
2003 Afforestation Study

Summary Report

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#240-7139R

Prepared for:

Nova Scotia Power Inc.
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March 2003

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Introduction

Nova Scotia Power Inc. (NSPI) is partnering with Canadian Forest Service over several years to conduct a pilot “afforestation / reforestation” project in Nova Scotia. This project will test partnerships with private landowners with a view to estimating the carbon-sink potential of existing forestlands, industrial lands and private lands. Working together, NSPI’s and Canadian Forest Service is interested in assessing Nova Scotia landowners’ current awareness of carbon sequestration, and the level of interest in taking part in an afforestation initiative. To this end, Corporate Research Associates Inc. (CRA) was commissioned to undertake the **2003 Afforestation Study**. The objectives of this study were to:

- Assess Nova Scotia landowners’ awareness of carbon sequestration;
- Determine interest levels in participating in an afforestation project in Nova Scotia; and,
- Identify which organizations landowners consider most appropriate in implementing such an initiative.

This report presents the findings of the **2003 Afforestation Study**. The study consisted of 400 random telephone interviews with Nova Scotia landowners and was administered between March 19 and 22nd, 2003. A sample of this size drawn from the population provides results accurate to within plus or minus 4.9 percent in 95 out of 100 samples. A more complete description of the methodology used for this survey is provided at the back of this report.

It is interesting to note, that when recruiting respondents for this survey, about half of the population (45% of Nova Scotians) consider themselves to be landowners. This differs from the percentage of Nova Scotians who are property owners (75% of the population, based on CRA Atlantic Omnibus). The definition of landowner is clearly perceived to be different from that of property owner. At the same time, property owners for the most part (except condo owners, for example) also own land.

This report presents a detailed analysis of findings, as well as an executive summary. Included at the end of this report is a copy of the Questionnaire (Appendix A), and comprehensive Tabular Results (Appendix B). The tables are denoted by number in the report (e.g. Table 7) for easy reference.



Executive Summary

Results of the 2003 **NSPI Afforestation Study** indicate that there is widespread awareness of the benefits of trees in relation to improving air quality and reducing global warming. Conversely, there is virtually no awareness of carbon sequestration, the technical term used to describe how trees remove carbon dioxide from the air. Clearly, the language used to promote the plantation of trees will be critical in terms of gaining support of this important issue, and use or promotion of the term carbon sequestration would likely not benefit any afforestation program. Also of note, landowners consistently refer to their property in acreage rather than hectares, suggesting that the term acres should be included or referred to in any communications initiatives to ensure clarity.

There is strong recognition among landowners of the importance of their help in improving the environment by planting trees. There is also a significant level of willingness among those surveyed to do so.

At the same time, expectations regarding the technical and financial assistance required to assist those willing to plant trees on their land is somewhat surprising. There are higher expectations for **technical** support than **financial** support with regard to participation in an afforestation program. There appears to be some sense among landowners of shared responsibility for such an initiative. It should be noted that both technical and financial expectations increase with the amount of acreage owned.

While there is a high level of interest in participating in an afforestation program among those who expressed willingness to plant trees, these intentions should be discounted to reflect the number of landowners who would actually participate. Using the 80/20 rule, a more realistic expectation would be that one in five landowners would actually participate in an afforestation program, with the strongest interest being in northern mainland.

Finally, there is a clear preference to work with forestry and landscaping companies in a natural afforestation program and significant discomfort in working with an electric utility in such an initiative. That being said, NSPI's participation in this project presents a public relations opportunity for the utility, allowing the company to demonstrate both its environmental commitment and involvement to Nova Scotians.

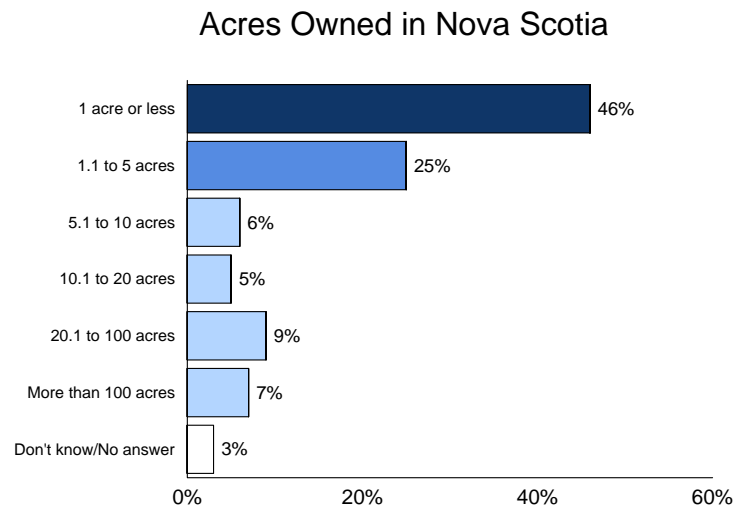


Detailed Analysis

Land Ownership in Nova Scotia

The vast majority of Nova Scotia landowners use their land for personal use rather than commercial purposes.

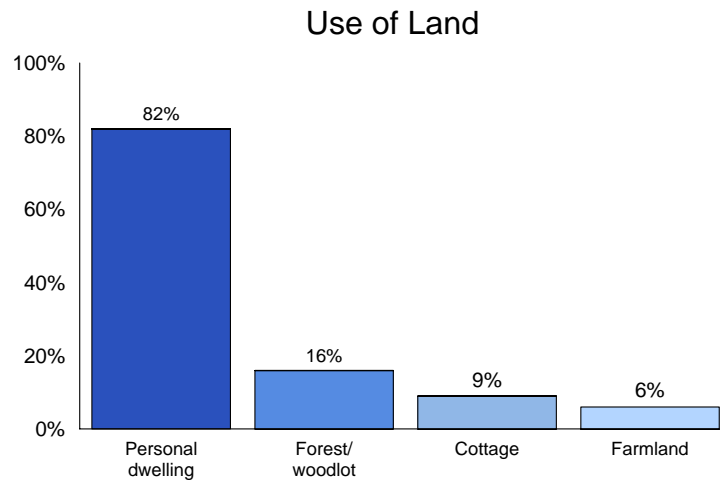
Close to half of Nova Scotia landowners report to own an acre or less of land. It is interesting to note that all those surveyed used acres rather than hectares to describe the size of their holdings. One in five own ten acres or more, while seven percent own at least 100 acres of land. (Table 1)



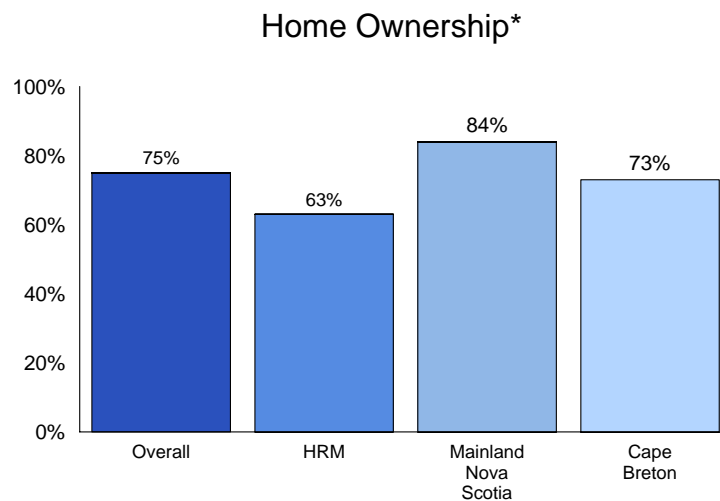
It is worth noting that those living in mainland Nova Scotia are likely to own more land on average than those living in other parts of the province. This may be a reflection of higher urban populations living in both the County of Halifax and Cape Breton relative to the remainder of the province.

The vast majority of landowners use their land for a personal dwelling. The most frequent commercial use is as a wood lot (16%), followed by use as farmland (6%). About one in ten own land for recreational use as a cottage. (Table 2)





While land is mainly used for personal dwellings in the more urban areas of the province, (namely in the county of Halifax and Cape Breton), there is significantly more mixed use of the land in mainland Nova Scotia. The distribution of land ownership in Nova Scotia differs from the population distribution. This may be partially explained by the percentage of property (or home) owners within the province. Mainland Nova Scotia has the highest percentage of property owners in the province, while the HRM has the lowest.



* CRA Atlantic Omnibus

The actual distribution of land ownership compared with population distribution again, indicates there is a lower propensity of land ownership within the county of Halifax compared with the remainder of the province. As the following indicates, those in HRM have a land ownership index of .75 indicating that they are 25 percent less likely to own land than the average Nova Scotia.

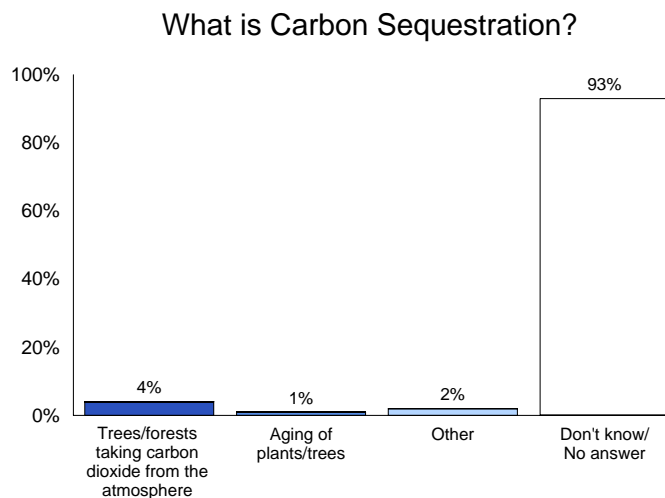


Land Ownership Propensity			
	Land Ownership Distribution	Population Distribution	Land Ownership Index
Halifax Regional Municipality	27%	36%	.75
Mainland Nova Scotia	55%	48%	1.15
Cape Breton	19%	16%	1.19
Total	100%	100%	1.00

Awareness of Carbon Sequestration

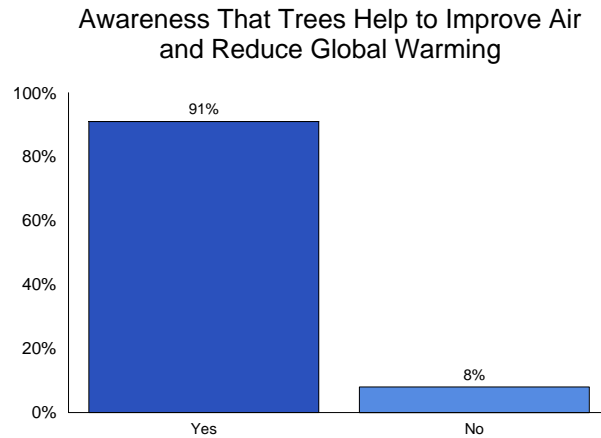
While there is little awareness of the technical term carbon sequestration, the vast majority of landowners fully understand the role that trees play in improving the air and reducing global warming.

Not surprisingly, there is little awareness among landowners of carbon sequestration, the technical term used to describe how trees remove carbon dioxide from the air. More than ninety percent were unfamiliar with this term. (Table 4)



On the other hand, nearly the same number were aware that trees help to improve the air and reduce global warming. Clearly, the language used to promote the plantation of trees will be critical in terms of gaining support of this important cause. Indeed, it is likely not worth using the term carbon sequestration at all or even trying to educate the target audience regarding the meaning of this term. (Table 5)

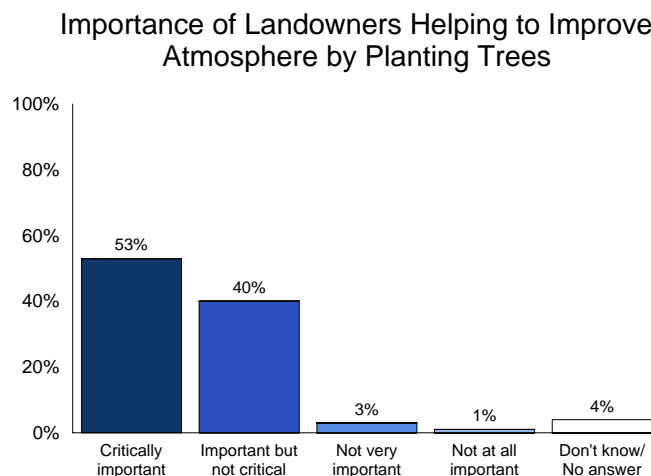




Support for Afforestation Program

There is both a high level of recognition of the importance of landowners in helping improve the environment by planting trees and a significant willingness to do so.

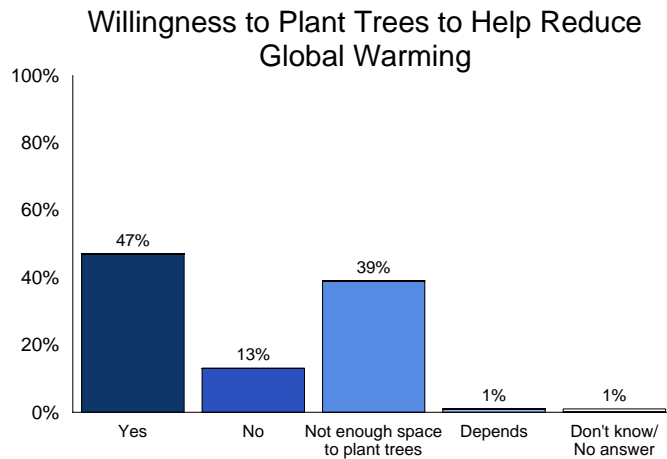
More than half of the landowners surveyed believe that it is of critical importance to help reduce the amount of carbon dioxide in the atmosphere by planting trees. A further forty percent consider this to be an important, but not critical issue at the moment. (Table 6)



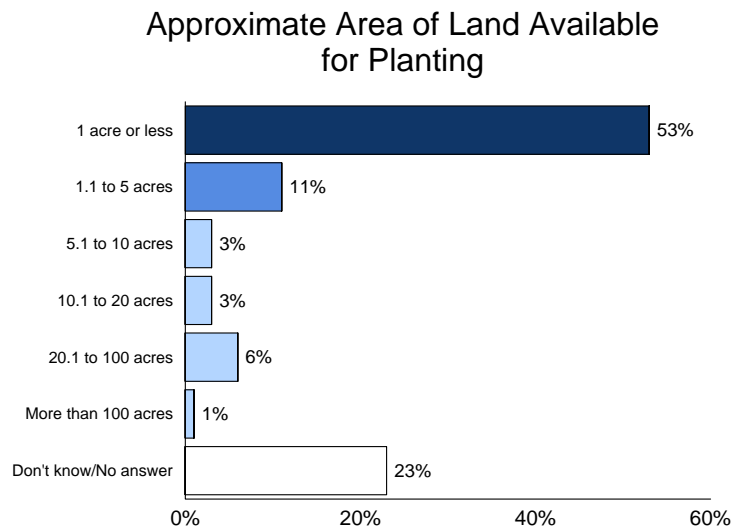
It is important to note that the areas of the province with the most land ownership, both as a percentage of the population and in terms of total average, are most likely to consider afforestation to be critically important.

About one in two landowners would be willing to plant trees on their land to help reduce global warming. It is interesting to note that only thirteen percent would be unwilling to do so, with the remainder feeling that their land holdings were simply too small to plant any trees on. There may be some opportunity to influence those who feel there is insufficient space on their land to plant trees. (Table 7a)





Among those willing to plant trees, half have an acre or less available for planting. One in ten have ten acres or more for planting, while a quarter were unable to produce a response in this regard. (Table 7b)



Landowners on mainland Nova Scotia should be considered a primary target, especially those owning land in northern mainland, given their overall willingness to plant trees and the average acreage available for planting.

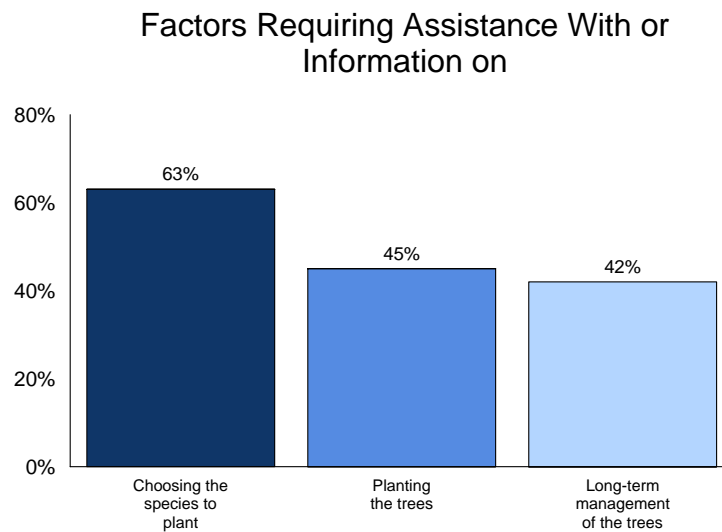
	Willingness to Plant Trees	Average Acreage Available to Plant
HRM	45%	3.6 acres
Southern Mainland	41%	6.1 acres
Northern Mainland	52%	13.8 acres
Cape Breton	51%	3.2 acres



Expectations Regarding Afforestation Assistance

There are higher expectations for technical assistance than financial assistance among those willing to plant trees on their land.

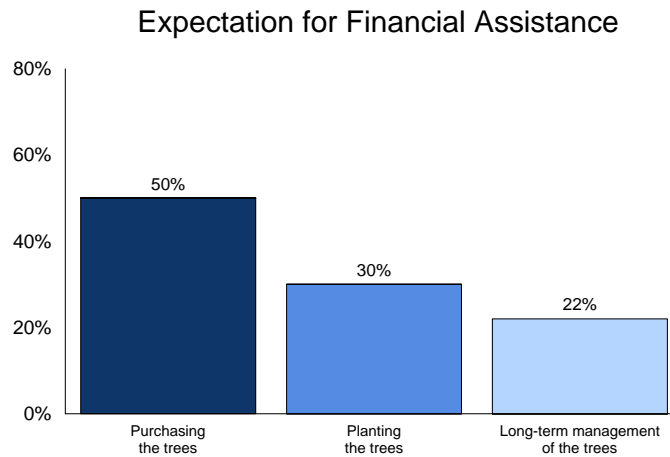
Landowners were asked which of a number of factors they would require assistance, with or information on, if they chose to plant trees. The most important assistance expected by those willing to plant trees on their land was related to ***information regarding the choice of species*** to plant. Considerably fewer expect assistance in either ***planting the trees*** or ***long-term management*** of the trees. (Tables 8a-c)



Expectations for technical assistance are highest among those with the most acreage and for those who own land in Cape Breton.

Somewhat surprisingly, expectations related to ***financial assistance*** are relatively modest. To become involved in an afforestation initiative, landowners were asked if they would expect financial assistance with ***purchasing*** the trees, ***planting*** the trees or ***long-term management*** of the trees. Only half of those willing to plant trees expect financial assistance in the purchase of the trees. Significantly fewer expect assistance to either plant the trees or in the long-term management of the trees. (Tables 9a-c)





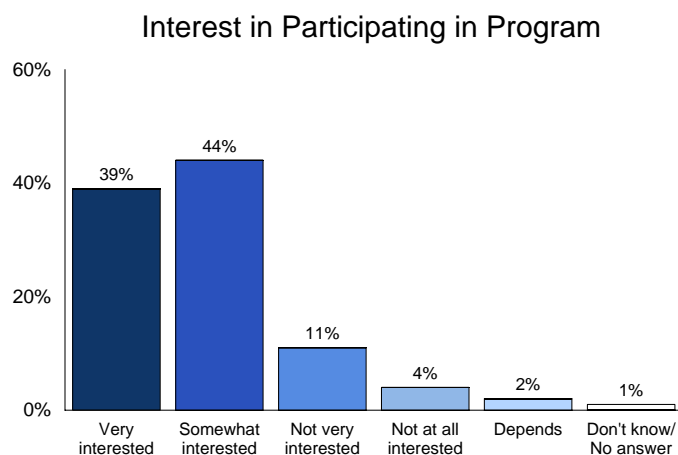
This suggests that a significant number of landowners are prepared to assume some level of personal responsibility to support this afforestation initiative. At the same time, it is worth noting that financial expectations increase with the amount of acreage owned by landowners. Also, expectations requiring financial assistance are higher in Cape Breton than elsewhere in Nova Scotia. There is also an inverse relationship between household income and the expectations of financial assistance.



Interest in Participation

Among those willing to plant trees, there is strong interest in participating in a national afforestation program.

Among those willing to plant trees to help the environment (47% of those surveyed), the vast majority expressed some level of interest in participating in a national program that provided technical and financial assistance for planting and monitoring trees for carbon sequestration purposes. (Table 10)



While more than eighty percent of those willing to plant trees expressed some level of interest in participating in a national carbon sequestration program, the actual number likely to participate will be considerably lower. Using a 80/20 rule to discount intentions, it is estimated that the percentage of current landowners in Nova Scotia that would likely participate in such a national program would be nineteen percent of the total population (i.e. 80% of those very likely (39%) plus 20% of those somewhat likely (44%) times the percentage willing to plant trees (47%)). Across regions of the province, those likely to participate in such a program is estimated as follows:

Likely Participation in Program				
	HRM	Southern Mainland	Northern Mainland	Cape Breton
80% of those very interested	35%	27%	34%	33%
20% of those somewhat interested	9%	8%	9%	8%
Sub-total	44%	35%	43%	41%
Times % willing to plant trees	45%	41%	52%	51%
Estimate of actual participation	20%	14%	22%	21%

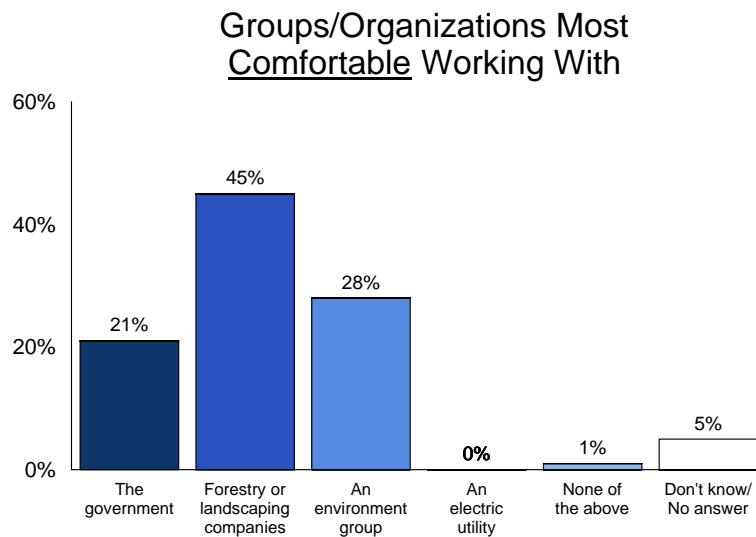
With the exception of those owning land in southern mainland, the likely rates of participation in a national program are relatively consistent based on the above estimates.



Support for Organizations Involved in Afforestation Program

While there is considerable comfort in working with forestry and landscaping companies in a national afforestation program, there is significant discontent in working with an electric utility in such an initiative.

Among those both willing to plant trees and having some level of interest in a national afforestation program (39%) of the landowner population in Nova Scotia, nearly half (45%) would be most comfortable working with forestry or landscaping companies on such an initiative. An environmental group was the next preferred choice, followed by the government. (Table 11)

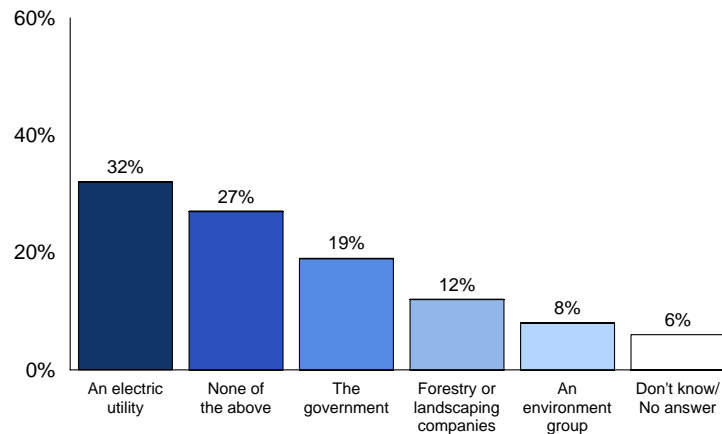


It is noteworthy that no one indicated that they would be most comfortable working with an electric utility on such an initiative.

Conversely, one in three would be most uncomfortable working with an electric utility on such a national program. More than one in four expressed no discomfort working with any of the groups or organizations evaluated. (Table 12)

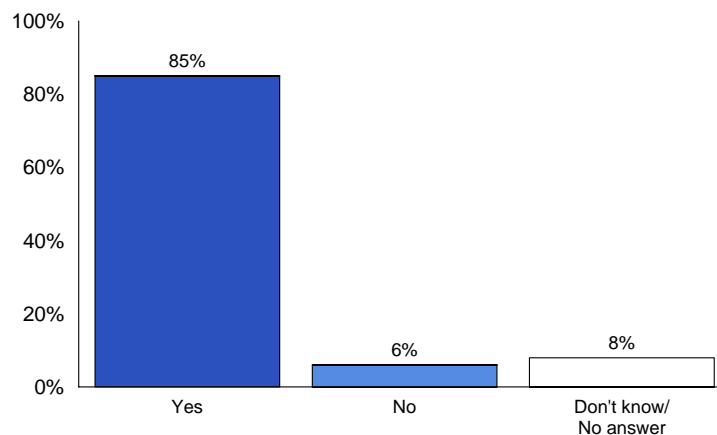


Groups/Organizations Most Uncomfortable Working With



There was a high level of willingness among landowners that are both willing to plant trees and interested in participating in a national program (39% of those surveyed), to provide forest and research staff access to their land for the purposes of measuring and monitoring the development of trees. Indeed, few are unwilling to provide such access to forest and research staff. (Table 13)

Willingness to Give Forest and Research Staff Access to Land



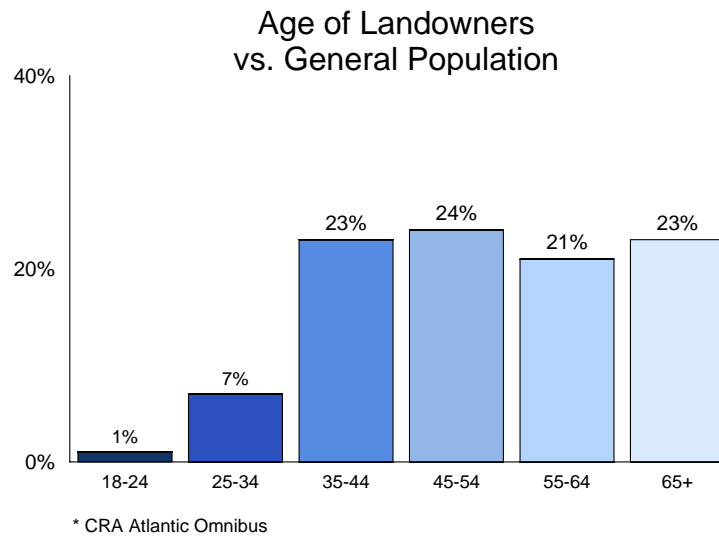
Willingness to provide forest and research staff access to land is consistent across the province, with those better educated and with higher household incomes being more predisposed to such an initiative.



Profile of Landowners

Those in the highest income households are most likely to have land for either their own dwelling or for a cottage. Those in the lowest income households are the most likely to own land for farming purposes. (Table 2)

Not surprisingly, as the following comparison demonstrates, landowners in Nova Scotia generally skew older compared with the population overall. (Table 14)



Study Methodology

Questionnaire Design

The questionnaire used in this study was designed by CRA, in consultation with an NSPI and Canada Forest Services.

Sample Design and Selection

The Study included telephone interviews with a representative sample of 400 Nova Scotia landowners. The sample was drawn using systematic sampling procedures from a list of randomly selected households in Nova Scotia.

Those who selected to be interviewed were pre-qualified as landowners prior to participating in this study. On the basis of this self-assessment by respondents, it was determined that 45% of those contacted were landowners.

A sample of 400, drawn from the population of Nova Scotia, produces a sampling error of plus or minus 4.9% in 19 of 20 samples. The following shows how the margin of error increases as sub-sample size decreases, as well as according to the magnitude of the percentage results.

Sampling Tolerance Table					
Sample Size	Proportion				
	90/10 %	80/20 %	70/30 %	60/40 %	50/50 %
50	8.3	11.1	12.7	13.6	13.9
100	5.9	7.8	9.0	9.6	9.8
200	4.2	5.5	6.3	6.8	6.9
300	3.4	4.5	5.2	5.5	5.7
400	2.9	3.9	4.5	4.8	4.9
500	2.6	3.5	4.0	4.3	4.4
600	2.4	3.2	3.7	3.9	4.0
700	2.2	3.0	3.4	3.6	3.7
800	2.1	2.8	3.2	3.4	3.5
900	2.0	2.6	3.0	3.2	3.3
1000	1.9	2.5	2.8	3.0	3.1
1200	1.7	2.3	2.6	2.8	2.8



Survey Administration

The survey was conducted by telephone between March 19th and 22nd, 2003. All interviewing was conducted by fully trained and supervised interviewers, and a minimum of 10 percent of all interviews were subsequently verified. The average length of time required to complete an interview was six minutes.

Completion Results

A total of 400 Nova Scotia landowners were interviewed. Among all eligible respondents who could be contacted during the interview period, the response rate was 30%. The final disposition of all telephone numbers dialed is shown below:

Completion Results	
Total Numbers Attempted	3,401
Disc #/NIS	368
Fax/Modem/ Cell Phone/Pager	51
Non Residential #	27
Ineligible Numbers	2,955
Busy	29
Answering machine	448
No answer	915
Scheduled callback	83
Illness, incapable	24
Qualified Not Available	10
Total Asked	1,446
Gatekeeper Refusal	161
Respondent Refusal	381
Mid Terminate	5
Never Call List	7
Co-operative Contacts	892
Complete Interviews	400
DNQ / Sensitive Occupation	3
DNQ – Not a Landowner	489
Refusal Rate	38.31%
Response Rate	30.19%
Cooperation Rate	61.69%
Incidence	45.15%

