

Management Objectives and Educational Needs of Utah Nonindustrial Private Forest Landowners

by:

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EXECUTIVE SUMMARY

Providing relevant forestry education and assistance to Utah nonindustrial private forest (NIPF) landowners is necessary to encourage the active management of these lands. In order to be accepted and implemented on a wide scale, forestry outreach efforts must take into account the diversity of goals that these NIPF owners have for their land. Audience segmentation techniques are a useful way to identify meaningful subgroups of landowners who desire similar outcomes from their forest property, and who will respond to similar communication strategies. For this study, we categorized Utah NIPF owners according to the benefits of forest land ownership they considered important. Three landowner categories emerged: amenity-focused landowners, multiple-benefit landowners, and passive landowners. After comparing the demographics, forest land characteristics, attitudes towards forest management, and learning preferences of these three landowner categories, we discuss specific approaches for reaching them with forestry information.

Amenity-focused landowners:

- Will respond best to printed materials and the Internet, which they can read on their own time.
- Need reassurance about the positive impact active forest management can have on amenities, particularly scenery.
- Need to be informed about the potentially detrimental impacts of inaction.

Multiple-benefit landowners:

- Prefer personal interaction with a forester.
- Value the amenities of land ownership very highly, but will also respond to economic incentives to manage their forests.
- Will be interested in the forest management practices that improve forage.

Passive landowners:

- Are not interested in learning about or practicing forest management.
- Are more likely to have plans to sell their land in the next 5-10 years.
- Although very few expressed interest in learning about forest management, their most preferred source of information was the Internet.

Introduction

The 2.7 million acres of nonindustrial private forest (NIPF) land in Utah are an important resource of wildlife habitat, recreational opportunities, and timber, and they play a major role in protecting water quality. Providing forestry education and assistance to nonindustrial private forest owners is one of the most effective ways to encourage the active management of these lands (Bliss and Martin 1990, Egan and Jones 1993, English et al. 1997). However, NIPF owners cannot be treated as a homogenous community towards which generalized programs are directed. They have a variety of backgrounds, management goals, and forest characteristics. If information about forest management is to be accepted and implemented by this audience, the unique goals and priorities of NIPF owners must be understood and incorporated into outreach programs.

This study set out to gather information about the demographics, forest land characteristics, management behavior, attitudes, and learning preferences of the Utah NIPF audience. Additionally, we employed audience segmentation techniques to identify three distinct landowner categories among Utah NIPF owners according to the benefits of land ownership they considered important. Finally, we used the data we gathered to formulate specific recommendations about communication strategies for the segmented Utah NIPF audience.

Methods

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

A mailed survey was sent to all NIPF owners in three Utah counties: Wasatch County, Carbon County, and Iron County. These counties were selected to represent areas with differing historic settlement patterns and current land-use trends. Wasatch County's scenic qualities and proximity to densely populated areas along the Wasatch Front means that its forested areas have increasingly been functioning as second-home and recreational sites for urban Utahns. According to the U.S. Census (2002), nearly a quarter (23%) of the housing in Wasatch County is for seasonal, recreational, or occasional use. Carbon County, in contrast, is experiencing negative population growth and its economy and demographics have largely been determined by the boom-and-bust cycles of the coal mining industry (Utah Population Estimates Committee <http://governor.utah.gov/dea/UPEC/05PopbyCounty.pdf>, January 16, 2006; Watt 1997). Carbon County appears to not be a popular site at this point for seasonal home development (US Census 2002), so NIPF owners are less likely to be second-home owners there than in other counties in the state. Carbon County, along with its neighbor Emery County, is unique in the state for passing a timber harvesting ordinance, presumably in response to the rapidly increasing harvesting practices that were taking place there. Iron County, in many respects, represents a middle point between the two extremes of Wasatch and Carbon Counties. While it is in many ways a traditional, rural, region of Utah, much of the private forest land is being purchased by urban newcomers from Las Vegas and California (Chad Reid, Personal Communication, USU Extension, August 2004). In 2005, Iron County's population grew by 6.4%, the second highest rate in the state (Utah Population Estimates Committee <http://governor.utah.gov/dea/UPEC/05PopbyCounty.pdf>, January 16, 2006).

Data Sources

The mailing list used for the survey was created through a GIS by overlaying property parcel data from county tax assessment records with vegetation data provided by the Utah Gap Analysis Program. Gap analysis data for forest cover in Utah have been found to have 74.2% accuracy, while woodland cover data have 73.3% accuracy (Edwards et al. 1998). Landowners were selected if they owned more than ten acres of land and had one or more of the following vegetation types on their property, 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.

Identifying landowner categories

As noted above, one of the chief objectives of this study was to identify distinct categories of NIPF owners in Utah who shared common priorities for their land and would respond to similar messages about forest management. These landowner categories were determined by running a cluster analysis on a series of variables (Table 1) from the mailed survey which measured respondents' evaluation of the importance of various benefits of land ownership on a scale of 1 (not at all important) to 4 (very important). Cluster analysis is a statistical technique that examines patterns in data in order to identify groups of 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. Using three clusters yielded the clearest divisions between clusters in this study. Respondents in the first landowner category (n=164), whom we named amenity-focused landowners, ranked non-income generating benefits of their land as important, and income generating

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

benefits as unimportant. Respondents in the second landowner category (n=68), multiple-benefit landowners, ranked nearly all of the benefits of land ownership highly. Respondents in the third landowner category (n=72), passive landowners, ranked almost all of the benefits of land ownership as unimportant or slightly important.

Interviews

The last question of the mailed survey asked respondents if they would be willing to participate in a follow-up interview, and 128 of them indicated that they would be interested in doing so. From this pool, twenty-five interviewees were selected based on the county in which their forested land was located, the total acreage they owned, and the landowner category they fell into. Interviews were loosely structured and open-ended, although categories of questions were touched upon in each interview.

Results

The survey and interview data revealed several important findings about Utah NIPF owners that applied to landowners in all three landowner categories. Large percentages of respondents reported that livestock had grazed on their property in the previous year, and interviews revealed that many landowners leased their land for livestock use in order to gain Greenbelt tax status. Additionally, very few of the total number of respondents reported that they resided on their forested property, and less than a third of the respondents in all three landowner categories had ever harvested timber from their land.

In addition to these general findings, distinctions between landowners in the three landowner categories were explored so that specific recommendations could be made about communication strategies for these varying audiences.

Landowner Characteristics

Amenity-focused landowners, multiple-benefit landowners, and passive landowners did not differ dramatically in their age or education level (Table 2). The average age of respondents was 61 and the majority (51%) had received a bachelor's or advanced degree. However, there were some distinctions by landowner category 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 rural background. Nearly half of the passive landowners (49%) were retired, compared to 35% of amenity-focused and 29% of multiple-benefit landowners.

Table 2. Demographics by landowner category

	Amenity- focused landowners	Multiple- benefit landowners	Passive landowners
Average age (years)	57	58	62
Occupation*			
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 two year degree (%)	28	29	30
Four year college or advanced degree (%)	55	56	49
Place spent majority of youth†			
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

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

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

Land Characteristics

Distinctions in the forest land characteristics of the three landowner categories can be seen in Table 3. Amenity-focused landowners were about twice as likely to have acquired their land from a realtor or directly off the market as respondents in other landowner categories. Multiple-benefit landowners (43%) and passive landowners (38%) were more likely to have acquired their land through a family member than amenity-focused landowners (28%). Amenity-focused landowners had owned their property for fewer years than landowners in the other landowner categories. The greatest percentage

of them (44%) reported that they or their family had owned their land for less than 10 years, compared to 22% of multiple-benefit landowners and 26% of passive landowners. Among multiple-benefit landowners, 37% reported that they or their family had owned their land for more than 50 years, compared to 18% of amenity-focused landowners and 26% of passive landowners. Roughly half of the amenity-focused landowners (53%) and passive landowners (51%) owned less than 50 acres of land. Multiple-benefit landowners owned much larger acreages. Over half of them (54%) owned more than 500 acres, compared to 12% of amenity-focused landowners and 19% of passive landowners. The majority of landowners in all three landowner categories resided in a different county than their forested property. Multiple-benefit landowners were more likely to live in the same county as their forest land (46%) than landowners from the other two categories (33% of amenity-focused landowners and 29% of passive landowners). Nearly a quarter (23%) of the passive landowners expressed their intent to sell their land in the next five to ten years, compared to 5% of amenity-focused landowners and 6% of multiple-benefit landowners.

Much of the Utah's settlement history revolved around ranching, and livestock continues to graze on much of the state's private forest land. The majority of amenity-focused (57%) and multiple-benefit (87%) landowners reported that livestock had grazed on their property during the last year, and a high percentage of passive landowners (43%) reported this as well. Interviews revealed that many landowners leased their land for livestock because doing so gave them Greenbelt tax status. For some landowners, particularly multiple-benefit landowners, livestock also represented a link to family traditions. One multiple-benefit manager explained: "I like to have the livestock, just

Table 3. Land characteristics by landowner category.

	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 above	3	8	4
Other	4	2	11
Tenure			
Less than 10 years	44	22	26
11-25 years	26	22	21
26-50 years	13	19	26
More than 50 years	18	37	26
Total Acreage Owned			
10-49 acres	53	7	51
50-99 acres	15	13	8
100-499 acres	20	25	21
500-999 acres	6	13	11
More than 1,000 acres	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

because I grew up with it. Plus, it keeps it in the green belt for tax purposes, which is a tremendous item in this country.”

Timber Harvesting: Behavior and Attitudes

The majority of landowners in all three landowner categories had not harvested timber (Table 4). Multiple-benefit landowners were the most likely to have harvested timber on their property, although less than a third of them (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. So, while multiple-

benefit landowners were not going out in large numbers to harvest timber solely for the money it generated, those who had harvested trees on their property were more motivated by economic incentives than were amenity-focused or passive harvesters. One multiple-benefit manager explained why he had harvested timber on his property:

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. And that's the thing right there. 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 landowner categories was a concern about possible reduction in scenic values. More amenity-focused non-harvesters rated this factor as important than did multiple-benefit or passive non-harvesters. Among amenity-focused non-harvesters, 87% cited this as a moderately or very important factor in their decision not to harvest, compared to 63% of multiple-benefit and 60% of passive non-harvesters. One amenity-focused manager explained: “Well I’m just afraid that they’d leave a mess. . .[Y]ou gotta be careful on that, ‘cause right now, even with the dead trees, it’s very pretty. That’s why I bought it.” Amenity-focused non-harvesters were also slightly more likely to be opposed to cutting trees as a general principle. Close to half of them (46%) cited opposition to cutting trees as an important factor in their decision to not harvest, compared to 30% of multiple-benefit and 21% of passive non-harvesters. 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.

Table 4. Forest management: Behavior and attitudes

	Amenity-focused landowners					Multiple-benefit landowners					Passive landowners				
Percent who harvested timber	22					31					10				
Reasons for harvesting	1	2	3	4	Mea	1	2	3	4	Mea	1	2	3	4	Mean
	(%)	(%)	(%)	(%)	n	(%)	(%)	(%)	(%)	n	(%)	(%)	(%)	(%)	
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	1	2	3	4	Mea	1	2	3	4	Mea	1	2	3	4	Mean
	(%)	(%)	(%)	(%)	n	(%)	(%)	(%)	(%)	n	(%)	(%)	(%)	(%)	
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

Passive non-harvesters ranked their reasons for not harvesting in roughly the same order as respondents from the other landowner categories. However, their level of agreement was less strong for all of these factors.

Survey respondents were asked to rate their level of agreement to a number of statements about forestry and management (Table 5). The highest level of agreement from landowners in all three market segments came from the statement “Trees play an important aesthetic role on my land.” 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 confirmed 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 10 years later . . . I shouldn’t have done this, or I shouldn’t have done that.”

Interviews with multiple-benefit landowners revealed some differences in attitudes between those with small acreages (less than 500 acres) and those with large acreages (more than 500 acres). Small acreage multiple-benefit interviewees expressed many of the same concerns about cutting trees on their forests as the amenity-focused landowners did, although their apprehension tended to be less extreme. For instance, one of them worried about the aesthetic impacts of a timber harvest but acknowledged that dense stands might need to be thinned:

. . .if you started harvesting the trees out of it, except for the ones that are dead, and the ones that were growing too close together and things, then it would probably take away from the natural look of it, or the look that we want it to look like. Like a natural forest-type area.

Table 5. Agreement with statements about forest management by landowner category.

	Amenity-focused landowners						Multiple-benefit landowners						Passive owners					
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mean
“Trees play an important aesthetic role on my land.”	0	1	1	21	77	4.73	0	2	2	24	73	4.69	4	1	18	45	31	3.97
“Forest health is a priority on my land.”	0	0	11	49	40	4.29	0	2	10	37	52	4.38	3	1	48	31	17	3.58
“I am concerned about forest fires occurring on my land.”	2	2	10	40	46	4.26	0	9	13	38	40	4.09	4	4	34	42	16	3.61
“Neighboring landowners should work together to manage their forests.”	1	4	14	51	31	4.07	2	4	19	34	41	4.09	0	4	34	45	17	3.75
“Cutting timber does not permanently harm forests.”	9	15	25	35	16	3.33	10	6	7	31	46	3.96	6	9	21	45	20	3.65
“Humans should not interfere with nature.”	18	40	22	14	7	2.52	31	38	19	7	4	2.16	13	36	38	7	6	2.57

1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly disagree

Although small acreage multiple-benefit interviewees were not enthusiastic about cutting trees, they tended to be more receptive to active land management in general, since many of them were engaged in various income producing activities, particularly ranching. Large acreage multiple-benefit interviewees were more likely than small acreage multiple-benefit interviewees to depend on the income their livestock provided. As a result, they were more enthusiastic about cutting trees on their property because of the improved forage that resulted. One such interviewee commented: “. . . [W]e like to thin the conifers out and see an increase in quakies, because that’s where most of your feed is at, is in your quakies.”

Passive landowners were more likely to express neutral levels of agreement for all of 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 landowner categories reported that they had not received forestry information of any kind (Table 6). More passive landowners (61%) reported that they did not receive forestry information than amenity-focused (43%) or multiple-benefit landowners (40%). The most frequently cited source of forestry information for all three landowner categories was friends and relatives. One multiple-benefit interviewee explained why he turned to friends as opposed to forestry professionals:

Right now though, I probably would turn towards my engineer, or forestry friends or associates that I know for doing it [forest management], rather than to the county extension agent, or to [X] outreach programs . . . Simply because I know those people. . .

Table 6. Sources of forestry information used and preferred by landowner category.

	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
U.S. 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

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

located. Multiple-benefit landowners were more likely to live in the same county as their forested property than landowners in the other two landowner categories, 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 they had actively sought out the information. Many multiple-benefit interviewees were members of livestock associations. These associations were utilized successfully by several foresters in the state to reach out to forest landowners. One of the multiple-benefit landowners commented:

We sure have a super-duper 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.

The isolation of amenity-focused landowners and passive landowners from the communities which surround their forested land is significant. Over two thirds of the landowners from these categories resided in a different county than their forest land. 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 forest land. One such interviewee who resided in an urban area about 190 miles from her forest land 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.

Interestingly, the fourth most frequently cited source of forestry information for amenity-focused and passive landowners was the U.S. Forest Service (it was the seventh most frequently cited source of forestry information for multiple-benefit landowners). This could suggest that for amenity-focused and passive landowners, who have fewer ties

to the communities in which their forest land is located, a higher recognition level may exist towards federal agencies like the Forest Service than exists for local information sources. Alternatively, some respondents may not know enough about forestry agencies to be able to recall if information came from federal, state, or other agencies. Classes and workshops were the least used information sources among amenity-focused and passive landowners, perhaps again a result of their greater likelihood to be absentee landowners and the greater inconvenience that attendance at these events would be for them.

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 half of them (46%) expressed interest in learning about forest management on the Internet, compared to 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 landowner categories. Nearly half (49%) of the multiple-benefit landowners expressed interest in this type of assistance compared to 35% of the amenity-focused landowners and 26% of the passive landowners. Passive landowners did not choose as many preferred information sources as did amenity-focused landowners and multiple-benefit landowners, but their most preferred information source was the Internet. Nearly a third (31%) of the passive landowners expressed interest in this means of receiving forestry information.

Regional differences

In addition to the distinctions that were found between landowner categories, regional differences emerged in the analysis of survey and interview data. Wasatch County landowners were more likely to have purchased their property from a realtor or directly off the market than from a family member, and they were more likely to have spent the majority of their youth in an urban area. Additionally, they were more likely than landowners from other counties to reside in a different county than their forest land, and they had more concerns with cutting trees on their property. Carbon County landowners, in contrast, were more likely to have rural backgrounds, and although they valued the amenities of land ownership, they placed more emphasis on income-generating activities on their land than did respondents from the other two counties. They were also more likely to have livestock grazing on their forest land. The survey and interview responses of Iron County landowners tended to reflect the traditional settlement history of the county. Landowners there were more likely to live in the same county as their forest land, more likely to have inherited their land from a family member, and had the longest ownership tenures. However, the increasing number of urban newcomers purchasing forest land in the area meant that survey and interview data from Iron County tended to be split into two fairly distinct audiences: urban newcomers, and long-time residents of the area. The attitudes and behaviors of these two audiences tended to vary considerably.

Recommendations

The landowners in each of the three landowner categories described above represent distinct audiences and will require unique communication strategies to motivate them to actively manage their forest land. Based on what we learned about the

demographics, forest land characteristics, behavior, attitudes, and learning preferences of these differing audiences, the following recommendations can be made.

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 were particularly hesitant about cutting trees on their property, and many of them considered 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. They are also more isolated from the social networks that seem to be playing a large role in diffusing forestry information among multiple-benefit landowners.

The high number of absentee amenity-focused landowners and their limited awareness of forest management concepts suggest that the most effective way to reach them will be carefully crafted printed materials such as brochures and fact sheets that will raise their awareness about the compatibility of forest management with their goals. The Internet will also be a useful tool in reaching this audience, since they expressed more interest in it than landowners in the other landowner categories. Additionally, the relatively high number of amenity-focused landowners who had obtained forestry information from the U.S. Forest Service suggests that it would be worthwhile to make materials geared towards private forestry available at Forest Service visitor centers. The offices of federal agencies are possibly more recognizable than local information sources

to absentee landowners who have few ties to the communities that are near their forested land.

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 needn't compromise scenic qualities would be particularly relevant for this audience, since they tended to express particular concern about the aesthetic impacts of forest management. Although previous NIPF studies (West et al. 1998, Muth and Hendee 1980) 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 interest and awareness 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 non-income 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 confirmed that while few of them derived their primary source of income from their land, supplemental income from their property was often 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 categories, 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 landowner categories, 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.

In designing outreach materials for these landowners, an emphasis on the economic returns that are possible through forest management will be important. Also, because so many (87%) multiple-benefit landowners have livestock on their property, stressing the role forest management can have in improving forage will be very meaningful to this audience. This will be particularly important to large-acreage multiple-benefit landowners, who are more likely to depend on the income they receive from livestock. It will be important to remember that the amenities of landownership are also very important to multiple-benefit landowners, and an emphasis should be placed on the positive impacts forest management can have on amenities like recreation, wildlife habitat, and scenery. Many of the forestry messages aimed at amenity-focused landowners will be applicable to multiple-benefit landowners as well. Small acreage multiple-benefit managers in particular will need many of the same assurances about the aesthetic impacts of timber harvests that are presented to amenity-focused landowners, although their concerns are somewhat less strong.

Passive landowners will represent a challenge to reach with forestry information, because they are either disinterested in forest landownership, or we failed to identify the aspects of landownership that they value. Given the limited time and resources that are available to many forestry outreach programs, 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 will also 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 had little exposure to forest management concepts, suggesting that printed and online materials would be an effective way to spark their basic interest in the subject.

Utah NIPF owners have varied priorities and educational needs, presenting a challenge to forestry professionals hoping to reach out to this diverse audience. The results of this study should provide a framework for understanding the unique educational needs of three distinct audiences among NIPF owners in the state, as well as providing some useful strategies for designing relevant and accessible outreach materials.

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