ESTABLISHMENT, GROWTH, AND IMPLEMENTATION OF THE FOREST STEWARDSHIP PROGRAM IN WEST VIRGINIA

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ABSTRACT.—Over the past decade upwards of 3500 Forest Stewardship plans have been written in West Virginia, representing about 600,000 acres. We studied the history of the Forest Stewardship Program (FSP) in West Virginia to provide additional insight into management practices that have been recommended and those that have been implemented. Timber harvesting, timber stand improvement, and wildlife habitat improvement ranked consistently high among all recommendations in FSP plans. However, timber management was among the lowest of rankings for implemented practices. Private forest owner perceptions and reservations of post-harvest property conditions are likely a key factor affecting the implementation of this management activity. Apart from the high variation for industry foresters, no differences could be discerned between forester types for practice implementation rates on FSP properties.

The Forest Stewardship Program (FSP) in West Virginia provides a vital first link between a private woodland owner and a natural resource professional. Establishing this relationship is important, because more than 250,000 individuals privately own more than 90 percent of the 12 million forested acres in West Virginia. Since the inception of the FSP in West Virginia in 1990, more than 3500 landowners who control over 600,000 acres of woodlands in the state have enrolled in the program. This constitutes about 1.4 percent of all private forest owners in West Virginia and approximately 5 percent of the forested acreage.

West Virginia, like many other states, has a changing population of private forest owners caused by the both exurbanization—the population shift from urban to rural settings—and from parcelization (Egan and Luloff 2000, Jones et al. 2003, DeCoster 1998). Despite the problematic nature of these issues, the FSP has been a popular program with enrollment of acreage increasing significantly until 1997 when there was a drop off in participation. This decrease in enrollments, however, coincided with the termination of the Stewardship Incentive Program (SIP; Jennings et al. 2003).

One outcome of the WV FSP has been the increasing numbers of consulting foresters participating in the program. Over the first decade of the Stewardship Program (USDA Forest Service 2003), the number of consulting foresters attending the plan writers training sessions required by the West Virginia Division of Forestry (WVDOF) has increased dramatically to over 100 participating resource professionals. Currently, any forester who wants to write Stewardship plans in West Virginia is required to attend at least two of the training workshops each year. Involving private consultants with the program is one of the key components in increasing the number of woodland owners that participate in the Stewardship Program as they actively seek out private forest owners to enroll in the FSP.

Previous research has been conducted on implementation rates of forestry practices in the WV FSP (Egan 2000, Jennings 2003). In this paper, we investigate the role that various types of foresters play in the development of forest stewardship plans and some of the outcomes, or implementation, of the practices that they recommend in these plans.

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Methods

Information for the study was collected during the winter and spring of 2003. A seven-page mail survey questionnaire was used to collect the information. The sample population included all woodland owners who have a Forest Stewardship Management Plan in the state. Questionnaires were mailed to over 3500 landowners using multiple mailings based on the Dillman Method: pre-survey postcard, first mailing, follow-up postcard, and then a second mailing to increase landowner response rate (Dillman 2000).

Questions were asked about property size and ownership objectives, type of forester writing the plan, their time involved, the landowners satisfaction with the forester, and forestry practices recommended in the plan. Other questions included extent of recommendation implementation, landowner satisfaction, how did the landowner learn of the program and satisfaction with the program, extent of landowner participation with other forestry assistance programs (SIP, FIP, etc.), the extent of timber harvesting on the property, and landowner demographics. With respect to recommendations and implemented practices, respondents indicated the number and degree to which (strongly to somewhat) ten recommendations were written in their plans. These recommendations included: timber harvesting, timber stand improvement (TSI), wildlife habitat improvement, grapevine control, road construction, tree planting, water improvement, soil protection, visual quality, and recreation. In a subsequent question, respondents had the opportunity to identify which of these practices have been implemented and the extent of implementation (fully, almost complete, somewhat, none).

We used descriptive statistics and graphical methods to evaluate the degree to which management recommendations have been written into forest stewardship plans and the percentage of recommendations that have been implemented over the initial decade of the FSP. We combined the degree of recommendations and extent of implementation into two binary response variables: 1) recommended, not recommended and 2) implemented, not implemented. Recommendations and implementations were ranked to aid in result interpretations. Descriptive statistics and graphics were likewise used to describe the types of foresters who wrote FSP plans over the study period from 1990 to 2000.

Results and Discussion

Sample Response

The FSP database contained 3,092 relevant addresses. In total, 1,672 surveys were returned producing a response rate of 63 percent when the 436 "bad addresses" were eliminated from the population.

Description of Respondents

The average survey respondent reported owning 209 total acres for over 23 years of which 187 acres (89%) was enrolled in the FSP. This average acreage enrolled is slightly larger than that of the overall FSP population who average 171 acres per plan. Additionally, the average annual income for participants ranged from 45,000 to 60,000 dollars per year with an average age of 62 years old. More than 75% reported having some college or technical school training.

Foresters Writing Plans

With initially equal representation in writing stewardship plans, the proportion of private consultants grew sharply from the program's inception in 1990, and was higher than for WVDOF foresters and industry foresters for the remainder of the study period from 1990 to 2000 (fig. 1). The most dramatic increase in the number of private consultants developing plans occurred in 1993, the fourth year of the program in WV when private consultants wrote 68 percent of the plans for the year. During this first decade of the FSP in West Virginia, private consultants, WV DOF foresters, and private industry foresters have written 55, 34, and 11 percent of the forest stewardship plans, respectively. At the beginning of the FSP, you would expect WV DOF foresters to be most prevalent, since they would be the "first in the loop" during the onset of such a program. But as the program gathered, "steam", more consulting and industry foresters became aware of the program and began to write FSP plans.

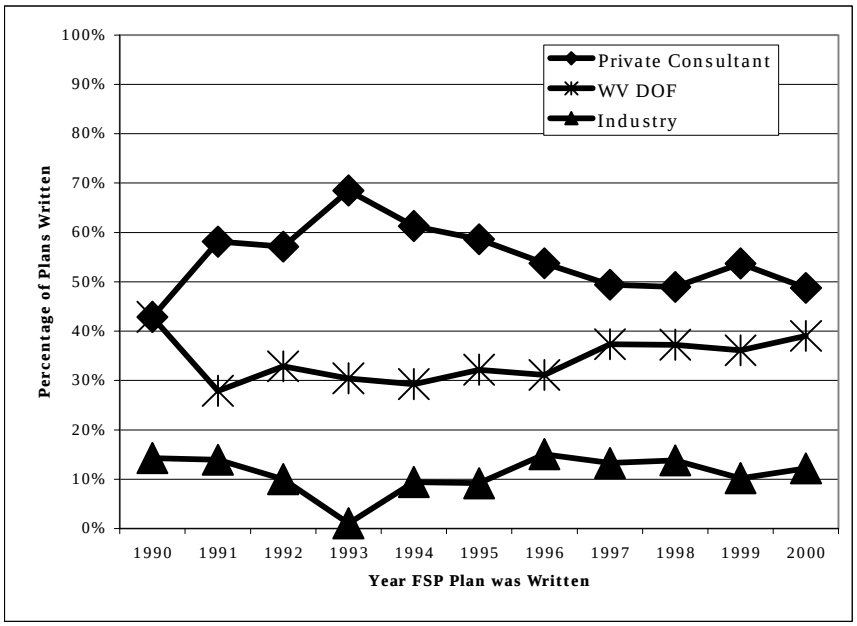

Figure 1.—Percentage of FSP plans by year written for three forester types: private consultants, service foresters of the West Virginia Division of Forestry, and industry.

The large proportion of plans written by private consultant foresters could be partly due to the training and opportunity provide by the WVDOF for this group of foresters to write plans. With the workload and time constraints placed on state service foresters, having private consultants available to write plans increases the opportunity for more landowners to obtain a FSP plan. We suggest that the indication in figure 1, that the number of plans written by private consultants is steadily declining could be due to the fluctuating number of plans written each year and the availability of funding from year to year.

Foresters writing management plans compares closely with similar research in Alabama (Zhang 1996). Over the ten-year period between 1986 and 1995, consulting foresters wrote 48 percent of Alabama's forest management plans, followed by public assistance foresters (29%) and industry foresters (23%). The larger proportion of plans written by industry foresters in Alabama is probably because 20 percent of the land in that state is owned by forest industry. In contrast forest industry only owns about 7 percent of the land base in West Virginia (Griffith and Widmann 2003). Another reason could be that most of the industry land in Alabama is used to grow short rotation southern yellow pine, and not hardwoods as in West Virginia. The lower percentage of plans written by industry foresters in West Virginia is also likely due to the fact that several large companies that work with private forest owners have their own form of plan they produce. Hence these industry foresters do not necessarily need to have the cost-share dollars available through the FSP (our target population).

Forest Management Practices

Guidance to private forest owners on the part of the natural resources professionals that enroll in the FSP in West Virginia comes in large part through the recommendations discussed during the plan-writing process. These are incorporated into management plans for the owner to use in planning and implementing management activities. Of the ten main recommendations (above) listed in FSP plans, timber harvesting, TSI, and wildlife habitat improvement ranked above all others as the most frequently occurring in management plans (fig. 2). These rankings were relatively consistent in the first decade of the program. The least common recommendations were tree planting, water improvement, and recreation. Despite these low ranks and high variability by year, even water improvement, for example, was found in 57 to 75 percent of the stewardship plans. Hence, survey respondents indicated that a wide variety of recommendations were included in their plans.

Discussion and results of implemented practices is derived from the same practices recommended in plans and already discussed in the previous section of the paper. Management activities that were

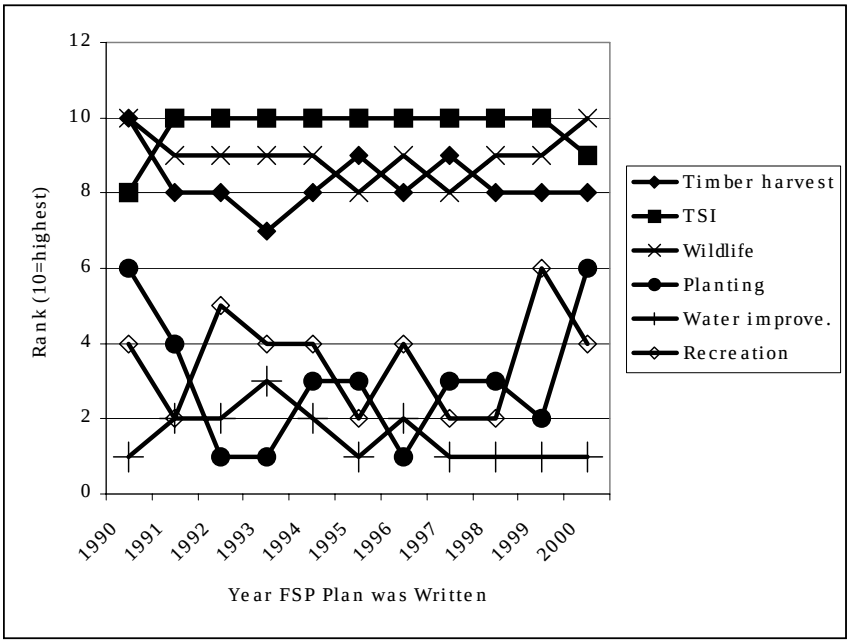

Figure 2.—Ranks of the three most frequent and three least frequent recommendations written into FSP management plans over the first ten years of the program in West Virginia. Practices that had intermediate rankings are not shown.

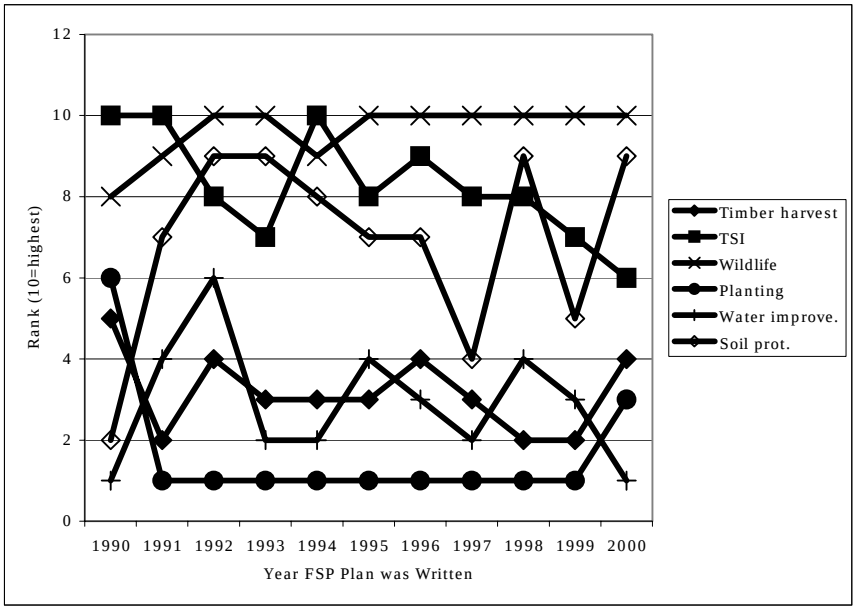

Figure 3.—Ranks of the three most frequent and three least frequent implemented practices occurring on FSP management properties over the first ten years of the program in West Virginia. Practices that had intermediate rankings are not shown.

implemented over the period showed a wider variation among rankings of specific practices recommended (fig. 3). With respect to figure 3, the relationship between implementation and the year a plan was written describes the rate a practice was implemented in a plan written in a specific year, which usually would be the same year an activity is recommended. Rankings for the implementation of management activities contrasted significantly with those seen for recommendations in the plans.

While timber harvesting was one of the most frequently cited recommendations, it ranked as one of the least frequently implemented practices. Why aren't private forest owners harvesting timber at a rate consistent with the proportion of plans in which recommendations for this practice exist? Despite the presence of these recommendations, landowners' perceptions of timber harvesting are diverse. Egan et al. (1997) have demonstrated that even among Tree Farmers (those with properties enrolled in the American Tree Farm System) there are differences in perceptions of the outcomes of timber harvesting.

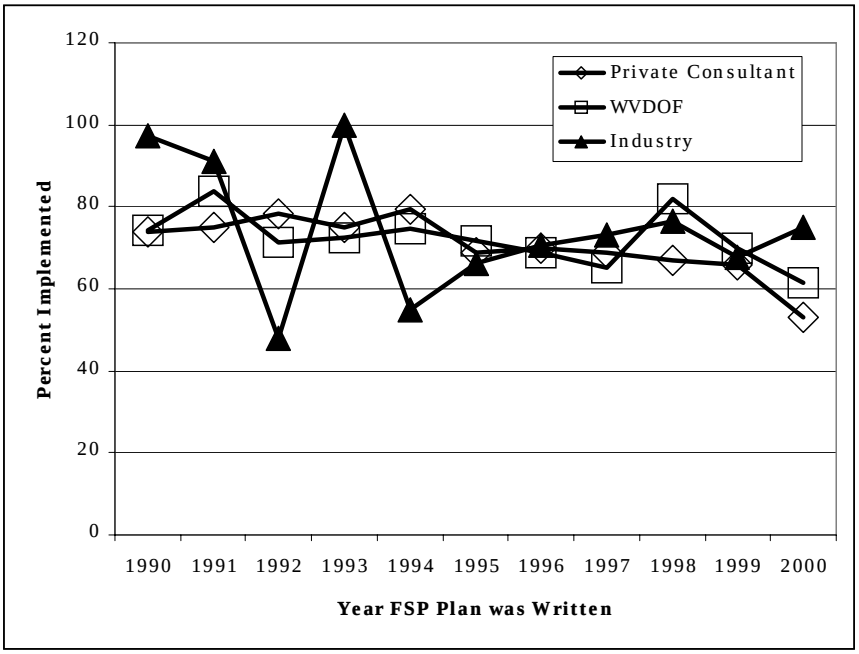

Figure 4.—Average percentage of forest management practices implemented on FSP properties during the first ten years of the program in West Virginia. Averages are separated by type of forester that wrote the FSP management plan.

Translating this to our population of FSP participants, we expect that there are similar reservations with post-harvest conditions of the respective properties. We also suggest that other reasons for low implementation of timber harvest recommendations could include lag times for improved growth, size, and value as well as for a delayed income source. Other reasons for low implementation of other practices could include schedule lag times (e.g. waiting for a required plant growth stage or property condition) lack of cost-share assistance for practices, landowner physical disability, or even forester follow up.

TSI was initially one of the higher ranking practices applied on FSP properties, but with time it decreased in rank. By 2000, the practice ranked 6th out of the ten practices. This is likely due to the limited time that landowners have between the time the plan was written until the time we conducted the survey (Jennings and McGill 2003). Typically, it may take a landowner at least a year to begin TSI work, especially if it has been recommended on a large portion of the property. One practice that showed high variation and ranked among the highest implemented practices was soil protection, which was also among the most recommended, but not in the top three ranking. It is not possible from our survey results to establish the on-the-ground treatments that were implemented to protect certain areas of the respondents' properties, although it is likely related to other activities that were implemented like road construction and the simultaneous implementation of seeding and other erosion control measures.

No clear differences among forester types were indicated in terms of the likelihood of someone having implemented a practice (fig. 4). Apart from the wide variation in implementation rates for industry foresters—due to the lower number of plans written by this group—implementation rates track evenly with one another over the ten-year period.

Conclusions

Implementation rates of forestry practices recommended to private forest owners participating in the FSP have been shown to be high in several studies in West Virginia and nationwide (Egan et al. 2000, Jennings 2003, Esseks and Moulton 2000). This evaluation of recommended and implemented practices through time corroborates studies that suggest that landowners objectives and interests are wide ranging (Fraser and Magill 2000) and that their priorities may depart from those of natural resources professionals (Kluender and Walkingstick 2000, Egan et al.1997).

While traditional forest management recommendations like timber harvesting, timber stand improvement (TSI), and wildlife habitat improvement ranked consistently high among all recommendations, wildlife management maintained the most consistent high ranking between 1990 and 2000. Even though implementation of stand improvements fluctuated over the study period, it still remained highly ranked in being conducted. The fluctuation in implementation rate for TSI can be related to lag times incurred as a result of activity scheduling in a plan. For example, the landowner was recommended to first install access into the management area before conducting TSI. Timber harvest activities were among the lowest ranked for implemented practices, which again could be associated with lag times. These contrasts point to the continued need to seek out ways to engage landowners in ways that promote both their own objectives and those that meet societies demands for wood, clean water, and the other amenities derived from the private forests of West Virginia.

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