

**ONTARIO'S LOWER SPANISH PINE LANDSCAPE:
THE WORLD'S LARGEST PRISTINE AREA OF
RED PINE AND EASTERN WHITE PINE FOREST**

by

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ABSTRACT

The purpose of this study was to evaluate the global significance of the Lower Spanish Pine Landscape which is a 40,000 hectare pristine area with a semi-continuous cover of at least ten percent white and/or red pine forest. Although the research branch of the Ontario Ministry of Natural Resources (OMNR) recognizes the value of this global perspective, the operations branch of the OMNR continues to evaluate the natural heritage of old-growth white and red pine forest strictly from a provincial perspective. When the abundance of old-growth white pine forest is considered throughout its natural range compared to its abundance in Ontario, its rarity increases considerably. It is likely that the same holds for old-growth red pine forest. Forest experts in 30 political jurisdictions outside of Ontario were surveyed regarding their knowledge of pristine white and red pine forest landscapes within their province or state. According to our results, the largest landscape of this type outside of Ontario is the Five Ponds Wilderness Area of northern New York State at 2,000 hectares - only five percent of the size of the Lower Spanish Pine Landscape. Although a consultant commissioned by the OMNR recommended that all areas of remaining old-growth white pine forest in the Lower Spanish Pine Landscape be protected, the OMNR has rejected this consulting report in favour of its own analysis. The OMNR recommends that 8,000 hectares (20 percent) of the Lower Spanish Pine Landscape be strictly protected leaving the remaining 32,000 hectares of this pristine area to E.B. Eddy for logging. Although both the OMNR and E.B. Eddy have existing policies that call for protection of unique areas such as the Lower Spanish Pine Landscape, neither has agreed to protect the entire 40,000 hectares of pristine white and red pine forest landscape. It is doubtful that the short-term gains of logging this pristine landscape outweigh the long-term benefits of its recreational, tourism and ecological values that can be guaranteed ad infinitum through protection. The Wildlands League has identified the entire Lower Spanish Pine Landscape as *one of Ontario's endangered spaces*.

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INTRODUCTION

Over a century of logging old-growth eastern white pine forest, which continues to this day primarily in Ontario, has left less than one percent of this now endangered ecosystem (Quinby 1993). Due to its similarity to eastern white pine in terms of range, habitat and exploitation history, it is highly likely that old-growth red pine forest is also an extremely rare ecosystem. Because of their extreme rarity; ecological, scientific, and economic value; and aesthetic appeal these old-growth ecosystems in Ontario have recently become the focus of much controversy (eg. Bray and Thompson 1990) and scientific study (Pinto 1989, Quinby 1989, White 1989, Day and Carter 1990a, Day and Carter 1990b, Iles 1990, Arbex Forest Development 1991, Quinby 1991a, Quinby 1991b, Carleton and Gordon 1992, Spectranalysis 1992, Welsh et al. 1992, Jensen 1993, Jones and Naylor 1993, Quinby 1993, Quinby and Giroux 1993, Carleton and Arnup 1994, Giroux 1994, Quinby 1994, Quinby and Suski 1995, Quinby et al. 1995a, Quinby et al. 1995b, Quinby et al. 1995c, Quinby and Lee in prep, Quinby et al. in prep).

Also recently, the Ontario Environmental Assessment Board (1994) specified that additional old-growth eastern white and red pine forests in Ontario should be protected. If we are to maximize the ecological integrity of protected areas, they should be large, at least 500,000 hectares in size, and as unmodified by human activities as possible (Hackman 1989). Due primarily to logging activities, however, pristine 500,000 hectare areas within Ontario's northern temperate forest are a thing of the past (eg. Quinby et al. 1995). Thus, the best that can be hoped for is to identify the largest remaining pristine landscapes and develop strategies to maintain their ecological integrity (Noss and Cooperrider 1994). Such strategies are most logically pursued on a natural region basis (World Wildlife Fund Canada 1995).

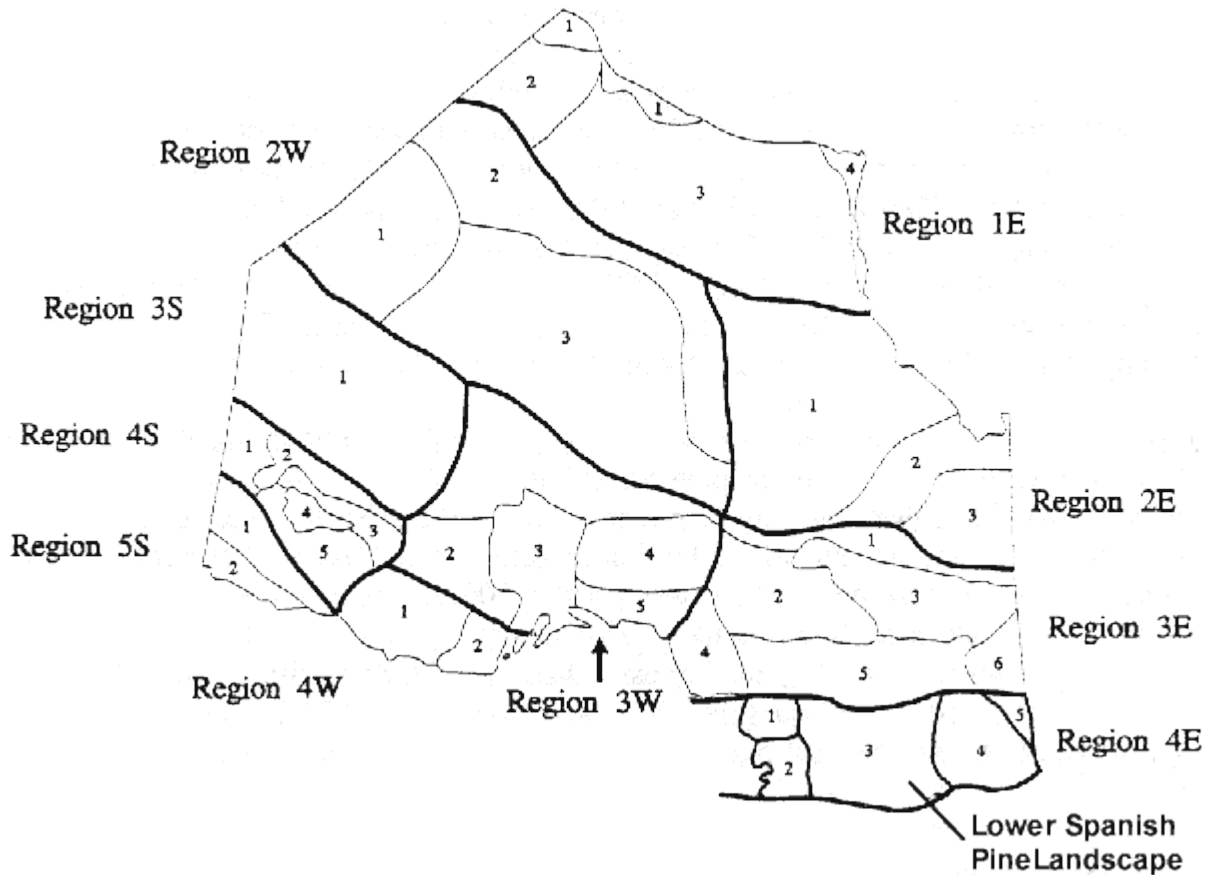
Ontario's largest continuous concentration of eastern white and red pine forests (stand age > 50 years; pine component > 10%) is found in the Lower Spanish Area which is centrally located in the Lake Temagami Site Region (LTSR) (Perera and Baldwin 1993) (Fig. 1). Approximately 40,000 hectares of pristine eastern white and red pine forest landscape remains in the Lower Spanish Area (Perera and Baldwin 1993, Quinby et al. 1995). This is far more pristine landscape than any other pine forest area in Ontario (Quinby and Giroux 1993). Accordingly, the entire area has been identified for protection on the Northern Ontario Endangered Spaces Map (Wildlands League 1995).

What is not currently known is the global significance of the 40,000 hectare Lower Spanish Pine Landscape. In other words, how does it compare to the same type of landscape within the 30 political jurisdictions outside of Ontario where these two forest types are (or once were) found? The research branch of the Ontario Ministry of Natural Resources (OMNR) recognizes this need for a global perspective to conserve the old-growth white and red pine forests of Ontario (Perera and Baldwin 1993). However, the operations branch of the OMNR continues to address white and red pine natural heritage as it exists only within the political boundaries of the Province of Ontario (Crins 1996). Restricting this assessment to Ontario ignores (1) more than 75 percent of the natural range of white and red pine and (2) existing information regarding the original and current amounts of old-growth white pine forest (Quinby 1993).

Only when the global significance of the Lower Spanish Pine Landscape is determined will it be possible to develop an effective, scientifically-based strategy for the long-term protection of its ecological integrity. Some elements of this strategy will be applicable to

Figure 1. Location of the Lower Spanish Pine Landscape within the Lake Temagami Site

Region (4E) of northern Ontario (from OMNR 1992)



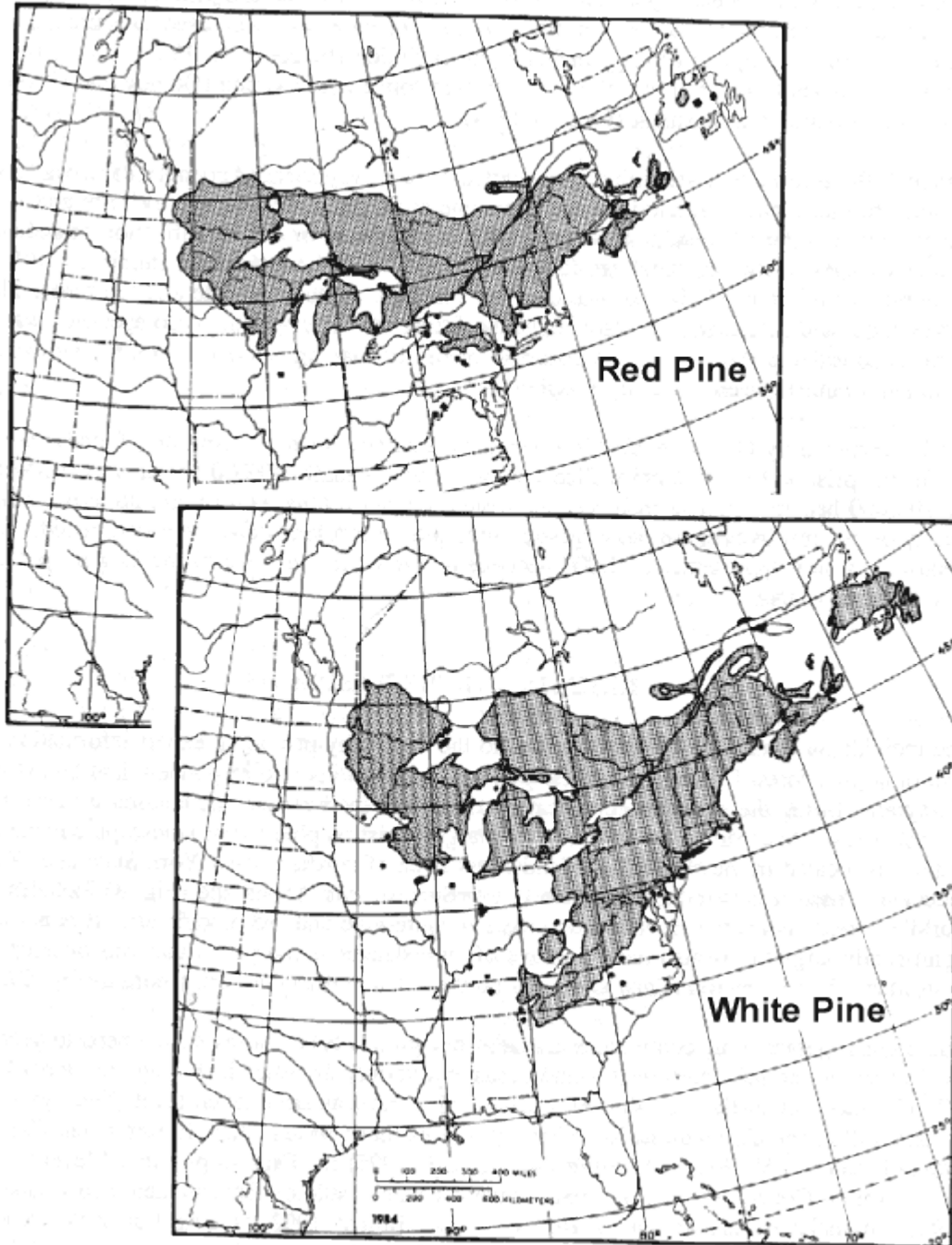
maintaining the integrity of other, smaller areas of ancient eastern white and red pine forest throughout their natural range.

The purpose of this study was to determine the significance of the ancient pine forest landscape of the Lower Spanish Area by comparing it to the same type of landscape throughout the natural geographical range of red and eastern white pine forests.

STUDY AREA

The natural geographical range of eastern white and red pine forests encompasses many political jurisdictions in Canada and the United States including Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Maine, Manitoba, Maryland, Massachusetts, Michigan, Minnesota, New Brunswick, Newfoundland, New Hampshire, New Jersey, New York, North Carolina, Nova Scotia, Ohio, Ontario, Pennsylvania, Prince Edward Island, Quebec, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin (Fig. 2).

Figure 2. Natural range of red pine and eastern white pine in North America (from Burns and Honkala 1990)



METHODS

The information used in this study is based primarily on a survey of experts (eg. Noss et al. 1995) familiar with the ecological status of eastern white pine and red pine ecosystems in their own political jurisdictions. Expert information surveys have also been used to address a variety of issues in applied ecology including air pollution (Fraser et al. 1985), long-term ecological studies (Strayer et al. 1986), old-growth forest conservation (Quinby and Giroux 1993) and ecosystem assessment (Cleaves 1994).

Although the information was initially requested on a survey form (Appendix 2), it was also obtained through letters, facsimilies and telephone conversations. The survey form and accompanying letter (Appendix 1) described the criteria used in our identification of ancient pine landscapes, including stand age (50 years minimum) and composition (minimum 10% white pine or minimum 10% red pine or minimum 10% combined white and red pine). The survey requested information on any landscape fitting this description. Also specified was that all areas considered should have no historical record of logging activity within the landscape. Follow-up inquiries were made by telephone.

Work completed by Quinby et al. (1995a) after the survey form was sent out, found that the size of the pristine Lower Spanish Pine Landscape was actually 40,000 hectares as opposed to the 100,000 hectare estimate included in the survey letter. This revision did not reduce the quality of our results because the largest pristine pine forest landscape identified outside of Ontario was only approximately 2,000 hectares in size or five percent of the Lower Spanish Pine Landscape area.

RESULTS AND DISCUSSION

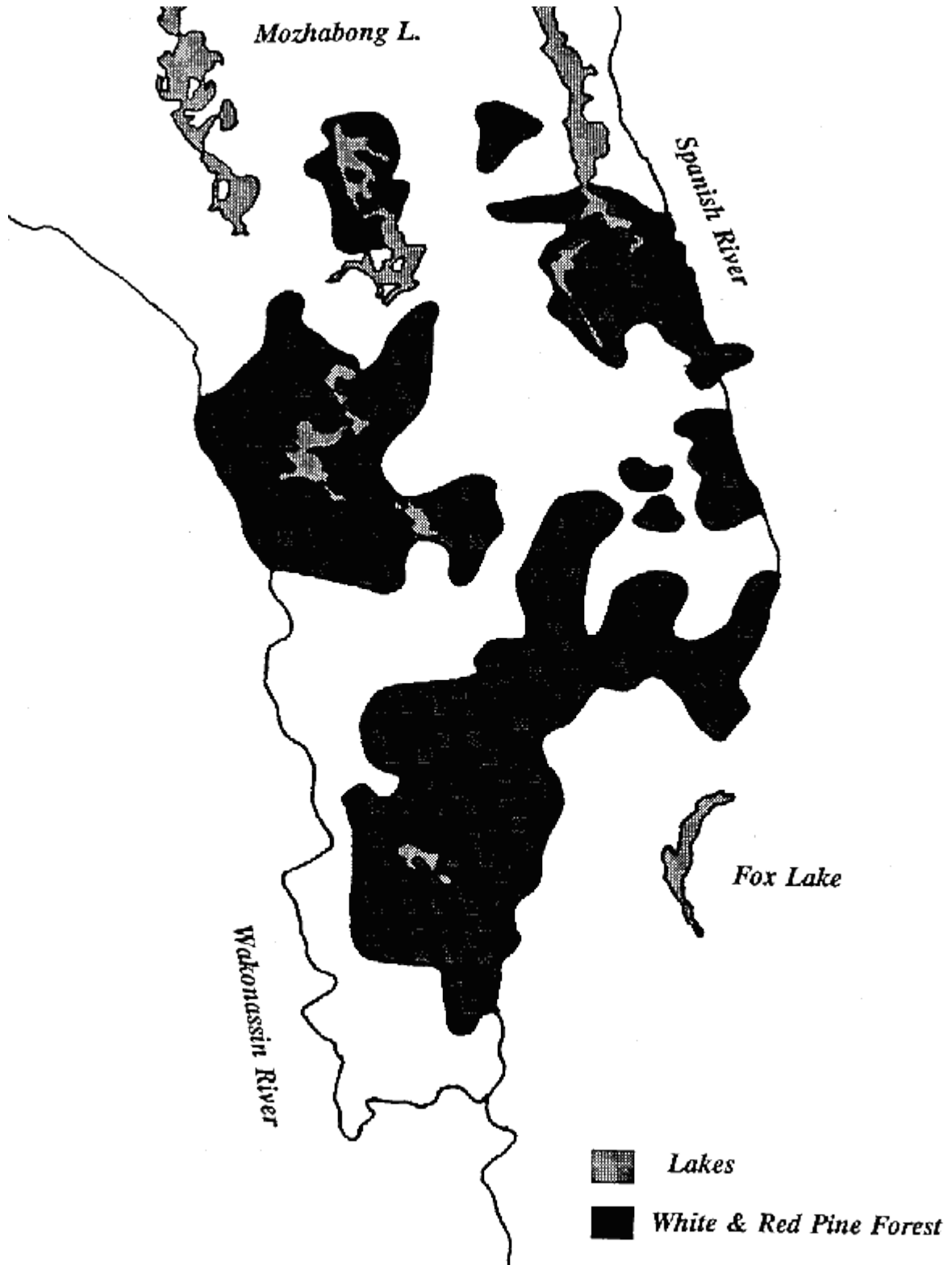
The individuals listed in Table 1 responded to the survey by providing expert information regarding pine forest landscapes in their political jurisdictions. No respondent had knowledge of any area fitting the survey criteria that is larger than the ancient pine landscape in the Lower Spanish Area. According to our results, the largest pristine pine forest landscape outside of Ontario is located in the Five Ponds Wilderness Area of northern New York State at 2,000 hectares. These results indicate that the Lower Spanish Pine Landscape (Fig. 3) includes the world's largest concentration of pristine eastern white pine and red pine forest. It is not only significantly large but is also representative of an endangered ecosystem that was once common from Manitoba to Newfoundland and from northern Ontario to northern Georgia (Fig. 2).

Numerous organizations, committees and advisory groups have addressed the need to protect the few remaining pristine forested landscapes at a variety of scales including the global level (World Resources Institute et al. 1992), the North American continental level (The Cenozoic Society 1992), the Canadian national level (Environment Canada 1986, Environment Canada 1989, Hummel 1989, World Wildlife Fund Canada 1995) the Ontario provincial level (Conservation Council of Ontario 1986, Ontario Round Table on Environment and Economy 1990, Provincial Parks and Natural Heritage Policy Branch 1992, Ontario Forest Policy Panel 1993, Old Growth Forests Policy Advisory Committee 1994, Ontario Environmental Assessment Board 1994, Ontario Ministry of Natural Resources 1995, Wildlands League 1995), the Lake Temagami Site Region level (4E in Fig. 1) (Noble 1983, Gauthier et al. 1995,

Table 1. List of political jurisdictions and experts that responded to the continental white and red pine forest landscape survey

POLITICAL JURISDICTION	EXPERT	ORGANIZATION
CONNECTICUT	Stephans, G.	Agricultural Experiment Station
DELAWARE	Schwalm, J.	Department of Agriculture
GEORGIA	Ambrose, J.	Department of Natural Resources
	Durkas, T.	Chattahoochee-Oconee National Forests, U.S. Forest Service
ILLINOIS	Poe, J.	Department of Conservation
INDIANA	Homoya, M.	Department of Natural Resources
IOWA	Kemperman, J.	Department of Natural Resources
KENTUCKY	Mann, R.B.	Daniel Boone National Forest, U.S. Forest Service
	Perkins, C.	Natural Resources and Environmental Protection Cabinet
MAINE	Tyler, H.R.	State Planning Office
MANITOBA	Middlebro, B.	Department of Natural Resources
MARYLAND	Thompson, E.	Department of Natural Resources
MASSACHUSETTS	Swain, P.	Division of Fisheries and Wildlife
MICHIGAN	Reuschel, T.	Department of Natural Resources
MINNESOTA	Pajala, R.E.	Department of Natural Resources
	Rusterholz, K.	Department of Natural Resources
NEW BRUNSWICK	McDonald, M.	Department of Natural Resources and Energy
NEWFOUNDLAND	MacDonald, J.	Canadian Forest Service
NEW HAMPSHIRE	Craig, C.	Department of Resources and Economic Development
NEW JERSEY	Edelman, D.	Department of Environmental Protection
NEW YORK	Currin, R.	Adirondack Park Agency
NORTH CAROLINA	Schafale, M.	Department of Environment, Health and Natural Resources
NOVA SCOTIA	Lynds, A.	Department of Natural Resources
OHIO	Jones, P.	Department of Natural Resources
PENNSYLVANIA	Davis, T.	Pennsylvania Heritage Program, The Nature Conservancy
PRINCE EDWARD ISLAND	McAskill, J.D.	Department of Agriculture, Fisheries and Forestry
QUEBEC	Demers, D.	Ministere des Ressources Naturel
RHODE ISLAND	Enser, R.	Department of Environmental Management
SOUTH CAROLINA	Pitman, A.B.	Department of Natural Resources
TENNESSEE	Pyne, M.	Department of Environment and Conservation
VERMONT	Marshall, E.	Department of Fish and Wildlife
VIRGINIA	Rawinski, T.	Department of Conservation and Recreation
WEST VIRGINIA	Harmon, P.J.	Department of Natural Resources
WISCONSIN	Parker, L.	Chequamegon National Forest, U.S. Forest Service

Figure 3. The Lower Spanish Pine Landscape located in central Ontario (adapted from Spectranalysis Inc. 1993)



Quinby et al. 1995a) and the Mississagi Site District level (4E-3 in Fig. 1) (Geomatics International 1992, Geomatics International 1994, Wildlands League 1995).

The most detailed and state-of-the-art work addressing the issue of red and eastern white pine forest conservation in the Lower Spanish Area was the gap analysis conducted by Geomatics International (1994) for the Ontario Government. In this report, they stated that:

"Given the data available, all remaining old-growth white pine forest should be retained in order to maximise the representation of this once common habitat in 4E3."

Thus, they found that even if all the pristine eastern white and red pine forests remaining in the Mississagi Site District (4E-3 in Fig. 1) were protected from logging, the range of habitat and community types of these once common ecosystem types would not be represented.

Because of fundamental disagreement with these recommendations of Geomatics, particularly the recommendation to protect 15 large reserves including all remaining old-growth white and red pine forest in the site district, the OMNR conducted its own gap analysis of site district 4E-3. This OMNR analysis concluded that only 20 percent (approximately 8,000 hectares) of the Lower Spanish Pine Landscape distributed within four proposed reserves should be set aside for strict natural heritage protection (Crins 1996). This leaves 32,000 hectares of pristine pine-dominated landscape available for logging. In addition, Crins (1996) admits that for at least two of the reserves, forest diversity is low and for one reserve, there are several old roads located within it, likely indicating historical logging.

Despite calls for the protection of rare ecosystems at all geographical scales throughout the world by numerous conservation organizations, logging of the pristine, endangered red and eastern white pine forest in the Lower Spanish Pine Landscape continues and is planned by E.B. Eddy (1995) for the next twenty years. The policy to allow the logging of an endangered ecosystem contradicts two primary elements of the most recent version of Ontario's crown land forest management policy. First, forest sustainability principle number four (Ontario Ministry of Natural Resources 1995a) states that:

"Forest ecosystem types should not be candidates for harvest where this practice threatens or jeopardizes their long-term health and vigor."

It has been clearly shown that old-growth eastern white pine forest is an extremely rare ecosystem if not an endangered ecosystem (Quinby 1993). The same likely holds for old-growth red pine forests. For the 32,000 hectares of unprotected pine forest landscape in the Lower Spanish Area, the highly intensive activity of shelterwood logging, which removes approximately 50 percent of the tree biomass in the first cut and the rest in another cut 20 years later, will without doubt, reduce the long-term health and vigor of these endangered forest ecosystems.

Secondly, the recently developed Conservation Strategy for Old Growth Red and White Pine Forest Ecosystems in Ontario (Ontario Ministry of Natural Resources 1995b) states that:

"Protection will be through...provincial parks or other categories of

protection. The key objective for protection is to protect representative ecosystems of old growth red and white pine in each site district in Ontario within the natural range of pine."

The Geomatics International gap analysis (1994) clearly states that all remaining old-growth red and white pine forests in the 4E-3 site district should be protected.

In the absence of a provincial government commitment to protect this globally unique area, one might turn to the forest industry given its recent proclamations of environmental stewardship. In 1990 E.B. Eddy, the forest operator in the Lower Spanish Pine Landscape, produced an Environmental Policy Statement explicitly stating the following (relevant excerpts only).

- (1) *E.B. Eddy Forest Products is aware that sound environmental management practices are essential in maintaining a successful, fully integrated forest products enterprise.*
- (2) *The environment...is shared by all the people and serves a multitude of uses, from wildlife habitat, to a source of industrial raw materials.*
- (3) *...Resources must be managed responsibly to protect the interests of all users.*
- (4) *Mere compliance with environmental regulations is not sufficient; E.B. Eddy will maintain environmental leadership by:*
 - (a) continually improving our environmental performance;*
 - (b) actively supporting research into environmental improvements;*
 - (c) actively promoting and supporting conservation projects at our operating locations; and*
 - (d) being direct and forthright in our communications.*

To date, E.B. Eddy has not made a commitment to maintain the pristine character of the Lower Spanish Pine Landscape despite their knowledge of its global significance (Quinby and Hall 1995). One can only conclude therefore, that their statement of environmental stewardship (E.B. Eddy 1990) has no relevance to the case of the Lower Spanish Pine Landscape. In fact, it is most likely that their interest in the Lower Spanish Pine Landscape stems exclusively from their recent purchase of the Lajambe Forest Products mill located near Sault Ste. Marie which is tooled specifically for producing lumber from large white and red pine trees.

CONCLUSION

All major players involved in the protection of old-growth white and red pine forests in Ontario - including OMNR, conservation organizations, ecological consultants and forest industry - agree that strict protection of these unique forest ecosystems is necessary. There is very significant disagreement, however, over the amount of protection required. By using current biodiversity theory (e.g. natural disturbance regimes and large carnivore territory requirements) Geomatics International (1994) has provided a very convincing argument for large area protection in the Lower Spanish Pine Landscape. The fact that the OMNR has rejected this scientifically rational and defensible approach indicates that their natural heritage analyses involve more than the application of good science.

Although these other factors are not addressed by Crins (1996), it is likely that both economics and politics have influenced OMNR natural heritage decisions for the Lower Spanish Pine Landscape (Noss and Cooperrider 1994). Until OMNR analyses explicitly address these additional factors, conflict and disagreement over natural heritage decisions in Ontario will continue to plague a cooperative effort for natural heritage protection.

There is now overwhelming evidence both in terms of biogeography and ecological processes to support the complete protection of the Lower Spanish Pine Landscape. This landscape is not only unique within Ontario but also has global significance. And in size, it falls within the 10,000 to 100,000 hectare minimum recommended by Geomatics International (1994) for maintaining ecological processes. It is doubtful that the short-term gains of logging this 40,000 hectare pristine pine landscape outweigh the long-term benefits of its recreational, tourism and ecological values that can be guaranteed ad infinitum through protection.

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Appendix 1. Letter sent to the forest experts throughout eastern North America

Dear EXPERT:

I am currently putting together an Atlas of Ancient Forested Landscapes in Central Ontario, and am in the process of identifying areas that have never been logged. The criteria we use in our identification process are the following:

- 1) Forest stand age: 50 years minimum
- 2) Stand composition: minimum 10% white pine
 or minimum 10% red pine
 or minimum 10% combined red and white pine

We have identified an area meeting the above criteria that is approximately 100,000 ha in size. Having discovered this large landscape has stimulated our interest in how this area compares to others of similar composition. We are therefore conducting an expert opinion survey, and would like to know if you are aware of any larger area that meets these criteria. We would appreciate it if you could fill out the enclosed form, describing any such landscape you are aware of. We do not expect you to take a lot of time gathering data, instead, we ask that you only consider the information that is currently at your disposal, and base your response on this.

We have an interest in conducting landscape studies of areas with significant white and red pine composition, including the use of unlogged areas as control sites. We are also interested in the non-scientific values of these ancient landscapes, such as recreation, education, spirituality, and aesthetics.

Appendix 2. Survey form sent to the forest experts throughout eastern North America

Ancient Pine Forest Survey

Name: _____

Position: _____

Place of Work: _____

Are you aware of any landscape that fits the previously described criteria? _____

Location of forest: _____

Amount of area that fits criteria (ha or acres): _____

Amount of area within this with no historical record of logging (ha or acres):__

Please append additional information if necessary.

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