

8-1-2004

Refining Outreach to Woodland Owners in West Virginia--Preferred Topics and Assistance Methods

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Recommended Citation

Magill, D. J., McGill, D. W., & Fraser, R. F. (2004). Refining Outreach to Woodland Owners in West Virginia--Preferred Topics and Assistance Methods. *The Journal of Extension*, 42(4), Article 15.

<https://tigerprints.clemson.edu/joe/vol42/iss4/15>

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Refining Outreach to Woodland Owners in West Virginia-- Preferred Topics and Assistance Methods

Abstract

Four hundred and fourteen private forest landowners in West Virginia responded to a questionnaire assessing their forest management assistance topics and delivery methods of interest. Logistic regression was used to analyze 39 independent variables in relation to the dependent variables of wanting a specific topic of forestry assistance or not. Ownership of property for investment, cultivation of wildlife food crops, and receiving assistance from the West Virginia State Division of Forestry were recurrent significant variables characterizing landowners wanting a specific assistance topic. These results can be used to develop forestry assistance programs that achieve landowner objectives and good forest management.

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Introduction

As in most states in the eastern U.S., private individuals own the majority of West Virginia's woodlands. An estimated 250,000+ private landowners (Birch, 1996) own more than 9 million forested acres, which comprise about 78% of the forest land area in the state (Gillespie, 2002). The critical economic, social, and ecological roles that woodlands play in the health of our nation are reasons that federal, state, and private agencies spend significant time and money on reaching this segment of our population.

Federal programs that provide cost-sharing assistance for private woodland owners have been available over the past half-century (Zinn, 1995). Despite government incentives, we estimated that less than 15% of these landowners in West Virginia have received forestry assistance, financial or otherwise, in the last 10 years (Fraser & Magill, 2000). From an outreach perspective, the sheer number of landowners contributes to the dilemma for natural resources agencies and educational organizations when attempting to contact landowners and interest them in attending forest-based education programs.

With these challenges faced by natural resource agents with outreach responsibilities, it is crucial to offer private forest landowners the appropriate selection of forestry topics and assistance methods. Assistance methods that facilitate either education or direct application of forestry practices include financial assistance, workshops, and professional technical visits. Financial assistance may be in many forms, but one example includes federal cost-share programs that are

designed to encourage stewardship practices on private property. Workshops attempt to educate landowners about forest management opportunities using classroom and outdoor demonstrations. Technical visits are one-on-one meetings between natural resource professionals and landowners, usually taking place on the landowner's property.

To help meet these challenges, we surveyed West Virginia landowners to evaluate their personal preferences for forestry topics and assistance methods. The intent of the survey was to document landowner attributes that reflect their inclination to seek out forestry information that allows them to fulfill their woodlot management objectives.

The primary objectives of this survey were:

1. To evaluate forestry topics preferred by landowners and to determine whether or not those preferences are influenced by socioeconomic characteristics, landowner objectives, past and current management activities, and/or commonly used assistance sources, and
2. To determine landowners' preferred forestry assistance methods--financial, workshop, or technical visit.

Methods

During the winter of 1999-2000, questionnaires were sent to 1,080 private woodland owners whose addresses were acquired from databases provided by the USDA Farm Service Agency (FSA) and the West Virginia Division of Forestry (WVDof). A stratified random sample was used to select woodland owners. To increase survey response, contact was made with landowners through multiple mailings based on the Dillman method: first mailing, follow-up reminder postcard, and then second mailing (Dillman 1978). Surveys included questions designed to collect woodland owners':

- Demographic information (e.g., property size, tenure, income),
- Ownership objectives (e.g., investment, timber, wildlife habitat),
- Management information (e.g., practices applied, presence of a written plan), and
- The types of forestry topics of interest and preferred delivery methods (financial, workshop, or technical) for those topics.

Logistic regression (logit) models were used to narrow down and identify the most significant group of explanatory landowner attributes that differentiate those interested in a specific assistance topic. The dependent variables examined for analysis were chosen from the assistance topics included in the survey questionnaire. Nine of the 15 assistance topics surveyed were analyzed using logistic regression and were chosen based on the number ($\geq 40\%$ of 414) of owners (≥ 166) requesting each topic of assistance.

The number of assistance topics was narrowed to nine for logistic analysis in order to concentrate on the most requested types of management aid. Logistic regression was performed separately for each of the topics analyzed using 39 independent landowner variables and the dependent variable (binary Yes=1 or No=0) of wanting a certain topic or not. The explanatory (independent) variables included six demographics, fifteen property-uses, fifteen management activities and three assistance agencies (Table 1).

Table 1.
Variables Tested as Predictors of Preferred Forestry Assistance Topics in Logistic Regression Analysis

Demographics	Property Uses	Forest Activity	Agencies
<ul style="list-style-type: none"> • Region • Landsize • Tenure • Income • Landowner Age • Education Level 	<ul style="list-style-type: none"> • Residence • Investment • Wildlife Habitat • Hunt or Fish • Watershed • Visual Beauty • Hike or Bike • Produce Timber • Christmas Trees • Fruit Orchard • Ginseng etc. • Graze Livestock • Firewood 	<ul style="list-style-type: none"> • Harvest Timber • Plant Trees • Thin Trees • Cut Vines • Visual Resource • Build Trails • Build Roads • Wildlife Food • Soil Resource • Water Resource • Ginseng, etc • Survey Property • Forest Protection 	<ul style="list-style-type: none"> • WV University Forestry • WV University Extension • WV State Forestry

	/Posts • Maple Syrup • Other	• Lease Property • Other (Fencing)	
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The significant independent variables were then retested against each other separately by topic to provide the most parsimonious set of explanatory factors that describe landowners wanting a certain topic of assistance. All statistical significance levels were set at $\alpha \leq 0.10$. Backward elimination was used to select independent variables by significance of p-values (≤ 0.10) in the model-building process. Explanatory (independent) variable p-values were used to test the null hypothesis ($H_0: b_i = 0$) that selection of a specific forestry assistance topic was independent of all landowner characteristics. Descriptive statistics were computed to highlight differences in educational delivery mechanisms preferred by landowners wanting a specific assistance topic.

Results

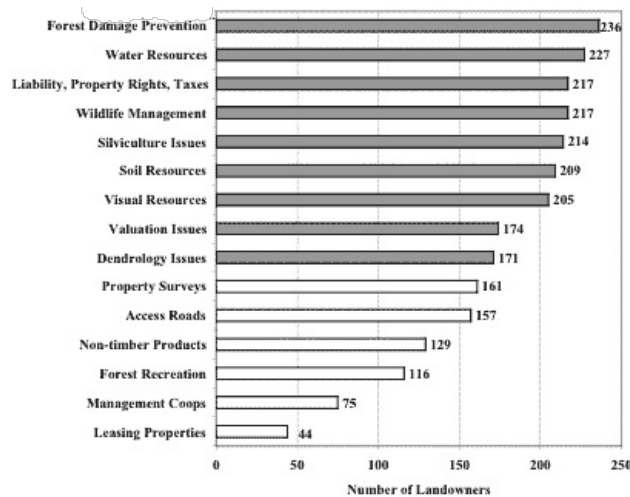
Survey Response

Of the 1,080 questionnaires sent to West Virginia landowners, 106 were returned due to bad addresses. The remaining 974 questionnaires had valid addresses, and 414 of these questionnaires (43%) were filled out and returned. The sample response of 414 landowners proved to be representative across the state. This was demonstrated by the unbiased (Bias = 0) estimate of the population mean (total error = random standard error) and by the lack of significance between the number who responded and the number expected to respond according to a χ^2 analysis of the sample stratification.

Preferred Topics

The forestry topic most sought after by our sample population of woodland owners was forest damage prevention (e.g., prevention of damage by fire, insects, disease, deer, etc.). Although forest damage prevention was the most selected forestry assistance topic, there was also a high degree of interest expressed by respondents in several of the other topics analyzed. These findings suggest that woodland owners are interested in a diverse mix of forestry assistance topics (Figure 1).

Figure 1.
Number of West Virginia Forest Landowners Selecting Topics of Interest



Preferred Assistance Methods

In the analysis, survey respondents consistently indicated that they prefer "technical aid" to other methods of assistance (Table 2). Averaging over the nine forestry topics analyzed, 68% of the landowners surveyed preferred technical assistance; 51% financial aid; and 53% wanted workshop training (Table 2). Concerns about landowner liability, property rights, and taxes was the only topic for which technical assistance was not the most requested. Landowners selecting this topic stated that they preferred training workshops.

Table 2.
Number and Percentage of Respondents' Preferred Delivery Methods for Various Forestry Assistance Topics. (Percentages Do Not Add to 100% Because Respondents May Have Checked More Than One Preferred Delivery Mechanism.)

		Preferred Delivery Mechanism
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Assistance Topics	Requests	Workshop	Financial	Technical
Forest Damage Prevention	236	50%	51%	70%
Water Resources	227	44%	68%	74%
Liability Issues	217	63%	27%	59%
Wildlife Management	217	54%	57%	67%
Silviculture Issues	214	49%	57%	70%
Soil Resources	209	44%	65%	71%
Visual Issues	205	60%	47%	61%
Valuation Issues	174	52%	33%	79%
Dendro Issues	171	59%	51%	65%
Mean	208	53%	51%	68%

Discussion

The response to this survey by woodland owners revealed a high degree of interest in a wide range of forestry assistance topics (Figure 1). Attributes that characterize landowners who selected a particular forestry topic, along with including a variety of topics, should be considered when developing subject content and advertisement of forestry educational outreach programs for woodland owner populations (Table 3). The results of our study and those of others support this observation (e.g., Newman, Aronow, Harris Jr., & Macheski, 1996).

Table 3.

Relationships Between the Characteristics of Landowners and the Forestry Assistance Topics They Prefer. Statistically Significant Relationships ($p \leq 0.10$) Between a Particular Landowner Characteristic and a Given Forestry Topic Are Indicated by Whether the Relationship Between the Two Is Positive (+) or Negative (-).
(Click table for a larger version.)

Landowner Characteristics	Preferred Forestry Topics									# of Topics
	Forest Damage Prevention	Water Resources	Property Liability	Wildlife Management	Silviculture	Soil Resources	Visual Issues	Tree Values	Tree ID	
Demo-graphics										
Landsize		(-)								1
Tenure			(-)	(-)					(-)	3
Income		(+)		(+)						2
Landowner Age						(-)				1
Property Uses										
Residence				(+)						1
Investment	(+)		(+)	(+)	(+)			(+)	(+)	6
Wildlife Habitat				(+)						1
Visual Beauty					(+)		(+)			2
Produce Timber	(+)							(+)		2
Ginseng etc.			(+)							1
Graze Livestock		(+)				(+)				2
Forest Activity										
Cut Vines								(+)		1
Build Trails				(+)						1
Wildlife Food				(+)		(+)	(+)		(+)	4
Ginseng, etc.		(+)			(+)					2
Forest Protection	(+)		(+)				(+)			3
Other (Fencing)					(+)	(+)		(+)		3
Agency Contact										
WV State Forestry	(+)	(+)	(+)		(+)	(+)	(+)	(+)		7

Many landowners who participated in this survey see their property as an investment for various reasons. In fact, "investment" was the second most frequently occurring variable attribute that described a landowner who selected a given topic (Table 3). This suggests that forestry assistance and education programs might be more successful if they are designed to include activities related to the economic virtues associated with sound forest management.

Extension programs attempting to encourage better forest management practices for enhancing timber, water, or aesthetic values in a region should also be structured to include "wildlife" values in their subject content and promotional advertisements to increase the likelihood of good attendance and more favorable reception of ideas conveyed in the specific educational programs. As has been demonstrated in many other studies of woodland owner perceptions and preferences (e.g., Mills, Hoover, Vassan, McNamara, & Nagubadi, 1996; Lorenzo & Beard, 1996), a high level of interest in wildlife management was observed in our study of West Virginia woodland owners. This interest was reflected in the high number (52%) of respondents choosing wildlife management as a preferred topic (Figure 1) and by the strong tendency of landowners who have planted wildlife food crops to indicate interest in forestry topics (Table 3).

Having previously obtained assistance from the West Virginia Division of Forestry was likewise an identifying attribute of respondents selecting seven of the nine topics included in this survey (Table 3). State forestry agencies were also indicated by a Kentucky study as being highly involved with the private woodland owner population in that state (Gracey & Pelkki, 1996).

The same study confirmed that landowners belonging to the Kentucky Woodland Owners Association were more actively involved in managing their woodland properties. Hence, we infer that if Extension personnel can facilitate contact between private forestland owners, natural resources professionals, and other woodland owners, these forestland owners will be more likely to

take an "active" role in the management of their woodlands and will seek out information and assistance to achieve their woodlot management goals.

While our study shows that respondents selected a wide variety of assistance topics, it does not necessarily suggest that educational programs need to cover all the topics to be successful. For example, some of the best-attended workshops in West Virginia are the specialized tax workshops that frequently occur in the fall to help woodland owners prepare themselves for the end-of-year tax season (C. Francis, West Virginia Forestry Association, personal communication). Corroborating this common knowledge is the observation from our study that liability, property rights, and taxes ranked as the third most requested forestry topic (Figure 1).

Given the overall results of this study and others (e.g., Kluender & Walkingstick, 2000), we suggest that designing Extension programs that help woodland owners meet a variety of commercial (e.g., investment) and non-commercial (e.g., visual issues) ownership objectives will lead to more active woodlot management while likewise promoting forest health and sustainability. Additionally, we suggest that Extension programs be structured to show woodland owners how different objectives can be mutually beneficial. For example, stands of trees that are "thinned" to improve tree growth for timber production can also be of benefit for improving wildlife habitat and growing conditions for other important plants such as medicinal herbs and wildflowers that grow beneath the forest canopy.

Increasing technical aid, which was indicated in our study (Table 2), may also increase the likelihood of accomplishing sustainable forestry goals and woodland owner objectives simultaneously. This suggests that additional federal, state, and private resources might be directed at individuals or organizations capable of providing these on-the-ground services in order to promote the application of sound forest management practices.

Conclusions

1. Woodland owners surveyed expressed a high level of interest in a variety of forest management topics. Prevention of forest damage was the most frequently requested topic.
2. Technical assistance was the most requested assistance delivery method of the woodland owners who responded. Hence, federal, state, and local programs that promote sustainable forestry practices on private property would benefit by directing funding towards individuals and organizations that can provide these technical services.
3. Having previously received assistance from the WV Division of Forestry was the most frequent attribute of landowners selecting a forestry topic. From this we infer that connecting woodland owners to forest stewardship education programs—a role ideally suited to extension agents—will lead to increased fulfillment of woodland owner objectives.

Acknowledgement

The authors thank B. Whipkey and the West Virginia Division of Forestry as well as E. Collins and the West Virginia University Cooperative Extension Service for their funding and logistic support of this project. S. Grushecky, R. Hicks, and B. Grafton reviewed an early draft of the manuscript.

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