Comparative Analysis of Institutions and Policies Influencing Private Forestry in Florida and New Brunswick: Implications for the Canada-U.S. Softwood Lumber Trade Dispute

Rebecca Gruby, Janaki Alavalapati, and Jagannadha Matta

ABSTRACT

Growing concern for the protection of public forests has prompted the expansion of private forests in the United States and Canada. Both countries have been implementing a host of regulatory and incentive policies to ensure sustainable forest management. These policies not only address negative and positive externalities associated with timber and non-timber products production, but also influence the profitability of forestry and, thus, the timber supply. A comparative advantage in the form of regulatory or incentive policies for private forestry would add fuel to the on-going Canada-U.S. softwood lumber trade dispute. In the study reported here, we conducted a systematic comparative analysis of institutions and policies influencing private forestry in the U.S. and Canada using case studies from Florida and New Brunswick, two places with significant private forestry. Our study concluded that, although the regions share a similar burden of regulation, the marketing services and cost-share programs in New Brunswick are more extensive than those offered in Florida. The qualitative results of our analysis help reduce the potential for the extension of the current trade dispute to the private sector.

INTRODUCTION

The past two decades of softwood lumber trade between the United States (U.S.) and Canada have hosted the longest and largest trade dispute in the countries’ histories (Cashore, 1997). The dispute, which is predominantly localized to the trade of timber harvested on public lands, was catalyzed by Canada’s increased share of the U.S. market due to a reduction in the supply of timber from U.S. public forests (Cashore, 1997). Some scholars claim that this reduction was caused, in part, by increased environmental regulations in U.S. forestry (Cashore, 1997). Legislation can similarly lead to a reduction in timber harvests on non-industrial private forests (NIPF), which are increasingly important suppliers for global timber markets as harvesting on public lands dwindle (Ellefson & Cheng, 1997; Rosen & Kaiser, 2003). This trend has been widely documented; in 1996, NIPF owners accounted for 59% of timber harvests in the U.S. while harvests in national forests constituted just 5%, a full 8% less than their share just 10 years earlier (Rosen & Kaiser, 2003). During the same time, harvests from forest industry land declined by 6% (Rosen & Kaiser, 2003). The supply of timber from NIPFs in recent years has become crucial (Haines, 2005).
In the context of the U.S. and Canada’s longstanding softwood lumber dispute, the growing dependence on the products of NIPFs, and the evidence of the potentially significant effects of regulation on wood supply, a comparative study of the policies affecting private forestry in the two countries is valuable. This paper presents a case study that outlines and compares the organizations, programs, and policies that affect private forestry in Florida and New Brunswick, where private forestry is significant. The study’s primary purpose is to reduce the potential for the current trade dispute expanding to the rapidly growing private sector by providing an improved understanding of the programs and policies in place in both regions. However, it is critical to recognize that there is remarkable variation between states and regions when it comes to regulatory programs for forestry (Ellefson & Cheng, 1997). Thus, one must use discretion when extrapolating the findings of this study to more extensive contexts.

Section 1 focuses on the structure of the forestry communities in both regions. Section 2 details the support provided to NIPF owners by governmental and non-governmental organizations, Section 3 describes incentive and assistance programs (including specific tax provisions for NIPFs), and Section 4 discusses regulatory policies. These four dimensions represent the significant sources of external influence on the productivity of private forestry; together they provide an excellent base for a holistic comparative analysis.

**NIPF DEMOGRAPHICS AND PHYSICAL RESOURCES**

To demonstrate the utility of a case study of Florida and New Brunswick, some background information on the demographics and physical resources of the regions is in order. The most significant information is perhaps the following: while the proportion of NIPF ownership to total timberland in Florida is the lowest of any southern state (as of 1995), the percentage of NIPF ownership in New Brunswick (30%) is comparatively high (private ownership for Canada as a whole is only 6%) (Brown, 1999; CFS, 2005). This case study is thus not representative of private forestry, in general, in the two countries – today. However, the forecasted growth of private forestry promises to create an environment in which private forestry is comparably pervasive in the states and provinces of the U.S. and Canada. Thus, in anticipation, this study compares a state and province in which the percentage of NIPF ownership to total timberland is similar and in which the acreage of commercially productive forestland is nearly identical. Some statistics on the characteristics of forestry in the two countries are provided in Table 1 and Figure 1.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Florida</th>
<th>New Brunswick</th>
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<tr>
<td>Forest cover</td>
<td>16.2 mi. ac (47% of land base)</td>
<td>15.4 mi. ac (85% of land base)</td>
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</table>
Although Florida’s total land mass is double the size of New Brunswick’s, the regions contain a nearly equal number of acres of commercially productive forest land; Florida has 14.7 million acres and New Brunswick has 14.6 million acres. However, because of their difference in total landmass, only 42.3% of Florida’s land is productive forestland compared to 80% of New Brunswick’s. An obvious conclusion is that the economy of New Brunswick is vastly more dependent on forestry than is Florida’s, where the tourism industry claims to hold the largest stake (Hodges, Mulkey, Alavalapati, Carter & Kiker, 2005). For example, in New Brunswick, fourteen communities are entirely dependent on the forest industry for economic survival and approximately 40 others rely greatly on forest-related business; NIPF lands provide 25% of the province’s wood requirements (INFOR, 2005). Although New Brunswick’s economy is more closely linked to the forestry industry, it
is important to note that a larger percentage of Florida’s forests are privately owned; NIPF owners in Florida own 8.59 million acres of forests, while NIPF owners in New Brunswick own 4.5 million acres.

**Organizational Support**

The forestry communities of Florida and New Brunswick are equipped with an organizational infrastructure of governmental and non-governmental institutions. The creation of policy is an essential first step; the job of ensuring the landowner’s awareness of its existence and understanding of its complexities is equally crucial. We assume that the efficiency and effectiveness with which organizations carry out this task correlates directly with the level of participation in offered programs and compliance with regulations. However, the nature of the two communities’ organizations differs greatly; these differences may lead to potentially significant impacts on the institutional capacity to transfer services and information to NIPFs and, subsequently, on the productivity and profitability of the forestry communities. Thus, it is important to this study to examine the organizations and their subsequent roles in the operations of NIPFs. Table 2 delineates the most pervasive institutions in Florida and New Brunswick and briefly defines their roles in providing services to NIPFs in terms of education, practical management, and marketing assistance.

<table>
<thead>
<tr>
<th>New Brunswick Organizations</th>
<th>Primary Role in Non-Industrial Private Forests</th>
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<tr>
<td>Canadian Forest Service (CFS)</td>
<td>-Federal organization.</td>
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<td></td>
<td>-Focuses on broad issues of national and international concern and provides little direct guidance to NIPF owners.</td>
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<td></td>
<td>-As early as 1981, the CFS recognized the lack of attention given to private woodlots and proposed a more proactive role for the organization in enhancing the private woodlots’ contribution (Reed, 1981).</td>
</tr>
<tr>
<td>Department of Environment And Local Government</td>
<td>-Provincial organization.</td>
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<td></td>
<td>-Responsible for wetland legislation.</td>
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<td></td>
<td>-Source for applications for Watercourse Alteration Permits.</td>
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<td></td>
<td>-Authority for enforcing compliance with permit stipulations.</td>
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<tr>
<td>Forest Products Marketing Boards</td>
<td>-Seven non-profit, non-governmental organizations</td>
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<tr>
<td></td>
<td>-Seek to guarantee that woodlot owners of varying sizes secure a fair share in available markets by negotiating prices, contracts and market access for NIPF owners (INFOR, 2005).</td>
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New Brunswick Federation of Woodlot Owners
- Umbrella organization of the marketing boards.
- Represents the concerns of woodlot owners to government and facilitates communication between seven marketing boards (INFOR, 2005).

INFOR
- Private organization – receives funding, in part, from the provincial government.
- Provides information, consulting and technical services to NIPF owners.

Florida Organizations

U.S. Forest Service
- Federal organization.
- Main function is forestry research.
- The Forest Service’s State and Private Forestry Organization is the self-proclaimed “federal leader” in providing technical and financial assistance to landowners (U.S. Forest Service, 2005).

Florida Division of Forestry (FDOF)
- State organization.
- Administers federal cost-share and grant programs, technical services, and landowner training and educational events.
- FDOF’s County Foresters provide assistance to owners of 10 or more acres of forested land; this includes a forest management plan, information on the timber market, a timber buyer list, a master logger list, a forest consultant list, a prescribed fire management plan.
- Monitors compliance of Florida’s Best Management Practices; since 1981, the division has conducted biennial Compliance Surveys (Florida Division of Forestry [FDOF], 2005).

Water Management Districts (WMD)
- Five state organizations
- Serve as the primary regulatory agencies for forestry in Florida.
- Authority for all water-related regulations within their district’s jurisdiction.

Florida Forestry Association
- Non-governmental organization
- Provides educational programs for paid members
- Authors the “Environmental Law Manual” – a comprehensive catalogue of the legislation regulating forestry activities
- Lobbies for the interests of NIPF owners

University of Florida Cooperative Extension Service
- Outreach arm of the University of Florida
- An extension agent is assigned to each county who conducts educational programs, answers landowners’ questions and distributes forestry publications.
- Provides timber pricing report, Timber Mart South.

Analysis
The NIPFs of both Florida and New Brunswick possess a comprehensive body of public and private institutions. Forestry activities in both regions are supervised by a federal Forest Service with broad national goals, a state or provincial body with a largely administrative role, and numerous local institutions equipped with valuable resources for education and assistance. Though the regions’ chief differences in terms of organizational structure are evidenced in their non-governmental organizations, it is important to note that the levels of involvement of public agencies in the activities of NIPFs vary significantly. While the USDA Forest Service has formed a State and Private forestry organization, the Canadian Forest Service has no equivalent. This trend is similarly apparent in the state and provincial agencies; the Florida Division of Forestry’s mission statement directly instructs the agency to “encourage the active management of Florida’s private non-industrial forest lands” while the New Brunswick Department of Natural Resources’ (NBDNR) role in private forestry is relatively limited (FDOF, 2004). In terms of forestry, this provincial body’s primary duty is to regulate the management of New Brunswick’s Crown (public) forests (NBDNR 2005). The duties of the FDOF, however, are comparable to those of the marketing boards and the New Brunswick Federation of Woodlot owners, which have no Floridian equivalent.

**Marketing Services.** Sanctioned by a regulation under the Natural Products Act, New Brunswick’s seven forest product marketing boards are involved most directly and intensively in private forestry operations there. The Act (1999) orders “[. . .] that a board be established for the purpose of the promotion, control and regulation [. . .] of the marketing of the farm product,” which includes a “product of the forest.” The central goal of the marketing boards is to guarantee that woodlot owners of varying sizes secure a fair share in the available markets by negotiating prices, contracts, and market access for NIPF owners who market primary forest products (INFOR, 2004). By setting standards and providing funding, the federal and provincial governments give agency to the marketing boards to enforce environmental laws and regulate the production of forest products; the boards present significant interventions to the activities of NIPF owners (MacNaughton, 1996). The secretary manager of the New Brunswick Federation of Woodlot Owners estimated that “70% of people who market wood in New Brunswick utilize the services of marketing boards” (K. Hardie, personal communication, 2005). Since the boards are non-profit, non-governmental organizations, they cover administration costs by collecting a percentage of levies from the sale of primary forest products (INFOR, 2005). For example, the Southern New Brunswick Forest Products Marketing Board (SNB) charges NIPF owners a check-off fee of $.50/cord for softwood/hardwood pulp and studs (SNB, 2005). Additionally, marketing boards administer the Provincial Silviculture Program and finance several other programs, as discussed later, which are designed to encourage better management of woodlots.

The marketing services represent the most significant source of disparity between the institutional services available to NIPF owners in Florida and New Brunswick. Although the county foresters from the FDOF, upon request, will provide NIPF owners with information regarding the current timber market, a timber buyer list, and sample contracts, contact between professionals and NIPF owners in the U.S. is extremely limited (Rosen & Kaiser, 2003). Studies have consistently shown that most NIPF owners do not solicit professional forestry help when marketing their timber, but instead allow loggers to conduct the entire sale without requiring
any competitive bidding (Rosen & Kaiser, 2003). Dave Conser, Alachua County forester, estimates that 30% of Florida’s NIPF owners hire consulting foresters to market their timber, 30% look to the Division of Forestry for assistance and the remaining 40% “stumble through the process without any guidance whatsoever” (personal communication, January 25, 2006). Again, in New Brunswick, an estimated 70% of NIPF owners allow marketing boards to market their timber. Most notably, Rosen and Kaiser (2003) conclude that the key reason most NIPF owners in the U.S. do not participate in timber markets is their “lack of knowledge about how timber markets work.” They suggest that there is a vital need in the current market reporting system to transfer information from forestry professionals to the millions of forest landowners (Rosen & Kaiser, 2003). Marketing boards fill this void in New Brunswick.

While it is apparent that marketing boards are a source of “valuable services,” it is important to consider the “frustrating constraints” they may provide for NIPF owners and wood producers (MacNaughton, 1996). MacNaughton (1996) contends that the boards’ system of issuing delivery tickets to individuals who desire to sell their wood to a wood processor allows them to determine how much wood will be harvested from the NIPFs in their region. For example, if a woodlot owner is unable to sell his/her wood without a sales contract negotiated by a marketing board (this is usually the case despite the prescribed “voluntary” nature of marketing boards), then the individual is forced to agree to a marketing board’s conditions (relating to the volume and species of timber to be sold) in order receive a delivery ticket (MacNaughton, 1996).

Despite the potentially significant influence that marketing boards exercise over private woodlots through their role of controlling market access, the benefits of their services significantly outweigh the costs of their absence in Florida. Conser stressed that the NIPF owners who market their timber without assistance suffer “huge economic losses” as they “rarely get the full value for their timber” (personal communication January 25, 2006). Thus, it is reasonable to conclude that New Brunswick’s forest product marketing boards, which negotiate prices, contracts, and market access for their constituents for a relatively small price, place New Brunswick’s NIPF owners at a comparative economic advantage to Florida’s NIPF owners.

**Education.** The educational services available to NIPF owners in both regions are appreciable, though it appears that Florida leads in this area. Florida cooperative extension (FCE)—a “partnership” between the University of Florida’s Institute of Food and Agricultural Sciences, the U.S. Department of Agriculture and Florida’s county governments—is a significant source of “scientific knowledge and expertise” for Florida’s NIPF owners (IFAS, 2006). The FCE administers an online library of publications centering on technical matters of forest management, sustainable agriculture, competitiveness in world markets, and natural resource conservation (IFAS, 2006). The FCE has created a website for each county in Florida that directs landowners to education materials and programs.

Tom Beckely, professor at the University of New Brunswick explains that “until the late 1990s, when a conservative government eliminated it as a cost-cutting measure, New Brunswick had an extension branch as part of its Department of Natural Resources and Energy (DNRE)” (personal communication, January 20, 2006).
As opposed to the U.S., this was a solely government endeavor with minimal ties to the University (T.
Beckley, personal communication, January 20, 2006). INFOR, a “quasi-private, quasi-public extension service run
on a thin budget, mostly on a fee-for-service basis,” now manages the significant extension library
previously amassed by the DNRE’s extension service (T. Beckley, personal communication, January 20, 2006).
The organization strives to provide NIPF owners with the information they need, “but is limited in its ability to have
a ‘field presence’” (T. Beckley, personal communication, January 20, 2006).

ASSISTANCE PROGRAMS AND TAX INCENTIVES

In order to overcome two main barriers for optimal investments in NIPFs, lack of up-front capital and low
expected rates of return, the governments of the U.S. and Canada have instituted cost-share assistance programs
to help stimulate NIPF investment by reducing landowners’ initial costs for reforestation and improving rates of
return (Haines, 1995). Several studies have concluded that cost-share assistance programs have proven to
be effective mechanisms for increasing the productivity of NIPFs (Haines, 1995; Kilgore & Blinn, 2002). In
fact, “technical assistance, educational, and cost-share programs account for 88% of all state and
provincial programs directed at encouraging forest landowners to use the practices suggested in
their guidebooks” (Kilgore & Blinn, 2002). Preferential tax treatment of NIPFs is also an important tool for
influencing management decisions (Hibbard, Kilgore, & Ellefson, 2003). It is critical for this study to examine
the extent of each country’s efforts to ease the economic burdens of timber production.

This section focuses on cost-share programs and specific taxation provisions that are directed at enhancing
the productivity, and subsequent profitability of private forestry operations. Considering the voluntary nature of
the assistance programs, it is important to note that economic rationality often accompanies mimetic effects,
peer pressures, and sense-making in the decision of landowners to adopt regulatory incentives (Heeks &
Duncombe, 2003). In other words, though cost-share programs may be a practical business decision for many
NIPF owners, the economic viability of a program does not ensure a high participation rate.

Florida: Forest Land Enhancement Program

The Forest Land Enhancement Program (FLEP), implemented by the Florida Division of Forestry, is the only
cost-share assistance program directed at increasing the productivity of NIPFs in Florida. The goal of FLEP is
to “enhance the health and productivity of the non-industrial private forest lands in the United States for
timber, habitat for flora and fauna, soil, water, and air quality, wetlands, and riparian buffers.” (FDOF, 2005).
These multiple objectives are evidenced by the types of activities funded by the program, which are listed in Table
3. The federally funded FLEP allocates money to the states, which are given the authority to tailor the program
to address the state’s specific needs. In Florida, private landowners with possession of 10 to 10,000 acres of
forested land and a forest management plan are eligible to apply for the program, which covers either 50% or
75% of the cost of specified activities (FDOF, 2005). NIPF owners must agree to partake of these activities for
10 years, may treat up to 1,000 acres of their forestland per year, and may receive no more than $100,000 of
the program’s total $100 million in funds for the life of the Farm Bill (USDAFS, 2005; FDOF, 2005).

Table 3.
FLEP and PWSAP cost share rates for corresponding management practices

<table>
<thead>
<tr>
<th>PWSAP Cost-Share Rate</th>
<th>New Brunswick PWSAP Practice Title</th>
<th>Florida FLEP Practice Title</th>
<th>FLEP Cost-Share Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td>Pre-commercial thinning</td>
<td>Reforestation/Afforestation</td>
<td>75%</td>
</tr>
<tr>
<td>80%</td>
<td>Mechanical plantation cleaning</td>
<td>Forest stand improvement</td>
<td>75%</td>
</tr>
<tr>
<td>80%</td>
<td>Fill planting</td>
<td>Water quality improvement</td>
<td>75%</td>
</tr>
<tr>
<td>80%</td>
<td>Full planting</td>
<td>Fish and wildlife habitat</td>
<td>75%</td>
</tr>
<tr>
<td>80%</td>
<td>Site Preparation</td>
<td>Forest health and protection</td>
<td>50%</td>
</tr>
<tr>
<td>80%</td>
<td>Plantation and/or natural stand chemical release</td>
<td>Fires and catastrophic risk reduction</td>
<td>75%</td>
</tr>
<tr>
<td>80%</td>
<td>Woodlot management recommendations</td>
<td>Fires and catastrophic event rehabilitation</td>
<td>75%</td>
</tr>
</tbody>
</table>

Note: From FDOF, 2005 and NBDNR, 2005

**New Brunswick: Private Woodlot Silviculture Assistance Program (PWSAP)**

Canada’s counterpart to America’s FLEP is the Private Woodlot Silviculture Assistance Program, which is administered by Natural Resources Canada and delivered to landowners through the seven forest products marketing boards. Funding for the program, which comes from both the provincial and federal governments, has grown dramatically; in 1993, $3 million was spent on the treatment of 5,248 hectares — in 2004, $7.2 million was spent on the treatment of 11,902 hectares of NIPF (NBDNR, 2005). For 2005, the program covered 80% of the estimated total cost of approved activities, which are listed in Table 3; the additional 20% was paid either by the marketing boards through a check-off fee system, or by the landowners directly (NBDNR, 2005). In fact, most boards provide additional funding to complement the government program to further reduce the landowner’s out-of-pocket cost (SNB, 2005).

With funding from industry and check-off fees from commercially sold timber, six of the seven marketing boards also administer a unique set of programs and incentives for the woodlot owners within their jurisdiction. Figure 2 illustrates the opportunities offered to landowners by one marketing board, the Carleton-Victoria Forest Products Marketing Board.

- **Member statistics:** Every year, the Carleton-Victoria marketing board markets wood or carries out forest management activities for over 500 private woodlot owners. Administration costs are covered by a 1.7% levy that is deducted from all sales of primary forest products from within the CVMB regulated area.
Harvest bonus: St. Anne-Nackawic Pulp Company Ltd. provides funding each year to the Carleton-Victoria Forest Management Fund. Part of this fund is used to pay a bonus of $3.50 per ton to wood producers who use a selection harvest to treat tolerant hardwood stands. This program intends to ensure that quality in these types of stands is improved and that good quality hardwood stands are treated in a sustainable fashion.

Management plan: The Forest Management Fund covers 88% of the cost of having a management plan written. The cost to the woodlot owner is only $1 per acre of land that is or is planned to be put into forest production (i.e., reforestation of fields).

Managed woodlot bonus: Woodlot owners are paid $10 per acre on up to 20% of the woodlot area per year for following the recommendations and timing that is prescribed in their management plans.

Analysis

The impetus for the creation of the PWSAP explains the narrow focus of its approved activities compared with those of the FLEP, which includes provisions for improving the environmental quality of NIPFs (habitat for flora and fauna, soil, water, air quality, etc.). In New Brunswick, past harvesting practices, spruce budworm-related mortality, and industrial expansion led to an unbalanced age-class distribution (particularly for softwood species) that placed the long-term supply of wood for industry in jeopardy (Macfarlane & Zundel, 1995). At the time of their research, MacFarlane and Zundel (1995) reported that wood supply forecasts predicted a shortfall of sawlog quality softwood timber suitable for harvest within 15 to 20 years. The PWSAP was implemented with the primary goal of increasing the rate of growth of the softwood forest through silviculture activities in order to ensure the sustainability of the forest sector (Macfarlane & Zundel, 1995). Thus, all of the activities approved under the PWSAP are directed toward this goal.

The central question remains: which program has the larger impact on the productivity of NIPFs? The answer is overwhelmingly New Brunswick’s PWSAP. The variant goals of the programs are only part of the answer; an examination of the programs’ funding provides the substantial evidence. Of the total $100 million that the U. S. federal government originally allocated to fund FLEP, $20 million was disbursed to state agencies in 2003, $40 million was transferred to wild land fire suppression in 2004 and was not repaid, and $20 million was cancelled in 2005 (USDAFS, 2005). Only $5 million was released into the field in 2004 and $10 million in 2005; $5 million is available for the program in 2006 (USDAFS, 2005). Unlike New Brunswick’s PWSAP, which in 2005 alone, distributed $7.2 million in cost-share assistance exclusively to NIPF owners in the province, FLEP is a nationwide program, so these funds are divided between all of the states which request them. In 2003, Florida spent only $573,678 of FLEP funds: 15% on technical assistance, 5% on education, 70% on financial assistance, and 10% on administration costs (Committee on Agriculture, 2004). In 2004, Florida had
no funding for FLEP and $498,000 was spent in 2005 (K. Boutwell, FLEP Coordinator for FDOF, personal communication, January 30, 2006).

FLEP’s funding problems were vocalized in the FLEP hearing before the Committee on Agriculture in the House of Representatives in July 2004; Charles W. Stenholm, a representative from Texas lamented that “states are facing requests for assistance that far exceeded the funding that was available.” This concern is consistent with evidence from Florida: in 2003, 150 of 206 applications for FLEP funding were denied; in 2004 (a small amount of money was left over from 2003), 231 of 347 applications were denied; and in 2005, 187 of 429 applications were denied (K. Boutwell, FLEP Coordinator for FDOF, personal communication, January 30, 2006). Of the FLEP, Alachua county forester Dave Conser said:

“The federal government took back FLEP’s funding and we don’t know that there will be any more. The lack of funding for cost-share assistance is really hurting Florida’s NIPF owners. The amount of peninsular lands planted correlates directly with the cost-share monies available; with assistance, a lot more people would be doing a lot more planting of pine trees. I used to plant between 1,500 and 2,500 acres each year; now I am down to between 300 and 500 acres per year.” (personal communication, January 25, 2006)

Confirming this same correlation in New Brunswick, MacFarlane and Zundel’s (1995) economic analysis of the impacts of the program concluded that almost two thirds of the owners surveyed said they would not have conducted silviculture activities without the program’s funds. Thus, the impact of PWSAP is appreciable.

It is also important to mention that the harvest, reforestation, and managed woodlot bonuses offered by some of New Brunswick’s marketing boards provide a boost to the profitability of sustainable forest management in the region. There are no equivalent incentives in Florida.

**Florida: Tax provisions.** In 2000, each state in the U.S. administered 66 programs which prescribed preferential tax treatment of forestland (Hibbard, Kilgore, & Ellefson, 2003.) For less productive sites, especially, forest management practices quickly become economically unviable if the tax rate is increased (Greene, Straka, & Dee, 2003). In the U.S., the federal income tax has a particularly profound influence on the profitability of timber management (Greene, Straka, & Dee, 2003). Seven provisions of the federal income tax provide incentives for NIPF owners to follow sound management and reforestation practices: 1) treatment of qualifying income as a long-term capital gain, which is taxed at lower rates than ordinary income. 2) annual deduction of management expenses, 3) depreciation and the Section 179 deduction, which is a large, one-time deduction for part or all of the cost of qualified depreciable property, 4) deductions for casualty losses or other involuntary conversions, 5) reforestation tax credit, a 10% investment tax credit on up to $10,000 of a landowner’s investment in planting trees, 6) amortization of reforestation expenses, and 7) the ability to exclude qualifying reforestation cost-share payments from gross income (FLEP does not qualify) (Greene, Straka, & Dee, 2003).
In addition to the federal income tax provisions, property taxation is a particularly visible and important tool for affecting the management of NIPFs (Hibbard, Kilgore, & Ellefson, 2003). Sanctioned by a Florida statute, Florida’s Greenbelt Law established agriculture (the Greenbelt Law’s definition of agriculture includes forestry) as a separate class of property to be taxed on the agricultural value of the land rather than its value for development (Broward County Property Appraiser [BCPA], 2005). For example, in 2006 in Alachua County, the assessed value (value of land for tax purposes) of planted pine forests is $90 to $340 an acre, depending on the land’s soil classification (land with poor quality soil is taxed the least), even if the land’s market value is $30,000 an acre (J. Sweirs, Alachua County Property Appraiser, personal communication, January 19, 2006). The property appraiser essentially “devalues” the forested land for taxation purposes, as the tax rate remains the same. The exact taxation amount is determined by the property appraiser in each county, but “varies little from county to county” (J. Sweirs, Alachua County Property Appraiser, personal communication, January 19, 2006). Forested land must meet three requirements before it may be considered for the significantly lower property tax rate: agricultural use must be the primary activity on the land, the agricultural use must be commercial, and it must be bona fide (BCPA, 2005). Securing the agricultural classification makes commercial forestry an attractive option for landowners, as “natural” forestland is taxed at the slightly higher rate of $110 to $360 an acre.

New Brunswick: Tax provisions. Comparable literature on the federal and provincial taxation of private woodlots in New Brunswick is unavailable.²

REGULATORY POLICIES

Growing public concern over the integrity of forest and related ecosystem values has been manifested in the U.S. and Canada in a host of regulatory policies designed to mitigate the negative externalities associated with timber production (Ellefson & Cheng, 1997). However, the regulation of management practices undeniably generates significant burdens for private forestland owners (Ellefson & Cheng, 1997). Ensuring compliance robs landowners of time, energy, and money which they must invest in understanding the laws, implementing potentially unfamiliar and costly practices, and rounding up required permits.

As the market share of publicly harvested timber shrinks, with NIPFs increasingly taking up the slack, the potential for NIPF owners in the United States and Canada to compete in a shared market grows greater. Comparative advantage enjoyed by the NIPF owners who must submit to the least stringent regulations – or even an impression of inequity – could become a potential source of trade conflict. This section examines the regulations in the most significant areas of concern for forest management: wetlands/watercourse protection, endangered species protection, prescribed burning, and pesticide use. Because timber harvesting practices that affect water quality are the most common component of state and provincial regulations, we discuss these in the most detail (Kilgore & Blinn, 2002). Legislation relating to endangered species protection, prescribed burning, and pesticide use is delineated in Table 4.
“Of all federal and state regulations, water laws are Floridian foresters’ number one concern.” (P. Gornicki, Florida Forestry Association, personal communication, 2005) The regulations governing the harvesting of timber near a watercourse or wetland in Florida are numerous, complex, and are enforced by both the federal and state government. While Florida does not have a goal of no net loss of wetland or water surface acreage, the state does have the goal of sustaining no net loss in wetland or other surface water functions; importantly, this goal excludes losses resulting from exempted and permitted forestry silviculture activities (Florida Department of Environmental Protection [FDEP], 2005).

At the federal level, Section 404 of the Clean Water Act regulates the discharge of dredged or fill material in the waters of the United States — a form of nonpoint source pollution often produced by forestry operations (FFA, 2004). Section 404 (F) is of particular importance to forestry because it exempts most forestry operations from obtaining a permit from the Army Corps of Engineers. It is “extremely rare” for a legitimate forestry operation to have to obtain a permit from the federal government (P. Gornicki, personal communication, 2005).

The regulation of water-related activities is largely the responsibility of state governmental agencies in Florida. Forestry activities which impede, impound, or divert the flow of water in wetlands or any other surface waters (i.e., fill road construction, stream crossings, ditches, etc.) are regulated by the Environmental Resource Permitting Program (ERP), which is administered jointly by the Department of Environmental Protection and the state’s five Water Management Districts (WMD). According to the director of responsible forestry at the FFA, “99% of what we do in forestry comes under the WMD permitting system.” (P. Gornicki, personal communication, 2005) To obtain a permit to conduct an activity which alters the flow of water, the WMD requires that specific performance criteria be met, forestry BMPs be applied, and a notice of intent be provided by the landowner to the appropriate district. Applicants must provide reasonable assurance that their activities will not adversely affect the wetland or water system before they are issued a permit (Suwannee River WMD, 2005). One example of a performance criterion from Chapter 40B-4000, F.A.C. of the Suwannee River WMD ERP rules is that “erosion control measures must be undertaken to limit the transfer of suspended solids into the receiving waterbody during and after construction” (Suwannee River WMD, 2005).

Before progressing to New Brunswick’s water-related regulations, Florida’s Best Management Practices warrant some additional consideration, as they are the primary mechanism used to achieve the minimum standards for preserving water quality in Florida. In 2004, the FDOF established a new voluntary rule, Rule 5I-6, to provide an additional incentive for landowners to follow forestry BMPs (FDOF 2005). The incentive is a “presumption of compliance” with state water quality standards; this means that if an NIPF owner follows BMPs during forestry operations, he or she would not be held responsible for a water quality standard violation, should one occur (FDOF 2005). To comply with this rule, the landowner must submit a “notice of intent” to the FDOF, which is simply a commitment to follow BMPs during all forestry operations; they must also keep records necessary to
verify BMP compliance (FDOF 2005). Though most counties in Florida deem silviculture BMPs “voluntary” (they are regulatory in some counties, such as Alachua County), a multitude of legislation-based incentives effectively motivate most NIPF owners to administer them. Anyone who wishes to conduct silviculture operations that are not in compliance with the BMP manual must seek and obtain a permit from the appropriate governmental agency. The ensuing combination of bureaucratic red tape and expenses (potentially exceeding the cost of implementing BMPs) makes the permitting process a poor choice of action for landowners, and as Phil Gornicki states, "almost everyone opts to fit the exemption criteria" (which means adhering to BMPs) (Personal communication, 2005). The Florida DOF has monitored BMP implementation by conducting a biennial Compliance Survey since 1981; through 2001, the long-term average for BMP compliance in Florida is 93% (FDOF, 2004).

**Water Regulations: New Brunswick**

Water-related policies are similarly the forefront of concern for NIPF owners in New Brunswick. The provincial and federal policies are designed to ensure no loss of Provincially Significant Wetland Habitat and all other wetlands larger than 1 hectare. There are two specific regulatory mechanisms for managing activities in or near wetlands and all other water bodies: the Environmental Impact Assessment Regulation (EIAR) under the Clean Environment Act and the Watercourse and Wetland Alteration Regulation (WWAR) under the Clean Water Act.

- any changes made to existing structures in the watercourse or wetland, whether the water flow in the watercourse or wetland is altered or not
- operation of machinery on the bed of a watercourse other than at a recognized fording place
- operation of machinery in or on a wetland
- deposit or removal of sand, gravel, rock, topsoil or other material into or from a watercourse or wetland or within thirty meters of a wetland or the bank of a watercourse
- disturbance of the ground within thirty meters of the bank of a watercourse
- removal of vegetation from the bed or bank of a watercourse, from a wetland, or from within thirty meters of a wetland
- removal of trees within thirty meters of the bank of a watercourse

**Figure 3. Wetland and watercourse alterations requiring Watercourse Alteration Permits under Canada’s Clean Water Act. Note. From New Brunswick Department of Environment and Local Government (DELG), 2003**

The EIRA requires that an environmental impact assessment be conducted for any activity (including forestry silviculture activities) that affects a wetland greater than 2 hectares (5 acres) (INFOR, 2005). The WWAR provides more explicit terms of operation for activities near water bodies and makes it illegal to make or perform any watercourse or wetland alteration (*alteration* is formally defined as “a temporary or
permanent change made at, near, or to a watercourse or wetland, or to water flow in a watercourse or wetland”) unless authorized to do so by a permit issued by the Minister of the Environment and Local Government (DELG, 2003). The activities that require a permit are delineated in Figure 2. It was estimated that permits are awarded to 95% of people who request them (DELG, personal communication, 2005).

When applying for the permits, landowners may be required to provide engineering scale drawings, dimensioned sketches of the proposed alteration, and a map of the area of the proposed activity (DELG, 2005). The WWRA allows the minister of the environment and local government to impose any terms and agreements he/she deems appropriate unto any activity that has the potential to alter a watercourse or fish habitat (DELG, 2005). These “conditions of approval” appear as riders on the watercourse alteration permits. If convicted of an offence under the Wetland Alteration Regulation, an individual may be fined up to $50,000 (DELG, 2005).

Table 4.
Legislation in Florida and New Brunswick relating to endangered species protection, prescribed burning, and pesticide use.

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<td>- <em>State</em>: Florida Endangered and Threatened Species Act</td>
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<td>- <em>State</em>: Florida Pesticide Law</td>
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**Analysis**

The regulations in the aforementioned areas each occupy a space on a “continuum of intensity” based on the extent to which they restrict the activities of NIPF owners. This study found that in the four areas—wetlands/watercourse protection, endangered species, prescribed burning, and pesticide use—landowners in Florida and New Brunswick must submit to a comparably intensive set of regulations. There are, as will be discussed, perceivable differences in the requirements of the legislation pertaining to watercourse protection, prescribed burning, and pesticide use. However, our qualitative analysis permits us to conclude that they are probably not significant enough, economically, to warrant serious attention. When considering the extent of regulatory regimes, it is important to bear in mind that regulatory frameworks are employed by only 39% of the states and provinces to implement sustainable timber harvesting practices (Kilgore & Blinn, 2002).
As previously mentioned, water quality regulations are the most common and intensive of all regulations for NIPFs in Florida and New Brunswick. Florida’s detailed BMPs and Environmental Resource Permitting Program appear to be more restrictive and costly than New Brunswick’s rather broad permitting system, which awards permits to 95% of people who request them. However, it was found that in the southeastern United States, the most productive timber stands are in plain areas where BMP costs are lowest, meaning that BMP implementation has the potential to reduce timber harvest volumes only slightly (Lickwar, Hickman, & Cubbage, 1992). It is also important to consider that New Brunswick’s wetland and watercourse alteration permits are loaded with riders which tailor specific requirements for the permitted activity. There is no way to circumvent the permitting system in New Brunswick, as following BMPs in Florida allows. In the context of water-related regulations, a qualitative comparison is somewhat inconclusive—an economic analysis of the costs incurred while ensuring compliance with these laws would allow us to discuss this with a higher degree of certainty.

Endangered species legislation in both regions is nearly identical in content, intent, and scope of impact. Both Florida’s Endangered Species Act (ESA) and New Brunswick’s Species at Risk Act (SARA) were created to control the rate of human-caused extinctions of flora and fauna. The ESA prohibits private landowners from “taking” an endangered species, making it illegal to “harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect” a listed species; harm is defined broadly to include significant habitat modification (FFA, 2004). Likewise, the provincial Endangered Species Act protects the 16 listed species, their residences, and their critical habitat by making it illegal to “disturb, harass, or harm” a listed species (NBDNR, 2005). The secretary manager of the New Brunswick Federation of Woodlot Owners admits that “there isn’t any listed species of flora or fauna that significantly affects private forestry activities in New Brunswick” (K. Hardie, personal communication, 2005). Though the 100 threatened and endangered species listed under the ESA likely occupy Florida’s NIPFs “to a great extent,” the ESA similarly affects the management of NIPFs in Florida “very little, because good forest management does not harm or threaten endangered species or their habitat” (FFA, 2004; D. Conser, personal communication, January 27, 2006). Of all the listed species, the Red-Cockaded Woodpecker and the Bald Eagle have the largest impact on forest management in Florida (S. Talley, personal communication, January 30, 2006).

In order to conduct a prescribed fire, landowners in both Florida and New Brunswick are required to obtain appropriate permits. Florida Statute 590.125 requires all prescribed fires to be authorized or permitted by the FDOF (Long, 1999). The FDOF authorizes an average of 113,000 permits per year to burn approximately 2 million acres of land in Florida (FDOF, 2005). To conduct a prescribed fire in New Brunswick, a pre-inspection must be conducted and a burn plan and permit must be submitted to the New Brunswick Department of Natural Resources (NBDNR, 2005). In Florida, NIPFs owners who are not “certified burners” do not have to provide a burn plan to the country Division of Forestry office to obtain a permit “nor do they really have to have one if they are not a certified burner” (A. Long, personal communication, 2005). However, the issuance of a permit in New Brunswick is contingent upon the written burn plan that landowners are required to submit to the NBDNR. The requirements of the Forest Fires Act reveal that that burn plans are detailed, time consuming, and often require technical assistance.
The application of insecticides, herbicides, and fungicides (collectively referred to as pesticides) to reduce the mortality of desired trees, improve overall production, and favor a particular tree species in commercial forestry operations has been documented to increase yields of forest products (FFA, 2004). The majority of the pesticide regulations in the two regions are identical; all pesticides must be registered at the federal level, and they must be used in a manner consistent with its label, which, for example, may indicate maximum rates of applications. However, there is one major difference. Though some pesticides in Florida require the applicator to be certified by the Florida Department of Agriculture and Consumer Services, the New Brunswick Regulation (1996) under the federal Pest Control Act states that "no person shall sell or supply a non-domestic pesticide to a person who is not the holder of a permit authorizing the person to apply that pesticide, a vendor’s license, a pesticide operator’s license or a pesticide applicator’s certificate.”

CONCLUSION

In the context of timber harvested on public lands, "U.S. lumber companies look north with envy at what they perceive to be less regulated Canadian competitors" (Cashore, 1997). It appears that this perception is not yet pervasive in the private sector; based on the findings of this research, it would be largely unjustified. We contend, with others, that New Brunswick’s NIPF owners encounter government legislation "in an almost infinite number of ways throughout their daily lives" and that this legislation affects decisions relating to "almost every aspect and component of their woodlots" (MacNaughton, 1996). This paper illustrates that the same can be said for landowners in Florida.

Though the regions share a similar burden of regulation, it is apparent that the marketing services and cost-share assistance programs are profoundly more extensive in New Brunswick than in Florida. We speculate that the extent to which these enhance the profitability and ease of production in New Brunswick is substantial and thus warrant additional consideration in future research to ensure continued amicable trade of timber from privately held lands in the U.S. and Canada.

These conclusions meet the rather broad goal of this research: to examine the policies affecting private forestry in Florida and New Brunswick and draw comparisons on the extent of its influence on NIPF operations. However, an obvious quantitative question lingers: how much or little do organizational set-up, incentive programs, and regulations inhibit or enhance the profitability of private forestry in these regions? Such an economical analysis lies beyond the scope of this research; however, it is recommended for future study.

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FOOTNOTES

1. This section does not address the host of programs which primarily seek to promote wildlife, land, and water conservation. A survey of programs with this goal reveals that they are more prevalent in Florida. The state-sponsored Landowners Incentives Program, and the 2002 Farm Bill conservation programs such as the Wildlife Habitat Incentive Program, the Environmental Quality Incentives Program, and the Conservation Security Program are just a few of the voluntary programs that are designed to improve wildlife conservation and environmental quality in Florida by providing economic incentives and compensation for conservation practices on NIPFs. Also, the loss of forest land in the non-industrial private sector of Florida has been offset by public land purchases by conservation programs (Hodges, Mulkey, Alavalapati, Carter, & Kiker, 2005).

2. Additional work on this issue is critical to improve the quality of comparative analysis as taxation provisions are extremely influential in Florida.

3. BMPs also define appropriate management practices for forest roads, stream crossings, timber harvesting, site preparation and planting, firelines, pesticide and fertilizer applications, waste disposal, and wet weather operations (FDOF, 2004).

4. A similar discussion with Scotland Talley, a wildlife biologist working for the Fish and Wildlife Conservation Commission, regarding the impact of Endangered Species legislation on the management of Florida’s NIPFs revealed that “there is so little information and so few surveys” documenting the presence of endangered species on private lands (S. Talley, personal communication, January 30, 2006). Scotland Talley charges that the Endangered Species legislation motivates landowners “to manage their forests so as to avoid creating habitat for endangered species” (personal communication, January 30, 2006). Additional research in this area is highly warranted.

REFERENCES


3. Canadian Forest Service (CFS) (2005). The forest Resource in Atlantic Canada and an Overview of Issues


