a para-administrative role. Once the BBA process was initiated and the Society was part of that process, their role expanded to become one that legitimized the BBA because of their direct participation in: providing and reviewing information, evaluating government roles and responsibilities, and providing viable options and solutions. "Legitimizing," in this case, meant that the Burns Bog Analysis committee completed an environmental review of the Burns Bog land-use issue, with the BBCS assisting to ensure that all aspects of the ecology and its significance would be recognized

and considered in future planning and decision-making.

During the Burns Bog Analysis, the BBCS (Roberts, 1993; Cox, 1993; Olson, 1993; CBA, 1993b):

- participated in a working, and somewhat cooperative relationship with government and other stakeholders to solidify a provincial position concerning Burns Bog,
- provided valuable information and knowledge,
- participated in the recruitment of experts to aid in establishing agreement about the ecological and wildlife characteristics and values of Burns Bog, and
- brought analytical capabilities to the table to share in the review of information, the analysis of land-use options and the formulation of future courses of action.

The BBCS, then, legitimized the Burns Bog Analysis through the aforementioned activities. There are similarities between what is discussed in the previous section as advocacy and what is discussed here as the legitimizing role (see Chapter 3). The difference lies in the level of integration and cooperation, which in the case of the BBA was consensus-based, rather than the more confrontational approach of direct advocacy. Although, at times, it was difficult to differentiate between the two roles, the key element was that all stakeholders were working towards a common, pre-determined goal. Without consensus, the BBA would not have been completed.

The fundamental role of the BBCS in legitimizing the BBA was their supplying and reviewing of information. Inventory and review of the natural resources of Burns Bog was difficult and contentious for all stakeholders, but was essential to direct the committee towards a definition of the ecological values of Burns Bog. Because of the scarcity of information and the lack of knowledge, the Society became a key link. The Burns Bog Conservation Society had collected information on the biophysical characteristics of Burns

Bog and its wildlife use for at least four years (Olson, 1993), and had collected information that both BC Environment and BC Parks were not aware existed. One example was the historical information about Burns Bog.

Burns Bog has been altered by human activity for many decades leaving a relatively undefined natural boundary. No two ecologists could agree on this point. A decision was made by the committee to use the historical information presented by the BBCS, making the original bog boundaries significantly larger than originally thought (CBA, 1993). This information significantly influenced the development of the land-use concepts presented in Chapter 5; land use options were developed based on the fact that a significant portion of the bog had already been lost to various forms of development.

Furthermore, no studies had ever been completed on the Sandhill Cranes in Burns Bog. In fact, during the first half of the BBA, many committee members were sceptical about the significance of the bog to these birds. They consistently referred to the fact that no documented evidence existed; therefore, losing this habitat could not be such a big problem. Through research, observation, photographs from the BBCS, and the testimony of experts like biologist Don Demill, the perceptions and attitudes at the table changed over time. BC Environment consequently commissioned a study of the Sandhill Crane.⁵

Providing and reviewing information was key to the Society's influence on the BBA and its ability to perform a legitimizing role. "Because of our involvement, especially in the mapping, the process took a different focus and I would say better clarification of the issues and available data...they would not have some of the information had we not given it to them. In many cases, we had to point out that certain things existed and we had information they did not have access to" (Olson, 1993 pers. comm.). Roberts, Regional Director for BC Lands and Chair of the Burns Bog Analysis, agrees that "the Burns Bog Conservation Society was key in clearly identifying some of these issues" (Roberts, 1993 pers. comm.). The BBCS ensured that the ecological issues were identified and put on the

table. Numerous issues, especially those regarding ecological functions, may not have been covered or given proper recognition had the Burns Bog Conservation Society not been part of the process.

The Society had significant input in defining (CBA, 1993b; Roberts, 1993; Cox, 1993):

- the bog boundary,
- vegetation mapping,
- wildlife use, and
- ecological functions.

The ability to produce information and express knowledge concerning the dynamics and wildlife use of the bog ecosystem became an important asset and allowed the Society to participate effectively. Moreover, the participation of the Society was important for ensuring that all the ecological aspects of Burns Bog would be considered and incorporated into the Burns Bog Analysis. It is important to realize that some of the environmental issues identified in the BBA were not well recognized at the start by the responsible agencies, namely BC Environment and BC Parks. Also, these agencies played a relatively passive role within the BBA compared to the involvement of the City of Vancouver, Western Delta Lands, the Ministry of Agriculture, Fisheries and Foods, the Agricultural Land Commission, and the Burns Bog Conservation Society.

Two other aspects to the legitimizing role should be mentioned. Firstly, because the Society had researched government responsibilities and the institutional and policy framework for wetland conservation, it was better able to participate in the BBA, pointing out issues and environmental characteristics that governments have neglected (see section 6.2.1). This again helps to keep appropriate government agencies (e.g. BC Environment with regard to waste management) more accountable for their responsibilities to Burns Bog, while incorporating these issues into the planning process. Secondly, the

Burns Bog Conservation Society became part of the process, and was instrumental in developing future land-use options for Burns Bog.

It is not suggested here that the scope and direction of the BBA is solely attributable to the BBCS. Such a statement would be wrong because many people from different government agencies and interest groups put a great deal of time and effort into seeing the Burns Bog Analysis to completion. What is important, however, is the demonstration that a small community-based environmental organization was able to effectively promote the involvement of responsible governments through the initiation of a process such as the BBA, and that they also became significant contributors to the process. Roberts suggests that the "Burns Bog Conservation Society performed very well in all of these roles... they did everything so well, sometimes to the point of irritation!" (Roberts, 1993 pers. Comm.).

During the Burns Bog Analysis, the Burns Bog Conservation Society expanded its roles to include a legitimizing role. The Society participated directly in the BBA, providing and reviewing information, evaluating government roles and responsibilities, and providing viable options and solutions. The BBCS ensured that the Burns Bog Analysis committee recognized and considered all aspects of the bog's ecology and its significance.

As a result of the Burns Bog Analysis, a provincial position was established requiring that Burns Bog be incorporated in the provincial Protected Area Strategy for further assessment. In addition, a document was produced that all stakeholders were in agreement with and that can be used for future local and regional planning initiatives.

I see our role changing in the future....I would like to be involved in becoming the caretakers of the bog... responsible for its management and in developing plans for the old peat plant...similar to the relationship that the B.C. Waterfowl Association has with the Reifel Sanctuary. (Olson, 1993 pers. comm.)

6.2.3 THE TRANSFORMATIVE ROLE

The Transformative role encompasses ENGO activities that strive to transform government and society. (Gardner, 1991a:331)

Many environmental organizations play a transformative role in one form or another, attempting to change or restructure the way society and governments make decisions and run their day-to-day operations. The transformative role can be performed through protest, civil disobedience, education and demonstration.

The Burns Bog Conservation Society, though focused on the preservation of Burns Bog, does strive for more fundamental change by increasing the awareness of the public, industry and government. Because this takes a great deal of time, it is not possible to determine the degree of transformation over the length of this study. Transformation, however, can manifest itself as incremental change over time. From this perspective, the BBCS did not affect dramatic and immediate change and transformation, but rather, they were part of a much larger movement of transformation, playing their part in influencing fundamental change in society and government.

Prior to the Burns Bog Analysis, the Society was involved in more passive environmentalism: education and advocacy. However, with the establishment of the BBA, some confrontational tactics emerged. Although the Society was not involved in a Clayoquot Sound style of protest, they did have to impose themselves at the very first BBA meeting.

After the Environment Minister's tour of the bog, the BBCS was advised that the Society would sit on the committee when it was established. However, when the time came, the Society was not notified of a meeting. An anonymous phone call tipped them off that their name had been scratched off the list of participants (Olson, 1993). This incident created a confrontational beginning to a process that could have proceeded in complete

cooperation. Because of this deception, the Society felt betrayed and consequently imposed themselves on the first meeting (Olson, 1993). This was a form of protest. After heated debate and some members of the table walking out, the Society was accepted into the Burns Bog Analysis (CBA, 1993b; Olson, 1993).

The incident exemplified the reasons why environmental groups are perceived as radical and incapable of constructive participation. The subsequent acceptance of the Society was a step forward towards a more influential role in a decision-making process, ensuring a comprehensive analysis of the ecology of the bog. The society also increased awareness and understanding both inside and outside of government, which has, in a small way, changed the way a portion of society thinks and operates.

I do not think it would have resulted the way it did, had we not been at the table. (Olson, 1993 pers. comm.)

6.3 SUMMARY

I think we played a tremendous role...bringing it to the ministries' and politicians' attention, making it a priority. I do not think it would have happened without this Society. I can't even feature the garbage dump being entertained in this day and age because of our educational activities. (Olson, BBCS 1993)

The Burns Bog Conservation Society did everything very well, sometimes to the point of irritation. (Roberts, BC Lands 1993)

They brought a great deal of information on the bog and they were able to express their views clearly. (Cox, BC Environment 1993)

Since its inception in 1988, the Burns Bog Conservation Society has confronted government with information and evidence that demonstrates the ecological values of Burns Bog and outlines the important responsibilities and commitments that government has to wetland conservation. The Society has *watched and scrutinized* government and

industry, they have *pressured* governments for wetland protection, and they have *informed and educated* government and the greater community about ecological values of the bog and its degradation. Throughout this process, the Burns Bog Conservation Society has *built supportive relationships* within government and in the community. Although it is extremely difficult to measure the influence these types of roles have on government, one can conclude that the Burns Bog Conservation Society has been reasonably successful as a catalyst for: 1) increasing the profile of the Burns Bog land-use issue, both in and outside of government, and 2) the establishment of the provincial planning exercise, known as the Burns Bog Analysis.

The Burns Bog Conservation Society had always maintained advocacy as their dominant role. However, with the initiation of the Burns Bog Analysis, the Burns Bog Conservation Society began playing a supplemental role to government, namely the legitimizing role. They participated in a cooperative, consensus-based planning exercise, providing and reviewing information, evaluating government roles and responsibilities, and providing viable options and solutions. The BBCS ensured that the Burns Bog Analysis Committee recognized and considered all aspects of the bog's ecology and its significance. Upon completion of the Burns Bog Analysis, the provincial government had reached a position concerning the future land-use of Burns Bog. The decision was that Burns Bog would be incorporated into the Protected Area Strategy and that all the information and options developed through the BBA would be utilized by local and regional governments for future planning and decision-making.

To summarize, the Burns Bog Conservation Society did effectively play the following roles:

ADVOCACY ROLE

- *Watched and scrutinized* government and industry to *ensure compliance* to environmental protection standards and regulations
- *Pressured* governments to protect Burns Bog as an ecological reserve or park and expanded their consideration of environmental factors in within the Burns Bog Analysis
- *Informed and educated* government and the greater community about harmful developments within Burns Bog and about the ecological values of the bog

SUPPLEMENTAL ROLE

- *Supplemented* the regular responsibilities and activities of government through voluntary, community-based stewardship
- *Legitimized* a government process - the Burns Bog Analysis - through direct participation in the process, providing and reviewing information, evaluating government roles and responsibilities, and assisting in the development of future land-use options

TRANSFORMATIVE ROLE

- Encouraged *transformation* in the way society and government operate by protest and education
-

NOTES

1. The Wildlife Act gives the provincial government authority to expropriate lands. However, in today's world this means very little because this measure has never been used in the name of conservation, whether it is for the greater good of society or not. Expropriation (and similarly with moratoriums) is a tool of last resort. Today human and property rights reign supreme, possibly above those of the greater public good. Consequently, direct measures that affect those rights are not politically or even socially palatable. Expropriation of private land means the government is obliged to compensate the landowner with fair market value of the land and is potentially subject to constitutional and legal battles.

2. Under the Constitution and the Charter of Rights and Freedoms, landowners have rights. It would be inappropriate, and possibly unconstitutional, to force a landowner, through a moratorium, not to proceed with any activities until certain concerns on the bog are sorted out. In the mean time, the landowner still has to pay property taxes. Again this type of direct action can be very costly and potentially dangerous from a political point of view.

3. A good example occurred during the early stages of the Burns Bog Analysis. Delta council allowed the subdivision of a parcel of land within the bog for cranberry farming. The process proceeded as follows (Coles, 1993):
 - WDL applied for a subdivision for a cranberry farming development. Because the land was within the Agricultural Land Reserve (ALR), approval was granted by Agricultural Land Commission.
 - No environmental review was required.
 - Delta Municipal staff recommended that council approve the ALC application because the land is zoned for Extraction (I3). This is consistent with the agricultural designation within the Official Community Plan (OCP).
 - Delta's environmental advisory committee had no objections due to the application being consistent with the OCP designation.
 - Delta council approved the development under the pretence that the decision was not an intrusion into the bog because it was 'farming,' not industrial development. This shows support for agriculture at the expense of ecological integrity.

This case features no involvement from BC Environment or from Environment Canada; it was not required. Because the proposed development was 'agricultural' in nature and was within the ALR and the jurisdiction of the Municipality of Delta, no further assessment was needed.

The Agricultural Land Commission, also, examined WDL's race track proposal strictly from an agricultural and economic perspective. Generally speaking, agricultural developments within the bog have been continually allowed on the basis that the ALC needs to support the agricultural industry, as long as it is agricultural in nature.

4. On July 20, 1991 a petition of 10,000 names was tabled in caucus by the Minister of Agriculture Fisheries and Foods, asking that Burns Bog be protected as an ecological reserve. At the culmination of the Minister of Environment's tour of Burns Bog, the Society presented the Minister

with an additional 5000 names. Petitions can be very successful tools to illustrate community support for more tangible community issues. Many of these strategies, taken in isolation, may not mean very much, however, taken all together with persistence over time the results can be significant. Unfortunately, these types of influences and successes are difficult to measure.

5. BC Parks commissioned a study on the hydrological characteristics of Burns Bog.

CONCLUSION

Environmental interest group work has been centrally important in the pursuit and maintenance of ecological integrity and diversity. (Gardner, 1991a:314)

The field of ecology, the understanding of natural systems, and societal values have dramatically changed over the past century. Wetlands, once considered wet, noxious and undesirable places, are now widely recognized as valuable elements, inseparable from British Columbia's natural heritage. British Columbia, however, is experiencing increasing pressure from population growth, urban expansion, and industrial and natural resource development. In the face of these pressures, governments have not been able to minimize wetland degradation and loss. Notwithstanding the great strides in environmental conservation, wetlands in British Columbia continue to be drained, filled in for development and plowed under for agriculture.

There are many factors that influence and shape governments' involvement in wetland conservation. While policy and planning initiatives are rapidly evolving in British Columbia, governments are faced with limitations that hamper efforts for wetland conservation. Some of these limitations became evident in the Burns Bog case study, including the lack of clear government priorities and policies for wetland protection, the fragmentation of jurisdictional powers, poor integration between different levels of government, and restricted financial resources. These limitations have significantly influenced government's ability to effectively implement much needed conservation measures.

In addition, land-use issues like those concerning Burns Bog are usually hampered by a lack of information and understanding about ecological values; ecological complexity, uncertainty and risk; strong economic and political forces; and diverse human values.

The main argument presented in this thesis is that environmental non-government organizations have important roles to play in:

- ensuring the recognition and maintenance of ecological integrity by government planning and decision-making processes,
- informing and educating government and the public about ecological systems and their values, and
- counter-balancing what are normally strong economic, political and development interests.

This chapter summarizes the findings from the Burns Bog case study, drawing conclusions from both the case study analysis and the literature. The chapter concludes with the implications of these findings for future wetland conservation in British Columbia.

7.1 THE ROLE OF ENVIRONMENTAL NON-GOVERNMENT ORGANIZATIONS

The case study concluded that a small community-based environmental organization can play *a significant role toward promoting wetland conservation*. The individual roles and conclusions are outlined below.

THE ADVOCACY ROLE

Environmental non-government organizations, through advocacy activities, can ensure compliance with government standards, regulations and policies, and can also ensure that ecological integrity is not lost through poor planning and decision-making. Advocacy is also a method for pressuring governments to broaden their view of land-use issues and environmental considerations, thereby enhancing the government's ability for informed decision-making.

The advocacy role was well demonstrated by the case study where an environmental organization was able to significantly influence wetland conservation by:

- watching and scrutinizing government and industry and their impacts on wetlands,
- informing and educating government and the community while building constituencies of support,
- applying direct pressure (lobby) on government and catalyzing action (the Burns Bog Analysis),
- ensuring that the ecological values of wetlands were not overlooked or undervalued in planning and decision-making, and
- counter-balancing political and economic influences.

THE SUPPLEMENTAL ROLE

An environmental non-government organization can supplement the regular roles and responsibilities of government in two ways. First, the organization can supply a service that government is unable or unwilling to provide but which supplements the regular responsibilities and activities of government. This service may be supplied through voluntary, community-based stewardship or through establishing partnerships with government or other organizations (a para-administrative role). Secondly, the organization can be integrated into a consensus-based planning and decision-making process to provide and review information, and help create options and solutions, and consequently act as a legitimizer of that process.

The para-administrative role was only weakly demonstrated by the case study. Although the environmental organization provided information and educational materials for schools, organized tours of the wetland, and was the caretaker of a municipal nature reserve, its efforts were seriously impeded by limited financial and staff resources. The organization

did, however, aspire to take on a more prominent stewardship role in the future.

The literature revealed that stewardship programs and on-the-ground conservation work requires substantial financial resources. Small community-based environmental organizations seldom have the money, time or people for such intensive programs. This is not to say that the para-administrative role is not important. On the contrary, great potential exists for significant contributions to wetland conservation throughout the province through cooperative partnerships between environmental non-government organizations and government, but also through community-based and individual volunteer stewardship. This was well demonstrated in Gardner's study of ENGOs in the Fraser River Basin.

The case study of Burn Bog concluded that an environmental organization can perform a strong legitimizing role by:

- participating in working and cooperative relationships with government and other stakeholders in planning and decision-making processes,
- bringing valuable information, knowledge and analytical capabilities to the table, participating in the analysis of land-use options, and achieving consensus on the ecological and wildlife values, and
- participating in the recruitment of experts.

The results of this study suggest an environmental non-government organization can have significant and constructive input in planning and decision-making processes.

THE TRANSFORMATIVE ROLE

The transformative role is characterized in the literature by activities that aim to fundamentally restructure the institutional system and the way society thinks and operates. This can mean anything from civil disobedience, to demonstration, to influencing social

change.

Although difficult to determine, the case study did indicate that the environmental non-government organization performed transformative roles. Essentially all the activities performed by the environmental organization were attempting to influence longer term changes in the way the community and government viewed the natural world and consequently operated in their day-to-day activities. The environmental organization, although focused on a narrowly defined land-use issue, sought more fundamental change through education and increased awareness.

7.3 IMPLICATIONS FOR THE FUTURE

How long can we go on and safely pretend that the environment is not the economy, is not health, is not the prerequisite to development, is not recreation? Is it realistic to see ourselves as managers of an entity out there called the environment, extraneous to us, an alternative to the economy, too expensive a value to protect in difficult economic times? When we organize ourselves starting from this premise, we do so with dangerous consequences to our economy, health and industrial growth.

We are now just beginning to realize that we must find an alternative to our ingrained behaviour of burdening future generations resulting from our misplaced belief that there is a choice between economy and the environment. That choice, in the long term, turns out to be an illusion with awesome consequences for humanity. (Caccia, cited WCED, 1987:38)

Challenged by a growing population, pressures on a limited land-base, and increasingly limited government financial and human resources, environmental non-government organizations have the potential to become increasingly important participants in land-use planning and decision-making.

Progress in the science of ecology has provided better knowledge and a deeper understanding of natural systems. Yet, even with the overwhelming evidence of human impact on environmental systems, a new ecologically-centred worldview has not emerged.

Although there have been dramatic changes in British Columbia over the last 5 to 10 years in our approach to land-use planning -- Chapter 4 outlined some of the new initiatives that attempt to apply a more holistic approach to land and resources management -- fundamentally, one can argue that land-use planning and decision-making is still *primarily* driven by economic concerns. Economic systems are based on growth, development and market forces, and have a significant influence on all aspects of people's lives in British Columbia and across Canada. These factors encourage environmental values to only be superficially 'considered' in today's planning and decision-making processes; planning and decision-making is seldom based on an ecological framework.

The Burns Bog land-use issue epitomizes the problems confronting planners and decision-makers today. They are complex problems with no easy solutions. Some key observations drawn from this study are:

- Governments are faced with limitations that hamper efforts for environmental conservation, including the absence of a clear provincial policy for wetland conservation and consequently unclear priorities for protecting valued wildlife habitat, biodiversity and wetland functions;
- There is a lack of information and understanding about the values and functions of ecological systems and the impact of economic growth and development on those systems;
- Government often turns to science for answers to crucial land-use and development questions only to find that science can not provide the information needed for land-use planning and decision-making;
- Ecological values and function are, in the face of uncertainty, often subject to being traded-off against more powerful and tangible economic and political gains;

- There are many diverging human interests and values.

Decisions concerning growth and development are often made without a full realization or understanding of the long term environmental and social implications. The lack of knowledge about wetland functions and values, the lack of a clear government position concerning wetlands and the ability of development interests to justify growth over and above ecological values often results in wetland loss or degradation.

Until better legislation, regulations and land development guidelines are brought forward at the provincial level, it is the people of British Columbia who must assume the responsibility for protecting the wetland heritage of this province. Partnership and cooperation are key to shaping British Columbia's response to wetland conservation in the future and environmental non-government organizations can play a significant role towards this end. Environmental non-government organizations can help to ensure that British Columbia's wetlands are not lost to development and economic growth. More generally, they can contribute to a more holistic comprehension of the relationship between ecological systems and economic, institutional and social systems, and ensure a higher valuation of nature, more compassionate and careful government planning and decision-making, and better stewardship of land and resources.

The extent to which environmental non-government organizations are accepted as constructive and pro-active contributors to planning and decision-making, however, really depends on the extent to which environmental organizations continue to:

- supply valuable information and knowledge to planning and decision-making processes,
- bring their analytical capabilities to planning and decision-making processes, and
- help develop potential options and solutions to land- and resource-use problems.

Governments also need to recognize that environmental non-government organizations can be a great resource and if their support and participation is solicited early in planning and decision-making processes, confrontation and mistrust can be avoided, leading to more cooperative and productive land-use decisions that will benefit society as a whole.

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APPENDICES

APPENDIX 1**INTERVIEWS**

Structured, open-ended interviews were conducted with:

1. Dick Roberts: Chair of the Burns Bog Analysis and Regional Director, Lower Mainland Region, BC Lands, Ministry of Environment, Lands and Parks
2. Bruce Cox: Regional Fish and Wildlife Manager, BC Environment, Ministry of Environment, Lands and Parks
3. Eliza Olson: President and representative of the Burns Bog Conservation Society

Informal discussions were also held with various members of the committee, including:

1. Don Demill: Wildlife Biologist and expert on Burns Bog
2. Dick Young: Delta Environmental Advisory Committee
3. Jim Lemaistre: Deputy Director of Planning, Corporation of Delta
4. Inger Kam: Executive, Burns Bog Conservation Society
5. Tom Johnson: President, Western Delta Lands

APPENDIX 2

INTERNATIONAL CONVENTIONS AND PROGRAMS

THE RAMSAR CONVENTION

The Ramsar Convention, drafted in 1971, is a convention for the conservation of internationally important wetlands, especially those important to waterfowl and migratory birds. Canada became a signatory to this convention in 1981 (Ward, 1987).

The main purpose of the Ramsar Convention is to acknowledge the significance and values associated with the productivity, biodiversity, and the international significance of wetlands. The convention is administered by the International Union for the Conservation of Nature and Natural Resources (IUCN). Within Canada, the Canadian Wildlife Service (Environment Canada) is responsible for administering the convention.

To have a Ramsar designation a wetland must be:

- Critical habitat for endangered or threatened species of plants or animals or for the breeding of fish and other aquatic species (i.e. where the habitat is rare, unique or outstanding to the region);
- A representation of certain aquatic or biotic communities found within a particular climatic zone;
- Of high value to aquatic birds or mammals (resident or migratory) as breeding, staging, feeding, moulting, or wintering areas;
- An exceptional area for research and education on nature, ecology, and conservation; and
- An exceptional tourist attraction due to its scenic, aesthetic, scientific, educational, and recreational values. (Ward, 1987)

Ramsar designations are not a legal form of protection, therefore a wetland would have to be protected before it is considered. A Ramsar designation simply conveys an international recognition to that wetland as an ecologically significant area. Only one such designation has ever been made within British Columbia, the Alaskan National Wildlife Area. Canada has a total of 17 sites, encompassing 10,464,100 hectares of wetland (Ward, 1987).

WORLD HERITAGE SITES

In 1972, the general assembly of the United Nations Educational, Scientific, and Cultural Organization (UNESCO), adopted the World Heritage sites Convention protecting world culture and natural heritage. Canada is a signatory to this convention.

The purpose of this convention is to acknowledge and promote the preservation of natural and cultural areas that are a significant heritage to the global community. Similarly to the Ramsar designations, formal protection must first be given by government before it can be designated as a heritage site (Ward, 1987).

Heritage sites must be:

- A representation of evolutionary history (biological or geological) or a stage thereof, such as a fossil bed or an old geological feature or phenomena;
- A representation of a contemporary evolution or geological process, or of human interaction with nature;
- A rare, unique, or exceptionally beautiful natural phenomena or feature;
- A habitat supporting threatened or endangered species of plants or animals.

MAN AND THE BIOSPHERE PROGRAM

In 1972 UNESCO established an international ecological program on Man and the Biosphere (MAB) (Ward, 1987). The purpose of this program was to create an international network of biosphere reserves that would represent the world's major ecological systems, including the various uses of these systems by humans.

A biosphere reserve is an area that is protected to conserve species and natural communities, but does not exclude human use. It recognizes human use as an integral part of the environment (BBCC, 1992; Ward, 1987). A biosphere reserve allows multiple use of the environment so long as no ecological degradation takes place.

APPENDIX 3

PROVISION UNDER THE LAND ACT FOR WETLAND CONSERVATION

- 1) To establish an Order-in-Council Reserve by securing crown land through an Order-in-Council. This is the strongest form of land tenure under the Land Act which remains administered by the Ministry of ELP. This type of land reserve has terms and restrictions for land use and a legally established management mandate;
- 2) To establish an Order-in-Council Land Transfer, by Cabinet, of administrative and management authority over crown land from the Minister of ELP to another Provincial Minister (this does not include transfers to federal levels);
- 3) To establish a Map Reserve by the Minister of ELP to reserve crown land which may be required by a ministry or agency for specific purposes. However, this is only an administrative designation (a map notation), and therefore, has no legal basis;
- 4) To establish a Notation-of-Interest, which is also a map notation and is the weakest form of administrative protection. This notation is used to provide short term administrative protection, pending studies or assessments.

APPENDIX 4

Race Track Proposal

In the late 1980s, with the increasing discussions about the need for a new horse racing facility, Western Delta Lands and its Hong-Kong based partner put forward a \$100-million proposal to the BC government to build a new race track on the industrially zoned lands in the northeast portion of Burns Bog. The proposal was rejected early in 1993.

Expansion of the Vancouver Landfill

In 1982 the City of Vancouver proposed to expand their landfill operation. One proposal was to expand into their northern parcel of land. This is one of the last remaining pristine (unaltered by human activity) areas of the Bog (see map). Although this proposal was later withdrawn, expansion of the landfill (an additional 359 hectares) is taking place east of existing operation (BBA, 1993; Piteau, 1992).

Golf Course Development(s)

In 1991, Pineland Peat put forward a proposal to develop a golf course (Delta Pines Golf Course) and was exempt from the Provincial Golf Course Moratorium. In the spring of 1994, the development proposal was turned down by Delta Council, only to be invited by the Mayor to reapply in six months.

Western Delta Lands is also proposing a golf course development near the Delta Nature Reserve. WDL has proposed a tradeoff to council...a small addition to the Nature Reserve for approval of the development. It is currently under consideration.

Agricultural Development

Delta Council has approved the conversion of 80 Hectares of bog for a cranberry farm. Other proposals are likely in the future.

Incinerator

Approval has been granted in principle for a new incinerator on the industrial lands at the edges of the bog. Under the provincial guidelines, the area being considered is deemed too unstable for this type of development. It has been suggested that the provincial guidelines may be altered to accommodate such developments (Olson, 1993: pers. comm.).

APPENDIX 5

RED, BLUE AND YELLOW LISTED SPECIES

A. Species at Risk

The Red List — Endangered/Threatened Species

The species in the Red List are defined as having low abundance. They are legally designated as either *threatened* or *endangered* — or they are being considered as potential designates for such status — because they run the risk of extirpation or extinction.

Endangered species are any indigenous (native) species threatened with imminent extinction or extirpation throughout all or a significant portion of their range in B.C.. *Threatened* species are any indigenous species that are likely to become endangered in B.C. if factors affecting their vulnerability do not become reversed. Recovery plans are being written that outline strategies for regaining viable populations within the province.

Within each ecoprovince, required management activities are ranked in order of priority. Planned activities may be conducted by agencies other than B.C. Environment (e.g. the Canadian Wildlife Service and the Royal British Columbia Museum).

In the Red List and the lists that follow, if a population estimate is available for a species it is included in the "*Current Status in British Columbia*" column. Population estimates are obtained using a variety of methods — from counts to informed guesses. (If no estimate is available, no number has been provided.)

The Blue List — Sensitive/Vulnerable Species

The species in the Blue List are *sensitive/vulnerable*: indigenous species that are not *threatened* but are particularly at risk. The reasons include low or declining numbers, and occurrence at the fringe of their range or in restricted areas. Population viability is therefore a concern, as shown by:

- Significant current or predicted downward trends in population numbers or density.
- Significant current or predicted downward trends in habitat suitability that would further reduce the species' existing distribution.

Species that are generally suspected of being vulnerable, but for which information is too limited to allow designation in another category, are included in this category.

Within each ecoprovince, required management activities are ranked in order of priority. Planned activities may be conducted by agencies other than B.C. Environment (e.g. the Canadian Wildlife Service and the Royal British Columbia Museum).

B. Species Not at Risk

The Yellow List — Management Emphasis Species

The species in the Yellow List have populations that are managed to meet specific public demands, including most game and furbearing species.

A management plan or status report will be prepared for each of the species in the Yellow List. Monitoring of populations, habitats and public use will be ongoing. *Since Yellow-List species will be highlighted in their own management plans, only breeding biology information (by ecoprovince) is shown here.*