West Virginia Forest Landowners: A Look at Their Characteristics and Forest Management Decision

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Abstract

Nonindustrial private forest (NIPF) landowners play an important role in sustaining the hardwood resources of West Virginia since they control the majority of the state’s timberland base. No comprehensive description of the state’s NIPF landowners has been done since the 70s. An updated and comprehensive survey is needed to have a better understanding of West Virginia’s private forest landowners and timberland resource base. Thus, a survey of West Virginia forest landowners in the fall of 2005 was conducted to characterize the state’s NIPF landowners and their forest lands and to provide an insight into their forest management decisions. Preliminary results of the survey indicate that aesthetic enjoyment and place of residence were the two most important reasons for forestland ownership. Most landowners are not actively managing their forestland. Less than 13% of the respondents have conducted any type of forest management activity; 21% have harvested timber in the last 5 years; and 12% have a written management plan. Landowner participation in educational and forestry assistance programs has been minimal with only 3% attending educational programs; less than 20% were aware of the forestry assistance/incentive programs, and only 25% of those aware had ever used any of the programs.

Key words: NIPF landowners, landowner survey, Appalachian hardwoods, landowner characteristics.

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1. Introduction

West Virginia is the third most heavily forested state in the United States with 12 million acres of forestland, which is approximately 78% of the state’s total land area (Childs, 2005). West Virginia is also the second leading hardwood state in the nation making it an important hardwood resource base. The contribution of wood-related industry to the state’s economy cannot be overemphasized. For example, while employment in most of the other industries like mining, primary metals, stone-clay-and glass, and chemicals fell during the 1980 and 2004 period, employment rose from 6.5 thousand to 11.8 thousand for wood products and furniture industries in that same period (Childs, 2005). Eastern hardwoods will play an even more important role as Southern forests continue to have less intensive forms of management and low rates of growth of hardwood timber (Haynes, 2002).

In terms of forestland ownership, 76% of the state’s forestland is owned by nonindustrial private forest (NIPF) landowners (Birch, 1996). Due to this significant proportion of ownership, actions of this landowner group will have a significant impact on the availability of hardwood to the state and to the nation as a whole. Many studies have been carried out linking NIPF landowner characteristics with their forest management decisions (e.g., Greene & Blatner, 1986; Romm et al., 1987; Kuuluvainen et al., 1996; Conway et al., 2003; Elwood et al., 2003). Even though NIPF landowner characteristics have been a topic of extensive studies in other regions, there is very little information about the NIPF owners in the Eastern U.S., and more so in West Virginia. There have been few studies on characterizing landowners’ participation in Forest Stewardship Program and evaluating the effectiveness of this program in the state (e.g., Magill, 2003; Jennings et al., 2003; Egan et al., 2001). A detailed study on the characteristics and the management decisions of NIPF landowners in West Virginia have not been conducted since 1978 (Birch and Kingsley). A comprehensive survey of NIPF landowners was thus needed to have a better understanding of the state’s NIPF landowners’ characteristics and their forest management decisions. This paper presents preliminary findings of a statewide survey carried out in the fall of 2005. The study was conducted to characterize the state’s NIPF landowners and their forestlands and to provide an insight into their forest management decisions.

2. Methods

The study population was made up of nonindustrial private landowners of West Virginia. Since we intended to characterize all NIPF landowners of the state regardless of ownership size, the study population included all landowners irrespective of the size of their landholdings. The data for the study was collected from a mail survey conducted in the fall of 2005 to 2,100 randomly selected NIPF landowners. Names and addresses of landowners were obtained from the State Tax Assessor’s Office. Dillman’s (2000) Tailored Design Method was used to design the survey. A total of three mailings (i.e., initial mailing and two follow up mailings) were sent in order to increase the number of responses.

The survey instrument was developed with the aim of collecting comprehensive statewide information on NIPF landowners’ characteristics and behavior towards forest management. The survey was divided into six sections: 1.) property information (i.e., ownership size, forest composition, time of parcel acquisition, mode of parcel acquisition, and residence information); 2.) landowner objectives; 3.) forest management and investment (i.e., who manages the forestland, preparation of forest management plan, effect of tax on their management decisions, estimates of their forestland and timber value, perceived risks in timber
management, problems typically encountered by owners in their forestland property, and forest management activities); 4.) harvesting and sale (i.e., timber harvest information, reasons for harvesting, use of assistance from professional foresters during the harvest, reasons for not harvesting, and plans for future harvest); 5.) use of forestry assistance/incentive and educational programs; and 6.) demographics (i.e., membership to forestry-related organization, age, gender, ethnic background, education, profession, and annual household income). Data from completed questionnaires were entered and compiled in MS Excel. Summary statistics were computed for the variables collected in the survey using SAS.

3. Results

3.1 Survey Response Rate

Of the 2,100 questionnaires that were initially mailed out, about 216 were returned due to undeliverable addresses and deceased landowners. Moreover, about 611 questionnaires were returned either because the landowners did not own any timberland property in West Virginia or have already sold their timberland property at the time of the survey. Thus, the effective sample size was reduced to 1,273. The survey resulted in 244 usable responses or 19% response rate.

3.2 Property Information

Majority of the respondents (55%) owned a single parcel of forestland (Figure 1). However, there are also a few (2%) who owned over 100 parcels. Hardwood forest was the dominant forest type, averaging approximately 3,455 acres (Table 1). Although pine forest type was the second largest forest type reported by the respondents, it only averaged 271 acres. The average ownership size was approximately 4,114 acres with a median of 43 acres. Majority of the respondents (78%) acquired their first forest property between 1950 and 1999 (Figure 2). Over 20% of the respondents have acquired their first forestland property in the last 5 years.
Table 1. Forest ownership size (in acres) according to forest type of the NIPF respondents in West Virginia, 2005.

<table>
<thead>
<tr>
<th>Forest Type</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardwood Forest</td>
<td>3,454.82</td>
<td>28,796</td>
<td>0</td>
<td>341,250</td>
<td>20</td>
<td>341,250</td>
</tr>
<tr>
<td>Pine Forest</td>
<td>270.92</td>
<td>2,803</td>
<td>0</td>
<td>30,000</td>
<td>0</td>
<td>30,000</td>
</tr>
<tr>
<td>Mixed Forest</td>
<td>244.24</td>
<td>3,310</td>
<td>0</td>
<td>50,000</td>
<td>0.25</td>
<td>50,000</td>
</tr>
<tr>
<td>Others</td>
<td>247.54</td>
<td>3,360</td>
<td>0</td>
<td>50,500</td>
<td>0</td>
<td>50,500</td>
</tr>
<tr>
<td>Total Forest</td>
<td>4,113.86</td>
<td>35,175</td>
<td>0.5</td>
<td>375,000</td>
<td>43</td>
<td>375,000</td>
</tr>
</tbody>
</table>

*Forest type acres do not add up to total acres reported because some landowners did not report breakdown of ownership by forest type.

Most of the timberland properties were acquired through purchase (69.67%). About 23% of the landowners had gained ownership through inheritance and 4.51% as gift (Figure 3). While majority of the landowners (76%) have still retained their first forestland acquisition, the results also indicate that there have been changes in forest acreages among landowners in West Virginia (Figure 4). About 24% of the landowners have had changes in the size of their forestland ownership. Of these landowners, 45% had acquired more forest acreage through the years by buying more properties (Figure 5). However, majority of the landowners (55%) had fewer acreage now compared to the time when they first acquired their forestland. These landowners
have either sold their property, have built homes on the property, or have bequeathed their property.

Majority (80%) of the NIPF landowners reside in West Virginia while 19% of the landowners were absentee landowners (Figure 6). Absentee landowners were mostly from adjoining states (e.g., Maryland, Kentucky, Ohio, Pennsylvania, Virginia) but there were also a few landowners who live in other states such as Florida and California.
3.3 Landowner Objectives

Landowners were presented with 9 possible reasons for owning their forestland: timber for sale, wood for personal use, wildlife, recreation, aesthetics, residence, land investment, water quality, and non-timber forest products (NTFPs). They were then asked to rank these objectives by level of importance. Aesthetics ranked the highest as a reason for owning forestland among the respondents, followed closely by residence, recreation, and wildlife (Table 2). Land investment and water quality were also perceived to be more important reasons than timber for sale. Timber for sale and wood for personal use only ranked 6th and 7th, respectively. Non-timber forest products were perceived to be the least important reason for forestland ownership.

Table 2. The relative importance of reasons for owning a forestland for NIPF respondents, West Virginia, 2005.

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Very Important (%)</th>
<th>Important (%)</th>
<th>Not very important (%)</th>
<th>Not at all Important (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Timber</td>
<td>17.43</td>
<td>12.84</td>
<td>14.22</td>
<td>55.50</td>
<td>100.00</td>
</tr>
<tr>
<td>2. Wood</td>
<td>14.69</td>
<td>16.11</td>
<td>21.80</td>
<td>47.39</td>
<td>100.00</td>
</tr>
<tr>
<td>3. Wildlife</td>
<td>40.00</td>
<td>20.91</td>
<td>12.27</td>
<td>26.82</td>
<td>100.00</td>
</tr>
<tr>
<td>4. Recreation</td>
<td>43.46</td>
<td>23.83</td>
<td>12.62</td>
<td>20.09</td>
<td>100.00</td>
</tr>
<tr>
<td>5. Aesthetics</td>
<td>47.06</td>
<td>18.14</td>
<td>12.25</td>
<td>22.55</td>
<td>100.00</td>
</tr>
<tr>
<td>6. Residence</td>
<td>44.55</td>
<td>14.22</td>
<td>9.00</td>
<td>32.23</td>
<td>100.00</td>
</tr>
<tr>
<td>7. Land Investment</td>
<td>30.70</td>
<td>21.86</td>
<td>20.00</td>
<td>27.44</td>
<td>100.00</td>
</tr>
<tr>
<td>8. Water Quality</td>
<td>26.96</td>
<td>24.02</td>
<td>13.24</td>
<td>35.78</td>
<td>100.00</td>
</tr>
<tr>
<td>9. NTFPs</td>
<td>4.37</td>
<td>10.19</td>
<td>11.65</td>
<td>73.79</td>
<td>100.00</td>
</tr>
</tbody>
</table>

3.4 Forest Management and Investment

Majority (71.72%) of the respondents managed their forestland on their own while 17% had no one to manage their forestland (Figure 7). Only about 8% of the respondents had sought
the help of professional foresters. Of these landowners, majority sought the help of consulting foresters. With respect to landowners having a written forest management plan, majority of the landowners (88%) did not have a written forest management plan (Figure 8). Of the landowners who had a written forest management plan, 71% confirmed of following the prescribed treatments in the management plan. Of those without a management plan, 45% were interested in having a written forest management plan for their property (Figure 9).

Figure 7. Distribution of the respondents according to the manager of the forestland, West Virginia, 2005.

Figure 8. Percentage of NIPF respondents with a written forest management plan, West Virginia, 2005.
Respondents were also asked how taxes affected their forest management decisions. Over half of the respondents (66%) responded that taxes have no influence in their forest management decisions (Table 3). For some landowners, taxes did have an influence in their decision to manage their forestland. For example, 17% of the respondents said that taxes promoted harvesting mature timber while 14% of these landowners thought taxes made them think about selling the property and promoted forest management activities. Of the various tax programs available, property tax was considered by the respondents to have the most effect on the management and use of their timberland property (Figure 10).

Table 3. Perceived effect of taxes on the management and use of the forestland by NIPF respondents, West Virginia, 2005.

<table>
<thead>
<tr>
<th>Effect of taxes</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote harvesting of mature timber</td>
<td>16.74</td>
<td>83.26</td>
<td>100.00</td>
</tr>
<tr>
<td>Promote timber harvesting regardless of whether the timber is mature or not</td>
<td>1.72</td>
<td>98.28</td>
<td>100.00</td>
</tr>
<tr>
<td>Make me think about selling the property</td>
<td>13.73</td>
<td>86.27</td>
<td>100.00</td>
</tr>
<tr>
<td>Promote conservation of the property to other land uses (agriculture, real estate, etc.)</td>
<td>7.73</td>
<td>92.27</td>
<td>100.00</td>
</tr>
<tr>
<td>Promote forest management activities</td>
<td>13.73</td>
<td>86.27</td>
<td>100.00</td>
</tr>
<tr>
<td>Promote subdivision of the property into smaller tracts</td>
<td>5.58</td>
<td>94.42</td>
<td>100.00</td>
</tr>
<tr>
<td>Discourage investments in forest management activities</td>
<td>5.58</td>
<td>94.42</td>
<td>100.00</td>
</tr>
<tr>
<td>Have no influence whatsoever</td>
<td>65.67</td>
<td>34.33</td>
<td>100.00</td>
</tr>
<tr>
<td>Others</td>
<td>1.72</td>
<td>98.28</td>
<td>100.00</td>
</tr>
</tbody>
</table>
Landowners were also asked whether they have had their forestland and timber appraised. This was done to determine whether landowners have any idea of what their land and timber are worth. The results of the survey indicate that only 8% of the respondents have had their forestland value appraised (Figure 11). In terms of timber value, only 9% of the respondents have had appraisals done (Figure 12). Around 25% of the landowners who had not appraised their timber were interested in having their timber appraised (Figure 13).

In terms of the landowners’ perception about the risks involved in timberland investment relative to other investment alternatives (e.g., Savings account, Stocks, Bonds), the majority (71%) did not think of timberland investment as more risky compared to other alternatives (Figure 14). Only 15% of the respondents perceived timberland investment as a more risky investment alternative.
Typical problems encountered by landowners in their forest property were also looked at. The most common problems reported by landowners were trespassing, poaching, trash dumping, and deer (Figure 15).

Respondents were also presented with a list of forest management activities (i.e., timber harvesting, tree planting, herbicide application, fertilization, thinning, road construction or
maintenance, survey, access control, grapevine control, timber stand improvement, wildlife habitat improvement, recreation improvement, and other activities) and were asked to report which of these activities they have carried out in their forestland in the previous year. Less than 13% of the respondents have conducted any type of forest management activity in 2004. Road maintenance, timber harvesting, wildlife habitat improvement, and recreation improvement were among the most practiced activities (Figure 16).

Figure 16. Forest management activities carried out by NIPF respondents, West Virginia, 2005.

3.5 Harvest and Sale

Only 21% of the respondents had harvested timber within the past five years (Figure 17). The major reasons identified by the respondents for timber harvesting were: to remove mature timber, to improve the quality of the remaining trees, to take advantage of good timber prices, and to salvage the value of timber or timber products that were damaged. In terms of the reasons for not harvesting, majority of landowners (48.46%) indicated that they were simply uninterested (Figure 18). Other reasons for not harvesting included the lack of knowledge on how to sell, timber was not mature enough, or timber prices were too low.

Figure 17. Distribution of NIPF respondents who harvested timber between 2000-2004, West Virginia
Landowners who were not interested in harvesting were asked whether they have any plan to harvest in the future. The majority (52%) said that they have no plan to harvest (Figure 19). However, approximately 34% are considering harvesting in the future.

**Figure 19. Future timber harvest plans of NIPF respondents, West Virginia, 2005.**

### 3.6 Use of Forestry Assistance/Incentive and Educational Programs

The results of the survey indicate that NIPF respondents have low level of awareness about the forestry assistance or incentive and educational programs that are available to them. Only 18% of the respondents were aware of one or more of such programs (Figure 20) and only 25% of those respondents actually used any of these programs (Figure 21). The forest stewardship program was the most common program used by the respondents. Other programs that were utilized include the Conservation Reserve Program, Forestland Enhancement Program and Timberland Tax Incentive Program. In terms of attendance in educational programs, an even smaller percentage (3%) of the respondents attended educational programs offered by the different organizations in the state (e.g., West Virginia University Extension Service, USDA Forest Service, West Virginia Forestry Association, West Virginia Division of Forestry) (Figure 22).
3.7 Demographics

The study also collected demographic characteristics of the survey respondents. Around 6% of the respondents were members of forestry-related organizations (Figure 23). Majority of NIPF landowners were male (81%) (Figure 24). The average age of the respondents was 59 years (Figure 25) and most of them were high school graduates and above (Figure 26), and Caucasian (94%) (Figure 27). Majority of the forestland owners were either professionals (39%) or retired people (31%), while farmers comprised only about 3% of the respondents (Figure 28). Most (47%) of the respondents were from the middle income group (i.e., between $20,000 and 60,000 per year) while there were about 25% of the respondents in the higher income (i.e., above $100,000) (Figure 29).
Figure 23. Membership of NIPF respondents in forestry-related organizations, West Virginia 2005.

Figure 24. Distribution of NIPF respondents by gender, West Virginia, 2005.

Figure 25. Distribution of NIPF respondents by age, West Virginia, 2005.

Figure 26. Distribution of NIPF respondents by educational level, West Virginia, 2005
Figure 27. Distribution of NIPF respondents by ethnic background, West Virginia, 2005.

Figure 28. Distribution of NIPF respondents by occupation, West Virginia, 2005.

Figure 29. Distribution of NIPF respondents by annual household income, West Virginia, 2005.
4. Summary and Conclusion

This study presents the preliminary findings of a forest landowner survey carried out in the fall of 2005. The findings of the survey are important in providing a better understanding of the state’s NIPF landowner characteristics and their forest management decisions. West Virginia NIPF landowners are similar in many aspects to their counterparts in other regions of the country.

The results of the survey showed that NIPF respondents consisted mainly of the small forest landholders with a median forestland ownership of 43 acres. Hardwood forest dominated the respondents’ forest landholdings with more than 83% of the total forestland owned in hardwood forest. Thus, landowners in West Virginia have the potential to be an important source of hardwood resources not only for the state but for the nation as a whole.

Landowners in West Virginia own their forestland mainly for non-timber benefits (i.e., aesthetics, residence, recreation, wildlife, land investment, and water quality) rather than for timber production. This is not surprising as previous studies have also shown that NIPF landowners are placing greater emphasis on non-timber benefits over timber benefits of forest ownership (e.g., Haymond, 1988; Birch, 1996; Rickenbach et al., 1998; Erickson et al., 2002; Belin, 2005). The results also suggest that most landowners are not actively managing their forestland. Less than 13% of the respondents have conducted any type of forest management activity. This behavior is also true for landowners in other regions. For example, Arano and Munn (2006) also reported that NIPF landowners in Mississippi are not managing intensively. Even earlier studies on NIPF landowners have indicated how these landowners often managed less intensively (e.g., Adams et al., 1992; Kurtz et al., 1993; Alig and Adams et al., 1995). This behavior can be partly attributed to the small holdings owned by many of the landowners in the state. Approximately 97% of the respondents have forest holdings that are 100 acres or less. Landowners with smaller holdings tend to have limited management options (Conner and Hartsell, 2002) and managing smaller holdings may not be viewed as a practical undertaking for these landowners (Wicker, 2002).

Majority of the respondents managed their forestland on their own. Few respondents have sought the help of professional foresters. In addition, only 12% of the respondents had written management plan. This is typical of private forest landowners in the Northern United States (e.g., Birch 1997).

In terms of timber harvesting, only 21% of the landowners had harvested timber in the past five years. Although some landowners have expressed interest towards a future timber harvest, majority (52%) of them are still not interested. This lack of interest in timber harvesting coupled with less intensive forest management practices may have a critical impact on the overall hardwood supply in the state.

In order to encourage landowners to be more actively involved in managing their forestlands, the state offers several forestry assistance/incentive and educational programs to these landowners (e.g., Forest Stewardship Program, Forest Land Enhancement Program). However, the respondents indicated low level of awareness and participation in the various kinds of forestry assistance/incentive and educational programs that were being offered in the state. This does not present a very encouraging scenario as to the effectiveness of these programs in reaching their constituencies and poses a real challenge for the state to come up with more effective programs. A number of studies (e.g., Brunson et al., 1996; Bliss et al., 1997; Egan,
1997; Rickenbach et al., 1998; Belin et al., 2005) have suggested the need for a broader type of assistance package covering broad array of topics for forest management not just timber management in order to increase the interest of the NIPF landowners in attending the various forestry assistance/incentive and educational programs. Given that these landowners are not just interested in producing timber, such type of assistance package may attract more landowners.

In terms of demographic characteristics, West Virginia NIPF respondents also mirror their counterparts in other regions of the country. For example, majority of the NIPF respondents are male, Caucasian, of older age, highly educated, relatively well-off, and most live on or near their property. Such characteristics are similar in many aspects to those reported in other studies (e.g., Birch, 1996; Rickenbach et al., 1998; Belin et al., 2005).

This study presents preliminary information on West Virginia’s landowner characteristics and management intentions. Such information is needed because effective private forestry programs rely on published behavior of these owners and descriptions of the conditions of their forest properties. However, further analysis on the relationship between their characteristics and their management decisions are needed to better understand them and their decision pattern.

5. Literature Cited


