

The Diverse Values and Motivations of Family Forest Owners in the United States: An Analysis of an Open-ended Question in the National Woodland Owner Survey

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Abstract The number of family forest owners in the USA has increased continuously in recent decades, and the fate of much of US forests lies in the hands of this diverse and dynamic group of people. The National Woodland Owner Survey (NWOS) is a recurring and comprehensive national survey of US private forest owners, including family forest owners. The NWOS includes an open-ended question that explores forest owners' motivations and values related to their woodland. The open-ended question format allows respondents to express their own frame of reference in their own words, rather than respond to predetermined, fixed-response categories of motivations. This paper describes the system of values and motivations that emerged from analysis of responses to the open-ended question, and compares these findings to a closed-ended, fixed-response question also included in the NWOS. Diverse and multidimensional motives were expressed by respondents. Eight broad categories and 37 sub-categories of motives and values emerged from analysis of the open-ended question. The fixed categories of the closed-ended question failed to capture many dimensions of forest owner motivations. A more detailed, qualitative understanding of forest owner motivations and values is needed to provide extension foresters and others who work with family

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forest owners important insights and help guide public policy related to private forestland. Open-ended survey questions can help provide such understanding.

Keywords Woodland ownership reasons · Forest owner typologies · Motivational categories · Content analysis · Ecosystem services

Introduction

Forest ownership patterns in the USA have changed dramatically over the past two decades. As forest industry has divested itself of forest holdings, the number of family forest owners nationwide has risen (Butler and Leatherberry 2004; Zhang et al. 2009). Over half of the US forestland is privately owned and of this, nearly two-thirds—an area of 108 M ha or 267 M ac—is owned by families, individuals, estates, trusts, family partnerships and other unincorporated groups of individuals who own at least 1 ac of forestland, collectively referred to as family forest owners (Butler 2008). The fate of much of US forests lies in the hands of the 10.4 M owners who make up this diverse and dynamic group of people. Traditionally, family forest owners, sometimes referred to as non-industrial private forest (NIPF) owners, have been treated as a homogenous group, but this fails to capture the breadth of ownership motivations that are key to understanding family forest owners and designing programs and services that meet their needs (Butler et al. 2007).

Surveys of forest owners have been conducted in the USA since at least the first half of the twentieth century (Hasel and Ploi 1949). Forest owner surveys in the USA and other countries have traditionally concentrated on their contribution to timber supply. Binkley (1981) was one of the first to conceptualize and operationalize the utility maximization models that have been widely used (Beach et al. 2005). The idea of segmenting private forest owners based on ownership objectives and motivations, be it for timber harvesting (Kuuluvainen et al. 1996) or other purposes (Finley and Kittredge 2006; Butler et al. 2007), has subsequently become prevalent. While most of these studies have taken a quantitative approach, the limitations of these methods have been noted and the virtues of a qualitative approach have been extolled (e.g. by Bliss and Martin 1989).

The National Woodland Owner Survey (NWOS), conducted by the Forest Inventory and Analysis (FIA) program of the USDA Forest Service, is a recurring and comprehensive national survey of private forest owners. The NWOS is a social complement to the FIA program's biologic resource inventory and contacts approximately 6,500 private forest owners from across the USA each year (Butler et al. 2005). The purpose is to provide educators, service providers, policy administrators, researchers and others interested in family forest owners with an understanding of such issues as who are the forest owners, why do they own forestlands, how are forestlands used, and what are the owners' plans for their forestland.

This study focuses on one of many issues addressed in the NWOS, namely reasons for owning forestland. Given the large number of family forest owners and the expectation that their numbers will continue to increase, a closer look at landowner values, motivations and reasons for owning forestland is warranted. A

better understanding of the values and motivations for owning forestland can help extension foresters design better educational programs, private consultants to offer improved services more tailored to their customers' needs, and policy analysts to design and implement more effective policies. The NWOS includes two questions that directly address landowner values and motivations. First, an open-ended question asks 'What is the main reason that you own woodland?' Open-ended survey questions allow respondents to express their own frame of reference and response categories in the form of textual data written in their own words. Questions of this nature can provide a rich source of information about forest owners' motivations and values, but responses to this NWOS question have not previously been analyzed. Second, the NWOS includes a closed-ended question (with 12 fixed response alternatives rated on a 7-point Likert scale) designed to elicit landowners' reasons for owning woodland. The inclusion of both open-ended and closed-ended items in a survey instrument is a type of mixed-methods research that has the potential to realize the benefits of both qualitative and quantitative research methods in a cost-effective manner (Vitale et al. 2008).

Debate about the relative strengths, weaknesses and appropriateness of open-ended versus closed-ended survey questions goes back to the early days of survey research, when two divisions of the US Bureau of Intelligence clashed over this issue in the 1940s (Converse 1984). Closed-ended, fixed response survey questions became dominant over time because they are considered easier and cheaper to analyze (Geer 1991). But there is some evidence that the reliability and validity of open-ended questions exceeds that of closed-ended questions in some cases (e.g. see Visser et al. 2000) and that open-ended questions result in a deeper and more nuanced understanding of the social phenomenon being studied (Esses and Maio 2002). Open-ended questions can also help avoid 'priming effects' in which the information provided to respondents affects their answers. For example, Schuman and Presser (1981) found that when a representative sample of parents were asked what they consider 'the most important thing for children to prepare them for life', 61% chose 'to think for themselves' when this alternative was included on a list of responses, but only 4.6% volunteered a response that could be assigned to this category in an open-ended version of the same question.

Most studies of family forest owners have used quantitative data (from closed-ended questions) to determine broad categories for characterizing forest owners and their motivations. Data reduction techniques, such as principal components analysis, followed by a data assignment technique, such as k-means clustering (an approach pioneered by Kuuluvainen et al. 1996), have been adopted by many researchers. The number of forest owner groups is subjective, but most researchers have identified 3 or 4. For example, Butler et al. (2007) classified family forest owners as supplemental income, working the land, woodland retreat, or ready to sell (later renamed uninvolved). Kline et al. (2000) used timber production, multiple-objective, recreation, and passive categories. Kluender and Walkingstick (2000) named the groups as timber managers, poor rural residents, resident conservationists, and affluent weekenders. Kuuluvainen et al. (1996) termed their groups investors, self-employed, multiple-objective and recreation. Salmon et al. (2006) identified multiple-objective, amenity-focused and passive groups. Finley and

Kittredge (2006) waxed poetic and named their groups Thoreau, Muir and Jane Doe. Overall, these and many other studies generally categorize family forest owners into a group that is predominantly financially motivated, a group that is predominantly amenity motivated, a group that has a mix of financial and amenity motivations, and a group that has neither.

The main objective of the study presented here was to analyze the responses to the open-ended NWOS question in order to shed light on the full range of values and motivations for family forestland ownership in the USA. A typology of the diverse and multidimensional motivations expressed by respondents was developed, and the relative frequency of expression of these motivations was examined. A secondary objective was to assess the relative merits of the open-ended NWOS question vis-à-vis the closed-ended question addressing landowner motivations, i.e. to determine whether responses from the open-ended question provide additional or different insights into landowners' reasons for ownership.

Research Method

National forest ownership surveys in the USA were conducted in 1978 (Birch et al. 1982), 1993 (Birch 1996) and 2006 (Butler 2008). Although the objectives have remained consistent, the sampling methodology and specific questions asked have changed. The NWOS is now implemented annually with each survey cycle lasting 5 years. The annual design means that of the full sample of approximately 30,000 randomly selected private forest owners, a randomly selected fifth of the full sample, is contacted each year. The primary survey instrument is a self-administered mail questionnaire and telephone follow-up is used to assess non-response bias and increase response rates. The standard Dillman method (Dillman 2001)—involving a pre-notice postcard followed by an initial questionnaire followed by a reminder postcard followed by a second questionnaire—is used to administer the survey. The data analyzed in this paper were collected from the 15,440 family forest owners who participated in the NWOS in the USA between 2002 and 2006. A copy of the survey instrument and details on developing the survey, the sampling design, implementation, and statistical estimation procedures can be found in Butler et al. (2005) and www.fia.fs.fed.us/nwos.

The open coding method was used to identify and categorize ideas expressed by respondents, an approach that is well suited to capture diverse themes and uncover unanticipated ideas. Strauss and Corbin (1998, p. 101) defined open coding as 'The analytic process through which concepts are identified and their properties and dimensions are discovered in data'. Briefly, this method involves a process of a careful reading of the textual data (or in this study, a random sample of the data due to the unusually large volume of text from more than 15,000 respondents), developing a draft outline of recurring themes, reconciling differences between the outlines of the various analysts, coding the entire database of text, and cross-referencing each theme back to the original text. Details of the open coding method are provided in Strauss and Corbin (1998).

Many respondents listed multiple motivations and values, even though the question asked for the ‘main reason’ for owning their woodland. The first three reasons were coded if multiple reasons were mentioned. Few responses mentioned more than three reasons. Some responses consisted of blended or intermingled reasons for owning forestland, rather than discrete reasons. In these cases, the response was coded for each of the individual reasons. For example, the response ‘investment for children’ was coded as both *Non-specific Investment* and *Family Legacy*, and the response ‘For the beauty of God’s creation’ was coded for both *Aesthetic* value and *Spiritual/Religious* value.

Results and Discussion

This section describes the many categories of values and motivations mentioned by respondents to the open-ended NWOS question. This is followed by an exposition of the frequency of expression of woodland owner motivations, then a comparison of responses from the open-ended question and the closed-ended questions.

Forest Owner Values and Motivations

Responses to the open-ended question about landowners’ main motivation for forest ownership ranged from single words (e.g. ‘hunting’, ‘firewood’) to detailed descriptions of multiple motivations and deeply held forest values. NWOS respondents revealed a wide range of diverse values and motivations for owning forestland. Eight broad categories emerged, with 37 sub-categories of specific values and motivations (Fig. 1).

Environmental Values

A variety of values and motivations related to protecting the forest environment or benefits directly provided by forest ecosystems were mentioned by about 7% of family forest owners as a reason for owning their land. This broad value category included four dimensions or sub-categories that were coded separately. First, *Environmental Protection* included wide-ranging expressions of the importance of protection, preservation, conservation or stewardship of the land. Examples include: ‘I am a steward of the land, not just an owner’, ‘to protect it from being destroyed’, ‘holds world together’ and ‘reforestation, have planted 1,800 seedlings’. Owning woodland to *Stop Development* consisted of expressions of the desire to prevent irresponsible or encroaching development by maintaining undeveloped forest, or the view that the woodland serves as a buffer between the landowner and nearby developed land. Examples include: ‘Much of the development in my area is irresponsible and I want to do my best to preserve natural habitat’, ‘To keep it away from developers and other environmental rapists’ and ‘We like woodland and it makes us sad how it’s all being developed’.

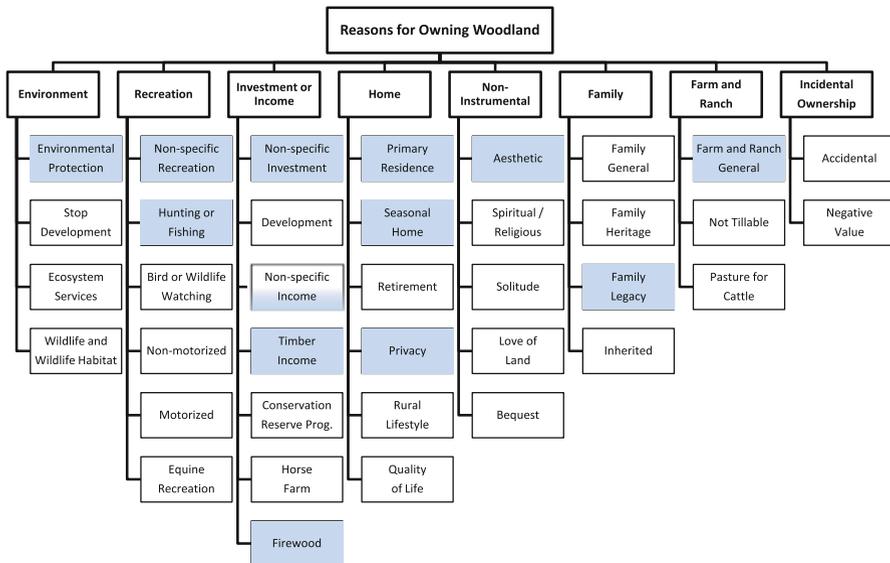


Fig. 1 Broad categories of motivations and values for owning woodland, and sub-categories related to each. Shaded boxes represent the overlap between the NWOS open-ended question responses and the 12 fixed responses of the closed-ended question. *Non-specific Income* is partially shaded because the fixed response category 'non-timber forest products' is one of several elements included in *Non-specific Income*. *Primary Residence* and *Seasonal Home* are grouped together as a single fixed response category

The motivation *Ecosystem Services* included a variety of tangible ecological benefits that woodlands provide, such as providing a windbreak, shade for cattle or the landowner's home, soil stabilization and preventing erosion, clean air and water, flood control, and carbon sequestration.¹ Examples of expressions of *Ecosystem Services* include: 'shade and coolness, comfort', 'aid soil conservation, stabilizes stream bank', 'I feel by growing trees I am helping to conserve our top soil and to remove the excessive CO₂ from the air' and 'its contribution to water supply protection and preservation of air quality'.

Finally, *Wildlife and Wildlife Habitat* included statements of the value of specific wildlife species, non-specific references to wildlife, and wildlife habitat and habitat improvement, but no mention of hunting or viewing wildlife, which were coded separately. Examples include: 'to provide homes for wildlife', 'wildlife enhancement', 'for birds and animals' and 'give the birds and animals a safe haven—all creatures deserve a place in the world'.

¹ In recent years, the definition of ecosystem services has expanded to include all direct and indirect benefits and values of the environment (e.g. Millennium Ecosystem Assessment 2005). A narrower approach to defining ecosystem services has been taken in this study, focusing on tangible ecological benefits.

Forest-Based Recreation

Recreation was a second broad category of landowner values and motivations expressed by about 21% of respondents (Fig. 1), which included six sub-categories. *Non-specific Recreation* is a catch-all category for recreation that does not fit in the specific and more common categories listed below. This includes general mentions of outdoor recreation, such as ‘recreation’ and ‘personal recreation’, as well as a variety of infrequently mentioned specific recreation activities including ‘picnicking’ and ‘shoot skeet and just relax’. *Hunting or Fishing* was a frequently expressed motivation for owning woodland and included general references to hunting, fishing and trapping, and hunting of specific animals. Examples include ‘fishing,’ ‘love to hunt’, ‘hunting deer, small game, turkeys’ and ‘less crowded hunting’. *Bird or Wildlife Watching* included all mentions of watching, viewing, seeing or enjoying wildlife. General mentions of ‘wildlife’ were coded as the sub-category *Wildlife and Wildlife Habitat* above rather than here. Examples of *Bird or Wildlife Watching* include: ‘bird watching’, ‘watching wild animals and birds’, ‘I enjoy seeing wildlife’ and ‘to enjoy wildlife’.

Non-motorized Recreation covered the full gamut of activities such as walking, hiking, snow shoeing, cross country skiing and mountain biking. Examples include ‘enjoy walking through the woods’, ‘love to walk the woods and trails’, ‘cross country ski’ and ‘riding bikes’. *Motorized Recreation* included all motorized recreation activities, such as ‘ride motorcycles’, ‘snowmobile’, ‘dirt bike riding, 4 wheeler riding’, ‘ATVing’ and ‘4 × 4 riding’. Lastly, *Equine Recreation* encompasses general mentions of horses and specific reference to equine recreation, but not descriptions of horse farms or commercial horse operations, which were included as a sub-category under ‘Investment or Income’. Examples include ‘for my kids to ride their horses’, ‘riding our horses’ and ‘enjoy life in the country, have a few horses’.

Investment or Income

A third broad category of landowner motivations and values shown in Fig. 1, mentioned by about 21% of respondents, is concerned with present or future monetary gain from forestland ownership. Eight sub-categories of Investment or Income emerged from the analysis. *Non-specific Investment* included a wide range of general expressions of the importance of woodlands as investments, for example ‘safest place to put money’, ‘land is a good investment’, ‘hedge against inflation’, ‘college fund’ and ‘good nest egg for future’. *Development* was a second sub-category of Investment or Income. In most cases, landowners did not specify the type of development they planned for their woodland, but some specified residential, commercial, industrial or agricultural development. Examples of expressions of *Development* include ‘development property’, ‘future development’, ‘industrial site potential’ and ‘purchased for development of a golf course and homesites’.

Non-specific Income includes general references to income generation benefits of woodlands and infrequently mentioned specific sources of forest-based income.

Examples include ‘to make money’, ‘livelihood’, ‘revenue generation’, ‘income for retirement’, ‘lease it for cattle grazing’ and ‘income from hunting leases’. *Timber Income* includes all mentions of producing wood for sale or for supplying a family-owned sawmill, such as ‘Income from timber sales—this land has provided a living for four generations of one family. If you take care of it, it will take care of you’, ‘supply sawmill’, ‘timber revenues’ and ‘grow and sell timber’.

Several additional distinct sub-categories related to Investment or Income were found. *Firewood* for heating the landowner’s home was mentioned frequently as a reason for ownership. Examples include ‘heat with wood’ and ‘because we burn wood to heat our home’. Income from the *Conservation Reserve Program (CRP)*, a technical and financial assistance program of the US Department of Agriculture, was mentioned infrequently but coded separately because it is a unique source of income and typically involves reforestation. Examples include ‘row cropping ceased so we planted pines on CRP program’, ‘CRP provided revenue’ and ‘government payment for planting pine trees’. Finally, expressions of the sub-category *Horse Farm* were rare, but included ‘horse farm’, ‘horse trails for my horse farm’, ‘raise cattle and horses’ and ‘part of our horse ranch/farm business’.

‘Home’ as an Ownership Reason

The response category simply termed ‘Home’ was mentioned by about 20% of respondents, and included six sub-categories. *Primary Residence* refers to owning woodland because it is part of the landowner’s current or future main residence. Examples include ‘home sweet home’, ‘joins the one acre my home is on’ and ‘possible future home’. *Seasonal Home* includes woodland as a setting for a seasonal or weekend home or cabin or a potential site for a future seasonal home. Examples include ‘summer home’, ‘plan on building a cabin’, ‘cabin site’ and ‘vacation property’. *Retirement* refers to a current—or more often future—place to retire and live. Examples include ‘future retirement’, ‘to retire in the woods’ and ‘to live my retired life in the country’.

Privacy was frequently mentioned as a motivation for owning forestland. The sub-category *Privacy* focuses on separating oneself and one’s residence from neighbours. Typical expressions of this value included: ‘I like my privacy’, ‘to be semi-isolated’ and ‘no close neighbors, no screaming kids, no barking dogs, peace and quiet’. Responses coded as *Rural Lifestyle* include the value of living in the country and close to nature, as well as a disdain for urban and suburban life. Examples include ‘country life is the best’, ‘love living in the country and near nature’, ‘prefer rural vs. city or town’, ‘woodland is important to our way of life’ and ‘don’t like big city life’. *Quality of Life* is a broad sub-category of woodland ownership values, and includes non-specific expressions of enjoyment or pleasure (e.g. ‘for pleasure’, ‘just to enjoy’), pride of ownership (e.g. ‘self satisfying to own land’, ‘joy of owning it!’), general nature appreciation (e.g. ‘to enjoy nature’, ‘we’ve always been drawn to wooded properties—quality of life issue’), unspecified personal use (e.g. ‘private use’, ‘hobby’), and miscellaneous quality of life (e.g. ‘quality of life’, ‘stress management’).

Non-Instrumental Values

A fifth main category, labeled ‘Non-instrumental’ values, was expressed by about 5% of respondents. Non-instrumental value encompasses various intrinsic or intangible values and psychological experiences and benefits associated with forests. The concept of non-instrumental value focuses on the worth of something as an end in itself, rather than as a means to some end. Many people value forests non-instrumentally, in ways that go beyond their contribution to self-interested goals, in addition to valuing them instrumentally for their various benefits (Bengston and Xu 1995). Five distinct types of non-instrumental values were expressed by forest owners. Expressions of the *Aesthetic* value or beauty of woodlands ranged from understated (e.g. ‘like to look at it’, ‘nice setting’) to deeply personal or emotional (e.g. ‘raw beauty’, ‘of all the land on earth, it’s the most beautiful’). *Spiritual/Religious* values expressed landowners’ spiritual connection with their land. Examples of this motivation include ‘enjoy God’s creation’, ‘to be close to God’s creation’, ‘regenerates one’s inner spirit’ and ‘This is where my maternal grandfather bought this land in 1926—raised several children. I feel this land is sacred ground’.

The motive *Solitude*, as expressed by NWOS respondents, encompassed several closely related concepts, including solitude, peacefulness, serenity, tranquility, quiet, refuge and remoteness. *Solitude* is an inner-directed, frequently cited psychological benefit from nature. Although solitude can also be experienced negatively (Long et al. 2007), NWOS respondents only expressed it as a positive motive. Examples of the expression of solitude include ‘can’t live without trees and solitude’, ‘calming space in our lives, personal refuge’ and ‘quiet peacefulness’.

Landowners who expressed *Love of Land* have a deep affective attachment to their forestland. Examples included ‘can’t live without trees’, ‘Love the land! The great outdoors’ and ‘I love and cherish the trees’. *Bequest* value refers to the importance of passing woodland on as a legacy for future generations. The focus is on future generations in general, rather than a bequest to one’s children or grandchildren. Examples include ‘leave for future generations’, ‘to protect nature for future generations’ and ‘we own woodland because we wish to save it for others to enjoy after we are gone’. This motivation was not frequently expressed, in contrast to some previous studies of environmental values that have found bequest values to be prominent (e.g. Kempton et al. 1995). But other studies have examined environmental values in the abstract, rather than values associated with a person’s own land as in this study.

‘Family’ Motives for Forest Ownership

Family concerns were an important motivation for owning woodland for 11% of respondents. Four distinct dimensions included *Family General*, *Family Heritage*, *Family Legacy* and *Inherited*. Examples of these four sub-categories of Family include ‘part of family land’, ‘raise family’, ‘keeps family together’ (*Family General*); ‘original family homestead’, ‘Our land is very valuable to us because it has been in our family since 1818. Many of our loved ones for generations are

buried here' (*Family Heritage*); 'pass down to children', 'I might not have money to leave my children but they'll have land and that's priceless' (*Family Legacy*); and 'it was part of the inheritance', 'inherited from parents' (*Inherited*).

Farm and Ranch

The broad category Farm and Ranch was mentioned by about 12% of respondents. Three sub-categories included *Farm and Ranch General*, which typically conveys forest ownership that is incidental to farm ownership (e.g. 'it [woodland] was on the farm when I bought it', 'part of our farm,' 'farming'); *Not Tillable* indicates that woodland is a low-value part of a farm and often implies that the woodland would likely be plowed under if possible (e.g. 'unfarmable land', 'land too steep to farm'); *Pasture for Cattle* suggests that woodland is a valued part of a farm or ranch (e.g. 'to raise cattle', 'part of cattle ranch').

Incidental Ownership

Finally, Incidental Ownership included the views that the woodland was simply part of the property and ownership was incidental or *Accidental* (e.g. 'just part of the property', 'just bought it', 'won it in a divorce'), and expressions of a *Negative Value* associated with woodland (e.g. 'not worth clearing, poor land', 'cost too much to take it off'). About 3% of respondents expressed Incidental Ownership.

Frequency of Expression of Woodland Owner Motivations

Figure 2 reports the frequencies of expression of the eight broad categories of forestland ownership motivations and values. In this figure, 'number of expressions' is the sum of the expressions of all sub-categories under each broad category shown in Fig. 1. Three of the broad categories dominate, namely Investment or Income, Recreation and Home. These are clearly the 'big three' motivations for woodland

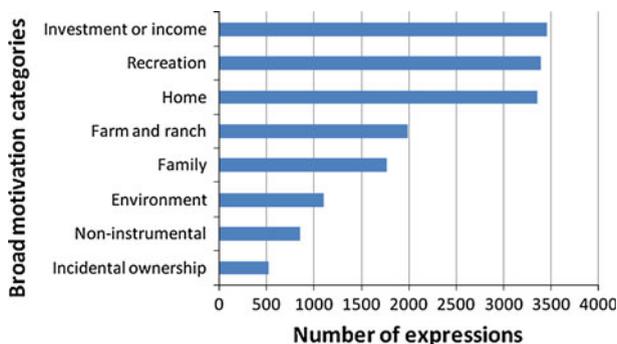


Fig. 2 Frequency of expression of broad categories of reasons for owning woodland

ownership in the USA according to these data, with these three categories accounting for 62% of all expressions in Fig. 2.

Next in frequency in Fig. 2—and expressed considerably less than the first three broad categories—was Farm and Ranch. This was a largely incidental reason for owning woodland, i.e. the woodland was simply ‘part of our farm’ or was ‘too steep to farm’. The relatively large number who expressed this as the main reason for owning their woodland suggests that a relatively large share of farmers give scant thought to their woodland, viewing it essentially as an appendage to their farms with little value in its own right.

A smaller proportion of respondents listed various family connections, collectively labeled Family, as the main reason for ownership (Fig. 2). Although this was a relatively small share of all expressions, this category consisted of profoundly personal motives such as viewing their woodland as a treasured heritage from their family’s past, a legacy for children and future family members, or a current healthy environment to raise children and promote family togetherness. Only about 7% of all motivations related to environmental concerns. This is surprising in light of the relative importance of environmental values in some studies of forest owners in the USA, especially new landowners, as observed by Rickenbach and Kittredge (2009). Dropping off further in frequency of expression was the diverse set of Non-Instrumental Values. Although not often mentioned as the main reason for ownership, non-instrumental values (such as aesthetic, spiritual, and bequest values) are strongly held and intensely personal values, and therefore may not be as readily expressed as other motivations (Bengston and Xu 1995). Finally, Incidental Ownership—easily the weakest motivation for owning woodland—was least frequently expressed.

Figures 3, 4, 5 provide a more detailed examination of the three most frequently expressed broad categories. Investment or Income is dominated by general or *Non-specific Investment* and *Timber* (Fig. 3). Taken together, these two sub-categories account for almost 80% of all expressions of Investment or Income motivations. Although *Timber* is relatively prominent in Fig. 3, it represents only 6% of total expressions of landowner motivations, suggesting that timber income is a prime motive for a small minority. A small proportion of respondents specifically mentioned *Development* plans as a reason for owning their woodland, although some portion of those who indicated the motive *Non-specific Investment* may be planning to sell their woodland for development purposes.

Figure 4 reveals that Recreation motivations are strongly dominated by *Hunting or Fishing* and general or *Non-specific Recreation*, which together account for 93% of all recreation expressions. Other Recreation sub-categories were scarcely mentioned, perhaps because the *Non-specific Recreation* sub-category is not mutually exclusive with the specific recreation sub-categories (such as *Non-Motorized Recreation*, *Bird or Wildlife Watching*). As a result, these specific types of recreation are likely unnamed components of *Non-specific Recreation*.

As shown in Fig. 5, the sub-categories *Primary Residence*, *Quality of Life*, and *Privacy* were the most salient components of the broad motivation Home, accounting for more than 80% of all Home-related responses. Living in the woods and the associated quality of life benefits are a main motivation for a significant proportion of US woodland owners.

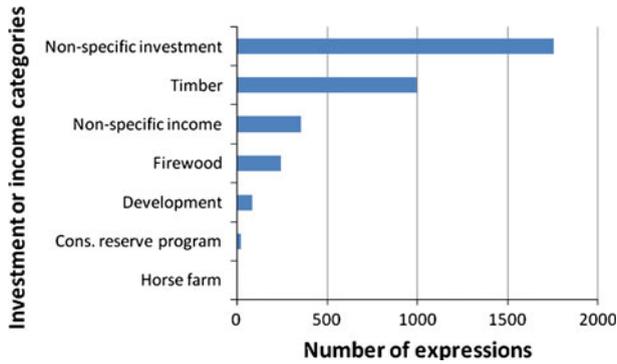


Fig. 3 Frequency of expression of sub-categories of reasons for owning woodland related to the broad category Investment or Income

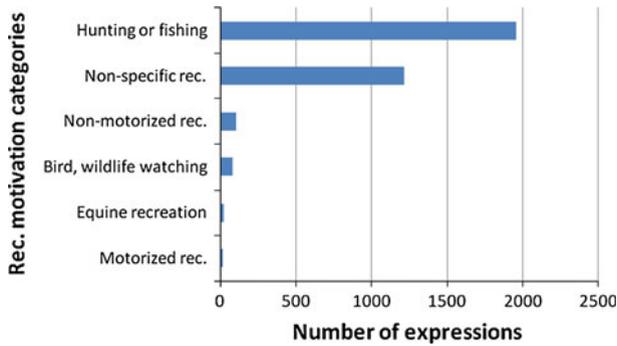


Fig. 4 Frequency of expression of sub-categories of reasons for owning woodland related to the broad category Recreation

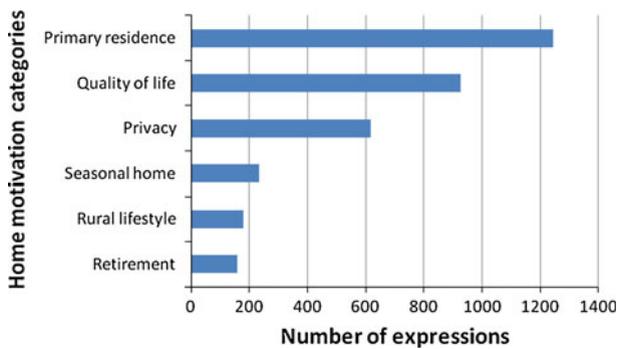


Fig. 5 Frequency of expression of sub-categories of reasons for owning woodland related to the broad category Home

Comparison with Closed-Ended NWOS Survey Question

How do the responses from the NWOS open-ended question—in which respondents were free to express their ownership motivations in their own words—compare with responses to the closed-ended or fixed response motivation question in the NWOS? Is there sufficient additional information provided by the open-ended question to warrant its continued inclusion in annual national surveys?

The 12 fixed response categories in the closed-ended question were identified from literature review of previous studies of family forest owners and in consultation with researchers in this field. The fixed response question reads as follows: ‘People own woodland for many reasons. How important are the following as reasons for why you own woodland?’ Respondents rated the importance of each potential reason or motivation on a 7-point Likert scale ranging from ‘very important’ to ‘not important’. The fixed responses to this question included the following (the comparable categories that emerged from analysis of the open-ended question responses are given in parentheses): (1) To enjoy beauty or scenery (*Aesthetic*), (2) To protect nature and biologic diversity (*Environmental Protection*), (3) For land investment (*Non-specific Investment*), (4) Part of my home or vacation home (*Primary Residence* and *Seasonal Home*), (5) Part of my farm or ranch (*Farm and Ranch General*), (6) For privacy (*Privacy*), (7) To pass land on to my children or other heirs (*Family Legacy*), (8) For cultivation/collecting of non-timber forest products (included as one component of *Non-specific Income*), (9) For production of firewood or biofuel (energy) (*Firewood*), (10) For production of sawlogs, pulpwood or other timber products (*Timber Income*), (11) For hunting or fishing (*Hunting or Fishing*), (12) For recreation, other than hunting or fishing (includes all other Recreation subcategories, including *Non-specific Recreation*, *Bird or Wildlife Watching*, *Non-motorized*, *Motorized*, and *Equine Recreation*).

The closed-ended question also included an ‘other (please specify)’ option where landowners could list additional reasons and motivations. It was found that respondents almost never completed this option. This is consistent with research—e.g. by Bishop et al. (1988) and Presser (1990)—showing that respondents tend to confine their answers to the choices offered in a closed-ended question, and ignore the opportunity to volunteer a response even if the best answer is not listed.

Figure 1 depicts the overlap between the open-ended responses and the fixed response categories, the shaded boxes representing the fixed response categories that were included in the open-ended responses. It is apparent that, in general, the fixed responses fail to capture many dimensions of forest owner motivations that emerged from analysis of responses to the open-ended question. Only one of the four components of Environmental values is shaded in Fig. 1 (*Environmental Protection*), omitting the major category *Wildlife & Wildlife Habitat* and the less frequently mentioned *Stop Development* and *Ecosystem Services* categories. For recreation-related motivations, the fixed response question lumps all types of recreation other than hunting or fishing into one broad category. In this case, the fixed response question captures almost all of the responses reflected in the open-ended question, because 93% of all recreation expressions related to *Hunting or Fishing* and *Non-specific Recreation*, as shown in Fig. 4. Under the broad category

Investment or Income, the fixed response question covers the two most frequently expressed sub-categories that emerged from the open-ended question, but does not include *Development*, *CRP* income or *Horse Farm*, and only *NTEP* gathering is included as part of *Non-specific Income*. The fixed response categories related to Home missed the sub-categories *Retirement*, *Rural Lifestyle*, and the frequently expressed motivation *Quality of Life*. *Primary Residence* and *Seasonal Home* were grouped into one fixed response category, although these two motivations may have different implications for forest use and ownership plans.

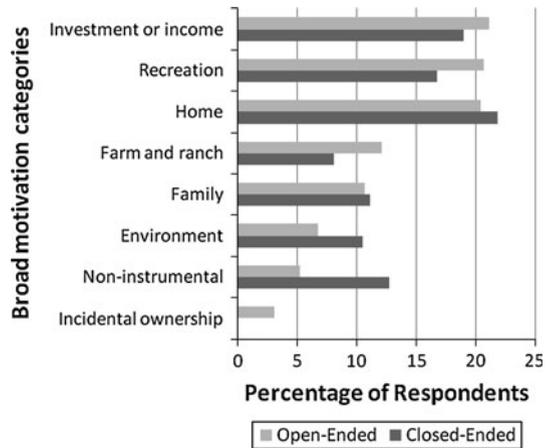
Only one of the five sub-categories of Non-instrumental values identified in the analysis of the open-ended responses was covered by the fixed response categories. Although not frequently expressed, these are deep-seated and important motivations for those who hold them. Similarly, only one of the four Family sub-categories and only one the Farm and Ranch sub-categories (*Farm and Ranch General*) is covered in the fixed responses. Finally, Incidental Ownership is not included in the fixed response categories.² Thus, the least motivated landowners are not explicitly taken into account.

Finally, Fig. 6 compares the percentages of respondents expressing the broad categories of ownership motivations for the open-and closed-ended questions. The bars for the closed-ended responses represent the percentage of respondents who rated each motivation as 1 (very important) or 2 (important) on a 7-point Likert scale. Respondents were dropped from the calculation if they failed to answer a specific item.³ Figure 6 reveals some broad similarities and also notable differences between the open-and closed-ended responses. For example, the three most frequently expressed motivations (*Investment or Income*, *Recreation* and *Home*) were the same for both types of questions, although the ranking was different. *Farm and Ranch* was identified more often in the open-ended question, and *Environment* and *Non-instrumental* motivations were expressed less frequently. The finding that *Non-instrumental* motivations were expressed more than twice as often in response to the closed-ended question is particularly striking. As observed by Bengston and Xu (1995), there are a number of reasons for the relatively low frequency of expression of *Non-instrumental* values and motivations in the open-ended question, including people being reluctant to express these deeply held and personal values if not prompted by a fixed category.

² In analyzing the closed-ended NWOS question, respondents who rate all of the fixed response categories as low importance are assigned the label 'Incidental Ownership'.

³ The 12 fixed response categories of the closed-ended question were collapsed into the eight broad categories used in this study as follows: *Investment and Income* is the sum of the fixed responses 'For land investment,' 'For production of sawlogs, pulpwood or other timber products,' 'For production of firewood or biofuel (energy),' and 'For cultivation/collection of non-timber forest products'; *Recreation* is the sum of 'For hunting or fishing' and 'For recreation other than hunting or fishing'; *Home* is the sum of 'Part of my home or vacation home' and 'For privacy'; *Farm and Ranch* is 'Part of farm or ranch'; *Family* is 'To pass land on to my children or other heirs'; *Environment* is 'To protect nature and biologic diversity'; *Non-instrumental* is 'To enjoy beauty or scenery'; and *Incidental Ownership* did not have an equivalent category among the fixed responses.

Fig. 6 Comparison of the percentage of respondents expressing broad categories of reasons for owning woodland in closed- and open-ended questions



Conclusions and Policy Implications

Family forest owners in the USA have many diverse reasons for owning their woodland. Analysis of the open-ended NWOS question revealed eight broad categories with 37 distinct sub-categories of motivations and values. Reasons for owning woodland ranged from negative values (e.g. it would ‘cost too much to clear’) and incidental ownership or indifference (e.g. ‘just part of the property’) to a wide assortment of important or even fundamental values and motivations. In some cases, reasons for owning woodlands appear to be core values that are central to the landowner’s identity, such as those who wrote passionately about the significance of environmental protection, the woodland as their family heritage for multiple generations, or other deeply held values.

Most past studies of family forest owners’ motivations have been based on analysis of closed-ended survey questions with predetermined motivation categories. Past studies of motivations using NWOS data—including those of Butler et al. (2007) and Majumdar et al. (2008)—have been based on analysis of fixed responses. Comparison of the open-ended responses to the fixed response categories revealed a wider range and greater diversity of motivations. The open-ended format allows respondents to express their full range of motivations in an unconstrained manner. These motivations would not be identified if only the fixed response question was included. An even more nuanced understanding of forest landowner motivations can be gained from interactive qualitative research methods such as focus groups (e.g. Kingsley et al. 1988) and personal interviews (e.g. Bliss and Martin 1989). These methods allow researchers to ask probing questions to examine motivations in greater depth and detail, but they are more expensive to implement than open-ended survey questions.

Many respondents listed multiple motivations and values, even though the open-ended question asked for only the ‘main reason’ for owning woodland. This indicates that at least some owners hold multiple values related to their woodland and have difficulty identifying just one that is most important. The fact that the

open-ended NWOS responses analyzed in this study are landowners' stated *main* reason for ownership suggests that they are all important motivations for extension foresters and other service providers to consider in working with landowners who hold these views. As forest owners have become more diverse due to demographic change and land parcelization, the need for this type of detailed, qualitative understanding has grown. The standard list of broad forest owner motivations and values from past studies no longer reflects the full range and diversity of today's woodland owners. Future research on the motivations of forest owners should be open to the advantages of open-ended questions and other sources of qualitative data.

Embracing the diversity of forest values, ownership objectives and management practices of family forest owners would support the broad goals of forest management. From a sustainability perspective, this would help ensure a diverse and vibrant landscape. From a social perspective, this may hold one of the keys to helping Americans reconnect with nature. From an economic perspective, understanding landowners' motivations may help to assure a continuing supply of forest products. From an individual forest owner's perspective, the multiple and diverse motivations for forest ownership are at the heart of their enjoyment and stewardship of their forests.

Responses to the open-ended NWOS motivation question represent a rich, large and previously unanalyzed database of US woodland owner values and motivations. Further analysis of this unique set of data will provide extension foresters and others who work with family forest owners important insights and help guide public policy related to private forestland. For forestry educators, policy-makers and service providers to be effective, it is important that they see the forest through the eyes of the forest owners.

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