

NATURE CONSERVATION ON PRIVATE LAND IN NOVA SCOTIA

BONNIE SUTHERLAND (M.E.S., H.B.O.R., B.SC., B.ED.)

Conservation of nature is vital to the maintenance of the ecological integrity and biodiversity of the Earth. At present, most nature conservation programs in Nova Scotia focus on either federal or provincial crown land. Despite this focus, about three quarters of the land area of Nova Scotia is privately owned, and contains many ecologically significant sites and features. Private land conservation is a strategy that has been used successfully throughout North America to complement traditional conservation efforts. It may offer great potential in Nova Scotia, although there are several issues that must be addressed to ensure its success. In this case study, I evaluated the attitudes of landowners in Hants County, Nova Scotia, and individuals involved personally or professionally in private land conservation across the province, in order to identify critical issues for successful private land conservation. These issues include a need for the following: data upon which to base private land conservation efforts; adequate and appropriate supporting mechanisms and infrastructure including funding and incentives, conservation tools, and institutional options; education of landowners and the general public to increase legal, political and public support for private land conservation; integrated planning and coordination of efforts; and a landowner-centered, community-based approach in all private land conservation efforts.

Keywords: nature conservation, natural heritage, private lands, landowner attitudes, Nova Scotia.

Introduction

The importance of preserving Nova Scotia's natural heritage is recognized in federal and provincial legislation, policies, conservation plans and strategies (Burnett and Hundert 1994; Canadian Society of Environmental Biologists 1987). It is also increasingly evident on the social agenda (Public Review Committee for the Proposed System for Parks and Protected Areas System 1995; Leduc and Smith 1992). In recent years, conservation professionals have come to recognize the need for alternative approaches to protecting natural heritage, including private land conservation (Canadian Environmental Advisory Council 1991; Carruthers 1989). At the federal level, the Protected Areas Vision for Canada, the Federal Government Green Plan, the Endangered Spaces Campaign of the World Wildlife Fund (Canada), and the National Biodiversity Strategy all recognize the vital role of private land conservation in natural heritage protection (Burnett and Hundert 1994; National Biodiversity Working Group 1994; Canadian Environmental Advisory Council 1992). Within Nova Scotia specifically, this recognition is apparent in the proposed Parks and Protected Areas System Plan; the Special Places Program; the Provincial Parks Policy; the Wildlife Strategy; and the Sustainable Development Strategy (Burnett and Hundert 1994; Leduc and Smith 1992; Ogilvie 1992).

Despite this recognition of the need for private land conservation in Nova Scotia, relatively little work has been done on how to successfully execute and organize private land conservation efforts, or how to encourage private landowners to improve their stewardship of the natural heritage values of their lands. In this study, I surveyed landowners in a region of Nova Scotia which has a high proportion of private land holdings and little formally protected conservation estate. In the survey, I examined the issues which need to be addressed in order to initiate and encourage private land conservation.

Rationale for the study of private land conservation

Nova Scotia's conservation goals¹ include: preserving biodiversity at genetic, species and community levels; protecting at least 12% of the province², and representing each of our 77 unique natural landscapes within a network of protected spaces (see figure 1). One of the key means to meeting these conservation goals is the Parks and Protected Areas Systems Plan. Although it represents an important conservation achievement, the plan will only protect 8% of the province and only 26 of the 77 natural landscapes (ecological regions), even if it is fully implemented (see figure 2). There is also a lack of repetition in its representation of natural landscapes, which makes the system more vulnerable to future loss of particular types of natural habitat.

Most significantly, the Parks and Protected Areas Systems Plan is incomplete because it only considered crown lands in its selection of candidate sites for legal protection. In Nova Scotia 74% of the land is privately owned (see figure 3). Many of the rare and endangered species, old growth forests and other features of important conservation value in the Province, are found on private lands (Leefe 1992). Private lands throughout southern Canada, including Nova Scotia, have a higher number of threatened birds and mammals and less protected space than public lands (Biodiversity Science Assessment Team 1994; Harding and McCullum 1994). Both the government and conservation groups within Nova Scotia recognize that private lands will play a vital role in filling significant "gaps" in the system plan, so as to meet conservation goals (Burnett and Hundert 1994; Leduc and Smith 1992; Smith 1996).

Scientific research and experience in protected areas planning and management point to the need for an ecosystem-based approach to nature conservation (Martinka 1992; Merriam 1993; Nelson 1993). Such an approach aims to protect ecological integrity and ecosystem health through the application of conservation biology principles (Canadian Environmental Advisory Council 1991; Rivard 1993; Slocombe 1993; Woodley et al. 1993). It aims to sustain all levels of biodiversity (Council on Environmental Quality 1981; Western 1992) and entire natural systems, cycles, patterns and processes (Biodiversity Science Assessment Team 1994; Dottavio et al. 1990; Franklin 1993; Freedman 1995; Merriam 1993; Noss and Cooperrider 1994; Slocombe 1993). An ecosystem-based approach to conservation moves away from the concept of managing protected spaces as if they are isolated islands of protection in a sea of exploited land (Beatley 1994; Harding and McCullum 1994; Holland 1993). In a province like Nova Scotia, in which much of the continuum between protected "islands" is privately owned, private lands will play a vital role in retention of the ecological integrity of the protected spaces. For example, private lands could be used to buffer a protected area from the deleterious effects of incompatible land and resource use (Biodiversity Science Assessment Team 1994; Harding and McCullum 1994). In addition, if managed appropriately, these lands can be used to extend protected areas boundaries to include adequate space for wide ranging species, or provide linkages between protected spaces to allow for migration, gene flow and normal evolutionary processes (Dottavio et al. 1990; Fiedler and Jain 1992; Grumbine 1990; Hudson 1991;

¹ Outlined in the Parks and Protected Areas Systems Plan (1996), the Provincial Parks Act (S.N.S., 1988, c. 18), the Wildlife Act (S.N.S 1989, c.504, s.19), the Sustainable Development Strategy for Nova Scotia (1992), the National Biodiversity Strategy, the Endangered Spaces Campaign (World Wildlife Fund Canada), and the Parks and Protected Areas Vision for Canada.

² Adopted from the Brundtland Commission Report, "Our Common Future," (World Commission on Environment and Development 1987) and later the World Wildlife Fund's Endangered Spaces Campaign, the Protected Areas Vision for Canada, and the Sustainable Development Strategy for Nova Scotia.

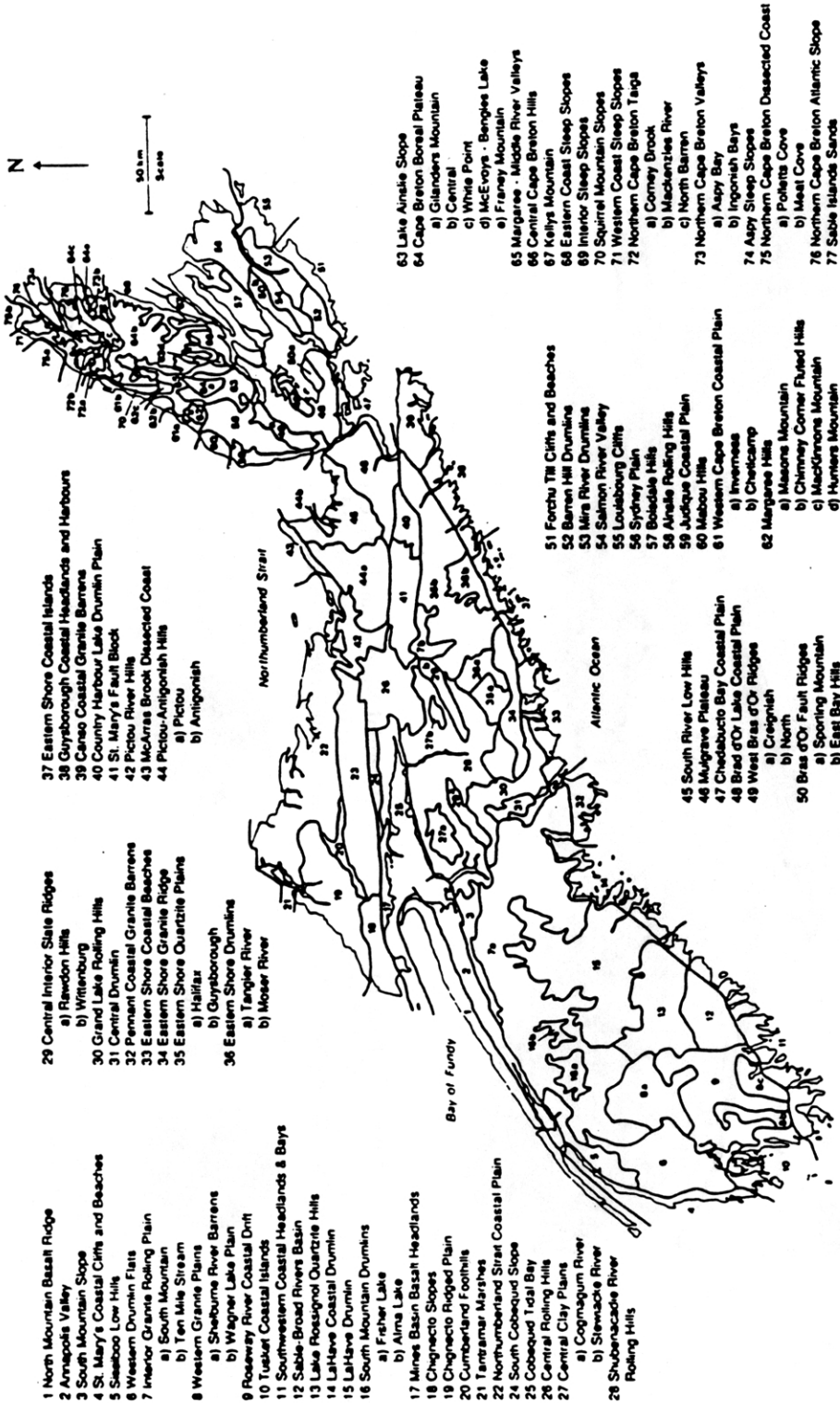
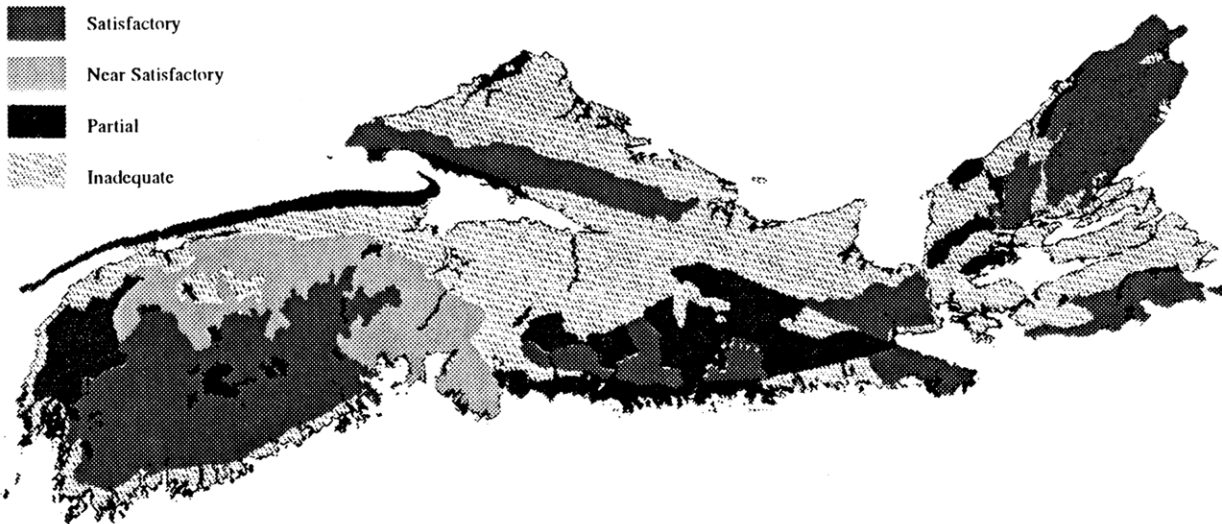
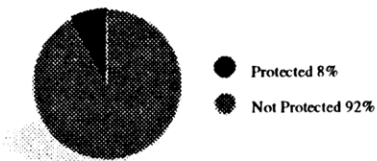


Fig1 Natural landscapes of Nova Scotia (Nova Scotia Department of Natural Resources Draft)



Potential Percent of Province Protected with Candidate Protected Areas



Potential Number and Percent of Landscapes Represented with Candidate Protected Areas

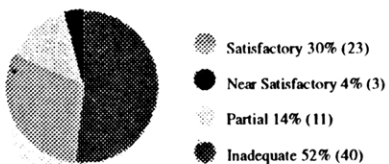


Fig 2 Potential representation with the Parks and Protected Areas Systems Plan (Nova Scotia Department of Natural Resources. March 1994. A Proposed Systems Plan For Parks And Protected Areas in Nova Scotia)

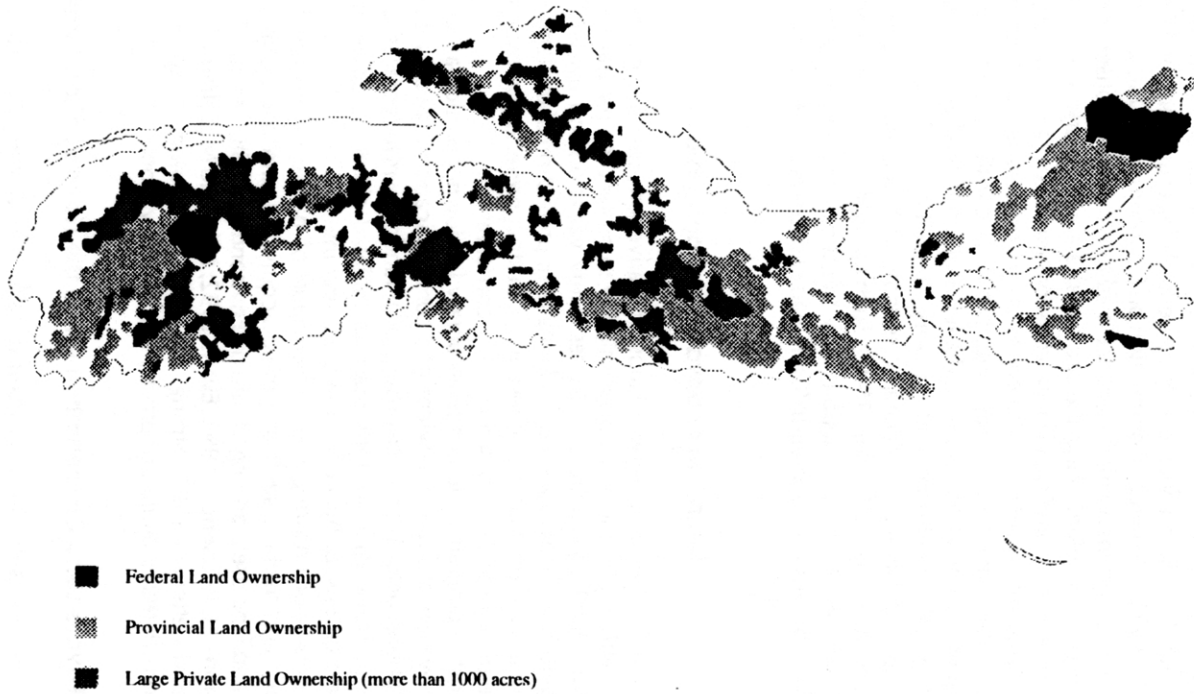


Fig 3 Land Ownership Patterns in Nova Scotia (Wildlife Advisory Council. 1993. Living With Wildlife. A Strategy For Nova Scotia)

McNamee 1989; Merriam 1993; Noss and Cooperrider 1994; Slocombe 1993; Soule and Wilcox 1980; Temple 1993).

Although used as a conservation tool in the past, public acquisition of natural areas for conservation purposes is increasingly becoming neither economically, nor politically, feasible in much of Canada (Edwards 1994; Morgan 1987). Nature conservation on private land provides a viable alternative (Deblinger and Jenkins 1991; Hilts et al. 1991; Keith 1993; President's Commission on Environmental Quality 1993). Not only does private land conservation enhance traditional nature conservation efforts by expanding and complementing the protected areas network, it may also increase public involvement in, and support for, conservation. Because it is based on education and landowner involvement in the conservation process itself, attempts to develop conservation agreements on private lands can help to instill an awareness of environmental issues, conservation values, and a sense of responsibility for protecting natural heritage (Canadian Environmental Advisory Council 1991; Filyk 1992).

Private land conservation offers a grass-roots and community-based approach to conservation (Cutting and Cocklin 1992). Such an approach is more likely to meet the needs of landowners, to be supported by the local community, and to create an atmosphere of trust and cooperation (Canadian Environmental Advisory Council 1991; Hobbs et al. 1993).

Definition of private land conservation

Private land conservation refers to those initiatives encouraging private landowners to take an active, yet voluntary, responsibility to protect the natural heritage of their land. Private land conservation includes many variations on ownership, use, and responsibility for the management and long term protection of the land. The methods range from a focus on wise use of resources, to strict preservation of an area with the assistance of an organization dedicated to conservation.

Stewardship programs encourage voluntary landowner participation through education, provision of support services and communication networks for landowners. Various options, or tools³, may be provided for landowners to protect their lands. Such private land conservation efforts may be initiated either by government or non-government groups, or by a coalition of several interests.

Other means of ensuring the conservation of nature on private lands include involuntary approaches, such as public acquisition and management, economic controls, and land use planning (Board on Environmental Studies and Toxicology and Commission of Life Sciences 1993; Evans 1992; Hilts and McLellan 1984; Hilts 1989; Madsen and Petterson 1987; Strong 1983). These involuntary approaches are not usually considered to be part of private land conservation.

Private Land Conservation within the Nova Scotian Context

Private land conservation has been an effective conservation strategy in North America, Britain, New Zealand and Australia (Brusnyk et al. 1990; Elfring 1989; Filyk 1992; Hilts 1993; Moull 1989). Within Nova Scotia, the organized promotion of private land conservation has only begun recently. The Parks and Recreation Division

³ Conservation tools include written agreements, conservation easements which ensure permanent protection of the land, provincial designation as a special place, and various options for donating or selling land for conservation purposes

of the Department of Natural Resources manages the Special Places Program through which private land may be designated as an ecological reserve. The Wildlife Division has initiated a wetland stewardship program for corporate owners of private land. Several non-government groups, including the Nature Conservancy of Canada, the Nova Scotia Nature Trust and regional conservation groups (the Bras D'Or Preservation Foundation, the Kingsburg Coastal Conservancy, the Tusket River Environmental Protection Association, and the Margaree Environmental Association) have become involved in private land conservation efforts. In 1992, the provincial government enacted the Conservation Easements Act (S.N.S., 1992, c. 2), which provides conservation agencies and designated non-government groups with a powerful legal tool to help landowners protect their provincially-significant lands in perpetuity. As a result of these various initiatives, private individuals and corporations have been involved in protecting natural areas through partnerships with conservation organizations and agencies, as well as through the sale or donation of land.

Enhancing Nature Conservation on Private Land in Nova Scotia

Although conservation initiatives from across North America and Britain provide a base of information about private land conservation, the associated literature strongly recommends context-specific research to determine specific issues influencing the potential success of private land conservation efforts (for references, see Sutherland 1996). These influences varied significantly among studies, across geographic and cultural lines. Little relevant research had been conducted in Nova Scotia⁴. In response to this research need, I conducted a study to examine how private land conservation could be enhanced within Nova Scotia (Sutherland 1996).

Methods

To examine the potential issues influencing private land conservation within the Nova Scotian context, I conducted a case study based in Hants County. I collected the data for the study using written questionnaires and personal interviews. Data were collected from three groups: (a) a representative randomly-selected sample of 64 rural Hants County landowners with lands of potential conservation value (there was 90% statistical confidence that the sample group was representative of the entire landowner population); (b) the entire set of 15 landowners in Nova Scotia who have some involvement in formal private land conservation efforts; (c) 39 individuals selected from government agencies, non-government groups, and academic institutions with an interest in private land conservation. The questionnaires were extensive, including 130 questions for landowners, and 175 for other respondents. Respondents took between 1 and 3 hours to complete the questionnaire.

The survey examined landowner attitudes, knowledge of nature conservation, and knowledge of private land conservation. It assessed all respondents' perspectives on potential incentives and disincentives for landowners to participate in private land conservation efforts, as well as obstacles to, and recommendations for, enhancing the success of private land conservation efforts. I presented the results using descriptive

⁴ The only relevant research includes a wetland stewardship strategy (MacDonald 1990), a report on enhancing wetland stewardship using municipal planning strategies (Evans 1992), an article on Conservation Easements (Power 1995), and some works in progress by the Nova Scotia Department of Natural Resources.

statistics, and analyzed them using measures of association and correlation, to test for patterns in responses, and differences between sub-groups of respondents (for details, see Sutherland, 1996).

Results and Discussion

General Survey Findings. The study results indicate a high level of landowner concern about the environment and support for nature conservation, including private land conservation efforts. Over 80% of landowners surveyed expressed an interest in participation in private land conservation efforts. The results, however, also suggest that several factors inhibit such participation and may influence the effectiveness of private land conservation efforts.

One of the most important obstacles to successful private land conservation within Nova Scotia is a lack of adequate data on private lands upon which to base conservation efforts and planning, including establishing priority sites. The provincial Department of Natural Resources has undertaken an extensive study of ecologically significant sites on crown lands in the province (Mackinnon 1996), and is beginning to document some sites of conservation interest on private lands. In addition to this work, it will be important to gather local knowledge about sites retaining natural values worth protecting, through community-based networks and other relatively informal initiatives.

The second major obstacle to effective conservation suggested by the study is a lack of adequate infrastructure and mechanisms in support of private land conservation. The study suggests that this inadequacy is due both to the short history of formal private land conservation efforts, as well as a lack of adequate political will (expressed as lack of social, economic and legal support for private land conservation). The inadequate economic infrastructure has resulted in a lack of funding for private land conservation initiatives. Suggested solutions which arose from the study include the development of partnerships between government and private conservation groups, and creative fund-raising efforts by the private sector. The weak economic infrastructure also means a lack of incentives for participating landowners. Incentives were strongly advocated by respondents, in light of the economic hardship facing many landowners, dependence on land and resources for economic security, and frustration by landowners about the tax penalties for donating land for conservation. The most important incentives were considered to be property and tax incentives, based on revisions to the Provincial Assessment Act and the Federal Income Tax Act. Another recommended incentive is cost-sharing to help landowners cover additional expenses of conservation, such as property surveys and appraisals needed for some conservation agreements.

As well as lack of incentives, there is currently a lack of readily available and standardized conservation "tools". These tools should be "landowner-friendly", accessible and efficient. They should be supported by documents written with landowners in mind, as well as by the relatively cumbersome technical documents which are necessary for administrative and legal purposes.

The results suggest that there is a lack of adequate and appropriate institutional options to support interested landowners. There is a need for a variety of institutions (Trusts, Foundations, etc.), ranging from local to national in scale. Of particular importance are local non-government community-based groups, whom landowners feel they can trust and with whom they can relate. Because of the limited resources available in the province for non-government groups, there are significant challenges

in securing funding, technical resources, and expertise. In response to these challenges, respondents suggested that it is important for groups to cooperate and provide mutual support and sharing of resources and expertise.

The results emphasize the need for coordination and integration of private land conservation efforts at various levels. First, on an institutional level, programs and initiatives must be coordinated between and within government agencies, between government and non-government groups, and between the various non-government groups. Second, coordination between different types of private land conservation efforts (such as resource-conservation and preservation efforts), and different approaches to protecting nature on private land (such as land use planning tools and corporate stewardship) would ensure the attainment of common goals while avoiding competition and redundancy. Finally, hierarchical integration of efforts on various scales, such as through a provincial strategy and network, would ensure adequate representation of significant local, regional and provincial ecological areas and features in a comprehensive conservation system.

A landowner-centered approach is essential for successful private land conservation efforts, including opportunities for genuine landowner involvement and consultation in all aspects of private land conservation. There should be regular communication with interested landowners. These efforts should be founded on respect for landowners, as well as respect for their knowledge and experience of the land, and recognition of their contributions.

Some responses differed significantly among the rural landowners, the landowners involved in private land conservation, and individuals offering an administrative/planning perspective. These differences point to the need for careful consideration of all three perspectives in designing and carrying out private land conservation programs and services. The random sample of landowners, for example, expressed concerns about infringements on their rights and independence as landowners, liability and trespass issues, and concerns about family inheritance and future use of the land. They demonstrated some attitudes that could work against conservation, and a need for education about basic nature conservation values and issues, as well as private land conservation options. The landowners involved in private land conservation were significantly different in their personal and land characteristics, as well as their concerns and interests. They were more likely to have higher levels of education and income, to be in non-resource-based occupations, to have an urban background, and to be only seasonal or even absentee landowners. Their needs focused more on information about various conservation options and the tax implications of each. As a result, the educational approaches appropriate for these two groups vary significantly.

The respondents stressed that private land conservation efforts must be community-based or at least include participation and support by local community groups. Existing communications and support networks provide a valuable means of conveying private land conservation messages.

Finally, the study highlights the vital role of education in enhancing private land conservation within Nova Scotia. There is a lack of landowner knowledge about nature conservation and private land conservation options, and there are some attitudes based in misunderstandings which may work against conservation. Specific landowner concerns also need to be addressed within an education framework. Such education should include information about the natural value of the landowner's property, and options for protecting it. There is also a need for general public education about the

importance of both nature conservation and private land conservation in Nova Scotia. Such education is essential in increasing the level of government and public commitment to private land conservation, through economic, legislative, and political support.

Research Needs. There is a need for further research on appropriate and relevant strategies for providing education about private land conservation for rural landowners in Nova Scotia. The Nova Scotia Nature Trust (Halifax) has taken the first steps towards addressing this need. They are currently implementing the first landowner contact/education program in the province (McLaren, personal communication), based on the study results reported here. Further efforts to field test, and modify, the study recommendations for other areas of the province are also important. At the same time, alternative approaches to protecting nature on private lands should be explored, such as corporate stewardship, regional development projects, watershed planning, integrated resource management and land use planning. Further research on the economic rationale for private land conservation is needed in order to secure public funds for private land conservation efforts. Although there may be little private land conservation professionals can do to address the broader socio-economic, policy and land/resource use issues impacting private land conservation efforts, the connections between these issues and private land conservation should be explored further. Such research might provide recommended actions to mitigate undesirable impacts and to enhance positive influences on private land conservation.

Conclusion

With conscientious effort and cooperative spirit, together with recognition of the issues identified in this research, private land conservation has immense potential in Nova Scotia. Cooperation among conservation professionals, landowners and other interested individuals will lead to sensitivity to local needs, and is more likely to be supported by a broad range of Nova Scotians than purely government-driven processes. The educational and hands-on approach of private land conservation also provides an important opportunity to develop a conservation ethic in our communities. In this way there will be growing recognition of the importance of nature, the impacts of our actions on its sustainability, and our role as stewards of the natural world, including our extensive and ecologically valuable private lands.

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