

Benefit-Based Audience Segmentation: A Tool for Identifying Nonindustrial Private Forest (NIPF) Owner Education Needs

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ABSTRACT

Providing relevant forestry education and assistance to nonindustrial private forest (NIPF) landowners is necessary to encourage informed decisionmaking on these lands. To be accepted and implemented on a wide scale, forestry outreach efforts must take into account the diversity of goals that NIPF owners have for their land. Benefit-based audience segmentation techniques can be a valuable method of identifying meaningful subgroups of landowners who desire similar outcomes from their forest property and who will respond to similar communication strategies. For this study, we surveyed and interviewed Utah NIPF owners in three counties and identified three audience segments: amenity-focused landowners, multiple-benefit landowners, and passive landowners. After comparing the demographics, forestland characteristics, attitudes toward forest management, and learning preferences of these three audience segments, we discuss specific approaches for reaching them with forestry information.

Keywords: nonindustrial private forestland (NIPF), market segmentation, outreach

Nearly one-half (48%) of the nation's 749 million forested acres are in nonindustrial private ownership (Smith et al. 2004). Providing forestry education and assistance to nonindustrial private forest (NIPF) landowners is one of the most effective ways to encourage the active management of these lands (Bliss and Martin 1990, English et al. 1997). We broadly define "active management" as informed decisionmaking on the part of landowners to maximize the benefits they value on their property (even if their decision is to do nothing), and we see the primary role of forestry outreach is providing the education

and support needed to make these informed decisions. However, NIPF owners can not be treated as a homogenous community toward which generalized programs are directed. They have a variety of backgrounds, management goals, and forest characteristics. Numerous studies have documented the accelerating division of NIPF lands into smaller and smaller tracts (e.g., DeCoster [1998] and Best [2002]). This trend is increasing the number of forest landowners and diversifying their management priorities. Likewise, forest economists have identified the diversity of benefits NIPF owners seek from their land and pointed out the

importance of understanding and incorporating these varied priorities into forestry outreach efforts (e.g., Hartman [1976] and Kline et al. [2000]).

Because it is difficult to characterize an "average" NIPF owner, audience segmentation techniques can be an effective way to capture the diversity of NIPF owners and to design forestry messages that will resonate with specific, differing audiences. Although this approach is somewhat rare in the NIPF literature, segmentation according to psychographic factors has been used in three recent NIPF studies. Kluender and Walkingstick (2000) used a number of variables, including demographics, management behavior, management objectives, and management intentions to segment NIPF owners in Arkansas. Kendra and Hull (2005) segmented new forest owners in Virginia according to their motivations for owning forestland. In the forest economics field, Kline et al. (2000) segmented NIPF owners in western Oregon and western Washington according to their reasons for owning forestland, to evaluate differences in owners' acceptance of financial incentives to forego harvesting and improve habitat. Like Kluender and Walkingstick (2000) and Kendra and Hull (2005), we segmented our

audience to inform general forestry outreach programs. However, we refined and extended this approach in a study of Utah NIPF owners by segmenting solely according to the importance owners placed on the benefits of landownership and by expanding the scope to include all NIPF owners regardless of their tenure of ownership.

Much of the market segmentation literature (Young et al. 1978, Weinstien 1987) has argued that segmentation according to the benefits desired from a product is the most practical way to understand an audience, because direct connections can be made between the motivations of an audience segment and their purchasing behavior. In natural resource management, recreation managers likewise have been shifting their attention from management strategies that focus on addressing visitors' motivations (e.g., Manfredo et al. [1983]) to ones that seek to identify and address the benefits of public land recreation (Driver et al. 1991, Pierskalla et al. 2004). Benefit-based audience segmentation is a particularly useful segmentation technique for the NIPF audience, because it allows foresters to design outreach efforts according to tangible outcomes desired by various audience segments.

The region examined in this study has been underrepresented in the NIPF literature. Higher rates of absentee landownership and the presence of livestock on much of the NIPF land in the Intermountain West have been noted in previous studies (Force and Lee 1991, Brunson et al. 1996), suggesting that NIPF owners in the region are facing a different set of challenges than their eastern or far western counterparts.

The following are the overall objectives for this study:

1. Identify distinct audience segments of Utah NIPF owners according to the benefits of landownership they value.
2. Gain an understanding of the demographics, forestland characteristics, management behavior and attitudes, and learning preferences of each of these audience segments.
3. Determine the most effective communication strategies for conveying forestry information to each of these audience segments.

Methods

A two-phase study was conducted among NIPF owners in Utah in 2004–2005. The first phase involved a four-

page questionnaire sent to 1,430 Utah NIPF owners in November 2004. The second phase involved in-depth interviews with 25 NIPF owners in the state in March and April 2005.

Study Sites. Surveys were mailed to all NIPF owners in three Utah counties—Wasatch, Carbon, and Iron—who owned more than 10 ac of land and had tracts of conifers, aspen, or pinyon-juniper on their property. The study counties were selected to represent areas with differing historic settlement patterns and current land-use trends. Wasatch County's scenic qualities and proximity to the metropolitan areas of Salt Lake City and Provo mean that its forested areas have increasingly been functioning as second-home and recreational sites for urban Utahns. According to the US Census Bureau (2002), nearly one-quarter (23%) of the housing in Wasatch County is for seasonal, recreational, or occasional use. Wasatch County is also one of the state's fastest growing in terms of permanent residency with an estimated 24% population growth between 2000 and 2005 (US Census Bureau 2006), thereby increasing the likelihood that forestland may be owned mainly for land speculation purposes. In contrast, Carbon County, in central Utah, is experiencing negative population growth, and its economy and demographics have been determined largely by the boom-and-bust cycles of the coal industry (Utah Population Estimates Committee 2005). Iron County, in southwestern Utah, represents a middle point between the two extremes of Wasatch and Carbon. Although in many ways a traditional, rural region of Utah, much of the county's private forestland is being purchased by urban newcomers from Las Vegas and California (Chad Reid, personal communication, Utah State University Extension, August 2004). In 2005, Iron County's population is estimated to have grown by 6.4%, the second highest rate in the state (Utah Population Estimates Committee 2005).

Because we conducted a census of NIPF owners in three study counties instead of using a sampling strategy for a larger population, the results can not be generalized to the general NIPF audience or to nonrespondents. However, by examining three unique counties in Utah, we were able to explore regional differences among NIPF owners (not presented here) and to account for the diversity of NIPF lands and owners in the state.

Data Sources. The mailing list used for the survey was created through a geographic information system by intersecting property parcel data from county tax assessment records with vegetation data provided by the Utah Gap Analysis Program (GAP). Utah GAP vegetation data were mapped primarily from satellite imagery and supported by other records, including elevation data, hydrology data, land-use data, existing vegetation maps, and 500 ground-truth points (Ramsey et al. 1992). Parcels were selected if they were at least 10 ac in size and included one or more of the following vegetation types, corresponding to GAP data categories: spruce-fir, ponderosa pine, lodgepole, mountain fir, juniper, pinyon, pinyon-juniper, aspen, lodgepole/aspen, ponderosa pine/mountain shrub, spruce-fir/mountain shrub, mountain fir/mountain shrub, or aspen/conifer.

Survey Design. The survey was designed after a thorough review of NIPF literature and a series of key informant interviews with forestry professionals in the state. This was done to ensure that questions on the survey addressed the most important issues and concerns among Utah NIPF owners. Many respondents owned multiple properties, and we asked them to only consider the parcels that fell within the county in question. The survey was conducted using the four-wave Tailored Design Method recommended by Dillman (2000). Of the 1,430 surveys sent, 6 were returned as undeliverable, leaving a remaining sample of 1,424. Of these, 716 surveys were returned, giving an overall return rate of 50%. Among the 716 respondents, 320 stated that they were not eligible for the survey. The majority of those who indicated that they were ineligible stated that their land was not forested, although 44 respondents gave other miscellaneous negative responses. We believe that the high number of respondents who reported that their land was not forested is a reflection of two factors: (1) Utah GAP vegetation data has a 74.2% accuracy for forest cover and 73.3% accuracy for woodland cover (Edwards et al. 1998), so many tracts of land could have been mistakenly classified as forested, and (2) although respondents were asked to participate in the survey if their land contained tracts of conifers, aspen, or pinyon and juniper trees, it is possible that many respondents did not believe that their pinyon-juniper woodlands qualified them for the survey. The total number of surveys for analysis was 396.

Table 1. Final cluster centers.

	Amenity-focused landowners	Multiple-benefit landowners	Passive landowners
Source of investment income	2	3	2
Source of timber income	1	2	1
Source of grazing income	1	3	2
Source of hunting lease income	1	2	1
Privacy	4	4	2
Maintaining family traditions	3	4	2
"Green" space around residence	3	3	1
Hunting and/or fishing	2	4	2
Recreation and/or scenery	4	4	3

1 = Not at all important; 2 = slightly important; 3 = moderately important; 4 = very important.

Cluster Analysis. To segment the Utah NIPF audience, a K-means cluster analysis using Euclidian distancing was run on a series of nine variables from the mailed survey that measured respondents' evaluations of the importance of various benefits of landownership on a scale from one (not at all important) to four (very important). Cluster analysis is a multivariate statistical technique that examines patterns in data obtained for a series of related variables to identify cases that exhibit similar response patterns. These groups of cases or "clusters" are said to represent categories of similar individuals within a study population. Many statistical programs offer a cluster analysis procedure. In our study we used SPSS 13.0 (SPSS Inc., Chicago IL). A K-means cluster analysis allows the researcher to select the number of clusters used for analysis, and for this study, a three-cluster solution yielded the clearest divisions between clusters (Table 1). Respondents in the first audience segment ($n = 164$), whom we called amenity-focused landowners, ranked the nonincome generating benefits of their land as important, and the income generating benefits as unimportant. Respondents in the second audience segment ($n = 68$), multiple-benefit landowners, ranked nearly all the benefits of landownership highly. Respondents in the third audience segment ($n = 72$), passive landowners, ranked almost all the benefits of landownership as unimportant or slightly important. Roughly equal percentages of each of these audience segments existed in each of the three study counties.

Interviews. The last question of the mailed survey asked respondents if they would be willing to participate in a follow-up interview, and 128 indicated that they would be interested in doing so. Demographically, the 128 respondents who agreed to be interviewed did not differ meaningfully from those who did not agree to be

interviewed, except in two factors: they were more likely to have a bachelor's degree or higher (60% compared with 50% of the noninterviewees), and they were less likely to be retired (28% compared with 40% of the noninterviewees). From the pool of 128 respondents who provided phone numbers, we selected 25 interviewees. To interview a variety of forest landowners, we randomly selected five interviewees from each of the following five categories: amenity-focused landowners with fewer than 500 ac, amenity-focused landowners with more than 500 ac, multiple-benefit landowners with fewer than 500 ac, multiple-benefit landowners with more than 500 ac, and passive landowners. Landowners from all three counties were interviewed in each category.

Interviews were loosely structured and open-ended, although categories of questions were touched on in each interview. These categories of questions were largely

informed by results of the quantitative analysis and represented areas where more in-depth information was desired, such as attitudes toward timber harvesting, sources of forestry information, and relationships with neighboring landowners. The interviews were recorded digitally and transcribed. After transcription was complete, interviews were analyzed using the open, axial, and selective coding methods recommended by Strauss and Corbin (1990). This involved organizing recurring comments into themes to conceptualize how interviewees perceived landownership and forest management.

Results

The survey and interview data were analyzed in terms of the audience segments that emerged through the cluster analysis. We examined the demographics, forestland characteristics, management behavior and attitudes, and learning preferences of these three subgroups to formulate specific recommendations about communication strategies to reach them.

Landowner Characteristics. Amenity-focused, multiple-benefit, and passive landowners did not differ dramatically in their age or education level (Table 2). However, there were some distinctions by audience segment when it came to the place respondents spent the majority of their youth, as well as in their occupations. Amenity-focused landowners were more likely to have an urban background, while multiple-benefit landowners were more likely to have a

Table 2. Demographics by audience segment.

	Amenity-focused landowners	Multiple-benefit landowners	Passive landowners
Average age (yr)	57	58	62
Occupation ^a			
Retired (%)	35	29	49
Self-employed (%)	31	37	20
Employed full-time with company (%)	26	22	24
Other (%)	8	3	4
Employed part-time with company (%)	4	3	4
Farmer/rancher (%)	2	13	9
Highest level of education reached			
Did not complete high school (%)	0	4	3
High school graduate (%)	17	10	19
Some college or 2-yr degree (%)	28	29	30
4-yr college or advanced degree (%)	55	56	49
Place spent majority of youth ^b			
Farm or ranch (%)	24	42	25
Rural area, but not on a farm (%)	17	22	18
City/town of fewer than 10,000 people (%)	30	28	30
City/town of 10,000—100,000 people (%)	18	13	23
City/town of more than 100,000 people (%)	23	5	11

^a Approximately 10% of respondents selected more than one occupation, resulting in a greater than 100% response rate.

^b Approximately 9% of respondents selected more than one background, resulting in a greater than 100% response rate.

Table 3. Land ownership characteristics by audience segment.

	Amenity-focused landowners (%)	Multiple-benefit landowners (%)	Passive landowners (%)
Acquisition			
Purchased or inherited from a family member	28	43	38
Purchased from a friend or neighbor	9	20	17
Purchased from a realtor or directly off the market	56	28	30
Combination of foregoing acquisitions	3	8	4
Other	4	2	11
Tenure			
Less than 10 yr	44	22	26
11–25 yr	26	22	21
26–50 yr	13	19	26
More than 50 yr	18	37	26
Total acreage owned			
10–49 ac	53	7	51
50–99 ac	15	13	8
100–499 ac	20	25	21
500–999 ac	6	13	11
More than 1,000 ac	6	41	8
Primary residence			
On forested land	15	3	6
Not on forested land, but in the same county	18	46	24
In different county than forested land	67	52	71

rural background. Nearly one-half of the passive landowners (49%) were retired, compared with 35% of amenity-focused landowners and 29% of multiple-benefit landowners.

Land Characteristics. Distinctions in the forest ownership characteristics of the three audience segments can be seen in Table 3. Amenity-focused landowners were about twice as likely as respondents in the other two audience segments to have acquired their land from a realtor or directly off the market. The majority of multiple-benefit and passive landowners had acquired their land from someone they knew. Multiple-benefit landowners had the longest ownership tenures, with 37% of them reporting that they or their family had owned their land for more than 50 years. The majority of amenity-focused (53%) and passive (51%) landowners owned less than 50 ac of land, but multiple-benefit landowners owned much larger acreages. Multiple-benefit landowners were more likely to live in the same county as their forestland than landowners from the other two audience segments. Nearly one-quarter (23%) of the passive landowners expressed their intent to sell their land in the next 5–10 years, compared with 5% of amenity-focused landowners and 6% of multiple-benefit landowners.

Timber Harvesting: Behavior and Attitudes. The majority of landowners in all three audience segments had not harvested timber. Multiple-benefit landowners were

the most likely to have harvested timber on their property, although less than one-third (31%) reported doing so. Among amenity-focused landowners, 22% had harvested timber, and among passive landowners, 10% had harvested timber. A much higher percentage of multiple-benefit harvesters (85%) cited income from timber as an important factor in their decision to harvest than amenity-focused (25%) or passive (14%) harvesters, although the low number of passive landowners who harvested (7) makes conclusions about their motivations difficult to interpret (Table 4). The higher percentage of multiple-benefit landowners who harvested for economic reasons is, of course, a reflection of our segmentation process, but it is an important point to consider when designing outreach materials for this audience. In an interview, one multiple-benefit harvester explained his attitude toward thinning forests:

I think it [thinning forests] is the most effective way. It just has to be done. And it can be done to where you can make money doing it too. It's just like you having any other—you know, balanced management of any place, you can make a little bit of an income, and you can actually make things healthier.

The most important factor in the decision not to harvest among landowners from all three audience segments was a concern about possible reduction in scenic values. More amenity-focused nonharvesters (89%)

rated this factor as moderately or very important than did multiple-benefit (63%) or passive (60%) nonharvesters. Amenity-focused nonharvesters also were slightly more likely to be opposed to cutting trees as a general principle. One amenity-focused interviewee explained why he was against cutting trees on his property:

Nature made that tree grow. It's there for a reason. Nobody planted it. It got there for a reason. Why are you, if this is good for nature, then why are you doing what's not good for nature, cutting good trees down? Hey, trees don't grow overnight.

Additional data from both the quantitative and the qualitative phases of the study shed light on the underlying reasons for these findings. Amenity-focused landowners were more likely to disagree with an attitude statement that “cutting trees does not permanently harm forests,” and more likely to agree with the statement, “Humans should not interfere with nature,” although even among this segment such responses were in the minority. Interviews with amenity-focused managers also suggested their greater hesitance to actively manage their land. One of them commented, “I'm not sure human beings know what's good for the land. And I think—you don't want to do it and then find out, you know, 10 years later. I shouldn't have done this, or I shouldn't have done that.” Multiple-benefit interviewees, in contrast, expressed higher levels of confidence in forest management. One of them explained: “Trees are better off if they're managed than if they just go on their own, you know?” Passive landowners were more likely to express neutral levels of agreement for all the attitude statements about forest management. One passive interviewee commented: “I never thought very much about the trees and everything on it. It had just always been there, you know.”

Sources of Forestry Information. Fairly high percentages of respondents from all three audience segments reported that they had not received forestry information of any kind (Table 5). More passive landowners (61%) reported that they did not receive forestry information than amenity-focused (43%) or multiple-benefit (40%) landowners. The most frequently cited source of forestry information for all three audience segments was friends and relatives.

Although roughly equal percentages of amenity-focused and multiple-benefit landowners had received extension brochures about forestry, amenity-focused and passive

Table 4. Reasons for harvesting/not harvesting by audience segment.

	Amenity-focused landowners					Multiple-benefit landowners					Passive landowners				
	1 (%)	2 (%)	3 (%)	4 (%)	Mean	1 (%)	2 (%)	3 (%)	4 (%)	Mean	1 (%)	2 (%)	3 (%)	4 (%)	Mean
Reasons for harvesting	<i>n</i> = 36					<i>n</i> = 21					<i>n</i> = 7				
Improved forest health	5	8	22	65	3.46	0	9.5	33	57	3.48	43	0	14	43	2.57
Salvage of insect/disease damaged trees	8	14	16	62	3.32	0	5	24	71	3.67	57	0	0	43	2.29
Improved wildlife habitat	17	25	31	28	2.69	5	10	43	43	3.24	50	33	0	17	1.83
Improved scenic quality	38	19	19	24	2.30	15	20	30	35	2.85	86	0	14	0	1.29
Improved recreation/hunting	46	6	29	20	2.23	0	29	33	38	3.10	71	29	0	0	1.29
Money from timber	53	22	17	8	1.81	10	5	40	45	3.20	57	29	14	0	1.57
Reasons for not harvesting	<i>n</i> = 128					<i>n</i> = 47					<i>n</i> = 65				
Scenic value reduced	8	5	24	63	3.42	23	15	20	43	2.83	27	14	31	29	2.62
Land value reduced	19	15	19	47	2.95	34	14	29	23	2.40	38	15	28	19	2.28
Not enough land to make harvesting profitable	32	16	23	30	2.51	27	14	27	32	2.65	43	19	20	19	2.15
Opposed to cutting trees	37	17	23	23	2.30	59	10	15	15	1.87	57	23	13	8	1.72
Insufficient forestry knowledge	43	28	16	13	2.00	34	24	29	13	2.21	50	26	16	8	1.82
No market for the types of trees I have	59	13	13	15	1.84	30	15	30	25	2.50	56	15	13	16	1.89

1 = Not at all important; 2 = slightly important; 3 = moderately important; 4 = very important

Table 5. Sources of forestry information used and preferred by audience segment.

	Amenity-focused landowners (%)	Multiple-benefit landowners (%)	Passive landowners (%)
Sources of forestry information used			
I don't get forestry information	43	40	61
Friends or relatives	31	34	21
Extension service brochures	24	28	8
US Forest Service	21	19	13
State forestry agency	14	28	7
County extension agent	13	27	15
Other	13	6	6
Advice from specialists at colleges	12	10	6
Forestry consultant	10	28	6
Books from the library	10	7	4
Classes or workshops	7	15	4
Sources of forestry information preferred			
Brochures, booklets, fact sheets	54	57	24
The Internet	46	25	31
Periodic newsletters	45	46	26
Personal on-site assistance from a forester	35	49	24
Classes or workshops	18	25	15
Books from a library	15	18	7
Demonstration sites	12	16	8
Other	4	3	7

landowners were less likely to have had contact with local forestry experts, such as county extension agents, forestry consultants, or state foresters. The more frequent contact with local forestry experts by multiple-benefit landowners might be a reflection of the stronger ties these landowners have to the regions in which their forestland is located. Multiple-benefit landowners were more likely to live in the same county as their forested property than landowners in the other two audience segments, and they had

owned their land for longer. Interviews with multiple-benefit landowners revealed that their interaction with local forestry experts frequently came about incidentally as a result of the social and community networks that these landowners were a part of, not because these landowners had actively sought out the information. In Utah, many multiple-benefit landowners were members of livestock associations. These associations were used successfully by several foresters in the state to reach out to forest landowners.

One of the multiple-benefit landowners commented

We sure have a superduper county agent. He is really a good man, very supportive and gets things organized, and he works good with [local livestock association]. Willing to put forth lots of effort and have some good contacts and good ideas.

Although livestock associations are not relevant to NIPF landowners everywhere, the successful efforts of Utah foresters to involve themselves in these groups illustrates the effectiveness of using community networks to convey information about forest management to this type of audience segment.

The probable isolation of amenity-focused and passive landowners from the communities that surround their forested land is significant. Over two-thirds of the landowners from these audience segments resided in a different county than their forestland. Many of the amenity-focused landowners who were interviewed were aware that they had few connections to local experts or peers who might offer advice or information about their forestland. One such interviewee who resided in an urban area about 190 mi from her forestland commented

But I don't go up there—I don't spend enough time. I don't know any of the people that live up there. And I think those are usually your best sources—right?—for information, is being there, and talking with your neighbors.

Survey respondents were asked about sources through which they would be interested in receiving information about forest management. Brochures, booklets, and fact sheets were the most preferred sources of forestry information for both amenity-focused and multiple-benefit landowners. In general, amenity-focused landowners seemed to prefer printed or online materials (with the exception of books from the library). Nearly one-half of them (46%) expressed interest in learning about forest management on the Internet, compared with 25% of multiple-benefit landowners and 31% of passive landowners. Multiple-benefit landowners were more likely to prefer personal on-site assistance from a forester than landowners in the other two audience segments. Passive landowners did not choose as many preferred information sources as did amenity-focused and multiple-benefit landowners, but their most preferred information source was the Internet.

Communication Strategies for the Segmented NIPF Audience

The landowners in each of the three audience segments described previously will require unique communication strategies to encourage them to actively manage their forestland. Based on what we learned about the demographics, forestland characteristics, behavior, attitudes, and learning preferences of these differing audiences, we can make the following recommendations.

The survey and interview data revealed that amenity-focused landowners place a great deal of value on the aesthetic qualities of the trees on their land and frequently perceive active forest management to be a threat to these qualities. They are particularly hesitant about cutting trees on their property, and many of them consider thinning to be detrimental to forest health. It is possible that these perceptions stem from a lack of knowledge about forest management, because amenity-focused landowners seem to have had more limited exposure to forestry information. A high percentage of amenity-focused landowners are absentee landowners, and they are less likely to use (and, possibly, be aware of) local forestry information sources than are multiple-benefit landowners. The distance, for many of them, between their permanent residence and their wooded land also means that they are more likely to be isolated from the social networks that seem to play a large role in diffusing

forestry information among multiple-benefit landowners.

The high number of absentee amenity-focused landowners suggests that the most effective way to reach them will be carefully crafted printed online materials that can be accessed at their leisure. These resources ideally will raise their awareness about the compatibility of forest management with their goals. Materials aimed at amenity-focused landowners should emphasize the role active forest management can have in maintaining the amenities that these landowners value, particularly scenery, and should take care to point out the potentially detrimental impacts of inaction. Visual assurances (such as photographs or demonstration sites) that forest management need not compromise scenic qualities would be particularly relevant for this audience, because they tended to express particular concern about the aesthetic impacts of forest management. Although previous NIPF studies (e.g., West et al. [1998]) have concluded that personal contact is the most effective way to motivate landowners to actively manage their land, a first priority with this audience should be to stimulate a basic level of awareness and interest in forest management concepts. Ideally, once this has been accomplished through carefully tailored printed and online materials, amenity-focused landowners will be motivated to seek out more specific information from a forester or peer.

Like amenity-focused landowners, multiple-benefit landowners place a great deal of value on nonincome generating aspects of landownership, particularly scenery. However, their survey and interview responses revealed that they are less likely to perceive active management as a threat to these values than are amenity-focused landowners. The interviews with multiple-benefit landowners also suggested that although few of them derived their primary source of income from their land, supplemental income from their property often was a welcome bonus.

Multiple-benefit landowners tended to have stronger ties to the regions in which their forested property was located than landowners in the other two audience segments, and perhaps as a result of this, acquired more forestry information from local sources. Multiple-benefit landowners were more interested in receiving personal assistance from a forester than landowners in the other two audience segments, suggesting that personal contact is the most effective

way to reach out to them with forestry information (to the extent that it is possible given staffing issues among forestry agencies). Also, the involvement of foresters in local communities seems to be a very effective way to gain these landowners' trust and attention. The participation of multiple-benefit landowners in social networks in the regions surrounding their forested land means that it is quite likely that personal assistance for a few key multiple-benefit landowners could have far-reaching effects when the information they gain is shared with neighbors and peers (West et al. 1988, Rogers 1995).

In designing outreach materials for these landowners, an emphasis on the economic returns that are possible through forest management will be important. However, because the amenities of landownership are also very important to multiple-benefit landowners, an emphasis also should be placed on the positive impacts forest management can have on amenities such as recreation, wildlife habitat, and scenery. Many of the forestry messages and materials aimed at amenity-focused landowners will be applicable to multiple-benefit landowners as well.

Presenting forestry information to passive landowners will be more of a challenge. Either they are disinterested in forestland ownership, or we failed to identify the aspects of ownership that they value. Given the limited time and resources that are available to many forestry outreach efforts, this group should potentially be made a lower priority. It is good to keep in mind, however, that although passive landowners expressed less enthusiasm for all aspects of forest management, their responses tended to be ranked in roughly the same order as they were by amenity-focused and multiple-benefit landowners. This suggests that the broad themes that are conveyed in outreach materials for amenity-focused and multiple-benefit landowners also will be applicable to passive landowners. Also important to note is that the majority of passive landowners, like amenity-focused landowners, are absentee landowners who have likely had more limited exposure to forest management concepts, suggesting that printed and online materials would be an effective way to spark their basic interest in the subject.

Much of the NIPF literature has recognized that NIPF owners seek diverse benefits from their land (e.g., DeCoster [1998] and Kline et al. [2000]), and that foresters must have a good understanding of this heteroge-

neous audience if outreach efforts are to be effective. Two recent studies have used audience segmentation techniques to broadly inform forestry outreach programs, but they have focused only on limited audiences, such as new owners (Kendra and Hull 2005), or have segmented according to a wide variety of demographic and psychographic variables (Kluender and Walkingstick 2000). In this study we have tested and presented a very specific method for audience segmentation that is based on the tangible benefits NIPF owners want from their land.

A brief survey instrument such as ours can be designed relatively easily by outreach professionals or by social scientists with whom they work. Statistical computer packages with multivariate analysis capabilities are now readily available for personal computers, and menu-based interfaces make using the programs relatively easy even for persons who are not familiar with multivariate analysis. Because the priorities and educational needs of NIPF landowners are so varied, the identification of meaningful subgroups of landowners is an important first step in understanding this diverse audience and designing forestry messages that will be accepted and implemented on a wide scale.

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