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Inheritance, Land Sales and the Future of Maine's Forests

JAMES M. ACHESON AND TOM DOAK

Abstract

Large areas of the world's forests are being converted to non-forest use. This article examines factors influencing decisions of small forest landowners in Maine to convert or sell their land. Our analysis is based on a large-scale survey of a random sample drawn from the membership lists of organizations of forest landowners in 2005. Maine landowners are caught between countervailing pressures. Although many of them love their land and want to pass it to their heirs, there are many economic, legal and social pressures motivating forest landowners to sell or convert their property. Analysis of the data on the reasons to sell land suggests it would be expensive to curb forest conversion. Strategies that are likely to be effective in motivating forest landowners to maintain forest are expensive; those that can solve problems cheaply are apt to be ineffective.

Introduction

The Problem of Forestland Conversion

In many parts of the world, a large amount of forestland is being converted to non-forest use due to the expansion of cities and agriculture. The result is that the world is losing a key resource, one that supplies fiber and lumber, stems erosion, and sequesters huge amounts of carbon. The problem of forest conversion appears to be particularly acute in the northeastern part of the United States (Carpenter 2007; MacDonald and Rudel 2005). At a 2005 meeting of the Forest Landowner's Association, Don Mansius of the Maine Forest Service said, "The number one challenge is keeping forestland as forestland." In this article, we explore the factors that motivate Maine landowners to convert their woodlands or sell their land to others who convert it.¹ Although the exact mix of factors motivating Maine landowners may be unique, understanding what is happening in Maine gives us insights into the causes of forest conversion in other areas.

Maine's Forests and Their Future

More than 90 percent of Maine's nearly 20 million acres (8.1 million ha) of land area are currently covered with forests, the highest percentage of forested area of any state in the nation (Nadeau-Drillen and Ippoliti 2006). Approximately 88 percent of that forest is in private hands. An estimated 5.7 million acres (2.3 million ha) of land is owned by approximately 88,000 small forest landowners (families and individuals) who are concentrated in the southern part of the state. Most of the remainder is owned by about 40 large corporations whose land is concentrated in the sparsely settled northern part of the state (McWilliams et al. 2005:16). In this article we focus on the small forest landowners, sometimes called NIPF's (Non-Industrial Private Forests) in the forestry literature. No information is included in this article on the large landowners (each owning over 5,000 acres).

From 1880 to 1980, the amount of Maine land in forest increased, as abandoned agricultural land began to grow back into forest (Irland 1998). Since 1990, the amount of forested land has stayed relatively constant because land being converted to non-forest use is balanced by land reverting to forest (Maine State Planning Office 2001:24; McWilliams et al. 2005:6). It is almost certain, however, that the near future will see a decline in the total amount of forestland in Maine (Stein et al. 2005) as the amount of agricultural land growing into forest is overwhelmed by what Irland (2005:19) calls a "tidal wave of sprawl." Since 1990, 650,000 acres (263,046 ha) of rural forest and agricultural land in Maine have been converted to housing and commercial development. Sixty-five thousand houses were built on this land during this time period (Bangor Daily News 2007). Moreover, the rate of conversion has increased. Currently Maine is losing 35,000 acres (14,164 ha) per year to development. Only 9,000 acres (3,612 ha) per year were converted in the 1980s (Maine State Planning Office 2001).

On a micro-level, the conversion of Maine forestland to non-forest use is closely connected to the decisions of landowners. If we want to understand the future of Maine's forests, the key questions to answer are: What do landowners plan to do with their forestland? Who is selling land and why? Who is retaining land in forest? Are there new policies that could be enacted that would motivate people to keep land in forest? The objective of this article is to answer these questions. As we shall see, at any given time there are landowners who are planning to retain their land and conserve the forests on them; others are planning to sell their property, which often times means it will be developed or heavily harvested or both. But the same landowners can take one strategy at one time, and the other at a different time. Why they switch strategies is by no means obvious.

Methodology

The data on which this article is based were gathered by two techniques: key informant interviews and a large-scale survey of landowners. Our largest survey was done in 2005. A total of 2,000 questionnaires were mailed to a random sample

from the membership lists of the Small Woodland Owners Association of Maine (SWOAM), the Maine Farm Bureau, and the Women's Forest Coalition. Responses came in from 1,214 people, a 61 percent return rate. As part of this same study, an additional 154 people in widely scattered parts of the state were administered the same survey form in person by seven interviewers and the senior author. These people were selected by a snowball sampling technique.² All told, we obtained information from 1,368 small landowners in this study. Four kinds of data were collected: (1) respondent personal characteristics; (2) information on forest parcels and harvesting history; (3) respondent attitudes toward conservation and their plans for their forest property; and (4) problems landowners are experiencing. The survey instrument included both pre-coded and open-ended questions. These data were entered into SPSS and analyzed.

In 2007, we conducted a supplemental study designed to obtain additional information on topics not covered in the original survey, including more detailed information on inheritance and disposition of forestland. In this study, an additional 171 respondents from eight of Maine's 16 counties were interviewed in person by eight interviewers. These counties were selected because they are in several different parts of the state and have a high percentage of forests owned by small landowners.

We obtained additional information from key informant interviews with officers of associations, officers of the Maine Forest Service, realtors, and people employed in the forest products industry. Most of the data reported in this article comes from the 2005 large-scale survey, but some of the information on inheritance comes from the in-person interviews and key informant interviews.

Together the Small Woodland Owners Association of Maine, the Maine Farm Bureau and the Women's Forest Coalition have 7,993 members who are forest landowners. By selecting from their membership lists, we were able to get a random sample of an estimated 10 percent of the forest landowners in Maine. This is not a random sample of the landowners state-wide. This leaves open the question of the extent to which the conclusions drawn from an analysis of this sample can be applied to forest

landowners in the state as a whole. People who are members of such organizations are apt to be committed landowners with a high interest in sustainable forestry, since promoting good forestry practices is one of the primary goals of such organizations. We attempted to correct for that bias by interviewing people not in these organizations who were located through the snowball sampling technique. One of the virtues of snowball sampling is that it allows researchers to locate hard-to-find populations (Bernard 2004), e.g., landowners who are not members of political organizations. The people located by the snowball sampling technique are presumably more typical of landowners in Maine.

Maine Forest Landowners and the Economics of Forestland Ownership

Characteristics of Landowners

Our 2005 survey found that 84.4 percent of landowners in our sample were legal residents of Maine and have lived an average of 30.1 years in the town where they currently reside. However, only 49 percent were born in Maine. They own an average of 131 acres (53 ha) of land. They are well

educated with above average incomes. Fifty-nine percent have baccalaureate or graduate degrees, and 36 percent have family incomes over \$75,000. Thirty-five percent of the respondents are in the professions or are owners of businesses. Only 35 percent work full time, while the rest are retired or work part-time. Most important for our purposes, those in our sample are relatively old, with an average age of 60.4. Twenty-six percent of the forest parcels are held by people over the age of 75. This means that a lot of Maine land is likely to change hands in the near future.

There is a great deal of activity on these lands. Fully 51.3 percent of these landowners said they had “harvested a large amount of trees off their forestland.” But there is evidence that many are trying to manage their forests lands sustainably. Of the 1,350 people who answered the question, 52.7 percent said they were enrolled in the tree growth tax plan, which means they must have a formal forest management plan and follow it. In the U.S. as a whole, the percentage of people with a forest management plan is under 20 percent (Birch 1997; Butler 2008). Moreover, 75.6 percent of our respondents said they had cut to improve the diversity of their stands.

Table 1. Factors respondents ranked as “most important” to them as forestland owners.

Factor	Number	Percent
Aesthetics/privacy	387	31.5
Protect environment	262	21.4
Family legacy	237	19.3
Investment (future land sale)	170	13.9
Income from timber sales	86	7.0
Recreation	85	6.9
Total Responding	1,227	100

The majority of owners report they own forestland for non-monetary reasons. (This is also true in New England as a whole [see Birch 1997: Table 29].) This was revealed by a survey question asking respondents to rank six factors of importance to them as forest landowners. The results, summarized in Table 1, revealed that the majority own land for privacy, aesthetics, and for a family legacy. They also enjoy protecting the environment. Only a small minority of the landowners said that income from timber or holding the land as an investment for future sale was the most important reason they owned land.

Returns on Investment in Forestland

The returns on forest investment in Maine are low. An analysis by Mass and Vicary (1991) assessed the returns that could be earned from forest plantations under the most ideal circumstances. They assumed a forest plantation that would be harvested in 50 years with no outbreak of disease and no taxes due. Under these conditions, at a four percent discount rate, the net present value (NPV) was \$231; at five percent, it was \$59.05; and at six percent, the NPV was -\$50.30. If conditions were those that companies face in reality and the discount rate was set at competitive industry levels, investment in a plantation would lead to substantial losses. Their analysis substantiates that the future value of trees in 50 or 80 years will be low, regardless of the discount rate used. An officer of the Maine Forest Service (personal communication) makes the same point in less technical detail. He points out that in 2006, "an acre of average land can produce about one half cord of wood per year, which brings the owner about \$20." Since average forestland sells for about \$1,000/acre in southern and central Maine, returns per year are about two percent. Under these conditions there is little incentive to maintain forestland for the production of wood products.³

At the same time, land values had been rising rapidly until the recent recession (LeVert et al. 2007). A forest parcel that that could have been bought for less than \$500 in the 1990s would cost \$1,000 or more in 2008 (Hagan et al. 2005). Forestland along a river or lake that could be converted into housing lots or on a road close to a city that

might be used for an industrial site is worth far more. These are strong incentives to convert the land to non-forest use. A report by the Maine Forest Service concludes, "The financial returns on long term forest management do not justify either retaining forest land, if other uses (e.g., development) are possible, or practicing long-term silviculture" (Department of Conservation 2005:9). There are, however, still two reasons to retain land. First, the rapid increase in land prices provides incentive to retain land as an investment. Second, since many people hold land for non-monetary reasons, they are willing to sacrifice income for family legacy and privacy.

Retaining and Selling Forestland

Maine forest landowners differ in their long run plans for their land. We obtained a good indication about these plans from a question in our 2005 survey (Table 2).

Fourteen percent of the people interviewed said they planned to sell or subdivide their land. The majority, almost 70 percent, said they wanted to keep it for the family. Another 9.4 percent said they wanted to give their land to a charity or conservation organization. The fact that almost 80 percent of the respondents said they wanted to keep the land in forest for members of their family or for conservation organizations suggests that forest conversion should not be a critical problem for Maine. As we shall see, however, that conclusion is not warranted.

Sellers

Our data strongly suggest that selling land is associated with farming. Our Chi square analysis showed a statistically significant relationship between selling property and respondent type ($P = 0.67$). That is, a higher percentage of members of the Maine Farm Bureau were selling land than people in the Small Woodland Owners Association of Maine, the Woman's Forest Coalition, or people interviewed in person. Maine farmers have sold land for decades to bolster sagging incomes or when they have stopped farming altogether. Our data indicate that this trend is continuing.

Table 2. Responses to the question: "What are your long term plans for your forestland?"

Stated Goal	Number	Percentage of Respondents*
Keep for family	934	69.5
Sell some or all of property	148	10.7
Give to charity/ conservation	127	9.4
Subdivide	41	3.1
Other plans	179	13.3
No planned activity	252	19.0
Total Responses	1,681*	

*There were 1,385 respondents; some checked more than a single answer.

A second group of those planning to sell land are loggers or forest contractors. Twenty-nine (20 percent) of the 148 people selling land are loggers who earn their living by buying parcels of forestland, harvesting them, and then reselling the land. Much of this cut-over land is sold to housing developers.

A logistic regression analysis reinforces the idea that it is farmers and loggers who are selling land, though the evidence is more indirect. Planning to sell land is associated with a high percentage of family income being earned from forests. As can be seen in Table 3, the logistic regression analysis shows that people who get from 6 to 25 percent of their income from forestland are 2.872 times more likely to sell

land than those earning 0 percent of their income from their forests (significance = 0.001). Those earning 26 percent to 50 percent of their income from their forestland are 2.907 times more likely to sell land than those earning 0 percent of their income from their forests (significance = 0.048). These results suggest that the people who are planning to sell forestland depend on those forests for much of their income. This is true of both farmers and loggers.

It is important to note that of the 148 people in our study who said they planned to sell their forestland, only 57 (39 percent) are loggers or farmers. Land is also being sold by other people who fall into no easily defined category.

Table 3. Logistic regression of planning to sell land, % of income from forest coded as 0.

Percent of Income from Harvesting Forestland	B	SE	DF	Sig.	Exp B
0%					
1-5%	.221	.214	1	.302	1.247
6-25%	1.055	.310	1	.001	2.872
26-50%	1.067	.539	1	.048	2.907
51-75%	-18.901	1,3772.100	1	.999	0.000
Over 75%	-.048	1.079	1	.965	.953

Table 4. Logistic regression of planning to sell land, work full-time coded as 0.

Occupational Status	B	SE	DF	Sig.	Exp B
Work Full Time					
Work Part Time	.863	.680	1	.204	2.371
Work Seasonal Jobs	-17.311	20,096.400	1	.999	0.000
Out of Work	2.506	1.168	1	.032	12.250
Homemaker	-17.311	10,377.700	1	.999	0.000
Self Employed	.560	.466	1	.230	1.750
Retired	.940	.402	1	.019	2.561
Student	-17.311	28,420.700	1	1.000	0.000

Another characteristic of respondents planning to sell land is that they have low or inadequate incomes. As can be seen in Table 4, selling land is associated with being retired (significance < 0.019). Retired people are 2.561 times more likely to sell land than those who work full time (the baseline variable). Another group who say they are planning to sell land is those who are out of work (significance < 0.032). The unemployed are 12.25 times more likely to sell land than those who work full time. These data support the idea that a lot of Maine forestland goes on the market when the owner is faced with an emergency or needs cash. According to a report by the Maine State Planning Office (2001:8),

Many [landowners] are retired farmers with limited income and limited resources to enable them to hold onto the land. While preferential taxation programs such as Farm and Open Space and Tree Growth program have reduced the burden of holding onto land, they do not compensate for insufficient retirement income or rising medical costs that often force older landowners to sell their land for development.

The data from our supplemental study reinforce the idea that much land is sold when farms go out of business and that an important motive for selling is financial pressure. In our study, we asked: "Have you

ever sold land?" "If yes, why did you sell it?" "What are the people to whom the land was sold doing with the property?" Of the 171 respondents in this sample, we got detailed information on the history of land sales from 76. Fourteen of these 76 said they had sold land. Five parcels were farms that had ceased operations and were being divided. On another five of these 14 parcels, houses have been built. Only two of the 14 parcels are being maintained as forest. Five of the 14 sellers are retirees; and three others admitted that they sold their land because of financial pressure.

The fact that it is often people with low income levels who are more likely to sell land is verified by another study. Before land is sold it is often harvested since taking the trees off does not lower the value much, especially if the land is to be developed. (This practice is called liquidation harvesting.) Thus, areas where land has been harvested heavily are usually areas where a lot of land sales are taking place. The most heavily harvested region in Maine between 2000 and 2005 was a 16-town area in central Maine. Not surprisingly, many of the parcels of land that were harvested here changed hands. This area includes part of Somerset County, one of the poorest counties in the state (Acheson and McCloskey 2008). In this county, median household income is 18 percent lower than the state's median; it has one of the highest levels of people receiving food stamps and LIHEAP assistance;

Table 5. Responses to question: “If you are planning to give your land to family members, what do you hope they will do with the property?”

Response	Number	Percent
Family legacy (preserve forest)	75	69.4
Build houses for family	14	12.9
Harvest wood	8	7.4
Develop the land	11	10.2
Total	108	100.0

and has the lowest percentage of people with two- or four-year college degrees of any county in the state (Acheson 2006).

Legacy Owners

Most of those in our study who say they plan to keep their forestland for their families appear to be quite committed to this course of action. Seventy-five (54 percent) of landowners in our supplemental study indicated it was “very important” that their forestland continued to be owned by members of their family; another 44 (32 percent) indicated it was “somewhat important.” Only 21 (15 percent) said it was “not very important.” The majority of landowners (69.4 percent) say they are planning to give their forestland to their children in the hope that the children will retain and conserve the land (Table 5).

Unfortunately, it is not at all clear who these legacy owners are. Those who say they plan to give their land to heirs come from across the spectrum of our sample. There is no statistically significant correlation between plans to leave forestland to heirs with age, education, work status, occupation, income, or respondent type.

Our survey data, however, indicate the legacy owners have two important characteristics. First, they have held the land for a long time. In many cases, the land has been held in the family for decades, and in

a few cases, it has been held by the same family for generations. It is part of the family heritage. Second, the legacy owners do not depend on forestland for much of their income. Logistic regression supports both of these conclusions, with years lived in Maine predicting ‘legacy owners’ ($P = 0.002$). Every year landowners have lived in Maine means they are 1.008 times more likely to say they want to keep land for the family. The data in Table 6 indicate that percentage of household income coming from harvesting forests on one’s land is again significant. Those obtaining one to five percent of family income from harvesting their forestlands are 2.658 times as likely to maintain their land for their family (significance < 0.006) as those earning 0 percent from their forestland (the baseline variable); while those earning six percent to 25 percent of their family income from their forestland are 1.943 times as likely to retain their forestland as a legacy for the family (significance < 0.057) compared with those earning zero percent. A high percentage of those earning a small amount of money from their forestland are doing selective cuts to improve their property for the long run. They want to keep the land.

Although a high percentage of the landowners interviewed say they want to give land to their heirs and want their heirs to keep the land in forest, there are strong indications that not all of this legacy land

Table 6. Logistic regression analysis, dependent variable = legacy owners; independent variable = % of household income from harvesting forest.

Percent of income from harvesting forestland	B	SE	DF	Sig.	Exp B
0%	1.000				
1-5%	.978	.211	1	.006	2.658
6-25%	.664	.349	1	.057	1.943
26-50%	.783	.682	1	.251	2.189
51-75%	1.149	1.119	1	.305	3.155
Over 75%	1.077	.837	1	.198	2.937

will remain in forest for long. About 23.1 percent of the current owners expect that their heirs will build houses (12.9 percent) or sell the land for development (10.2 percent). More important, although 69.4 percent of landowners interviewed say they want their heirs to keep the land in forest and maintain it as a family legacy (Table 5), heirs may not do as the current owner wishes. In our supplementary study on inheritance, landowners were asked, "Do you have a trust document, contract or other legal instrument to ensure that the land is used as you intend?" Of the 143 respondents, 90.4 percent said they did not have such a document, and 74.5 percent of those 90.4 percent are not planning to draw up such a document.

In addition, although parents and the children who will inherit land may be in agreement on what should be done with the property in many cases, in other cases there is a disconnect between them.⁴ In our supplementary study, there were 35 cases in which we were able to interview both parents and children. Twenty-two of the 35 people (63 percent) who were going to inherit land indicated (with varying degrees of candor) that they would likely sell the land they inherited. One said, "My father spent his life piecing together 600 acres of land, and he expects me to add to it. What am I going to do with 600 acres? I don't know if we can even afford the taxes." If we can judge from this small sample, a large percentage of the land that will be passed to

family members is destined for the market in the not so distant future. Some current owners are aware that their heirs likely will not conserve the land if they inherit it. One, who plans to give his land to a conservation organization, said bluntly, "I don't trust anyone in the family."

In short, despite the high percentage of current owners in our sample who are holding land for non-monetary purposes and who want their land to be held in forest as a family legacy, much of this land is likely to be converted to non-forest use the near future.

It is important to note that selling or being a legacy owner are strategies which are not associated with any fixed group of people. The same person can use both strategies at different times or even at the same time. One unhappy farmer's wife said, "This farm has been in the family for five generations, but we are too old to run it anymore, and my 25 year old son shows no interest. We have to sell it off one piece at a time to get money to live." One forester said, "I do different things with different parcels of land. I am continually improving the forest on a 50 acre piece of the family farm. I am going to give this to my kids. I bought another big piece just outside [name of city]. I will have my crew cut all the timber and pulp off it. I'll sell this for houselots a little at a time." These two people are currently sellers, but they could be classified as legacy owners too. This having been said,

Table 7. “Most important problem” identified by small forestland owners.

Problem (coded response)	Number	Percent
Taxes	193	29.0
Development, sprawl, temptation to sell	110	16.5
No incentive to manage well	85	12.8
Regulations, laws	79	11.9
Poor market	46	6.9
Trespassing	41	6.2
Loggers	22	3.3
Other	89	13.4
Total Respondents	665	

there are individuals who use one strategy or another virtually all of the time. Forest contractors regularly buy and sell forest parcels as part of their business and show little ambivalence about doing so. In addition, there are others who have maintained family property throughout their whole lives. This does not guarantee their children will not sell, however.

Problems Identified by Forest Landowners

Although the primary reason to sell land is economic, other factors play a role in the decision to sell. Discussions about the reasons for selling often turned to discussions of “problems” of landownership, which, in the view of many landowners, are growing in number and severity. The open-ended question in our survey, “What is the most important problem facing small forest landowners today?” revealed the perceived problems (Table 7).

The respondents’ answers need some explanation since the meaning of many statements may not be clear without the context.

1. *Taxes* were mentioned as the most important problem by the largest number of people in the survey. In most cases, they were talking about local property taxes, which have been increasing faster than the inflation rate for the past two decades. The primary cause is a rise in the value of land due to increased demand by people seeking sites for

permanent or vacation homes (O’Hara 1997). In many cases, income produced by the forest will not cover taxes. This is particularly true in suburbs or along the shores of lakes or the ocean.

Some respondents also mentioned the Tree Growth Tax Law as a problem. This law was enacted in 1972 to give owners an incentive to maintain their forestland and practice sustainable forestry. To qualify, landowners must hire a forester to develop a sustainable forest management plan. A substantial penalty is assessed against enrolled landowners who take their land out of the program. However, the financial benefits are substantial. While the tax reduction varies from town to town, as a rule of thumb this program reduces property taxes by half. This law was mentioned as a problem for two reasons. First, property taxes and land valuations have increased so fast in recent years that taxes have risen appreciably even on parcels enrolled in the program. Second, every session of the Maine legislature in recent years has considered one or more bills to change the Tree Growth Tax Law, usually to the detriment of landowners. Of the 1,159 respondents who answered the question, only 51.9 percent reported that their parcel was enrolled in the Tree Growth program.

2. *Keeping the land* was the second most frequently mentioned problem. These people were concerned they would be forced to sell their forestland. Many

mentioned the temptation to sell stemming from low returns to forest investment. Others mentioned the increased temptation to sell in the wake of sprawl and development, which increase the value of land and property taxes.

3. *No incentive to manage* was the third in the list of problems. These people often mentioned problems in the Tree Growth Tax Law and the low prices for wood, which made it uneconomical to invest in expensive silviculture.

4. *Regulations* are a formidable obstacle for many landowners. The laws are complicated, with varying standards for different locations and landowner types, complicated lists of exemptions, and overlapping federal, state, or local jurisdiction. The laws mentioned by respondents most often are the following:

(a) Town zoning ordinances and building codes that place restrictions on building roads and structures on forestland.

(b) Laws and rules administered by the Maine Land Use Regulation Commission (LURC), which serves as a combination planning board and zoning authority for the 10.4 million acres (4.2 million ha) of Maine lying outside any town or city boundary.

(c) Maine laws regulating timber harvesting enacted by the Maine legislature such as the 1989 Forest Practices Act, designed to limit clear-cutting (Maine Revised Statutes 1989), and the 2005 Liquidation Harvesting Law, written to prevent people from buying land, stripping it of timber, and selling it.

(d) Water-quality rules enacted by both the Maine legislature and the U.S. Congress, which regulate "best management practices" when forests are cut or roads are built in forestlands, and timber harvesting and building in shoreland and wetland areas.

(e) State and federal laws enacted to protect special natural resources and endangered species including the Maine Natural Resource Protection Act (NRPA) and the federal Endangered Species Act.

5. *Poor markets* were cited by respondents concerned about both the low earnings to be had from investments in forests and the lack of any monetary incentive to manage the forest well.

6. *Trespassing* is a serious issue for many landowners. Landowners complain about hunters too close to their houses, trash dumping, and noisy and sometimes destructive recreational vehicles. Unfortunately it is difficult to take action against irresponsible members of the public who invade one's property due to enforcement problems and the longstanding Maine tradition of people using other people's land for recreation free of charge (Acheson 2006).

7. *Loggers* were mentioned as the most important problem by a few landowners. Loggers caused a variety of problems ranging from heavy harvesting and damage from skidders to fraud and violating the terms of agreements.

The majority of these problems are economic in nature, but all of these factors decrease the incentives to own forestland. How serious are these problems? We have no way to measure objectively how serious a particular problem is or what impact it has on people's lives.

For some landowners, the problem identified as "most serious" appear to be more of a bother than a serious impediment. Others are so infuriated by these "problems" (e.g., regulations) that they have made up their mind to sell their land (for a good discussion of the problems faced by small forest landowners, see Little [2000].) One landowner expressed the frustrations of many when he said, "Everyone wants to use my land for nothing, everyone wants me to support the town with high taxes, and everyone wants to tell me what to do."

Possible Policy Changes

Given the reasons that landowners are selling forestland, which often results in conversion, there are several policy changes that Maine could undertake that would reduce the incentive to sell forestland. Most of these are suggested by the list of important problems mentioned by landowners (Table 7).

1. To alleviate the problems associated with trespassing and irresponsible use of land, state or local governments could make greater effort to investigate violations of the trespass laws and instances of abuse of privately owned land. As it is now, Maine is doing little to help landowners in this respect.⁵

2. The problem of sprawl, which increases land values and taxes, could be addressed in part by enacting a state-wide building code, one that did not demand large lots and would promote cluster housing, thereby reducing demand for house lots in rural and forested areas.

3. The primary policy tool used by Maine to increase landowner earning is the current-use tax, with its Tree Growth Tax Law. Unfortunately, only 51.9 percent of the landowners in our study reported being enrolled in this program. To encourage more to enroll, Maine could consider an amendment to the law stating that the rules in force when a landowner joins the program will be the rules for the whole time he/she remains in the program.

Some of the problems mentioned by landowners would be difficult or impossible to change. Among those are “regulations,” which many landowners placed fourth on the list of serious problems. The problem of regulations might be alleviated by making standards for some laws more uniform and eliminating some of the complicated lists of exemptions and the jurisdictional problems. However, we believe it would be almost impossible to nullify or rescind many regulations. Maine is not likely to do away with the Land Use Regulation Commission or the Forest Practices Act, which would allow widespread clear-cutting. Similarly the U.S. Congress is not likely to abolish the Endangered Species Act or the water-quality rules of the Clean Water Act.

None of these policy changes, however, address the major problem facing forest landowners—namely, the strong incentive to sell land to developers and the fact that one can earn far more selling land than by retaining it as forest. Many respondents mentioned this problem directly in talking about taxes and the problem of keeping the land. To attack this problem, major changes in policy would be needed. We would like to mention three such changes.

1. Governments (state or federal) could foster greater use of *conservation easement programs* for small landowners. At present some 2,000,000 acres (809,371 ha) have been placed in easements. Such programs have been effective with large landowners in Maine and in other states (Lewis 2001), and they have proven to be popular with the public.⁶ These programs could dedicate more funds to creating easements on small forest parcels.

2. A carbon *cap-and-trade* system combined with a *carbon-sequestering* program has great possibilities (Pearce 2008; Tietenberg 2002) and could be done at the state or federal level. The European experience has shown that merely taxing carbon does not reduce emissions. To do that, a carbon-sequestering program is needed (Sachs 2008a, 2008b). Such a program might be designed to put a limit on carbon emissions, auction the right to emit carbon to the highest bidder, and then use the proceeds to pay forest landowners whose forests meet certain standards.

3. Maine could decrease property taxes by changing tax rates in the Tree Growth Tax Program. However, a decrease in property taxes would be strongly resisted by the towns which would be deprived of income.

We cannot say how effective such policies would be in reducing the amount of forest conversion. Our data suggest that relatively inexpensive policy changes (e.g., changes in building codes to permit more cluster housing, enforcing the trespass laws, and stabilizing the Tree Growth Tax Law) would have a negligible effect on forest conversion. After all, these were not identified as the most important problem by many of the landowners (see Table 7).

Policy changes that attack the problems identified by landowners as most important (i.e., taxes, temptation to sell, poor markets) might be more effective in curbing forest sales and conversion. Unfortunately, these policies (i.e., forest easements and cap-and-trade systems) would be expensive. Still, it might be worthwhile to enact the relatively cheap policies to curb forest conversion.

Maine Landowners: A Historical Perspective

Two different sets of factors influence strategic decisions to keep, conserve or sell land. One is the life cycle of the individual and his or her circumstances. A farmer may retain the family farm for decades only to sell it in old age when pressed by medical bills and poverty. A person who inherits land from his parents might have the land heavily harvested to get money for education, and then spend decades rebuilding the forests on that land. The second factor is external circumstances such as taxes, government regulation, harassment from trespassers, prices for pulp and lumber, or development opportunities. Not a few owners who want to preserve land for family have been persuaded to sell some of their land when offered a high price for a cottage lot. Others have been persuaded to retain their forestland when their taxes were dramatically lowered by joining the Tree Growth Tax Program.

Our data support the idea that there is a historical sequence of changes in ownership and strategies that has important implications for forest conversion. Since 1880 the history of Maine land in the southern half of the state has been a story of what happened to farmland as it reverted to forest. Over the course of time, this land has been bought and sold several times. Much of it has found its way into the hands of people who are using a legacy strategy at any given time. But considerable amounts have been developed or bought by contractors who strip the trees from the parcel and then sell the land for development or sell to people using a legacy strategy. There is no typical sequence. Individual parcels have been divided and sub-divided and have been owned by a series of people who have used legacy, heavy harvesting and development strategies at various points in their own life cycle.

The Problem of Forest Conversion: Discussion

Our study indicates that a great deal of Maine forestland is likely to be converted to non-forest use in the near future. Some 13.8 percent of the small forest landowners interviewed say they are going to sell their land or develop it (Table 2).

Maine forest landowners are ambivalent about what they will do with their land. The low economic returns on investment and the high transaction costs of owning land give people incentive to sell their property. A large number, however, clearly love their land and are loath to sell it (see Table 1). Almost 79 percent of our respondents said they planned to hold the land for family or give it to charity or a conservation organization. For them, land is not so much an investment or a source of income as it is a refuge, a place for recreation, and a family legacy. However, under the right circumstance, they will develop their land or sell it to others who may convert it.

This study suggests that the goal of policy should be to keep as many small forest landowners from selling or converting their land as possible. To be sure, there are some who are probably going to sell their forestland or convert it regardless of what policies are enacted, including the unemployed, farmers, retirees and others in pressed financial straits. However, some who say they are planning to sell or convert their land might be persuaded to retain their land as forest with the right policies.

Subsequent to our 2005 and 2007 surveys, the world economy has entered a serious recession which has altered economic circumstances for individuals and for the forest products industry. Rising unemployment and the decrease in the value of other investments and pension plans might make some landowners more willing to sell their property. However, demand for vacation property and forestland has declined sharply, so there are currently few buyers. Demand for paper, pulp and lumber are down, but the future will almost certainly see increasing amounts of wood bought for ethanol and wood pellets (for heating). It is uncertain whether these changes will be permanent or how they will affect the long run return on investment in forestland.

How applicable are our findings to Maine as a whole and beyond? It is difficult to say, particularly since our study is not based on a random sample of landowners. However, we believe that the landowners in our sample are demographically quite representative of small forest landowners in general. In the U.S., landowners are older, better educated and have relatively high incomes in comparison with the general population. Also, as in Maine, they own land for non-monetary reasons (see Butler 2008). There is one important difference, however. The percentage of people in our study with a formal forest management plan is far higher than in the U.S. as a whole.⁷ If the landowners in our study are more committed to sustainable forestry than the average Maine landowner, then average landowners are more likely to convert their land to non-forest use. If that is true, then our study understates the problem of forestland conversion.

We are convinced that there is no easy or cheap solution to the problem of forest conversion. In the recent past, there have been strong economic incentives to convert forestland to non-forest use. If these exist in the future (and they probably will), we cannot expect all landowners to voluntarily cease converting forestland. Changes in policy will be necessary to stem the tide of forest conversion, and these changes will be costly. Our analysis of these data leads us to believe that if Maine and the federal government keep the same policies, we can expect more of the same—namely more sprawl, more forest conversion, and more forest fragmentation.

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Notes

- ¹ According to McWilliams et al. (2005:7), “222,000 families and individuals own a total of 5.7 million acres [2.3 million ha] in Maine.” However, only 40 percent of these, or 88,000, own more than 10 acres (4.5 ha). They own approximately 32 percent of the forests in Maine (McWilliams et al. 2005: 16). Our sample is drawn from these individuals. None of the landowners in our sample were industrial owners.
- ² Interviewers selected three forest landowners in their own area. At the end of the interviews, they asked for the names of three more forest landowners and interviewed them. At the end of those interviews, they asked for three more names.
- ³ We note, however, that if land with high-value species is managed well, returns can be substantially increased. Good silviculture on land with high-priced species will bring a landowner closer to the break-even point or even give a small profit.
- ⁴ It was difficult to get information on cases where parents and children do not agree on the future of family property. Children were reluctant to admit that their plans for the land might well betray a parent’s trust.
- ⁵ One temporary employee has been hired by the Maine Forest Service to help deal with trespass problems, but funding for this position is in doubt.
- ⁶ Conservation easements consist of a contractual agreement whereby state and federal governments, together with conservation organizations, buy the development rights to forest. The landowner is paid to maintain the forest, to maintain sound forestry practices, and to allow the public access to the land.
- ⁷ Some care must be used in comparing landowners in our study with those in the U.S. Forest Service study because those in our study are small forest landowners or NIPFs while the U.S. Forest Service study included all “private” landowners, including those with more 5,000 acres (2,023 ha) (see Birch 1997).

References Cited

- ACHESON, A.W.
 2006 *Poverty in Maine: 2006*. Report prepared for the Maine Community Action Association. Orono, ME: Margaret Chase Smith Policy Center, University of Maine.
- ACHESON, J.
 2006 Public access to privately owned land in Maine. *Maine Policy Review* 15(1):18-31.
- ACHESON, J., AND J. ACHESON.
 In press. Maine forestland: Private property and hunting commons. *International Journal of the Commons*.
- ACHESON, J., AND J. McCLOSKEY.
 2008 Causes of deforestation: The Maine case. *Human Ecology* 36:909-922.
- BANGOR DAILY NEWS.
 2007 Paying to keep up. *Bangor Daily News* 20 March:A8.
- BERNARD, H.R.
 2006 *Research methods in anthropology*. Lanham, MD: Altamira Press.
- BIRCH, T.W.
 1997 *Private forest-land owners of the northern United States, 1994*. (Resource Bulletin NE-136) Radnor, PA: U.S. Forest Service, Northeast Forest Experiment Station.
- BUTLER, B.J.
 2008 Forest ownership patterns are changing. *National Woodlands* 31(2):8-9.
- CARPENTER, C.
 2007 Land of Thoreau tries to reverse loss of its woods. *Christian Science Monitor* 6 September:A1.
- CERVONE, E.
 2006 *Maine revenue primer 2006*. Augusta, ME: Maine Center for Economic Policy.
- CERVONE, E.
 2007 Tax reform: A modest step in the right direction. *Choices* XIII(1). Augusta, ME: Maine Center for Economic Policy.
- DEPARTMENT OF CONSERVATION, MAINE FOREST SERVICE.
 2005 *The 2005 biennial report on the state of the forest and progress report on forest sustainability standards: Executive summary*. Report to the Joint Standing Committee of the 122nd Legislature on Agriculture, Conservation and Forestry. Augusta, ME: Maine Department of Conservation.
- HAGAN, J., L. IRLAND, AND A. WHITMAN.
 2005 *Changing timberland ownership in the Northern Forest: Implications for biodiversity*. Brunswick, ME: The Manomet Center for Conservation Sciences.
- IRLAND, L.
 1998 *Maine's forested area, 1600-1995: Review of available estimates*. Orono, ME: Maine Agriculture and Forest Experiment Station Miscellaneous Publication 736.
- IRLAND, L.
 2005 U.S. forest ownership: Historic and global perspective. *Maine Policy Review* 14(1):16-23.
- LEVERT, M., C.S. COLGAN, AND C. LAWTON.
 2007 Are the economics of a sustainable Maine forest sustainable? *Maine Policy Review* 16(2):26-36.
- LEWIS, D.J.
 2001 Easements and conservation policy in the north Maine Woods. *Maine Policy Review* 10(1):24-35.
- LITTLE, J.B.
 2000 Family forests: Loving care, heavy burden. *American Forests* 105(4):30-35.
- MACDONALD, K., AND T.K. RUDEL.
 2005 Sprawl and forest cover: What is the relationship? *Applied Geography* 25:67-79.
- MAINE REVISED STATUTES.
 1989 Public law 1989. Chapter 555, An act to implement sound forest practices. Laws of Maine, Augusta.

- MAINE STATE PLANNING OFFICE.
2001 *Fishing, farming and forestry: Resources for the future*. Augusta, ME: Maine State Planning Office.
- MASS, D., AND B. VICARY.
1991 The value of increased survival and stocking with herbicide treatments. *Proceedings of Northeastern Seed Science Society Meeting* 45:15-32.
- MCWILLIAMS, W.H., B. BUTLER, L. CALDWELL, D. GRIFFITH, M. HOPPUS, K. LAUSTEN, A. LISTER, T. LISTER, J. METZLER, R. MORIN, S. SADER, L. STEWART, J. STEINMAN, J. WESTFALL, D. WILLIAMS, A. WHITMAN, AND C. WOODALL.
2005 *The forests of Maine: 2003*. Radnor, PA: U.S. Forest Service, Northeast Research Station, Research Bulletin NE-164.
- NADEAU-DRILLEN, K., AND J. IPPOLITI.
2006 *Maine forestland ownership: Trends and issues*. Augusta, ME: Office of Policy and Legal Analysis, Maine State Legislature.
- O'HARA, F.G.
1997 *The cost of sprawl*. Augusta, ME: Maine State Planning Office.
- PEARCE, F.
2008 Do trees grow on money? *Conservation* 9(2):15-19.
- SACHS, J.
2008a Climate change after Bali. *Scientific American* 298(3):33-34.
- SACHS, J.
2008b Keys to climate protection. *Scientific American* 298(4):40.
- STEIN, S., R. MCROBERTS, R. ALIG, M. NELSON, D. THEOBALD, M. ELEG, M. DECHTER, AND M. CARR.
2005 *Forest on the edge: Housing development on America's private forests*. (General Technical Report PNW-GTR-636). Portland, OR: U.S. Forest Service, Pacific Northwest Research Station.
- TIETENBERG, T.
2002 "The tradable permits approach to protecting the commons," in *The drama of the commons*. Edited by E. Ostrom, T. Dietz, N. Dolsak, P. Stern, S. Stonich, and E. Weber, pp. 197-232. Washington, DC: National Academy Press.