Understanding and Reaching Family Forest Owners: Lessons from Social Marketing Research

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ABSTRACT

Social marketing—the use of commercial marketing techniques to effect positive social change—is a promising means by which to develop more effective and efficient outreach, policies, and services for family forest owners. A hierarchical, multivariate analysis based on landowners' attitudes reveals four groups of owners to whom programs can be tailored: woodland retreat, working the land, supplemental income, and ready to sell. A prime prospect analysis segmenting landowners according to their level of engagement and interest in land management can be used to improve the efficiency of program implementation. Landowners showing low levels of engagement but high levels of interest are of special interest because they are likely to be receptive to a social marketing message and therefore should be a priority target for any such efforts. Using the demographic profile of the average family forest owner, newspapers and television were identified as important means for mass communication.

Keywords: nonindustrial private forest owners, National Woodland Owner Survey, outreach, forest policy, United States

The conservation challenges for family forests are complex and multifaceted. No organization or agency has the resources, knowledge, or credentials to meet these challenges alone. This private land is perhaps the last frontier for extending sustainability concepts to all forests in the United States; and it is these forests that are most at risk of being fragmented and converted for development. Decisions made by large numbers of private landowners collectively enhance or degrade the landscape. How they manage their forests and whether or not they convert them to other uses is of significant public interest.

Service foresters, extension foresters, private consultants, and, in general, the forestry community are good at communicating with the family forest owners they know and interact with regularly. The problem is that this group of owners represents only a small fraction of the total population of family forest owners. According to the US Forest Service's National Woodland Owner Survey (Butler and Leatherberry 2004), "Only 3% of the owners have a written management plan while 16% have sought management advice. Among owners who have harvested trees, 22% sought professional advice during their most recent harvest." To compound the issue, the forestry community regularly communicates with those who are, in general, the model owners, and thus,

are preaching to the proverbial choir. How can things change so that more of the owners outside the choir are reached with effective messages and services? To meet the broad goals of keeping forests as forests and increasing sound forest stewardship, the forestry community needs a better understanding of family forest owners and it needs to use this information to develop more efficient and effective outreach, policies, programs, and services that reach a much larger number of family forest owners.

In 2003, interested parties representing a broad spectrum of the forestry community formed the Sustaining Family Forests Initiative (SFFI) to provide credible, useful information to serve as a wide-ranging resource for organizations and individuals interested in communicating with and influencing family forest owners. This article summarizes the first phase of the SFFI where a social marketing approach was used to characterize family forest owners, identify meaningful groupings of owners, and explore some of the implications for communications efforts. After introducing the concept of social marketing and providing descriptions on the SFFI and the primary data source, we present a profile of family forest owners. Results from multivariate statistical analyses are then presented that categorize owners according to (1) attitudes and (2) levels of engagement and interest in forest management. We conclude with comparisons of our results to previous research and discuss the implications of the findings.

Social Marketing

An approach is needed that not only reaches family forest owners, but also positively influences their attitudes and behaviors toward stewardship of their lands. Social marketing is a tool that can be used to accomplish this. In contrast to commercial marketing that is aimed at selling products, social marketing is aimed at "selling" ideas—i.e., changing people's attitudes and behaviors (Kotler et al. 2002). The term was coined in the 1970s as marketers for the health care industry were grappling with how to sell a healthy lifestyle and encourage people to not smoke and to practice safe sex. Although it was not called social marketing, the US Forest Service's Smokey Bear campaign is a preeminent example of a successful social marketing campaign (sidebar).

Commercial marketing is concerned with the four P's: product, price, place, and promotion. Social marketing has four addi-
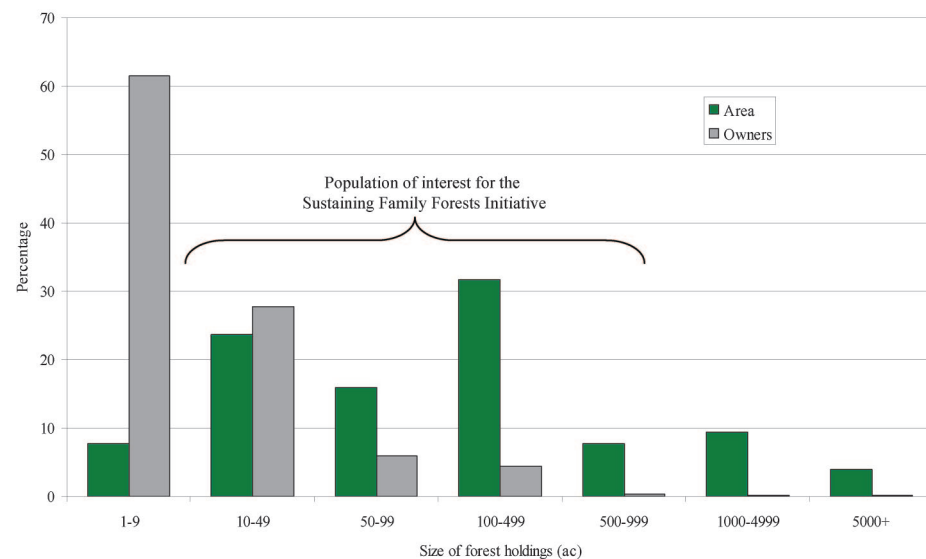

Figure 1. Distribution of family forests and family forest owners in the coterminous United States by size of forest holdings, 2004 (US Forest Service, NWOS, unpublished data).

tional P's to consider: publics, partnerships, policy, and purse strings (Weinreich 1999). The product is the behavior that we are advocating, e.g., legacy planning or other activities that help meet an overall objective, such as keeping forests as forests. The cost, both financial and otherwise, to the owner is the price. Place is the location where the information about the desired behavior is available, e.g., the grange or the midtown bistro. The behavior is promoted using salient messages and by selecting effective communication channels. Publics are the primary and secondary audiences we are trying to reach, e.g., landowners, their heirs, and local zoning boards. Because of the complexity of social marketing campaigns, partnerships are needed to instigate, promote, and maintain them. Public policies may need to be changed or created; and because there is no single constituency that will solely gain from the success of the campaign, the funding, or purse strings, likely will come from multiple sources.

The general stages of a social marketing campaign are research, implementation, and evaluation. The research phase characterizes the population of interest, segments them into logical groupings, assesses the difficulty of reaching specific segments, and then develops and tests messages. Implementation takes the lessons learned from the research and applies them to the issue of interest. To assess the effectiveness of the campaign and fine-tune it, periodic evaluations need to be conducted. These evaluations will need to assess intermediate objectives (e.g., number

of owners enrolled in a specific program) and long-term objectives (e.g., reduction in forest loss due to initiatives).

The SFFI

The goal of the SFFI is to assist organizations in developing efficient and effective outreach, service, and policy programs that will enhance the stewardship of private lands and help keep forests as forests (SFFI 2006). The spectrum of financial supporters (as mentioned in the title page footnote) is indicative of the broadly perceived need and appeal of the social marketing approach.

The implementation of the findings from our social marketing research will not solve the problems facing the forests and forests owners of the United States. We hope it will allow the forestry community to be more effective and efficient in identifying, communicating with, and influencing forest owners. The specific desired actions will be determined by the people implementing the campaign and these may vary by group and region. A social marketing campaign can get people to take the first step, but there needs to be additional resources to guide them the rest of the way.

Butler and Leatherberry (2004) defined family forests as "lands that are at least 1 acre in size, 10 percent stocked, and owned by individuals, married couples, family estates and trusts, or other groups of individuals who are not incorporated or otherwise associated as a legal entity." For the SFFI, and hence what is reported in this article, we decided to concentrate on the 4.1 million fam-

Table 1. Characteristics of family forest owners with 1× to 999-ac forest holdings in the coterminous United States by attitudinal group.

	All	Woodland retreat	Working the land	Supplemental income	Ready to sell
Number of owners (1,000s)	4,108	1,661	890	599	958
Area owned (1,000s ac)	206,593	62,455	50,891	46,162	47,084
Size of forest holdings (ac; median)	84.0	60.0	94.0	157.5	80.0
Land tenure (yr; median)	24.0	18.0	24.0	26.0	27.0
Part of farm	38.4 (42.6)	29.1 (34.1)	44.9 (50.1)	44.8 (45.4)	45.7 (44.0)
Part of primary residence	67.8 (60.8)	73.3 (65.6)	80.1 (74.4)	63.2 (54.4)	51.8 (46.9)
Part of secondary residence	13.1 (18.6)	16.8 (23.5)	14.6 (22.5)	15.0 (20.1)	6.3 (8.8)
Reasons for owning forest land					
Beauty and scenery	70.9 (67.9)	89.8 (89.0)	86.8 (86.9)	70.2 (67.4)	21.5 (18.2)
Nature and biological diversity	56.9 (56.1)	69.9 (69.0)	76.0 (77.5)	53.5 (53.4)	17.2 (17.3)
Land investment	42.6 (48.9)	26.3 (25.6)	57.4 (59.4)	76.4 (74.6)	32.1 (39.2)
Part of home	62.6 (57.0)	73.9 (69.8)	80.6 (77.4)	58.3 (50.1)	25.3 (23.8)
Part of farm	43.5 (47.0)	36.1 (42.3)	58.9 (65.9)	49.0 (47.4)	25.5 (26.2)
Privacy	64.3 (60.0)	80.8 (78.7)	85.6 (84.8)	61.4 (54.4)	14.5 (11.6)
Pass land on to heirs	61.6 (64.3)	60.3 (59.9)	76.5 (78.3)	79.4 (77.5)	33.3 (37.2)
Nontimber forest products	10.4 (11.6)	3.3 (3.7)	30.4 (30.6)	6.0 (5.8)	5.1 (6.6)
Firewood production	17.8 (17.9)	6.0 (5.8)	53.7 (51.0)	8.3 (5.4)	8.7 (8.4)
Timber production	19.6 (32.3)	0.1 (0.3)	32.6 (42.6)	48.6 (62.8)	18.7 (27.9)
Hunting	39.1 (46.8)	32.1 (39.7)	71.8 (76.8)	47.6 (54.4)	11.0 (12.8)
Other recreation	35.8 (37.9)	42.1 (47.2)	67.8 (69.4)	20.3 (22.7)	2.8 (4.6)
Conservation easements	2.1 (3.2)	1.6 (2.9)	2.8 (3.9)	3.6 (3.9)	1.9 (2.6)
Green certification	1.9 (3.2)	1.6 (2.4)	2.1 (4.0)	3.8 (4.6)	1.5 (3.2)
Cost share	9.0 (18.4)	5.3 (8.7)	11.4 (20.8)	16.9 (29.6)	8.6 (18.5)
Timber harvest	40.8 (70.3)	24.2 (52.2)	51.0 (77.4)	61.7 (81.6)	45.0 (71.6)
Nontimber forest products	25.3 (27.0)	23.9 (26.7)	34.5 (36.8)	19.5 (24.6)	22.5 (22.3)
Written management plan	7.6 (15.0)	4.8 (9.7)	10.8 (18.3)	12.7 (23.3)	7.8 (13.2)
Recreation (private)	54.1 (60.4)	61.5 (65.5)	74.2 (76.1)	57.6 (65.3)	38.3 (46.2)
Received advice	23.6 (34.7)	18.9 (24.6)	28.5 (37.6)	34.1 (50.8)	22.1 (31.2)
Primary advice source	State	State	State	State	State
Preferred information channel	Publications	Publications	Forester	Forester	Forester
Top concern (social)	Family legacy	Family legacy	Family legacy	Family legacy	Property taxes
Top concern (biophysical)	Insects and diseases	Fire	Insects and diseases	Insects and diseases	Fire
Future intentions					
Nothing/minimal	44.8 (37.4)	49.4 (44.1)	27.3 (24.5)	43.5 (32.3)	50.6 (43.1)
Harvest firewood	27.2 (28.1)	25.2 (26.4)	51.8 (51.2)	15.9 (18.3)	19.6 (19.6)
Harvest timber	12.2 (21.8)	4.0 (6.0)	19.2 (27.9)	22.3 (35.9)	14.5 (23.8)
Pass onto heirs	13.3 (15.7)	12.9 (13.7)	14.7 (17.1)	16.5 (18.5)	8.1 (10.9)
Sell/subdivided	6.8 (8.0)	5.4 (5.5)	3.2 (5.1)	8.4 (9.2)	10.7 (11.9)
Convert forest to nonforest	3.4 (3.5)	3.7 (3.3)	3.6 (4.7)	3.4 (3.1)	2.7 (3.1)
Convert nonforest to forest	2.0 (2.7)	2.1 (1.9)	3.3 (4.4)	2.5 (3.9)	1.0 (1.3)
Age (65 yr or older)	41.3 (44.3)	34.7 (35.0)	29.1 (32.4)	36.6 (45.7)	50.8 (50.5)
Education (college degree)	30.6 (38.2)	35.3 (41.6)	23.4 (29.2)	31.9 (44.6)	33.5 (42.0)
Income ($100k/yr or greater)	15.5 (20.8)	20.1 (25.4)	11.1 (16.2)	16.2 (23.9)	17.9 (21.9)
Gender (male)	83.7 (85.5)	82.3 (84.3)	88.9 (90.6)	88.9 (88.3)	84.2 (82.8)
Race (white)	93.3 (94.3)	93.8 (94.9)	94.5 (94.5)	92.7 (94.8)	92.7 (94.2)
Prime prospect groups					
Model owners	14.8 (26.0)	9.0 (15.5)	21.9 (30.7)	26.5 (42.5)	11.0 (19.0)
Prime prospect	28.5 (28.4)	30.3 (30.9)	48.6 (46.4)	32.6 (29.6)	4.1 (4.7)
Potential defectors	43.6 (37.1)	51.6 (46.9)	27.7 (22.1)	35.1 (25.0)	50.1 (51.9)
Write-offs	13.1 (8.5)	9.1 (6.7)	1.8 (0.8)	5.8 (2.9)	34.8 (24.5)

Unless otherwise noted, the first number is the percentage of family forest owners in the given group and the parenthetical number is the percentage of family forestland.

ily forest owners in the coterminous United States with 10–999 ac of forestland (Figure 1). This group represents 79% of the total family forest acreage and 38% of the total number of family forest owners in the coterminous United States. The 6.6 million owners with less then 10 ac were excluded because their forests are, in general, large house lots. The 15 thousand owners with 1,000 ac or more were excluded because they are more likely to already be proactively engaged in thinking about their forests.

Our goal was to explore the usefulness of a social marketing approach to enhance outreach and services to family forest owners. We opted to use the US Forest Service's National Woodland Owner Survey (NWOS; Butler et al. [2005]) as our primary data source. The NWOS contacts a random set of family forest owners across the United States on an annual basis and asks them questions pertaining to land characteristics, ownership objectives, land management and use, information sources, concerns, intentions, and demographics. Landowners are selected by dividing each state into grid cells (the sizes of which are commensurate with the sampling intensity), randomly selecting one point per cell, using remote sensing to determine if the point is forested, and for the forested points, using tax records to identify the owner of record. The response rate to this mail-based survey was 49%. A total of 8,051 family forest owners who participated in the NWOS in 2002, 2003, and 2004 were included in our analyses. By using an existing database, the time and expense to implement a new survey were
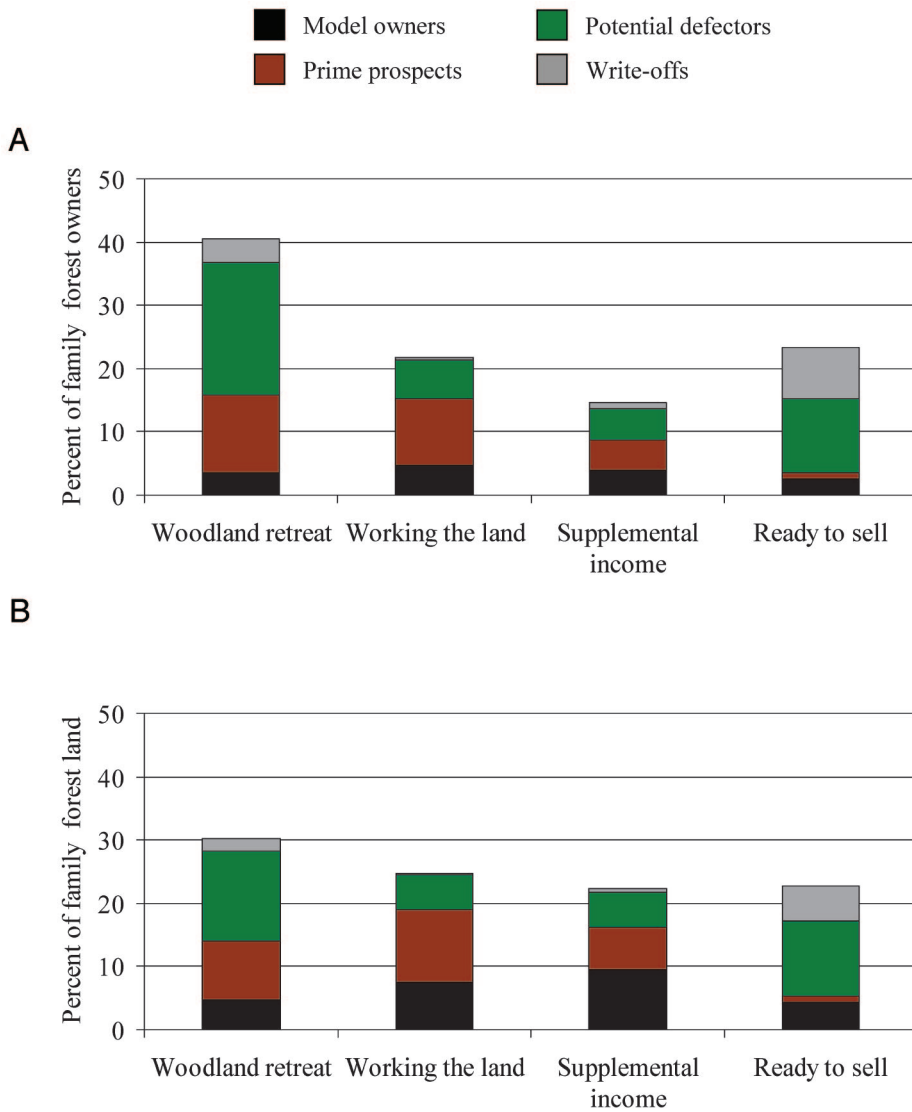
Figure 2. Distribution of (A) number of owners and (B) area of forestland by attitudinal group by prime prospect group for family forest owners with 10- to 999-ac forest holdings in the coterminous United States.

Table 2. Factor loadings used to summarize the future plans of family forest owners in the Untied States.

Future plans	Principle component			
	1	2	3	4
Sell forestland	0.77			
Subdivide forestland	0.74			
Harvest firewood		0.71		
Harvest sawlogs		0.66		
Conversion (forest to other)	0.33	0.53		−0.41
Conversion (other to forest)			0.81	
Buy forestland			0.67	
Pass forestland on to heirs				0.85

Absolute values of less than 0.25 are not shown.

saved, and, in addition, the information learned in this process will be used to enhance the NWOS.

The data collected by the NWOS were a very useful starting point for exploring the goals of this project; however, the NWOS was not explicitly designed to capture all the details that ideally would be available for a social marketing project. Ideally, future iterations of the NWOS will address some of these shortcomings. Even so, there is sufficient information in the current NWOS about the attitudes and behaviors of family forest owners to let us begin to understand how a successful social marketing program could be implemented.

The next phase of the SFFI will take these results and use focus groups to verify the results and craft and test messages. This will help us reach our ultimate goal of providing tools and materials that any group can use to effectively and efficiently communicate their messages to family forest owners.

Profiling Family Forest Owners

Profiling of family forest owners was an exploratory data analysis that involved cross-tabulations among the various attributes collected by the NWOS. Owners were profiled in the cross-tabulations according to size of holdings, whether or not they live on their woodland, regions, harvesting practices (past and future), level of forest management, level of interest in forest management, level of engagement in forestry activities, attitudes toward protection of land from development, passing land to heirs, green certification, and selected combinations thereof. We used these attributes to analyze NWOS questions that could help guide a social marketing strategy (e.g., important reasons for owning the land, steps taken to manage the land, and so on).

Overall, family forest owners have owned their forestland for relatively long periods of time, consist of a mix of absentee and resident owners, have numerous ownership objectives, have practiced forestry to varying degrees, and have a multitude of plans for their land—in other words, there is a lot of diversity among family forest owners (Table 1). Demographically, they are more homogenous—older, white males predominate. However, we need to be careful in how we interpret this because the survey asks for demographic information pertaining to the owner who makes most of the decisions about the land. Often, a forest is legally in a husband's name but decisions are made jointly by the husband and wife, and some forests are owned by two or more people, either a husband and wife or other parties, but the survey is not currently designed to capture this facet.

Some of what was learned from the cross-tabulation analyses is especially rele-
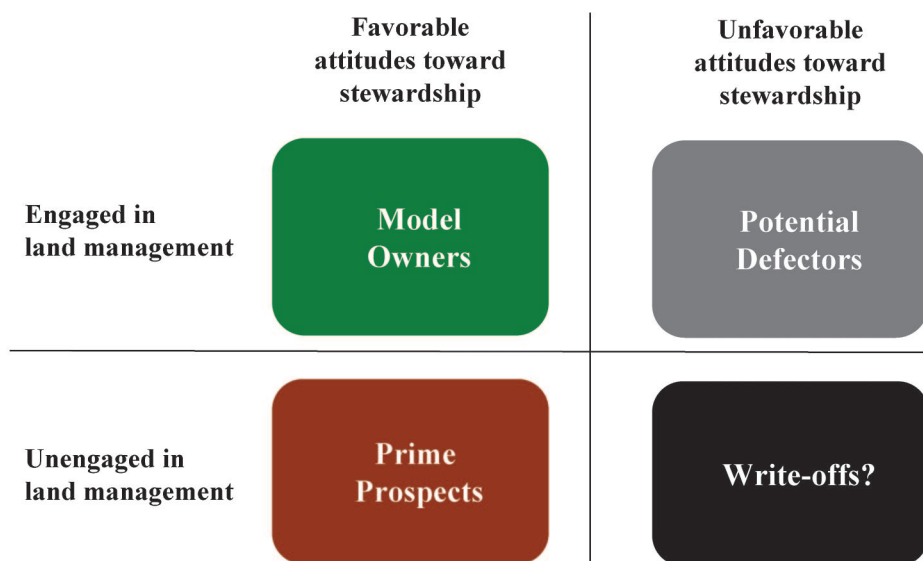
Figure 3. Overview of the prime prospects analysis.

vant to how we communicate with family forest owners. Although, by and large, they rank noncommercial reasons for owning their land much higher than commercial reasons, 41% of the family forest owners—who, in total, own 70% of the family forestland—have harvested trees for commercial purposes. However, less than one-half who have done so used a professional forester for their last harvest (33% of the family forest owners who own 43% of the family forestland). Messages about how a professional forester can help conserve the aesthetics and other noncommercial values of forests while bringing a financial return to the landowner would most likely be effective for the woodland retreat, working the land, and supplemental income owners with the financial attributes being stressed more for the supplemental income owners and least for the woodland retreat owners. Most of the owners who own most of the family forestland (70% of the family forest owners who own 70% of the family forestland) are conservation minded or appear to be interested in protecting their land from development, but few have taken the concrete stop of placing a conservation easement on their land (3% of the family forest owners who own 5% of the family forestland). Interest and concern about passing their land on to their heirs is high (76% of the family forest owners who own 78% of the family forestland). Most owners would be receptive to messages that emphasize the value that good stewardship can bring to keeping the land in forest for future generations.

Attitudinal Segmentation of Family Forest Owners

Family forest owners have varying reasons for owning their land and differing levels of engagement with it. Understanding the variety of family forest owners is critical to developing a well-focused and effective communications program that speaks to different kinds of people with different motivations.

To identify how 10- to 999-ac family forest owners "cluster" with regard to their land-related attitudes and goals, a number of multivariate, hierarchical cluster analyses were performed on the NWOS data set. A four-segment solution produced the most coherent segments, statistically and in terms of face validity. We named them woodland retreat, working the land, supplemental income, and ready to sell owners (Figure 2). These titles were based on unifying characteristics within—and distinguishing characteristics among—the groups.

The analysis used NWOS data on landowners' reasons for owning forestland and future plans for their land to identify the groups and classify the respondents. Respondents were asked to rate 12 potential reasons (listed in Table 1) for owning forestland using a 7-point Likert scale with 1 being "very important" and 7 being "not important" (Butler et al. 2005). Missing values were replaced using multiple imputation

(Rubin 1987). The values were recoded so that higher values corresponded to higher importance and the responses were standardized using the mean of each respondent.

Principal component analysis (e.g., Johnson and Wichern [1982]), equamax rotation with Kaiser normalization, was used to reduce the dimensionality of the future plans. The first four principal components (Table 2) were used as input in the cluster analysis.

Another multivariate statistical technique (hierarchical clustering; Ward [1963]) was used to group respondents based on importance ratings, standardized means of the importance ratings, and future plans factor scores from the principal component analysis. Initially, scores were standardized within respondents (ipsatized). Solutions with various numbers of clusters were inspected for intuitive appeal. The most promising were used to define the clusters (i.e., generate seed files for k-means clustering; Hartigan [1975]). The transformed input data (using nonipsatized scores) were used to generate the final four-segment solution.

Woodland Retreat Owners. The plurality of family forest owners (40% of the family forest owners who own 30% of the family forestland) are woodland retreat owners (Table 1; Figure 2). In general, they own smaller parcels and live on their land. They are very likely to indicate amenity values (e.g., aesthetics and privacy) as the most important reasons for owning their forestland and are unlikely to indicate financial motivations.

Working the Land Owners. The basic tenets of multiple-use land management are manifest by the family forest owners in the working the land group (22% of the family forest owners who own 25% of the family forestland). They are interested in a broad array of forest benefits including scenic, recreational, and financial. Their multiple objectives may make forest management more challenging, but it also provides them with more options. They have the lowest average incomes and lowest levels of education.

Supplemental Income Owners. The highest ratings for the land investment and timber production ownership objectives are by the supplemental income owners (15% of the family forest owners who own 22% of the family forestland). These are the most active forest owners; they are the most likely to have harvested trees, participated in a cost-share program, have their land green certified, and have a conservation easement
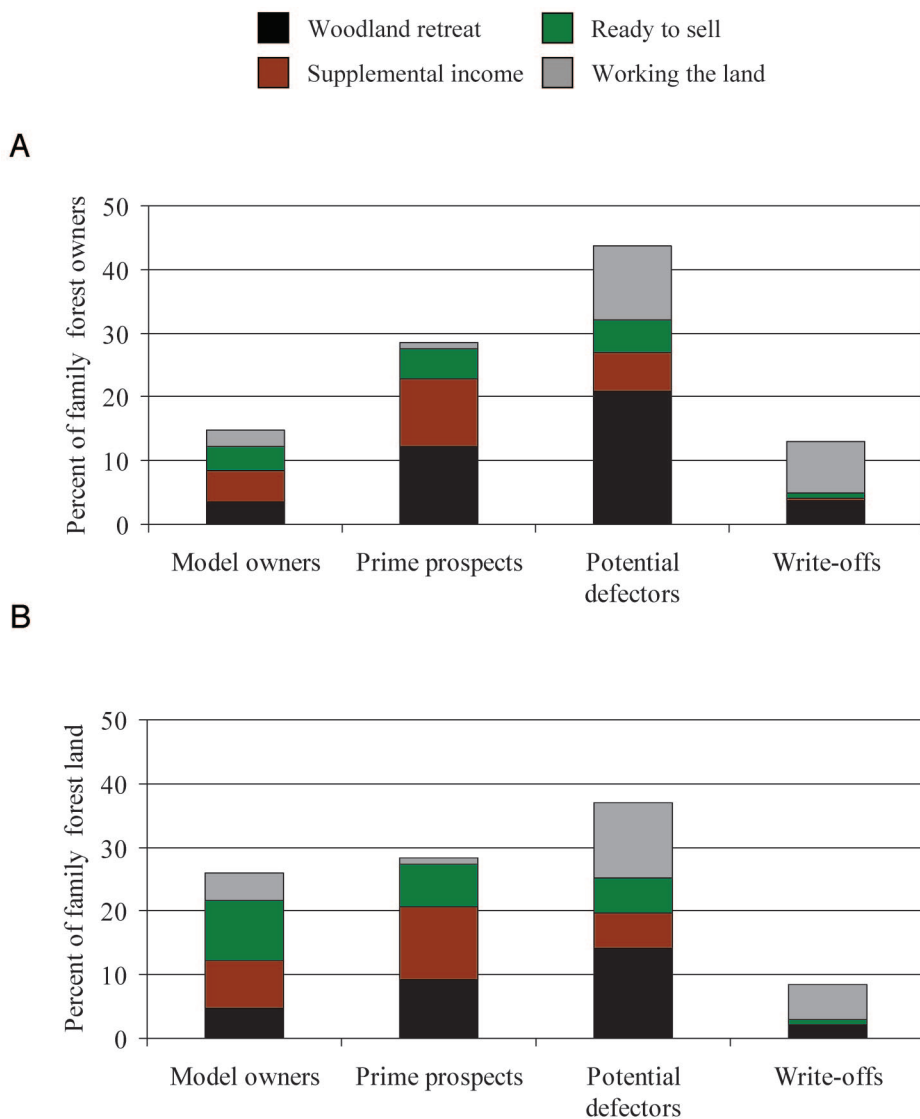
Figure 4. Distribution of (A) number of owners and (B) area of forestland by prime prospect group by attitudinal group for family forest owners with 10- to 999-ac forest holdings in the coterminous United States.

on their land. Their forest holdings are, on average, substantially larger than those of the other groups.

Ready to Sell Owners. A uniting feature of the ready to sell group (23% of the family forest owners who own 23% of the family forestland) is the fact that they were the least likely to rate any of the ownership objectives highly. They are the oldest group of owners and are more likely to be absentee owners. They are also the most likely to plan to sell their land within the next 5 years.

Prime Prospects Analysis

Resources are scarce and need to be used wisely, so it is important to understand how to most efficiently target outreach and other efforts. A prime prospects analysis sep-

arates the target audience into four categories based on their current levels of engagement and interest (Figure 3).

The first step of the analysis was to identify, a priori, "model owners" and "write-offs" in the NWOS data set. Model owners are those people who exhibit behaviors consistent with good land stewardship (i.e., a high level of engagement) and their interests and attitudes are consistent with sustainable management (i.e., a high level of interest). Write-offs are the polar opposite; they exhibit low levels of engagement and low levels of interest.

Quantifying levels of engagement and interest was a difficult task and involved some subjectivity. Selection criteria were based on data availability, analyses of differ-

ent combinations of input variables and different cutoff levels, and consultation with a broad group of family forest owner experts (i.e., the SFFI Advisory Committee). The final methods presented here were the most useful and appealing given the data available and were deemed acceptable by the experts.

Level of engagement is an indicator of how well family forest owners participate in "best practices." This is not related to active forest management (e.g., timber harvesting), but active thinking about one's forest. As a proxy for engagement, we calculated

$$EN = CE + (2 \times GC) + CS + PF + MP + AD$$

where EN = level of engagement (ranges from 0 to 7); CE = 1 if they have a conservation easement, 0 otherwise; GC = 1 if their land is green certified, 0 otherwise; CS = 1 if they participated in a cost-share program in the previous 5 years, 0 otherwise; PF = 1 if they used a professional forester during their most recent timber harvest, 0 otherwise; MP = 1 if they have a written forest management plan, 0 otherwise; and AD = 1 if they received forestry advice in the previous 5 years, 0 otherwise.

Level of interest is an indicator of owners' receptiveness to sound forest management. We defined it as

$$IN = OBJ_{NAT} + OBJ_{NTF} + OBJ_{FIR} + OBJ_{TIM} + OBJ_{HUN} + OBJ_{REC} + PLN_{CE} + PLN_{GE} + PLN_{TIM}$$

where IN = level of interest (ranges from 0 to 9); OBJ_{NAT} = 1 if they rated protection of nature and biological diversity as important,* 0 otherwise; OBJ_{NTF} = 1 if they rated cultivation/collection of nontimber forest products as important,* 0 otherwise; OBJ_{FIR} = 1 if they rated production of firewood or biofuel as important,* 0 otherwise; OBJ_{TIM} = 1 if they rated production of sawlogs, pulpwood, other timber products as important,* 0 otherwise; OBJ_{HUN} = 1 if they rated hunting or fishing as important,* 0 otherwise; OBJ_{REC} = 1 if they rated recreation other than hunting or fishing as important,* 0 otherwise; PLN_{CE} = 1 if they plan to have a conservation easement, 0 otherwise; PLN_{GE} = 1 if they plan to be green certified, 0 otherwise; and PLN_{TIM} = 1 if they plan to harvest sawlogs or pulpwood, 0 otherwise. *Important implies they rated the objective as 1 or 2 on a 7-point Likert scale where 1 is very important and 7 is not important.

Figure 5. Examples of graphics that could be used to encourage people to keep family forests as family forests. The bases for these posters were developed by John DuPlissis, Bill Banzhaf, and other participants at the 2006 SFFI workshop.

Model owners were defined as those with EN ≥ 2 and IN ≥ 3. Write-offs were defined as owners with EN = 0 and IN = 0.

Discriminant function analysis (e.g., Huberty [1994]) was used to identify the remaining respondents (i.e., those respondents not identified as model owners or write-offs) as either prime prospects or potential defectors. The respondents' ratings of reasons for owning forestland related to biodiversity, nontimber forest products, firewood production, timber production, hunting and fishing, and recreation other than hunting and fishing were determined to be the best predictors for the discriminant function analysis. Again, missing values were replaced using multiple imputation (Rubin 1987). Ratings of high importance (i.e., value of 1 or 2 on the 7-point Likert scale used on the NWOS) were recoded as 1, and all others as 0.

These rescored importance ratings were used as input variables to assign owners to groups.

Model Owners. Model owners include people who are actively engaged in making good land stewardship decisions and show a strong inclination for continuing to do so. They represent 15% of the family forest owners who own 26% of the family forestland (Figure 4). From a social marketing perspective, these are not people whom you would want to target for extension or outreach programs, because they are already the most active and engaged landowners. You may want to use them as conduits for reaching other owners, but besides this, you would only want to expend enough resources to make sure they keep doing what they are doing.

Prime Prospects. The easiest and most efficient group of people to influence will be the prime prospects who make up 29% of the family forest owners and own 28% of the family forestland. These are people who are not currently engaged in making land stewardship decisions, but who are likely to be interested in doing so because they share predictive attitudinal and demographic characteristics with the model owners.

Potential Defectors. The next most efficient group to concentrate on is the potential defectors (44% of family forest owners who own 37% of the family forestland). They are currently performing some of the desired behaviors, but they are likely to be losing interest in doing so or are otherwise facing obstacles. Their attitudinal and demographic characteristics are similar to those of the write-offs.

Write-Offs. The most difficult people to influence will be the write-offs (13% of family forest owners who own 9% of the family forestland). These people are not performing the desired behaviors and they do not show much interest in doing so.

Media Usage Analysis

We used the general demographic profile of family forest owners to identify their media habits using Mediamark Research, Inc.'s, MRI Database (MRI 2006). Based on the available MRI categories, media habits for white men aged 55 years or older who own 3 ac or more of land were used to represent the media habits of the average family forest owner.

Of the five media types measured, two, newspapers and television, emerged as the most promising avenues through which to communicate with family forest owners. Magazines, radio, and Internet are not nearly as influential with this segment of the population.

Stories and advertisements placed in newspapers are particularly likely to be read, absorbed, and trusted. The target population included many frequent newspaper readers (50% fall in the top two quintiles of newspaper readership compared with 35% of the general population) and solid majorities agree that newspapers "keep [them] up-to-date" (73%) and "are a good source of learning" (70%). Newspapers tie with television as the "media trusted the most" (31%). The target population also has the nicest things to say, compared with other media, about advertising placed in newspapers: 58% agree that newspaper advertising "provides me with useful information about new products and services." Few say such ads

"Remember . . . Only You Can Prevent Wildfires"

Smokey Bear as an example of the eight P's of social marketing.

1. Product. Prevention of unintended forest fires.
2. Price. People needing to be more cautious and lose some freedoms (e.g., more restrictions on when and where fires are permitted).
3. Place. Television, ranger stations, schools, and so on.
4. Promotion. The use of the charismatic Smokey Bear and the catchy phrase "Only you can prevent forest fires," which changed to "Only you can prevent wildfires" in 2001.
5. Publics. All people who perform potentially dangerous fire-related activities in forests and the people with whom they interact.
6. Partnerships. The US Forest Service and the National Association of State Foresters are the primary partners.
7. Policy. Laws preventing arson, criminal prosecution of arsonist, the Healthy Forests Initiative, and more.
8. Purse strings. The primary partners pay for much of the physical promotional materials and they rely on the National Ad Council to communicate their message via mass media.

have "no credibility" (10%) or are "all alike" (16%).

Many in the target population are frequent television viewers. Although television is unlikely to be a key advertising outlet for many forestry initiatives, it could be an important focus for story placement efforts. Nearly one-half of the target population

(45%) falls in the top two quintiles of television viewership, compared with just 26% of the general population. Solid majorities agree that television "keeps me up-to-date" (78%), "is a good source of learning" (74%), and "gives me good ideas" (69%). On a cautionary note, it should be highlighted that the target population is relatively likely to say television advertisements have "no credibility" (37%) or are "all alike" (31%).

This population is less likely than other Americans to be frequent magazine readers (28% versus 42%, respectively) or radio listeners (29% versus 48%, respectively). The Internet is the advertising medium least likely to provide the target population with "useful information about new products and services" (12% agree with the statement).

The target population is likely to be involved with civic groups, particularly religious (11%), veterans (10%), charitable (9%), and fraternal organizations (7%). This suggests a proclivity to "get involved" and might mean the target population would be receptive to messages about land stewardship, particularly if pitched as a community effort and disseminated through one of these types of organizations.

Discussion

The SFFI is far from the first research effort to study and classify family forest owners. However, it does differ from previous studies, primarily because of our explicit social marketing objective and our national scope. The only other family forest–related project that we are aware of that explicitly used a social marketing approach is by Tyson et al. (1998). They used a social marketing approach to increase the number of stewardship plans by family forest owners in south central Connecticut. They performed a prime prospect analysis, but they did not do a general attitudinal segmentation of the population. In the context of urban forestry, Grove et al. (2006) showed that landowners' attitudes were important predictors of vegetation patterns in urban environments and suggested the use of social marketing techniques to increase outreach to these owners.

Previous studies have shown that family forest owners are a heterogeneous group, but no previously published studies have attempted to define a categorization system that covers family forest owners across the United States. The goal of the classification studies have included understanding family forest owners' attitudes (e.g., Finley and Kittredge [2006] and Salmon et al. [2006]) and

behaviors, usually timber harvesting or tree-planting (Beach et al. 2005). Most of these studies have been at the state or substate level. Multivariate statistics is a common method used to classify family forest owners (Table 3) although other methods also have been used (e.g., Kurtz and Lewis [1981] and Thompson and Jones [1981]). The studies examined different regions, developed different numbers of groups, and used different names, but some commonalities are apparent (Table 3). Classifying family forest owners as woodland retreat, working the land, supplemental income, and ready to sell owners is compatible with most previous studies and has a number of advantages.

In addition, utility maximization theory provides theoretical support for a four-group solution (Butler 2005). According to this economic theory, family forest owners maximize their satisfaction or utility from their forestland by optimizing profit and amenity values. Profit values include monetary rewards generated from timber harvesting, real estate transactions, hunting leases, and other activities. Amenity values include aesthetics, privacy, recreation, and other nonmonetary rewards. Most owners can be placed along the profit-amenity continuum and thus categorized into three broad groups: profit, multiple-objective, and amenity owners. These categories are analogous to our supplemental income, working the land, and woodland retreat categories, respectively. Owners who can not be classified using the profit-amenity continuum fall into an "other" category that is analogous to our ready to sell group.

The four family forest owner groups we identified provide a means by which outreach, policies, and services can be tailored. This refinement allows identification of key landowner characteristics and the "hot button" issues to which they will be most receptive. Woodland retreat owners are most interested in the aesthetics and privacy aspects related to their land. Information and incentives related to financial gains will be fruitful for the supplemental income owners and, to a lesser extent, the working the land owners. Ready to sell owners will be difficult to target because of their general lack of strong opinions about their land.

The potential effectiveness of a program can be ascertained by looking at the results from the prime prospects analysis. The fact that approximately one-third of the family forest owners (29% of the family forest owners who own 28% of the family for-

Table 3. Comparison of selected studies that have used multivariate cluster analysis techniques to categorize family forest owners.

Study	Study area	Family forest owner category			
		Supplemental income	Working the land	Woodland retreat	Ready to sell
Finley and Kittredge (2006)	Twenty randomly selected towns in Massachusetts		Thoreau	Muir	Jane Doe
Kline et al. (2000)	Western Oregon and western Washington	Timber production	Multiple-objective	Recreation; passive[a]	Passive[a]
Kluender and Walkingstick (2000)	Twelve randomly selected counties in Arkansas	Timber managers	Poor rural residents	Resident conservationists; affluent weekenders	
Kuuluvainen et al. (1996)	Southern Finland	Investor; self-employed	Multiple-objective	Recreation	
Salmon et al. (2006)	Utah's Wasatch, Carbon, and Iron counties		Multiple-objective	Amenity-focused; Passive[a]	Passive[a]

[a] Share attributes with both woodland retreat and ready to sell owner groups.

estland) are "prime prospects" suggests that at least this many owners could be moved toward better stewardship of their lands. The additional 44% of the owners (who own 37% of the family forestland) who are potential defectors indicates that there is a substantial need for this work now. For model owners, it is important to keep them going down the right track and potentially they can be used to influence other owners. Although the prime prospect analysis indicates that the write-offs will be very difficult to influence, they may represent a critical part of the target audience, particularly if they own lands that have high conservation value in areas with strong development pressures.

By cross-tabulating the attitudinal and prime prospects groups (Figures 2 and 4), further understanding can be gleaned. Most of the attitudinal groups are found in most of the prime prospect groups, but the relative proportions vary considerably. For example, the prime prospects group is predominantly composed of woodland retreat and supplemental income owners and the write-offs are almost exclusively working the land and woodland retreat owners. Knowing that the prime prospect owners are predominantly woodland retreat and supplemental income owners is useful for designing efficient *and* effective outreach, policies, and services.

Based on our media usage analysis, messages should not come from sources easily labeled as "environmentalist," "tree hugging," and the like. Not only do family forest owners tend to be older, white, and men, they also (predictably) tend to be politically conservative (based on the MRI data, 44% consider themselves either "very" or "somewhat conservative"). Moreover, they are likely to say traditional values such as respecting ancestors, duty, and "saving face"

are very important to them. A conservative icon might be an effective celebrity spokesman in many parts of the country.

Nevertheless, this population does possess strong environmentalist values. The MRI data indicate that two in three say they are willing to pay more for a product that is environmentally safe (65%), that they are willing to give up convenience in return for a product that is environmentally safe (65%), and that helping to preserve nature is very important to them (63%). Six in 10 (62%) also say working for the welfare of society is very important to them. Environmentalism and social involvement are useful "buttons" to push, as long as they are done in the right way.

This population feels less confident than the general public about their financial status and prospects. Only 21% say they are better off now than they were 12 months ago (compared with 30% of the general public) according to the MRI data analysis. Looking ahead, only 22% predict they will be better off in 12 months; the general public is nearly twice as likely to make the same assessment (41%). Messages that tout the prospect for increased financial security might be particularly effective.

Family legacy is both a major objective and a great concern for many of these owners. This, coupled with the fact that many of them are older, indicates that messages related to inheritance and legacies (e.g., Figure 5) will be well received.

This population is cautious and more likely to be followers than leaders. Therefore, messages should emphasize becoming part of a venerable tradition rather than forging a new solution. The MRI data indicate nearly one-half say they "often seek the advice of others before making a purchase" (46%), 4 in 10 "usually like to wait until other people have tried things before I try

them myself" (41% versus 32% of the general public), only 38% say they "like to lead others" (compared with 46% of the general public), and a mere 19% say "I'm always one of the first of my friends to try new products or services."

Summary and Conclusions

The goal of this research was not to provide a single answer to communicating and influencing family forest owners. First, there is no single answer; multifaceted, long-term approaches are needed. Second, the specific messages will depend on the objectives of the organizations implementing the programs. What we did want to do is provide information that can be used by any organization to help them be more strategic in using scarce resources.

The end result of the SFFI research will not provide a solution to the daunting problems facing the forests and forests owners of the United States. Hopefully, what we will be able to do is help the forestry community be more effective and efficient in identifying, communicating with, and influencing the prime prospects and other land owners. A social marketing campaign can get people to take the first step, but there needs to be additional resources and methods to guide them the rest of the way. We need to take the complex reasons for why we need to conserve forests and translate them into messages that are simple, salient, and give the owners a reason to enforce or change their attitudes and behaviors.

A sound market segmentation will enable the forestry community to more efficiently target the right messages through the right channels from the most credible sources to the specific people who are most likely to be interested and responsive. Tayloring efforts for the specific characteristics of woodland retreat, working the land, sup-

plemental income, and ready to sell owners will produce more effective messages and programs. By assessing the relative effectiveness of targeting specific segments, resources can be allocated more efficiently. The diversity of family forest owners must be recognized and embraced and programs must be developed that are suited to their specific characteristics, needs, and desires.

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