

Idaho's Family Forest Owners: 2016 Survey Results

by

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ABSTRACT

Family-owned forests cover approximately 1.7 million acres of land in Idaho, and are managed by approximately 36,000 non-industrial owners. Increased understanding of the management actions and preferences of these family forest owners can assist the Idaho Department of Lands (IDL), University of Idaho (UI) Extension, other public agencies, and private organizations in meeting the needs of these landowners. Towards that end, the Policy Analysis Group surveyed Idaho's family forest owners in the fall of 2016.

A sample of 2,483 family forest owners owning between 5 and 5,000 acres, stratified by region of the state and size of ownership (acres), was randomly selected from an IDL database of all private forest owners in Idaho. In addition, all 386 participants in the UI Extension Forestry Shortcourse from 1992 to 2016 were surveyed. A mail survey was administered, and 903 surveys were completed and returned, resulting in an overall adjusted response rate of 36%.

Survey findings include:

- Most family forests in Idaho are less than 50 acres and located in the northern part of the state.
- Over half of Idaho's family forest lands are owned by someone at least 65 years old.
- The most important reasons for owning family forests are: to enjoy beauty or scenery, for personal privacy, to protect or improve wildlife habitat, and to protect nature.
- Timber products were cited as moderately or very important by one-quarter of forest owners.
- Family forest owners actively manage their lands, with a majority having undertaken actions that improve forest health.
- One-third of owners reported having commercially harvested timber.
- More than one-quarter of owners indicated that it is likely or very likely that they will sell or give away a portion of their forest land within the next five years.
- Forest owners' peers and social networks—their spouses, other family members, other forest owners, and neighbors—were the most-used and most important sources of information, recommendations and opinions in decision-making about their forests.

The implications of these and other findings for forestry assistance and educational programming for Idaho's family forest owners are discussed.



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Executive Summary

Family-owned forests cover approximately 1.7 million acres of land in Idaho, or about 8% of all forests in the state. Family forests are managed by approximately 36,000 non-industrial owners. Increased understanding of the management actions and preferences of these family forest owners can assist the Idaho Department of Lands (IDL), University of Idaho (UI) Extension, other public agencies, and private organizations in meeting the needs of these landowners. Effectiveness of forestry assistance programs can be measured in part by comparing management activities of owners who have participated in programs with those who have not. Towards these ends, the Policy Analysis Group at the University of Idaho surveyed Idaho's family forest owners in the fall of 2016.

The survey sample was randomly selected from an IDL database of forest owners in Idaho owning between 5 and 5,000 acres of forest land, stratified by region of the state and size of ownership (acres) to ensure appropriate representation. In addition, all participants in the UI Extension Forestry Shortcourse from 1992 to 2016 were surveyed. The total sample included 2,869 owners: 2,483 from the IDL database and 386 from UI Extension. From the IDL sample, 707 surveys were completed and returned, and 196 surveys from UI Extension Forest Shortcourse participants were completed and returned, for an overall adjusted response rate of 36%.

Idaho's family forest owners reported owning an average of 66 acres of forest land, with 34% reporting owning between 5 and 10 acres. A majority of owners (56%) reported living on or within 1 mile of their forest land. The average age of an Idaho family forest owner was 64 years, with only 5% less than 40 years of age. Over half (58%) of Idaho's family forest owners had a college degree, and 26% had annual household incomes of \$100,000 or greater.

The most important reasons for owning family forests in Idaho were: to enjoy beauty or scenery, for personal privacy, to protect or improve wildlife habitat, and to protect nature. Timber products were cited as moderately or very important by 25% of forest owners.

Idaho's family forest owners have been active managers of their lands, with a majority having removed weakened trees, reduced wildfire risks, removed trees for sale or personal use, removed invasive species, improved wildlife habitat, reduced insect and disease problems, thinned trees, or pruned trees. Only 9% of owners had not taken any management action. Plans for future actions were similar.

One-third (33%) of Idaho's family forest owners reported having commercially harvested timber. On average, the most recent commercial timber harvest took place 13 years ago in 2004, with 16% having taken place in 2016 and 25% having taken place more than 20 years ago. The contribution of family forests to Idaho's timber supply was by a relatively small proportion of owners, which is not surprising given the distribution of ownership size, efficiencies of harvesting from larger tracts, and owners' reasons for owning their forest lands.

More than one-quarter (28%) of owners indicated that it is likely or very likely that they will sell or give away a portion of their forest land within the next 5 years. Extrapolating this percentage to all family forest ownerships in Idaho, these owners represent approximately 560,000 acres (33%). It is unknown how new owners may differ from current owners in how they manage their forests. Assistance and

educational programming may need to address intergenerational transfer (whether forests stay in the family or not) and target audiences with less experience, training, or practice managing forests.

Only 28% of Idaho's family forest owners reported having written management plans, with 23% of the plans five or less years old, and 24% more than 25 years old. Owners with written management plans were 1.5 times more likely to have taken actions to improve forest conditions on their lands than those without written plans. They were more than twice (2.1 times) as likely to have commercially harvested timber.

One-fifth (20%) of all owners reported receiving information or assistance from an IDL service forester in the last 5 years, and 23% of all owners reported receiving information or assistance from UI Extension. Almost all forest owners who received assistance reported being satisfied or very satisfied with it. Forest owners who sought assistance from either agency were more active managers than those that did not, as evidenced by more overall past and planned actions. Similarly, forest owners who had participated in the UI Forestry Shortcourse were more active managers of their forests as evidenced by past and planned actions, including commercial timber harvesting. The low percentage of forest owners seeking assistance from the agencies might be increased by emphasizing information about actions that improve forest conditions and reduce wildfire risks. These actions were identified by the most respondents as likely management actions.

Owners were asked about the sources of information they used in decision-making about forests and the importance of those sources. Family members and friends were by far the most-used sources of information (69% of owners). Spouses, other forest owners, neighbors, and other family members were the most important sources of recommendations and for opinions. These results, and other studies, suggest that a peer learning model could effectively augment the traditional transfer-of-knowledge model of assistance and education. Assistance that takes advantage of trusted peers and social networks, such as UI Extension's Idaho Master Forest Stewards program, may improve both efficiency and effectiveness of programming.

Traditional surface mail was preferred by most family forest owners (61%) as a way to receive information and communications about forestry programs. Electronic media, such as email (31%) and websites (21%), were less preferred. Social media was not a well-used source of information for decision-making (3%), nor a preferred method of communication (7%). Despite its expense, forestry assistance agencies may need to continue to rely on printed and mail media for communications about their programming; however, information preferences may change with changing demographics.

Forests and their owners are dynamic. Continuing to monitor and assess the status of Idaho's family forests and the actions and intentions of their owners will allow IDL, UI Extension, and other organizations to identify how best to address changing conditions and needs.

Introduction

Forests cover approximately 21.2 million acres (40%) of land in Idaho (Oswalt et al. 2014). Privately-owned forests account for 14%, or approximately 3.0 million acres, of those forest lands (**Figure 1**). Family forests, which include those privately owned by “families, individuals, trusts, estates, and family partnerships” (Butler et al. 2016a), total approximately 1.7 million acres.¹ Family forests provide a diversity of benefits such as fiber for the forest products industry, recreation opportunities, home sites, wildlife habitat, and sources of clean water.

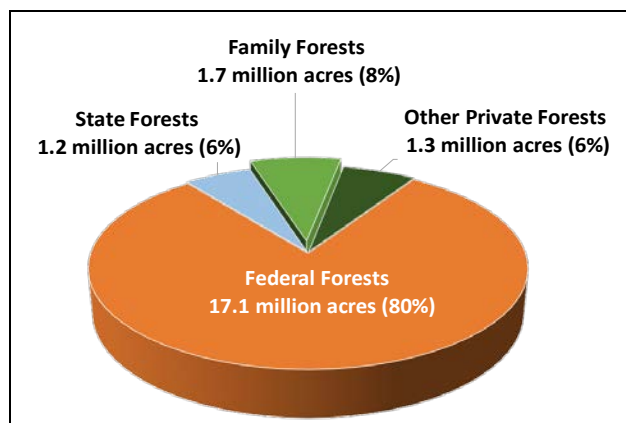


Figure 1. Ownership of Idaho's forest lands.

Because of these public benefits family forests provide, publicly-funded forestry assistance programs are committed to provide financial and technical assistance and education for family forest owners. The Idaho Department of Lands (IDL) provides technical and educational assistance through its Forest Stewardship Program, and University of Idaho (UI) Extension provides educational programming through its forestry program. Because up-to-date information about family forest owners will assist IDL and UI Extension in crafting assistance and programs to meet family forest owners' needs and coordinate activities across ownerships, these two agencies provided the primary funding for this research.

The reason for undertaking this research was to update information about owners of Idaho's family forests to enhance IDL and UI Extension programming. We sought to understand family forest owners' objectives, their management activities including willingness to harvest timber, intent to sell or transfer ownership, and basic demographic information. Although the National Woodland Owner Survey (Butler 2008; Butler et al. 2016a and 2016b) is conducted periodically, the sample size for Idaho is small and makes statistically valid state-level inferences from the data questionable. The last in-depth survey of family forest owners in Idaho was conducted in 1987 (Force and Lee 1991). Much may have changed in 30 years.

Specifically, the objectives of this research were to better understand family forest owners' management decisions and preferences, and to compare management activities of landowners who have participated in forestry assistance programs with those who have not. This information can improve delivery of technical assistance and extension programs, enhance private forest management in the context of elevated wildfire and forest health concerns, and identify willingness to manage forests for fiber, wildlife habitat, water, and other ecosystem services. Achieving these objectives can improve the ability to:

1. Efficiently target limited public resources to assist private forest landowner needs, including identifying gaps in current program offerings, focusing technical assistance and extension programming to meet needs of specific regions; and prioritizing communication strategies; and

¹ Butler et al. (2016) estimated Idaho's family forest acreage at 1.5 million acres. The higher estimate in this report includes acres classified by Butler et al. as "other private forest and woodland ownerships."

2. Facilitate understanding of family forest management objectives to improve forest health and wildfire risk reduction planning in conjunction with other public and private landowners.

This study was conducted by the Policy Analysis Group (PAG) at the University of Idaho in conjunction with the Social Science Research Unit (SSRU), also at the University of Idaho, who administered a mail survey to Idaho family forest owners during the fall of 2016.

Methods

Identifying Family Forest Owners

Identifying the population of family forest owners in Idaho is challenging for several reasons. Family forests often are defined as that segment of forest lands privately owned by “families, individuals, trusts, estates, and family partnerships” (Butler et al. 2016a). The family forest ownership category exists in contrast to corporate and other privately-owned (e.g., non-governmental organizations, tribal) forest land. No database of only family forest owners exists; therefore, one had to be approximated from existing data.

All privately-owned forest lands in Idaho are subject to a wildfire protection fee under the Idaho Forestry Act (Idaho Code § 38-111). Each county maintains a database of land parcels subject to the wildfire protection fee; IDL routinely compiles county records into a statewide database.

In July 2016, IDL provided the PAG with a database of all 128,548 forest land parcels in Idaho subject to the wildfire protection fee. Owners of multiple parcels appeared in the database once for each parcel they owned. These by-parcel data records were combined so that each owner appeared in the database only once. Parcel acreages were summed so that a total acreage for each owner was obtained. In addition, the data were screened so that similarly-named owners (e.g., John Smith, John and Mary Smith, John Smith Family) and similar mailing addresses were combined into one data record. The resulting database contained 75,757 unique records.

The IDL database did not contain information about type of ownership (e.g., corporation, family). To account for ownership types, records with more than 5,000 acres were removed from the database (n=33), and the remaining records were manually screened for names known to be industrial forest owners, which also were removed. Landowners having less than 5.0 acres total also were removed because under Idaho’s property taxation law (Idaho Code 63-1702) they are not considered forest land. Previous research also suggests that such small ownerships were unlikely to contribute substantively to the objectives of the study. Records with military, international, or incomplete addresses also were removed (n=102). The final IDL database from which the study sample was drawn contained 36,593 records.

Forestry Shortcourse Participants

Because UI Extension wished to focus on effectiveness of its Forestry Shortcourse (FSC), their database of all forest owners who had participated in the course between 1992 and 2016 was included. The FSC database (n=386) was considered to have complete overlap with the IDL database.

Sampling Methodology

The final combined sampling frame was constructed from the IDL database and the UI Extension FSC database of unique records. To ensure that family forest owners were proportionally represented geographically and by acreage, the survey sample was stratified by both region and size of ownership.

Each forest owner in the sampling frame was categorized into one of four regions based on the Idaho State Tax Commission's regions for valuing forest land and stumpage (Idaho State Tax Commission 2017), except that Benewah and Shoshone counties were included in the Northern Region in this study per advice from IDL and UI Extension (**Figure 2**).² Each forest owner was categorized into one of four size categories based on total number of acres they owned: 5-49 acres, 50-100 acres, 101-250 acres, and 251-5,000 acres.

The final dual-frame sample included a stratified simple random sample of the IDL frame, where region and size were the strata, and a census of the FSC frame. The final sample included 2,869 sampling units with 2,483 records from the IDL frame and all 386 records from the UI Extension FSC frame.³

Data Collection

The survey instrument (questionnaire) was created through the combined efforts of the PAG, IDL, UI Extension, and the SSRU. The study was reviewed by the University of Idaho's Institutional Review Board and verified as meeting human subjects research criteria under federal regulations and university policy (16-066). The Tailored Design Method for mail surveys was employed (Dillman et al. 2014). The first questionnaire mailing was sent on October 18, 2016, followed by a postcard on October 26, 2016. The final follow-up questionnaire mailing was sent on November 8, 2016.

Final survey dispositions in the IDL frame included 707 completed surveys, 150 undeliverables, 114 ineligible households (e.g., respondents were deceased, did not own Idaho forest land, or were duplicates), 32 refusals, and 1,480 non-responses. The final response rate for the IDL frame was 39.1%. In the FSC frame, there were 196 completed surveys, 10 undeliverables, 4 ineligible households, 3 refusals, and 173 non-responses. The final response rate for the FSC frame was 52.7%. The final weighted response rate for the two frames combined was 35.5%.⁴

Weighting Methodology

Weighting samples is important because it reflects sample design decisions made at the planning stage and is used to ensure the sample more accurately reflects the characteristics of the population. Because robust population totals were unknown, only design weights were applied to the final survey data in this study. The design weights were used to adjust for selection probability, eligibility, nonresponse, and FSC frame overlap.

² Owners with parcels in more than one region were randomly assigned to a region where they owned forests.

³ More details about sampling, weighting, and survey methodologies are available in Cook et al. (2018).

⁴ Response rate calculated using AAPOR's (2015) formula for combining dual frame response rates.

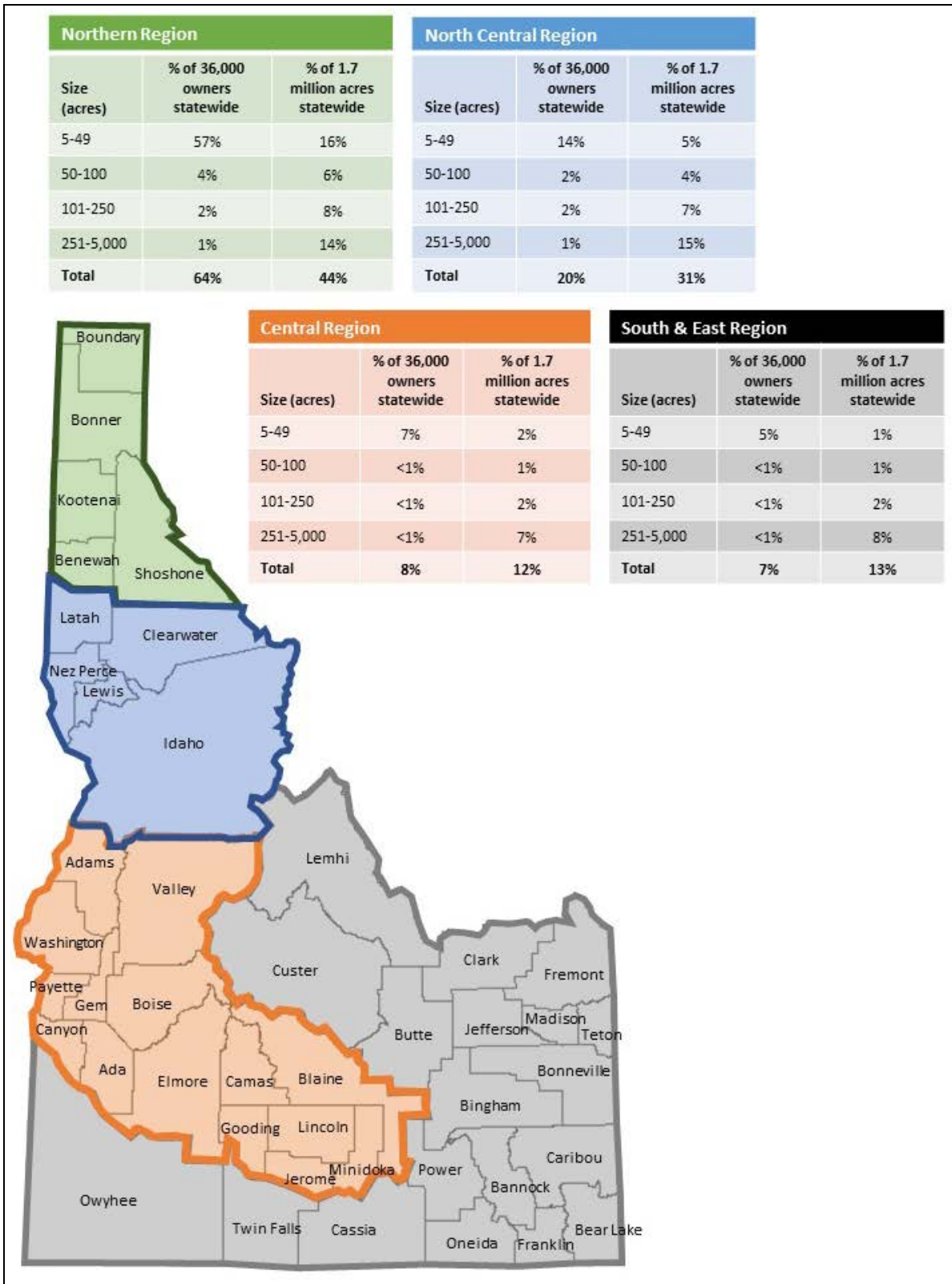


Figure 2. Percentage of owners and acres of family forests in Idaho by region and size.
 Data source: Based on IDL database of forest landowners subject to Idaho's wildfire protection assessment.

Before applying weights to adjust for nonresponse, proportions of respondents and non-respondents by region were compared for both number of owners and total acres (**Table 1**). In the unweighted sample, respondents and corresponding acres owned from the Northern Region were slightly overrepresented, and respondents and acres owned from the South & East Region were underrepresented. The proportion of acres owned by size category for respondents and non-respondents also was compared (**Table 2**). Respondents in the 5-49 acre size category were slightly overrepresented. The design weights applied accounted for these nonresponse differences.

Table 1. Percent of owners and acres for respondents and nonrespondents before applying design weights, by region.

Region	Owners		Acres	
	% of respondents	% of nonrespondents	% of respondents	% of nonrespondents
Northern	40%	32%	29%	23%
North Central	24%	22%	27%	22%
Central	21%	22%	27%	28%
South & East	16%	24%	18%	27%

Table 2. Percent of acres in size category for respondents and nonrespondents before applying design weights.

Size category	% of respondents	% of nonrespondents
5-49 acres	36%	30%
50-100 acres	23%	24%
101-250 acres	21%	23%
251-5,000 acres	21%	23%

The adjustment for FSC frame overlap was an important component of the design weight and was used to reduce the domain estimates by down-weighting all of the FSC respondents by 0.1. The value of 0.1 was chosen because of the low probability of FSC respondents in the overall frame. In other words, adjustment for frame overlap accounts for the fact that owners who participated in the Forestry Shortcourse had a higher probability of being contacted than owners who did not.

To assess the ability of the final weighted sample (n=903) to represent the overall population, the number of the total acres reported in the survey was compared to the population (frame) at the state and region level. The total acreage estimates from the frame were within the 95% confidence interval for the state and each region.

Data Analysis

SPSS statistical software package (IBM Corp. 2016) was used for data analysis. SPSS Complex Samples procedures were used to account for design weights and strata (region and size).

Because of the complex sample design, statistics used to report statistical differences between variables are different than those customarily used for a simple, random sample. For example, differences between two categorical variables from a simple random sample are often determined using the Chi-square statistic. However, for a complex sample, the Adjusted F statistic is more appropriate. The

Adjusted F is a variant of the second-order Rao-Scott adjusted Chi-square statistic, and the significance reported herein is based on the Adjusted F and its degrees of freedom (IBM Corp. 2016). The Adjusted F statistic was also used to determine significant differences between a categorical and continuous variable using Complex Samples General Linear Model procedures in SPSS.

Results

Overall results of the survey are reported in this section with selected, more extensive results reported by region in **Appendix A** through **Appendix D**. For convenience, ownership size categories are abbreviated as: Small (5 to 49 acres), Medium (50 to 100 acres), Large (101 to 250 acres), and Very Large (251 to 5,000 acres).

How Many Family Forest Owners are in Idaho, and How Much Forest Land Do They Own?

As described in the Methods section, identifying the exact number of family forest owners in Idaho is challenging because no database of private ownership structure (i.e., family versus corporate or industrial ownership) exists. This study identified family forest owners as private owners of between 5 and 5,000 acres of forest land and subject to Idaho's wildfire protection fee. The database from which this study's sample was drawn included almost 36,600 records.

In the Idaho Forestry Act, "forest land" is defined as "any land which has upon it sufficient *brush* or flammable forest growth of any kind or size, living or dead, standing or down, including debris or growth following a fire or removal of forest products, to constitute a fire menace to life (including animal) or property" (Idaho Code § 38-101, *emphasis added*). This definition is broader than many definitions of forest land. For example, the Forest Inventory and Analysis program of the USDA Forest Service defines forest land as land that has at least 10% crown cover by live trees of any size, or has had such cover (USDA Forest Service 2017).

The practical implication is that some owners of lands with brush cover or sparse tree cover were included in the database from which the study sample was drawn. The PAG estimated the magnitude of this effect using GIS analysis of forest cover. That analysis suggests that no more than 2.5% of the database records included parcels having less than 10% crown cover by live trees; therefore, the number of family forest owners in Idaho is estimated to be 36,000.

Similarly, the acreage total in the database from which the study sample was drawn, 1.8 million acres, is also likely an overestimate. The estimate of family forests used in this report, 1.7 million acres, is based

Highlights

- There are approximately 36,000 family forest owners in Idaho.
- They own approximately 1.7 million acres of forest land.
- Most family forests are small acreages; one-third of owners reported owning between 5 and 10 acres.
- Most family forests are in the Northern and North Central Regions where forests in general are more prevalent.
- Family forest ownerships tend to be smaller in the Northern Region than in other regions.

on USDA Forest Service Forest Inventory and Analysis data (Oswalt et al. 2014)⁵ and is used in acreage calculations throughout this report.

The number of family forest owners in Idaho and the average size of their ownerships varies considerably by region (see **Figure 2**). Forests in Idaho are located primarily in the Northern and North Central Regions so it follows that these regions have the highest percentages of family forest owners (64% and 20%, respectively) and acreage (44% and 31%, respectively). Statewide, family forest owners reported owning an average of 66 acres, but one-third (34%) of ownerships were between 5 and 10 acres. The average size of ownerships reported by owners in the Northern Region was significantly smaller than other regions at 38 acres. The average sizes in the North Central, Central, and South & East Regions were 94, 89, and 219 acres, respectively.

Who are Family Forest Owners in Idaho?

Forest owner characteristics may influence attitudes towards forest management, actions taken in the past or planned for the future, and preferences for receiving technical assistance and information. Characteristics of forest ownership—such as size (acres), length of tenure, or residency on the land—also may influence management decisions and information preferences. Reasons for owning forest land also affect management decisions. The implications of demographic and ownership characteristics are examined and discussed throughout this report.

Demographics

The average age reported by Idaho’s family forest owners was 64 years old, with only 5% of owners less than 40 years old (**Figure 3**). Half of family forest owners were 65 years of age or older, which is 2.5 times the proportion of Idaho’s adult population over 65 years of age (U.S. Census Bureau 2016). Extrapolating from the survey sample to all owners, over half (53%), or approximately 900,000 acres, of Idaho’s family forests are owned by someone who is at least 65 years old.

Highlights

- Idaho family forest owners are older, more likely to be Caucasian and of non-Hispanic ethnicity, have higher incomes, and have more formal education than Idaho’s population in general.
- Over half of Idaho’s family forest lands are owned by someone at least 65 years old.

Idaho’s family forest owners reported being well educated with 58% holding at least a bachelor’s college degree. For the Idaho population in general, 23% possess at least a bachelor’s degree (U.S. Census Bureau 2016). Family forest owners reported higher annual household incomes than other Idahoans (**Figure 4**); 27% of owners had incomes \$100,000 or greater compared to 17% for Idahoans in general (U.S. Census Bureau 2016).

⁵ Butler et al. (2016) estimated Idaho’s family forest acreage at 1.5 million acres. The higher estimate in this report includes acres classified by Butler et al. as “other private forest and woodland ownerships.”

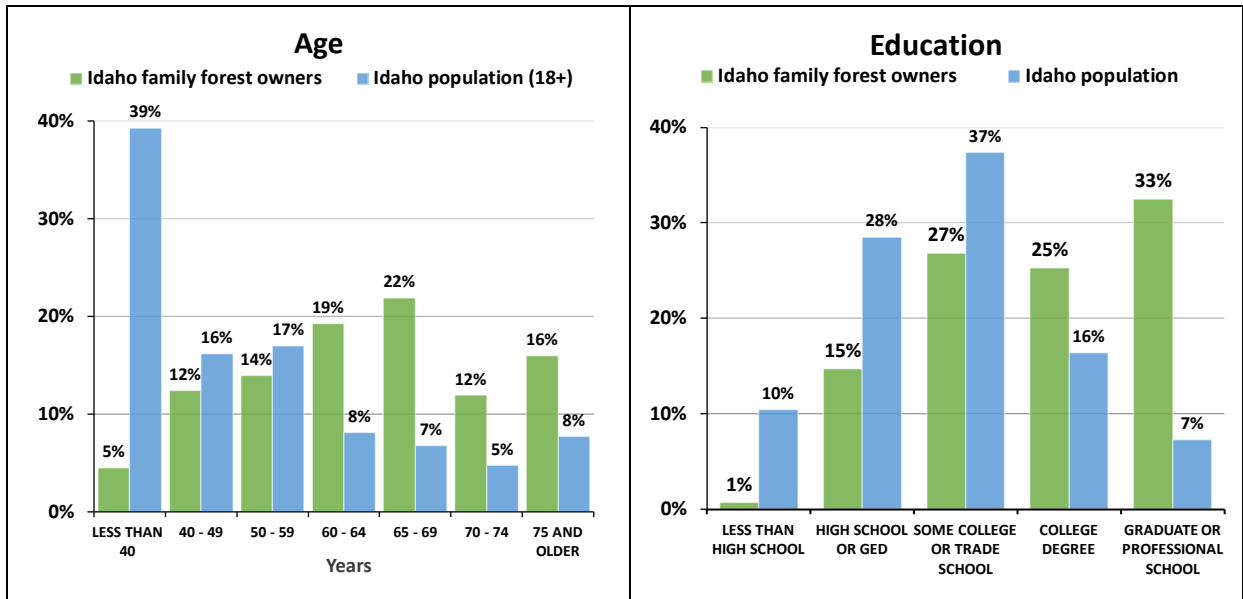


Figure 3. Age and education levels of family forest owners and Idaho population.

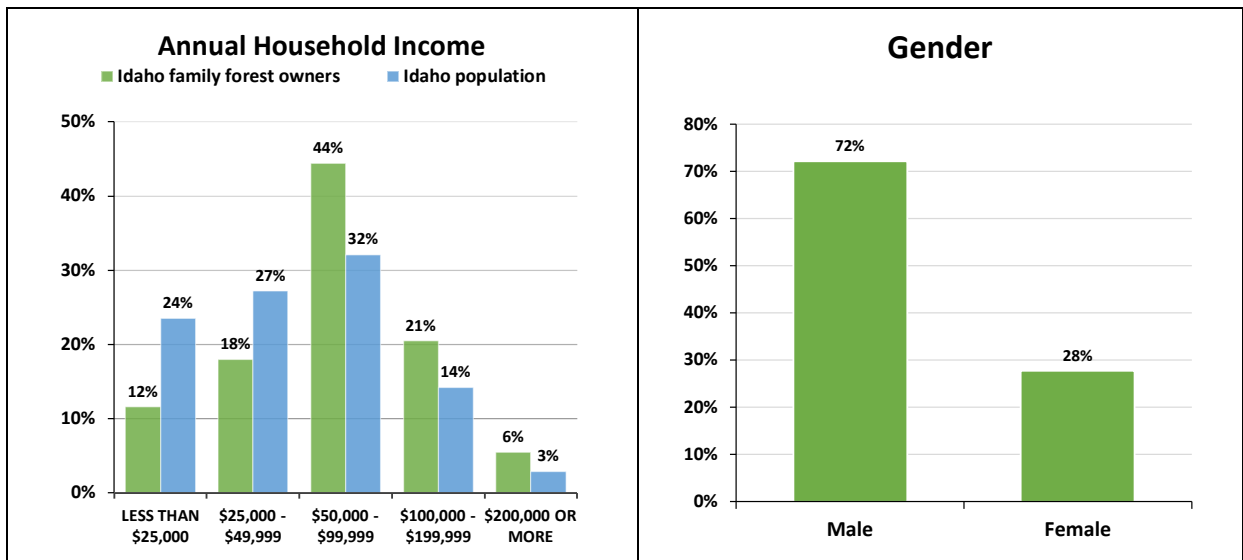


Figure 4. Income of Idaho family forest owners and Idaho population, and gender of survey respondents.

Almost three-quarters (72%) of respondents who completed the survey were male. This result should not be interpreted to mean that 72% of family forest owners are male. Family forests are often owned in partnership with spouses or other family members, and as answers to other questions in this survey suggest, decision making about these forests often involves other family members.

Idaho’s family forest owners were almost all Caucasian (98%), and very few were Hispanic or Latino (<1%). For Idaho’s population as a whole, 92% are white and 12% are of Hispanic or Latino origin (U.S. Census Bureau 2016). Statistical differences for survey results based on race or ethnicity could not be determined because of the lack of diversity in the sample.

Ownership Characteristics

The average number of years since owners first became forest landowners in Idaho was 23 (**Figure 5**). Small owners reported owning their forest land significantly less time (average 21 years) than those in larger size categories (Medium 35 years, Large 31 years, Very Large 32 years).

Most (88%) owners purchased their forest land, with few inheriting it (9%) or receiving it as a gift (3%). Significantly fewer Small owners reported inheriting their land (6%) than larger size categories (Medium 24%, Large 25%, Very Large 19%).

Highlights

- Most family forest owners have owned their lands for more than a decade, purchased them, live on or near them, and visit them often.
- Almost 1-in-5 family forest owners lives more than 250 miles from their property.
- About 1-in-10 family forest owners did not visit their property in the previous year.

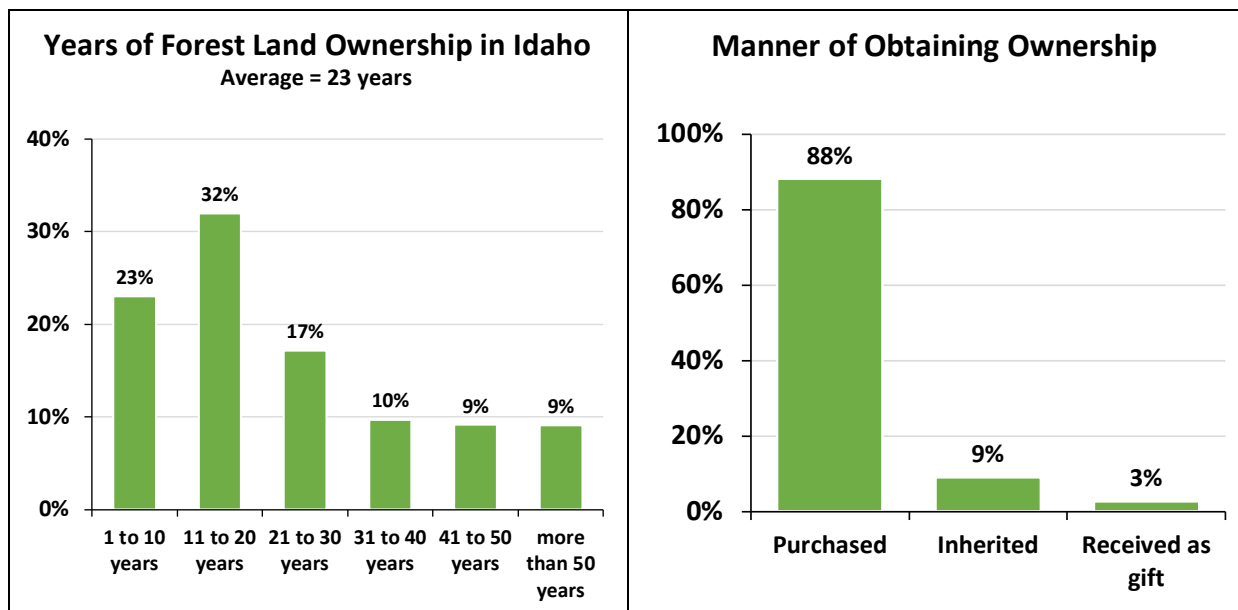


Figure 5. Ownership tenure and manner of obtaining ownership for family forest owners.

A majority (56%) of family forest owners reported living on or within one mile of their forest property (**Figure 6**). Fewer owners in the Central and South & East Regions reported living on or within one mile of their forests (39% and 29%, respectively). Statewide, nearly one-fifth (18%) of owners reported living more than 250 miles from their nearest Idaho forest property, with 8% reporting distances of 1,000 miles or more. These long distances skew averages upward. Statewide the average distance reported was 199 miles, with owners in the Northern Region reporting an average of 244 miles, significantly ($p < 0.05$) farther than other regions (North Central 120 miles, Central 111 miles, South & East 111 miles).

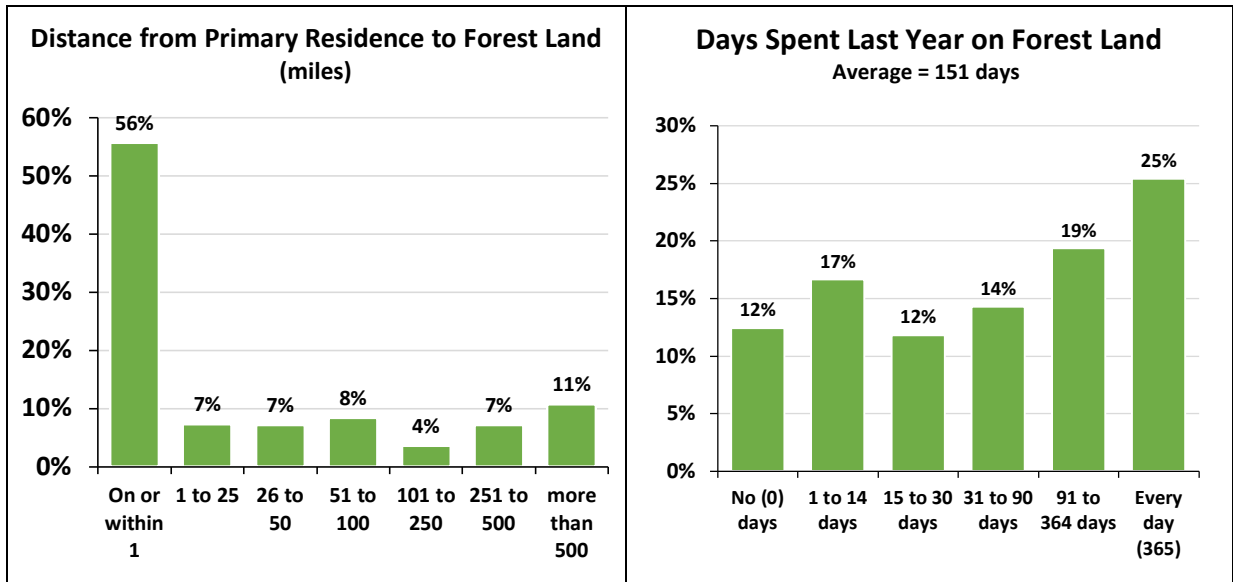


Figure 6. Distance from primary residence and days spent on property for family forest owners.

On average, family forest owners reported visiting their property on almost half the days of the year (151 days). Approximately 25% of owners reported visiting their property daily; however, 12% did not visit their property at all during the past year. As one would expect, family forest owners who live on or near their property spent more days annually on it.

Family forest owners in Idaho can have property taxes on their forest land assessed under one of two options. Private forest land ownerships between 5 and 5,000 can be assessed under a productivity option based on the land’s capacity to grow timber (Category 6; Idaho Code 63-1705), or under a bare land & yield option where the land is taxed at a lower rate and a 3.0% yield tax is assessed when timber is harvested (Category 7; Idaho Code 63-1706). Owners of more than 5,000 acres must use Category 6, and no special tax treatment is offered for forest lands under 5 acres.

The definition of “forest land” under Idaho’s taxation statute is more restrictive than the definition under the statute for the wildfire protection fee. Under Idaho’s taxation statute (Idaho Code 63-1701), forest land is land “used primarily for the continuous purpose of growing and harvesting trees of a marketable species.” The implication for this study’s results is that land not eligible for forest taxation treatment was included as family forests.

Over half (57%) of family forest owners reported not knowing the tax classification of their forest lands (**Figure 7**). Over one-quarter (27%) reported their lands were in Category 7, the bare land & yield tax option; only 10% reported using Category 6, the productivity option. Of the 7% of owners who reported other tax categories for their forest lands, nearly half (47%) reported lands in dry or non-irrigated grazing lands categories, and almost one-quarter (23%) reported rural residential or home site categories.

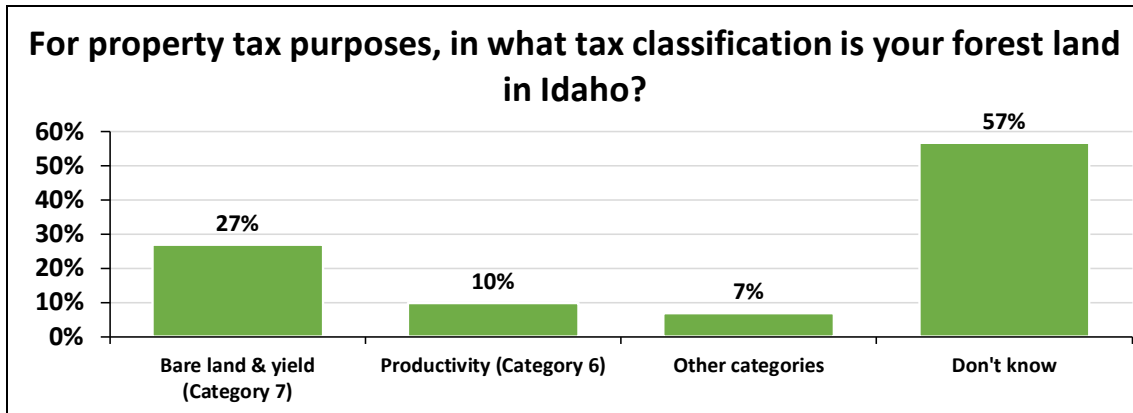


Figure 7. Property tax categories reported by family forest owners.

More landowners in the South & East Region reported having their forest lands in non-timber tax categories, which is expected since forests are sparser in the region. Fewer Small owners reported using Category 6 or Category 7, and more Very Large owners reported using Category 6 or Category 7. More Small owners reported not knowing the tax classification of their forest land.

Why Do Family Forest Owners Own Their Forest Lands?

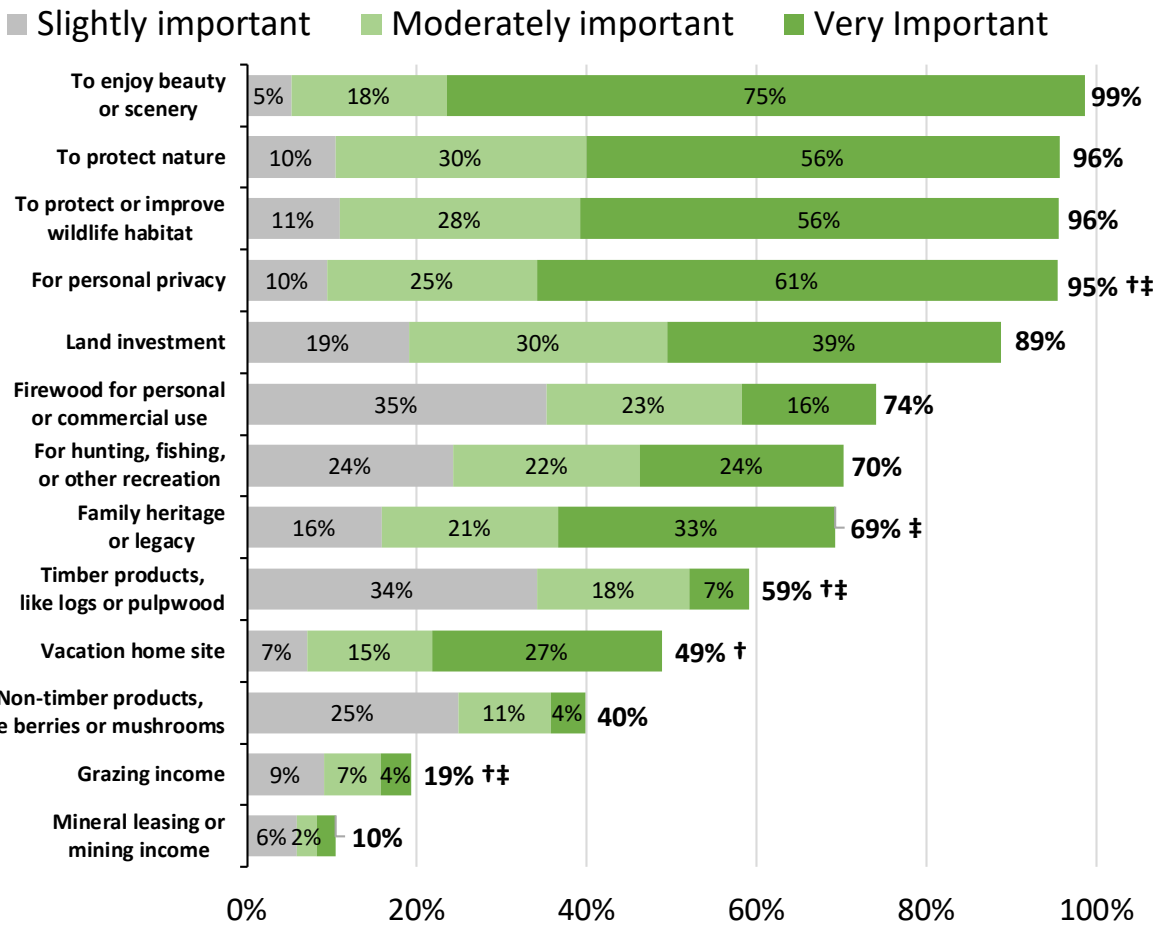
People own forests for a variety of reasons and the importance they place on those reasons varies. The most important reasons cited as important (slightly, moderately, or very) by over 90% of owners were to enjoy beauty or scenery, to protect nature, to protect or improve wildlife habitat, and for personal privacy (**Figure 8**). Timber products were cited as slightly, moderately, or very important by 59% of forest owners. Grazing income and mineral income were not important reasons for owning forests for many owners.

Few reasons for forest ownership varied by region or size category. More owners in the Northern Region placed importance on personal privacy and timber products, which may reflect smaller-sized ownerships in the region and a more prevalent forest products industry. Fewer owners in the Northern Region placed importance on grazing income, which reflects the smaller amount of suitable grazing land in the region. More owners in the Central and South & East Regions placed importance on a vacation home site, which may reflect the influence of Boise and other population centers in southern Idaho.

Highlights

- Family forests are important to owners for a variety of reasons, with many being aesthetic or non-market reasons.
- More owners in northern Idaho and more Small owners place importance on personal privacy as a reason for ownership.
- Timber production was cited as moderately or very important by one-quarter of owners.
- Timber production is important for more owners in northern Idaho, where forests are more prevalent.
- Owners of larger tracts are more likely to place importance on timber production.

How important are the following reasons for why you currently own forest land in Idaho?*



* 4-point Likert-type scale: Very important, moderately important, slightly important, and not at all important. Respondents could rate all reasons.

† Significant differences ($p < 0.05$) based on regions; slightly, moderately, and very important combined versus not at all important.

‡ Significant differences ($p < 0.05$) based on size categories; slightly, moderately, and very important combined versus not at all important.

Figure 8. Importance of reasons for owning family forests reported by owners.

More Small owners found personal privacy important than owners in larger categories. Also, as size increased more owners found family heritage, timber products, and grazing income important reasons for ownership.

Management Actions

This section examines family forest owners' management actions, both those taken in the past and those planned for the future. It examines on-the-ground actions—such as timber harvesting and forest improvement activities—as well as administrative actions such as creating an estate plan or seeking tax advice. Limitations to taking actions also are explored.

Past Actions

Idaho's family forest owners report having been active managers of their lands (**Figure 9**). A majority of owners reported having removed weakened trees, reduced fire risk, removed trees for sale or personal use, removed invasive species, improved wildlife habitat, reduced insect and disease problems, thinned trees, or pruned trees.

On average, owners reported taking 6.6 of the 13 actions listed. Only 9% of owners had not taken any (0) of the management actions listed. Owners in the South & East Region took significantly fewer actions on average (5.2) than owners in other regions (Northern 6.5, North Central 7.5, Central 6.1). Small owners took fewer actions on average (6.3) than larger owners (Medium 8.0, Large 7.3, Very Large 8.1).

Residency on or near their forest land was the only demographic characteristic that consistently showed statistical differences with past actions. More owners who resided on or near their lands reported having removed weakened trees, cut trees for sale or personal use, removed invasive plants, improved wildlife habitat, reduced insect and disease problems, thinned trees, planted trees, and grazed livestock. Owners who lived on or near their forests reported having taken more actions on average than those who lived further away.

Fewer owners overall reported having taken administrative-type management actions on their forest lands (**Figure 10**). Less than half (45%) reported having addressed the future of their forests through a will or estate planning. Only one-third (31%) reported having sought tax advice about their forest properties. Very few owners reported having created conservation easements (3%), bought additional forest properties (7%), or sold them for retirement income (2%). Owners in the Northern and South & East Regions were less likely to have sold a portion of their property for retirement income than owners in the North Central and Central Regions, and owners in the Northern Region were less likely to have established a conservation easement than owners in the North Central Region. Small owners were less likely to have taken any of the actions than larger owners, except having sold a portion of their property.

Highlights

- Most of Idaho's family forest owners have actively managed their forests through on-the-ground management actions.
- Many management actions taken most often in the past focused on improving forest health and reducing the risk of wildfire.
- Less than half of owners have a will or other estate plan for their forest land.

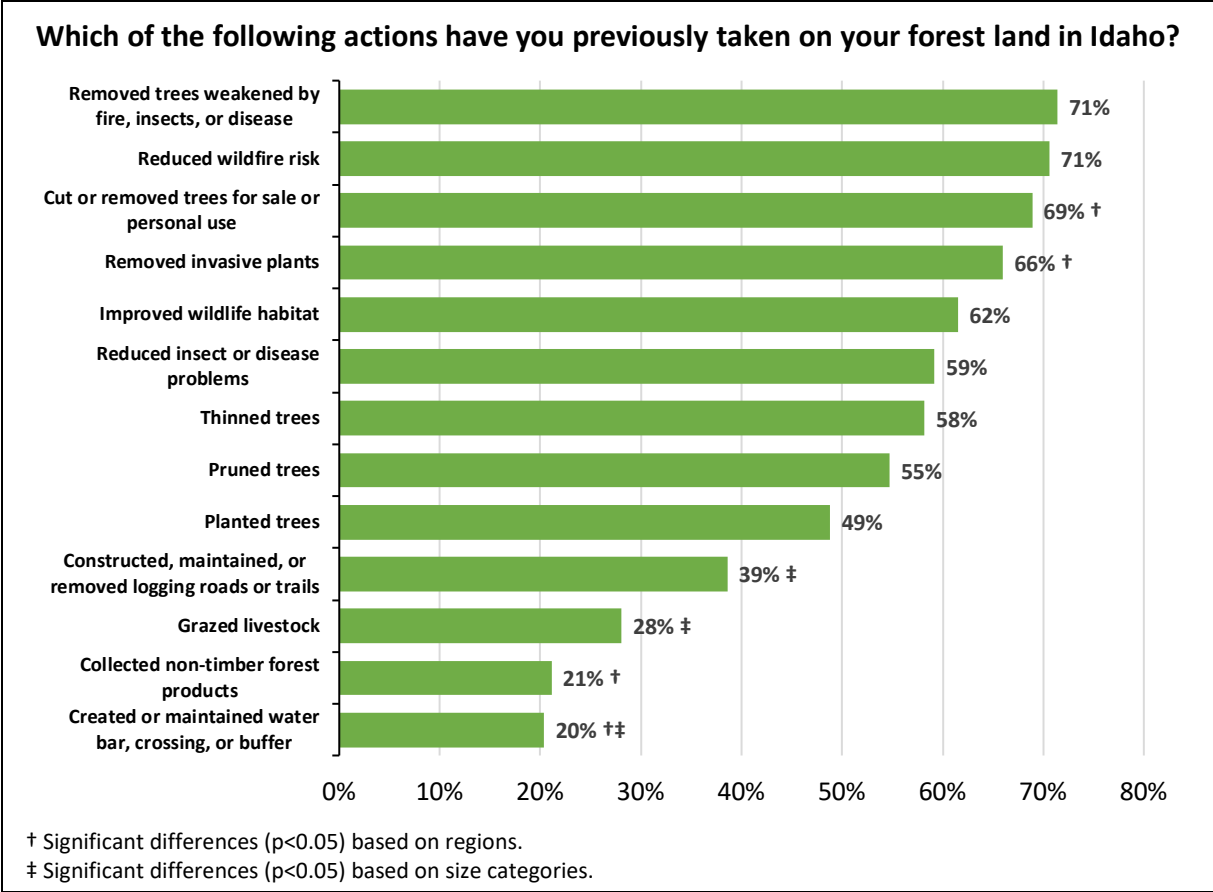


Figure 9. Past management actions of family forest owners.

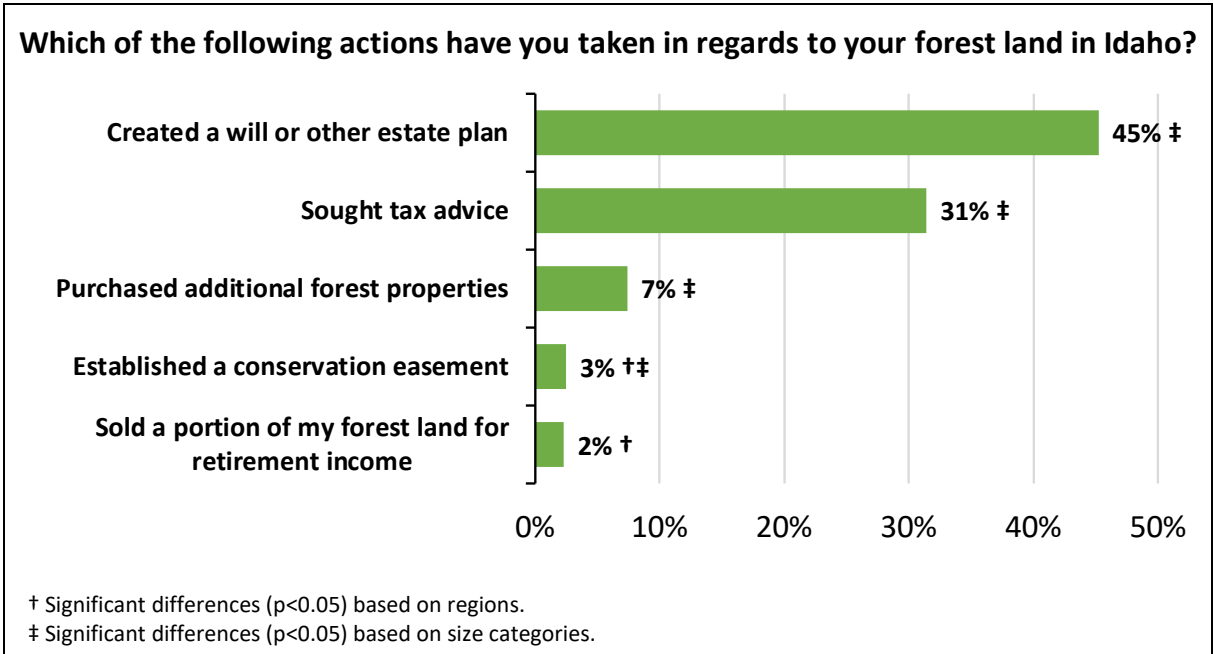


Figure 10. Past administrative management actions of family forest owners.

Planned Actions

Similar to past actions, a majority of owners reported being likely or very likely to take the following management actions in the next five years: remove weakened trees, remove invasive plants, reduce wildfire risk, reduce insect or disease problems, improve wildlife habitat, thin or prune trees, or cut trees for sale or personal use (**Figure 11**). Statewide, owners reported they were likely or very likely to take an average of 7.0 of the 13 actions listed. Only 11% of owners said they were unlikely or very unlikely to undertake any (0) of the management actions listed in the next five years. More Very Large owners planned to take more actions (average 8.1) than owners in other size categories (Small 6.9, Medium 7.8, Large 7.0).

Highlights

- Idaho's family forest owners plan to continue to actively manage their forests.
- Many management actions planned for the future will improve forest health and reduce the risk of wildfire.
- Many more owners plan to create a will or other estate plan for their forest land.
- Few owners appear interested in establishing a conservation easement.

A majority of owners statewide said they were likely or very likely to create a will or other estate plan (64%), or seek tax advice (52%) in the next five years (**Figure 12**). Almost one-quarter (24%) of owners said they were likely or very likely to purchase additional forest properties, while 16% said they were likely or very likely to sell a portion of their property for retirement income, and 11% reported they were likely or very likely to establish a conservation easement.

No regional differences were found in plans to take administrative actions in the future. Fewer Small owners planned to seek tax advice, and fewer Medium owners planned to purchase more forest properties.

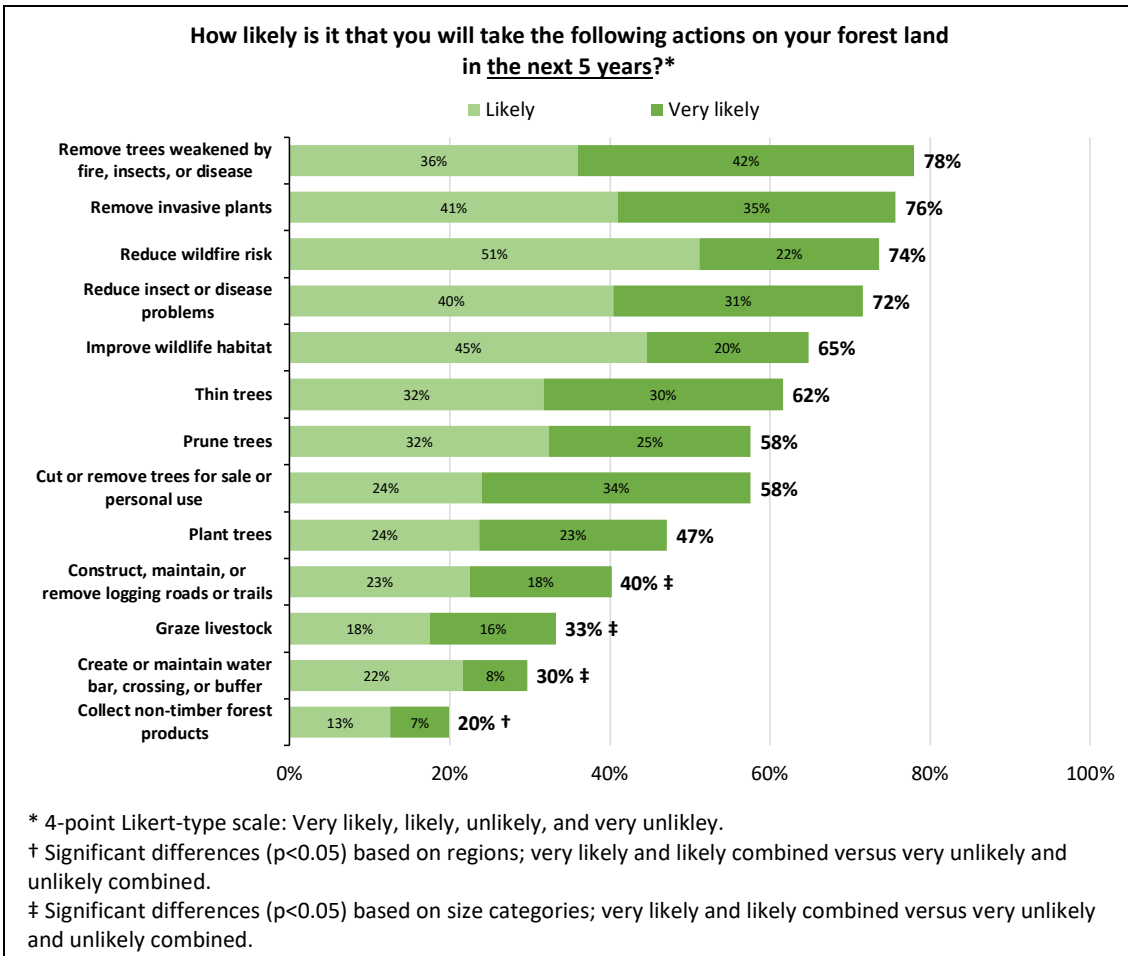


Figure 11. Future management actions of family forest owners.

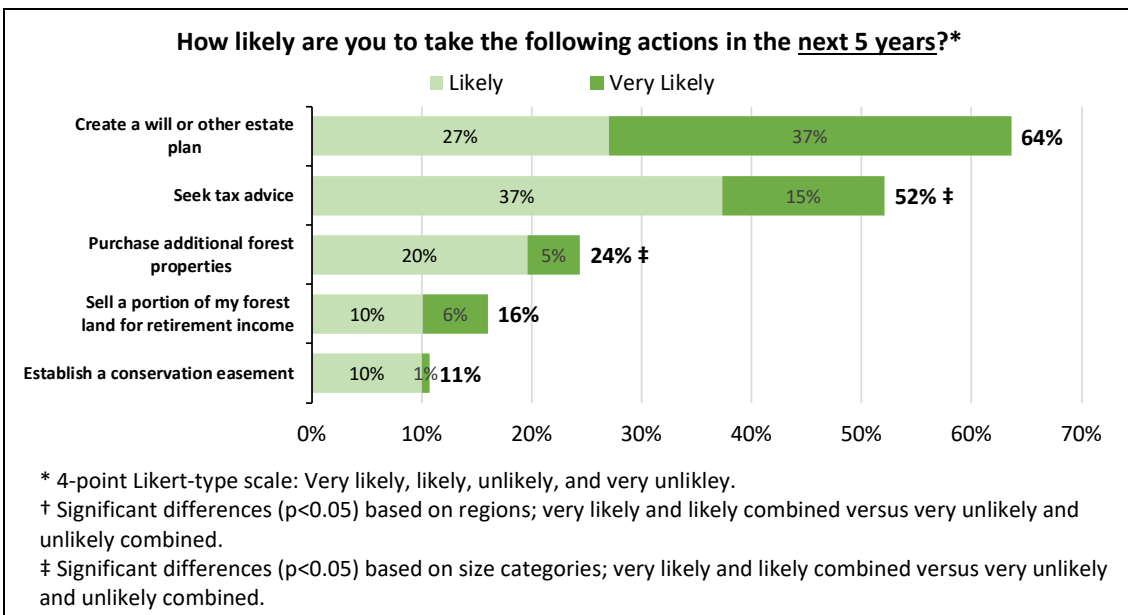


Figure 12. Future administrative management actions of family forest owners.

Limitations on Actions

Management actions owners take on their forests may be limited for a variety of reasons (**Figure 13**). The cost of implementing actions was cited most often by owners as a limitation. The ability to do the work themselves and access to the correct equipment were the next most reported limitations. No regional or size differences were found for limitations to actions.

Highlights

- Cost, the ability to do work themselves, and access to the correct equipment are the biggest limitations to forest management actions.
- Limitations do not vary by region, size of ownership, or demographic characteristics.

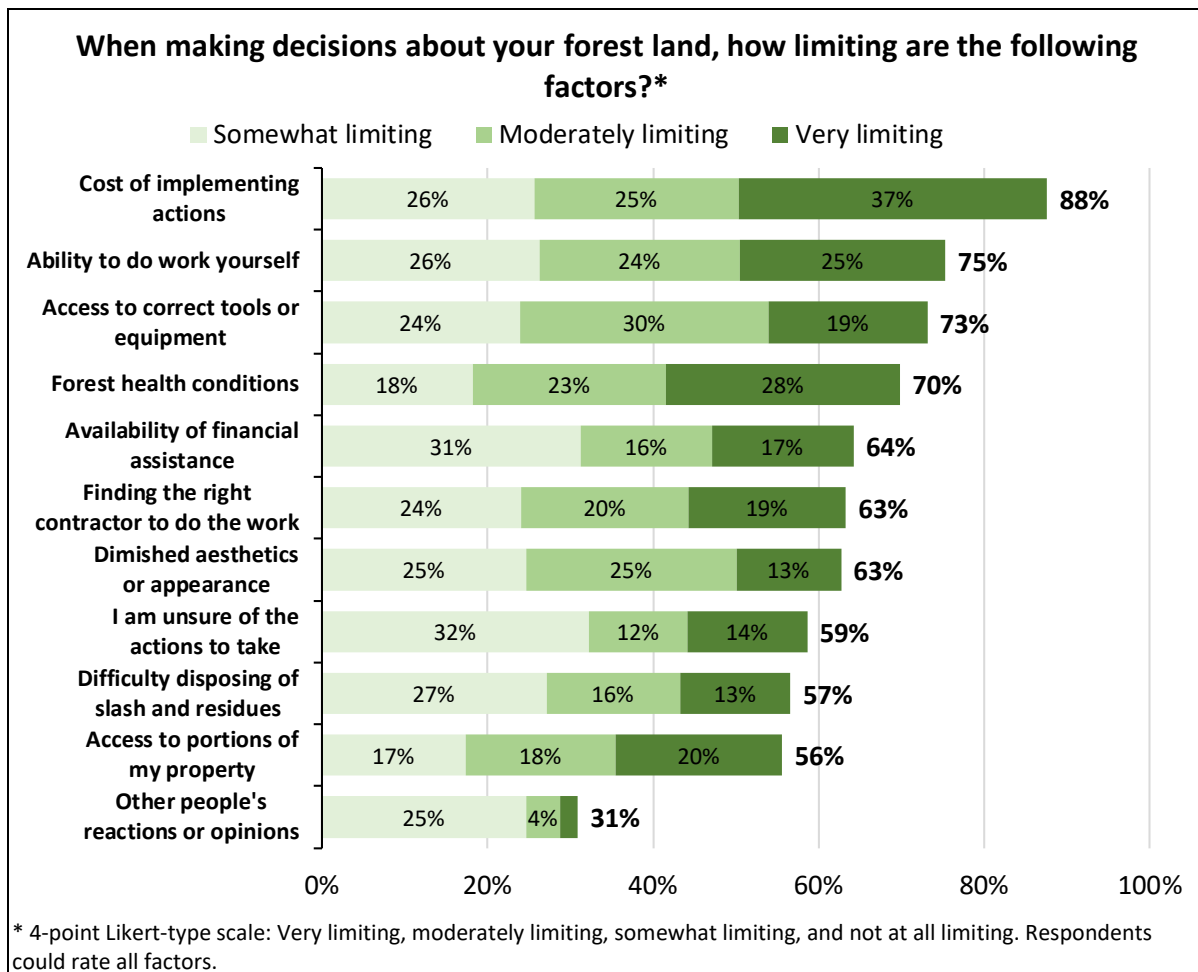


Figure 13. Limitations on decisions about forest management by family forest owners.

Focus on Timber Harvesting

Whether the objective is to provide income, reduce wildfire risk, or improve forest health conditions, commercial timber harvests on family forests are an important source of fiber for Idaho's forest products industry. Overall, one-third (33%) of family forest owners in Idaho reported having commercially harvested timber on their lands (**Figure 14**). This percentage is less than half of the 69% of owners who reported having "cut or removed trees for sale or personal use" as a past management action (see Figure 9). Personal use of harvested trees probably accounts for the difference.

More owners in the Northern Region have harvested timber, probably because of the abundance of forests and prevalence of the forest products industry in northern Idaho. Fewer Small owners have commercially harvested timber compared to larger size categories, probably in part because timber production is a less important reason for owning forests for that group, and smaller tracts are less economically viable for commercial timber harvesting operations and.

Highlights

- One-third of Idaho's family forest owners have commercially harvested timber in the past, but one-quarter of those harvests were more than 20 years ago.
- Owners in the Northern Region and larger owners are more likely to have harvested timber, but on average owners in the North Central Region have harvested most recently.
- Impacts to wildlife and diminished aesthetics are significant limitations to harvesting for all owners, but less so among those who have harvested in the past.

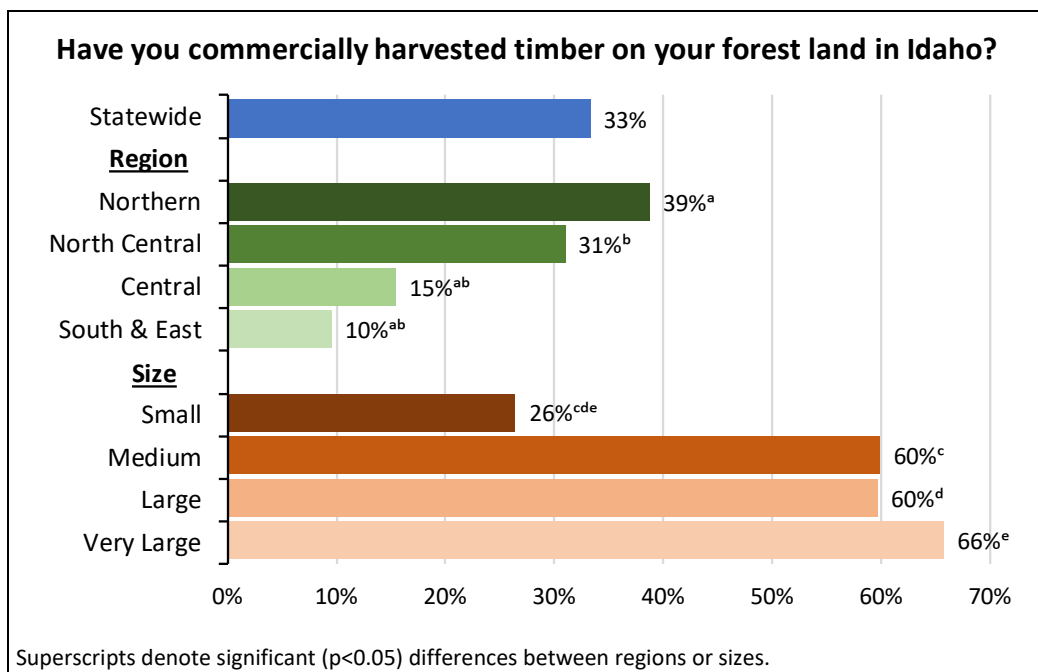


Figure 14. Commercial timber harvesting on Idaho's family forests.

On average, the most recent commercial timber harvest took place 13 years ago in 2004, with 16% of harvests taking place in 2016 and 25% taking place in 1996 or earlier (**Figure 15**). Few harvests took place between 2007 and 2011, which was during the Great Recession. Owners in the North Central Region reported harvesting more recently than owners in other regions, and Very Large owners reported harvesting more recently than owners in smaller size categories.

As one would expect, more owners who have commercially harvested timber placed importance on timber harvesting as a reason for owning forest land than those who have not harvested. However, owners who have harvested were no less (or more) likely to place importance on amenity reasons for owning forests (e.g., scenery, recreation)

than those who have not. Owners who have harvested timber also have owned their forests longer on average than those who have not harvested timber, and were more likely to have actively managed their forests as indicated by the number of management actions they took in the past. However, those who have harvested in the past were no more likely than those who have not harvested in the past to plan management actions for the future. Owners who have harvested timber had no significant differences in limitations on forest management actions than owners who have not harvested timber.

Numerous factors can affect owners' decisions about whether or not to commercially harvest timber. Some factors are in the owner's control, such as personal opposition to harvesting, but others are not, such as their trees are too small or timber prices are low. Overall, limitations to commercial timber harvesting reported by the most owners were the size or age of trees, negative impacts to wildlife or habitat, and diminished aesthetics or appearance (**Figure 16**). Other people's opinions and personal opposition to timber harvesting were least limiting.

More owners in the Central and South & East Regions did not find size or age of trees to be limiting, perhaps because timber harvesting was less common overall in those regions. Timber prices and the ability to pay taxes were limiting factors for more owners in the Northern, North Central, and Central Regions than owners in the South & East Region. Fewer Small owners found timber prices, access to log markets, and finding the right logger to be limiting factors, while more found personal opposition to timber harvesting limiting. Fewer Very Large owners found uncertainty about actions to take limiting.

As one would expect, owners who had commercially harvested timber were more sensitive to timber prices (i.e., more of a limiting factor) than owners who had not commercially harvested timber. Also as expected, owners who had commercially harvested timber were less likely to be personally opposed to timber harvesting, unsure of actions to take, or find negative impacts on recreation a limitation.

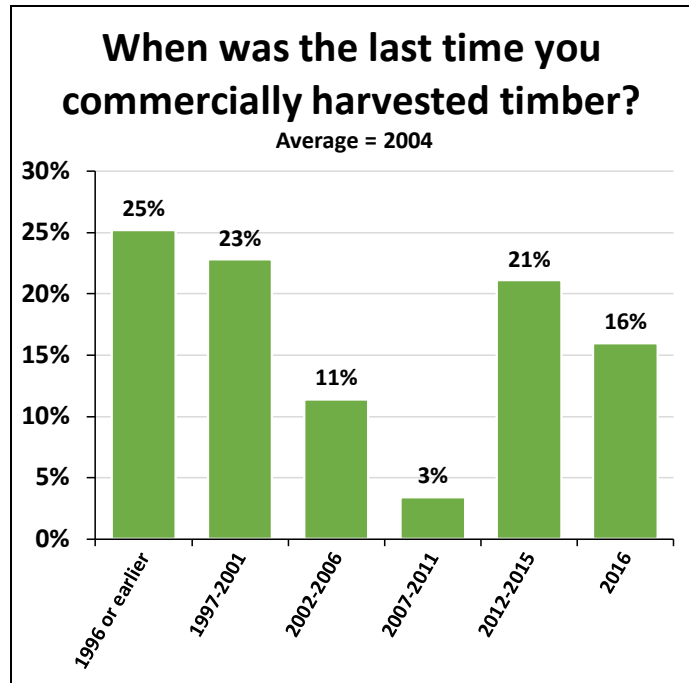
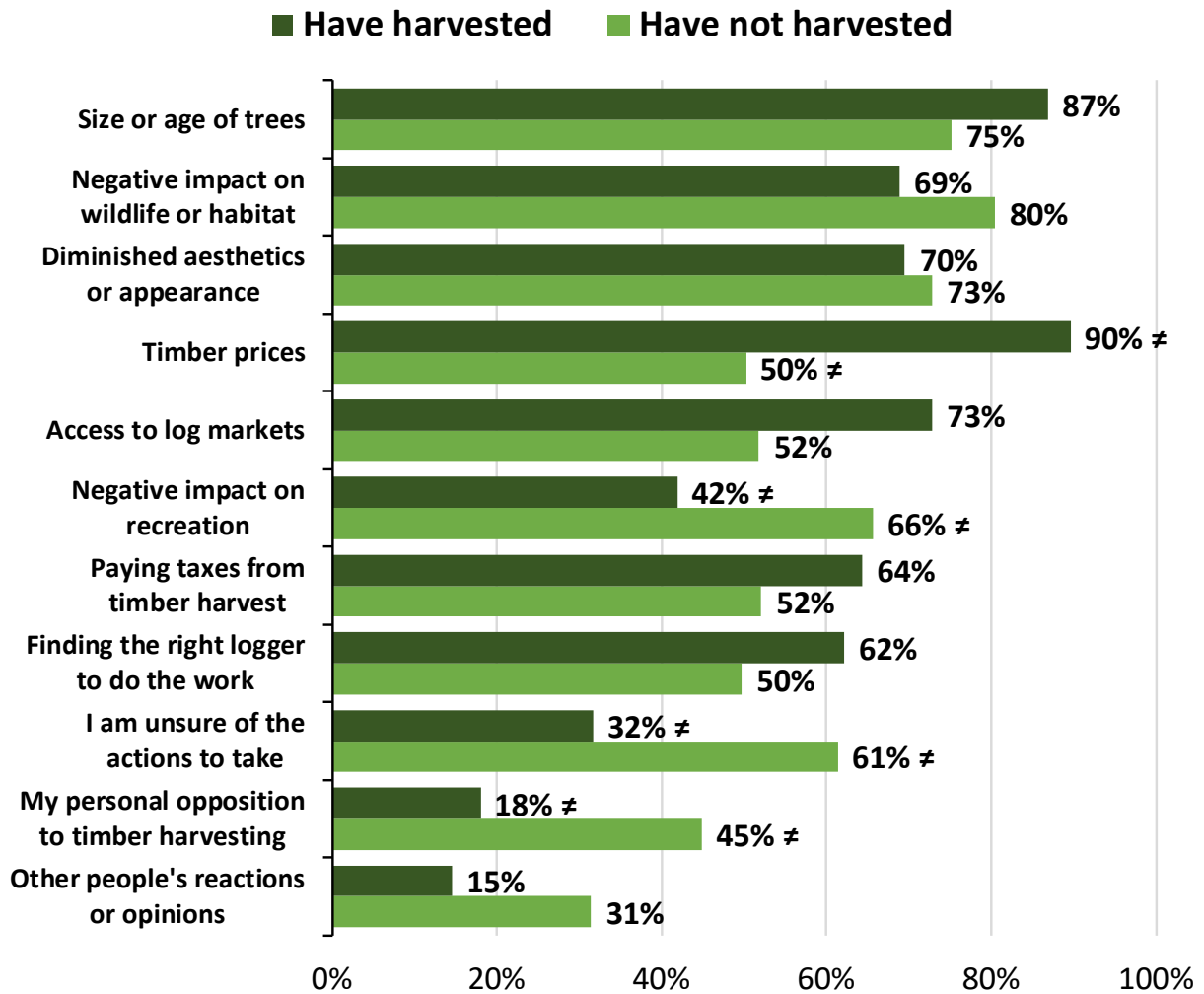


Figure 15. Year of last commercial timber harvest on family forests by owners who have harvested.

When deciding whether or not to commercially harvest timber from your forest land, how limiting are the following factors? (Very, moderately, and somewhat limiting combined*)



* 4-point Likert-type scale: Very limiting, moderately limiting, somewhat limiting, and not at all limiting. Respondent could rate all factors.

≠ Significant difference ($p < 0.05$) between owners who have harvested and those who have not; very, moderately, and somewhat limiting combined versus not at all limiting.

Figure 16. Limitations to commercial timber harvesting for family forest owners.

Plans for Ownership Transfer

Transfer of ownership may affect forest management objectives and actions, including keeping lands as family forests. Overall, more than one-quarter (28%) of Idaho's family forest owners indicated that it is likely or very likely that they will sell or give away a portion of their forest land within the next five years (**Figure 17**). The survey did not ask how much land owners were planning to transfer, but based on total acres owned and extrapolated to all owners, a maximum of approximately 560,000 acres (33%) of Idaho's family forests may transfer ownership in the next five years. No regional, size, or demographic differences were found in the likelihood of transferring ownership.

Highlights

- Over one-quarter of Idaho's family forest owners say it is likely or very likely they will sell or give away a portion of their land in the next five years.
- There is potential for up to one-third of Idaho's family forest land to change hands in the near future.

Among owners who were likely or very likely to transfer ownership in the next five years, the reasons cited most often were loss of interest in ownership, keeping land in the family, needing the money, and being a part an investment strategy (**Figure 18**). The most often cited "other" reasons were age and death related. More Small owners gave lack of interest as a reason, and fewer cited high market value as a reason. Medium owners were the opposite, with fewer citing lack of interest and more citing high market value. Fewer Very Large owners gave lack of interest as a reason. Fewer owners who live on or near their land were likely to transfer ownership because they need the money, it is part of an investment strategy, or high market value.

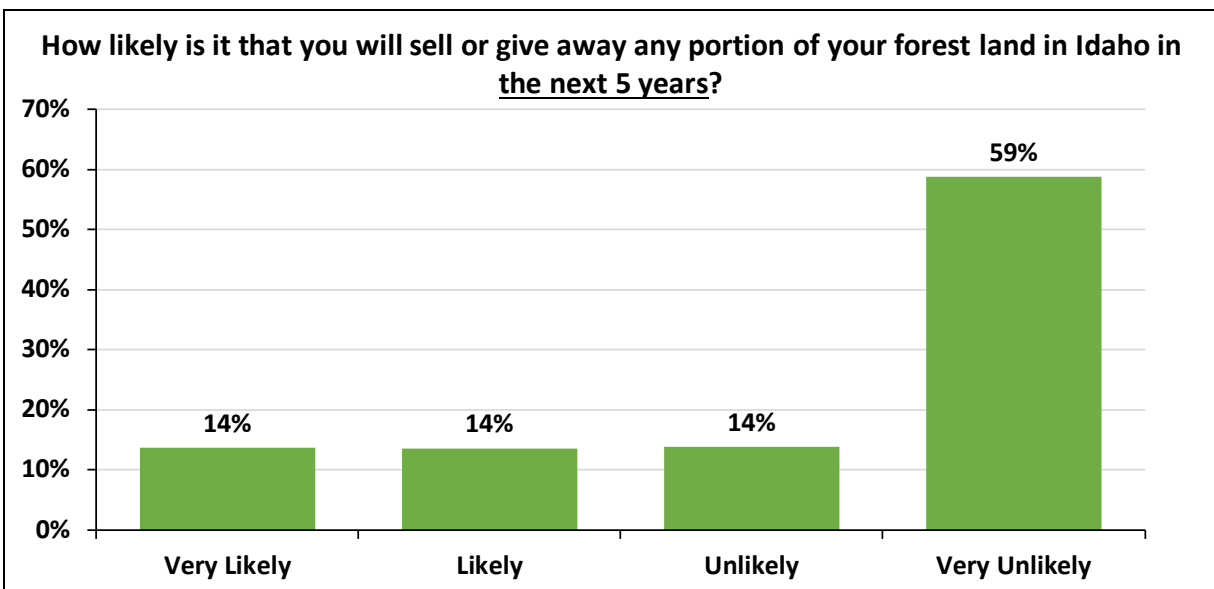


Figure 17. Likelihood of ownership transfer of Idaho's family forest.

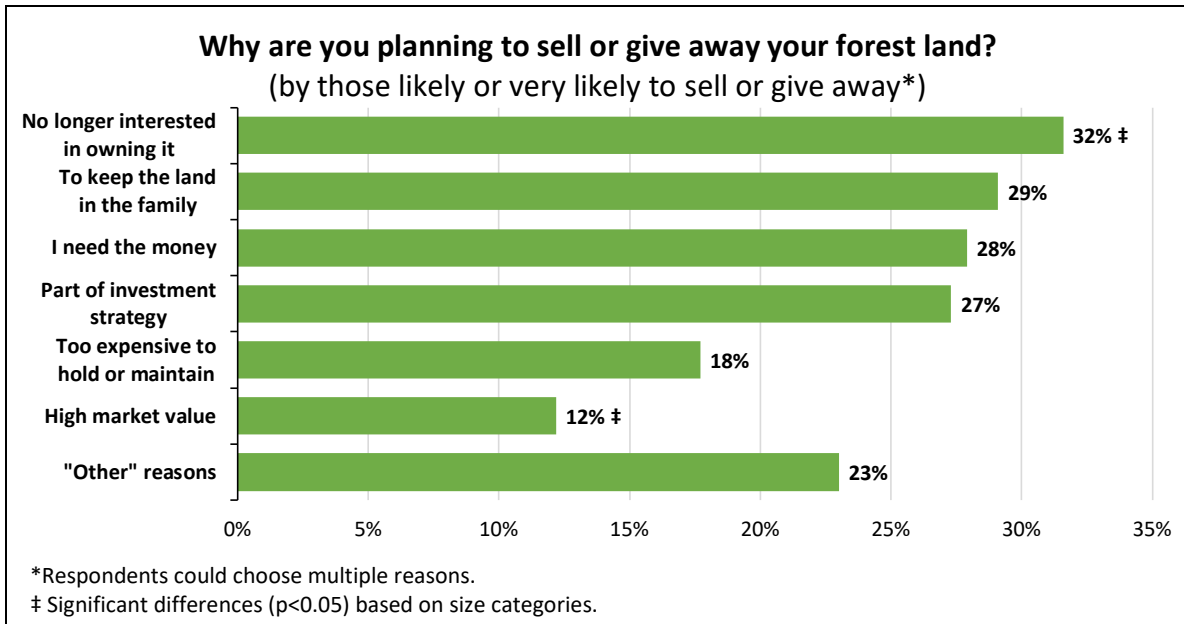


Figure 18. Reasons for planning to transfer ownership by family forest owners.

Written Management Plans

Written management plans can be useful guidance for family forest owners. Overall, only 28% of Idaho’s family forest owners reported having a written management plan (**Figure 19**). Almost one-quarter (23%) of family forest plans were five or less years old, but almost the same number (24%) were more than 25 years old (**Figure 20**). More owners in the Northern and Central Regions had written plans than in other regions, and fewer Small owners had written plans than owners in other size categories. For over half (53%) of all owners without written plans, the most important reason for not having one was that they did not feel the need for a written plan.

Most (66%) family forest plans were written with the help of a private consulting forester (**Figure 21**). IDL service foresters assisted with one-fifth (21%) of written plans. Almost 1-in-12 (8%) family forest plans were written without assistance.

Highlights

- Just over one-quarter (28%) of Idaho family forest owners have a written management plan, and many existing plans are dated.
- Most plans were written with the assistance of a private consulting forester, but IDL service foresters are a source of assistance for about 1-in-5 written plans.
- Owners with written plans use them to guide forest management, but about one-quarter of owners with plans are not sure about how to follow up on proposals in them.
- Owners with written plans more actively manage their forests than owners without written plans.

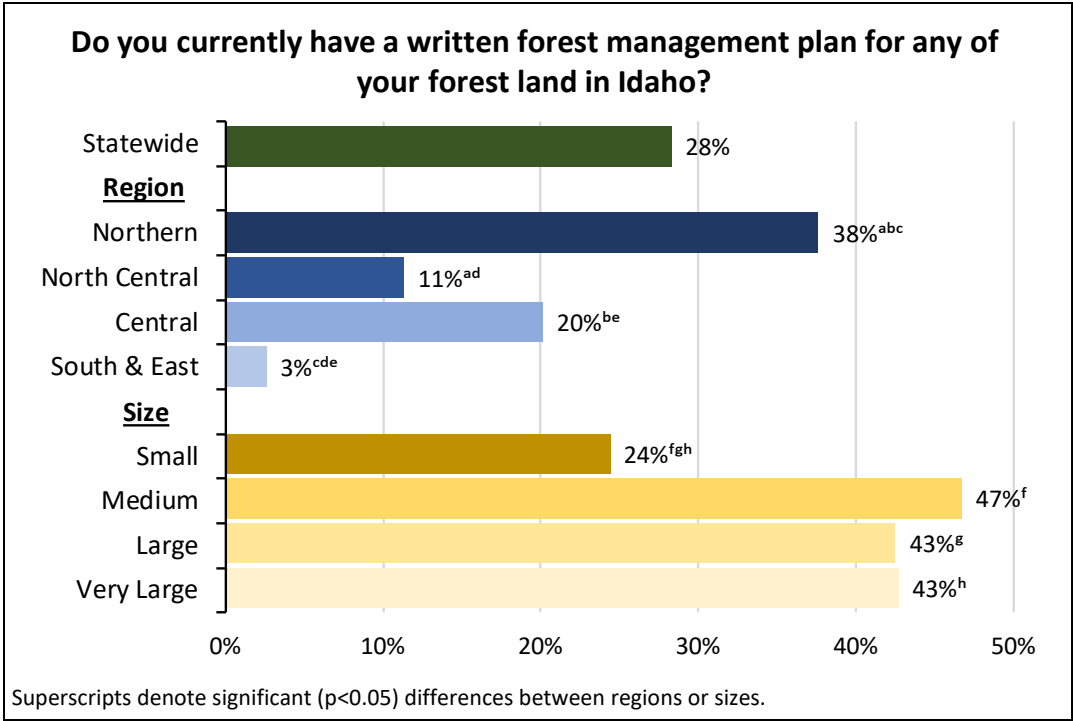


Figure 19. Percentage of family forest owners with written management plans.

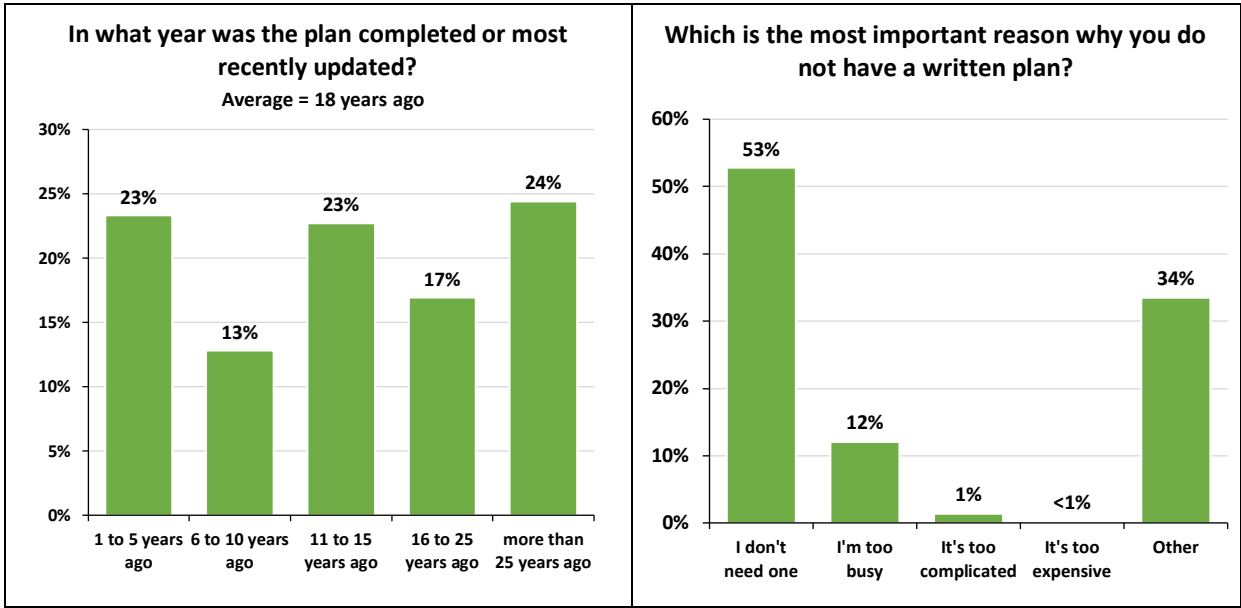


Figure 20. Age of management plan for family forest owners with one, and reasons for not having a management plan for owners without one.

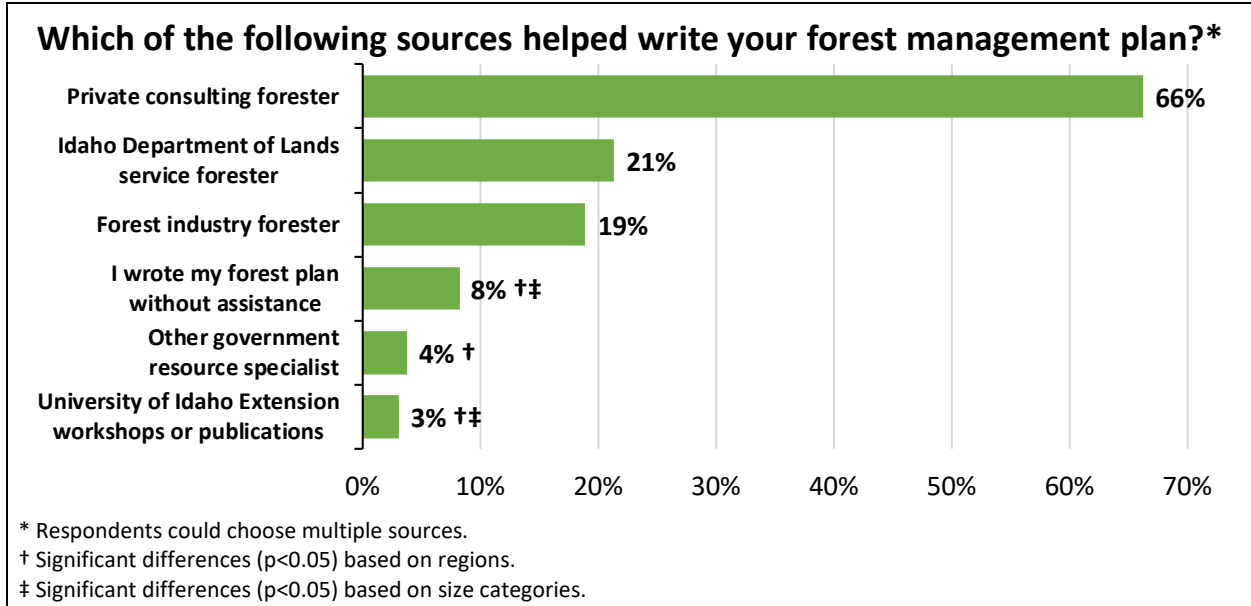


Figure 21. Assistance family forest owners received with writing management plan.

Overall, most family forest owners with written plans reported knowing their plans well, agreeing with the goals of their plans, and taking actions to implement their plans (**Figure 22**). Most plans addressed forest health, wildfire risks, and timber harvesting potential. Although almost three-quarters (72%) of owners agreed that they knew how to follow up on proposals in their plans, one-quarter did not agree.

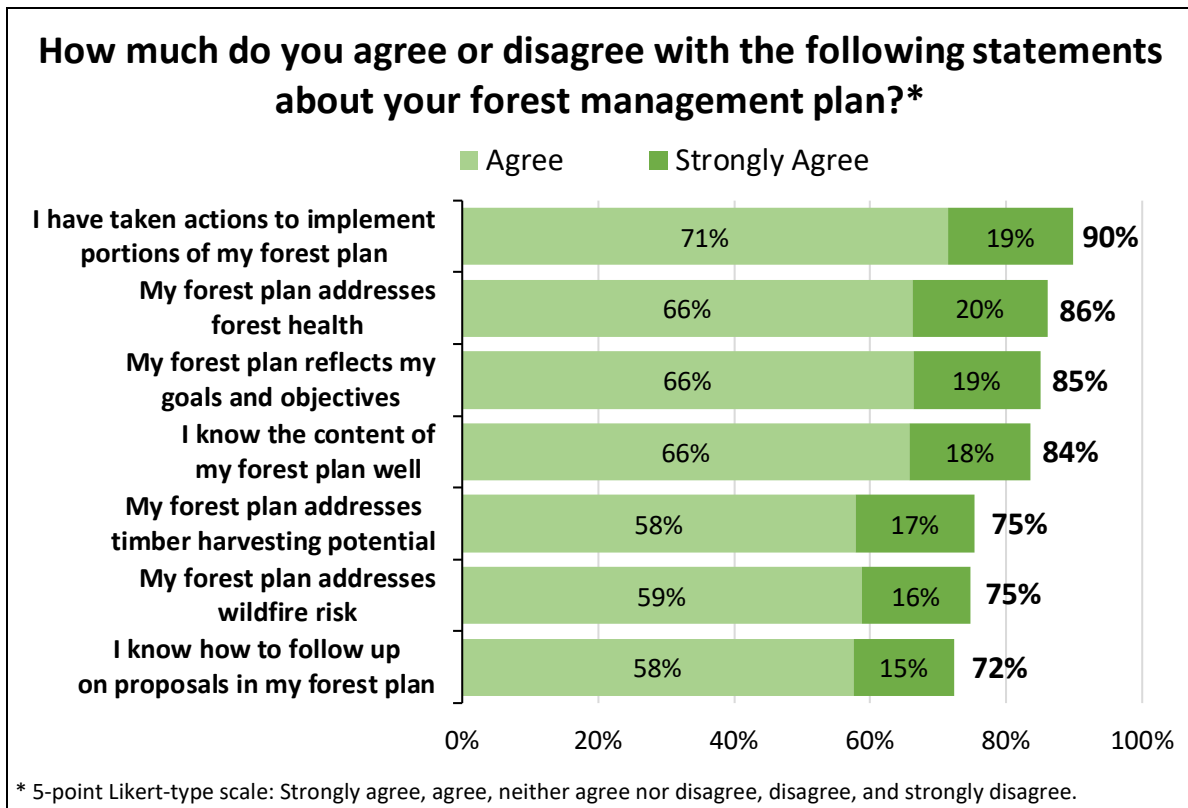


Figure 22. Family forest owners' opinions about their written management plans.

Owners with written management plans were 1.5 times as likely to have taken actions to reduce insects or disease problems, improve wildlife habitat, or thinned trees on their forest land than those without written plans (**Figure 23**). They were more than twice as likely to have commercially harvested timber and managed logging roads or trails. Owners with written plans also stated being more likely in the future to cut trees, manage roads and water crossings, and reduce insects or disease problems than those without written plans. Overall, owners with written plans took significantly ($p < 0.05$) more on-the-ground management actions (an average of 8.4 versus 6.1) and planned more actions for the future (8.6 versus 6.7) than owners without written plans. Whether owners took more actions because they had written plans, or owners predisposed to taking actions also were more likely to create written plans, is unknown.

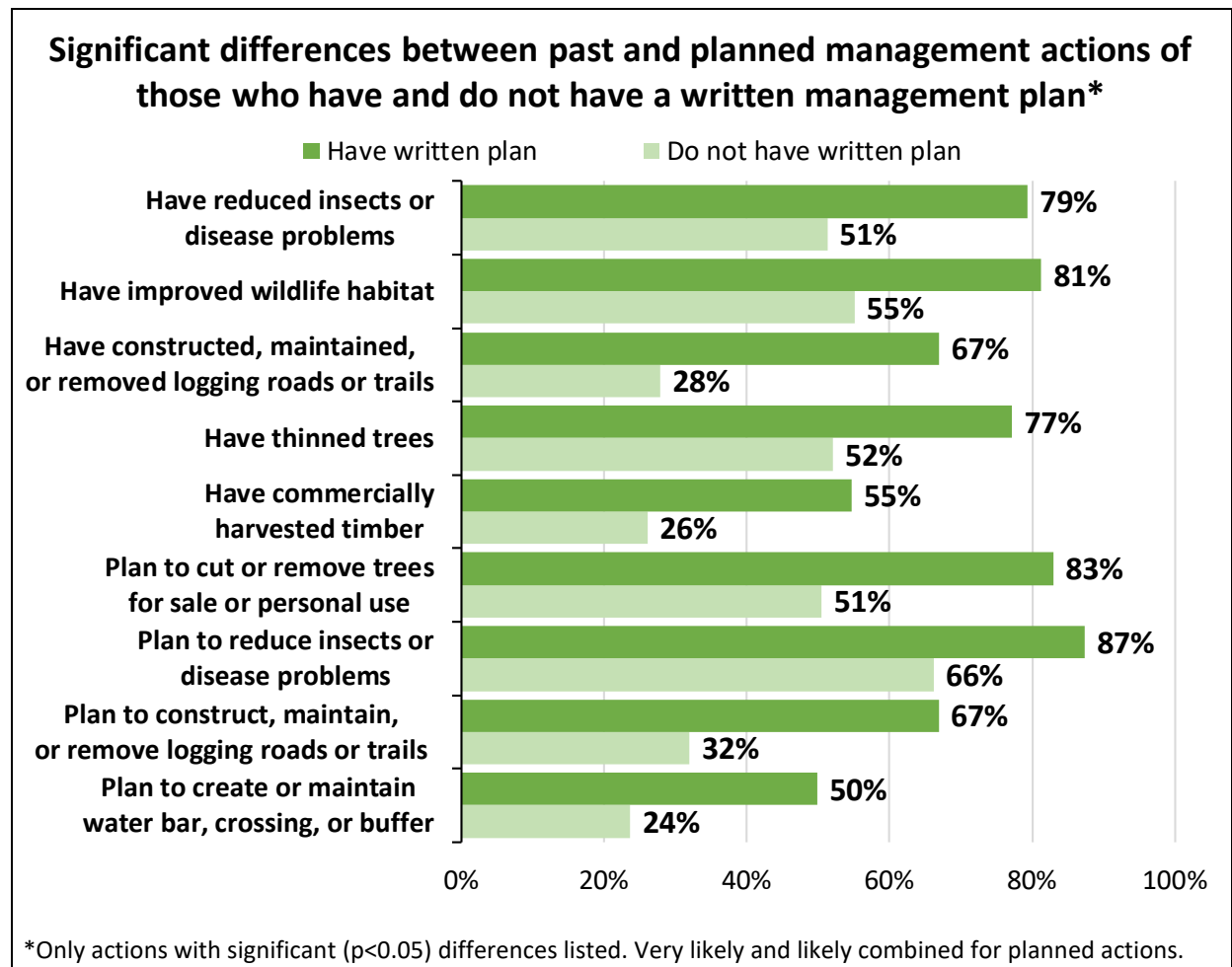


Figure 23. Differences in past and planned actions by family forest owners with and without a written management plan.

Decision-Making and Communication

Family forest owners may depend on a variety of sources of information when making management decisions about their lands. Understanding what sources of information are used and their importance in decision-making can help forestry assistance programs target information sources and appropriate communications channels to increase effectiveness. This survey examined three dimensions of decision-making and communications: sources of information used, their importance, and preferences for receiving information about programs.

Highlights

- Spouses, other family members, friends, neighbors, and other forest owners—owners' peers and social networks—are important sources of information that influence decision-making.
- Traditional surface mail is the most preferred method of communication with owners about forestry programs.

Family members and friends were by far used by more family forest owners (69%) than any other source of information (**Figure 24**). Private consulting foresters (32%), other forest landowners (30%), and loggers (26%) were each used by more than one-quarter of owners. Social media (3%) was the least used source of information for decision-making about family forests. Almost 12% of owners reported not using any of the information sources listed, and 23% reported using only one of the information sources listed. On average, owners used 2.8 types of the information sources listed.

Some regional and size category differences in information sources existed. Private consulting foresters were used as an information source by more owners in the Northern Region, which is expected because more consulting foresters work in that region. Loggers were used as an information source by more owners in the Northern and North Central Regions, which again is expected because of the prevalence of timber harvesting in those regions. Fewer owners in the Northern Region used the U.S. Forest Service as an information source, perhaps because other information sources are more prevalent in that region.

Fewer Small owners used loggers, IDL, U.S. Forest Service, trade media, conferences, or timber buyers as an information source for decision-making. The lack of importance and participation in timber harvesting may explain why these sources were used less. In contrast, more Very Large owners used those same sources of information, again possibly reflecting the increased importance and participation in timber harvesting among Very Large owners.

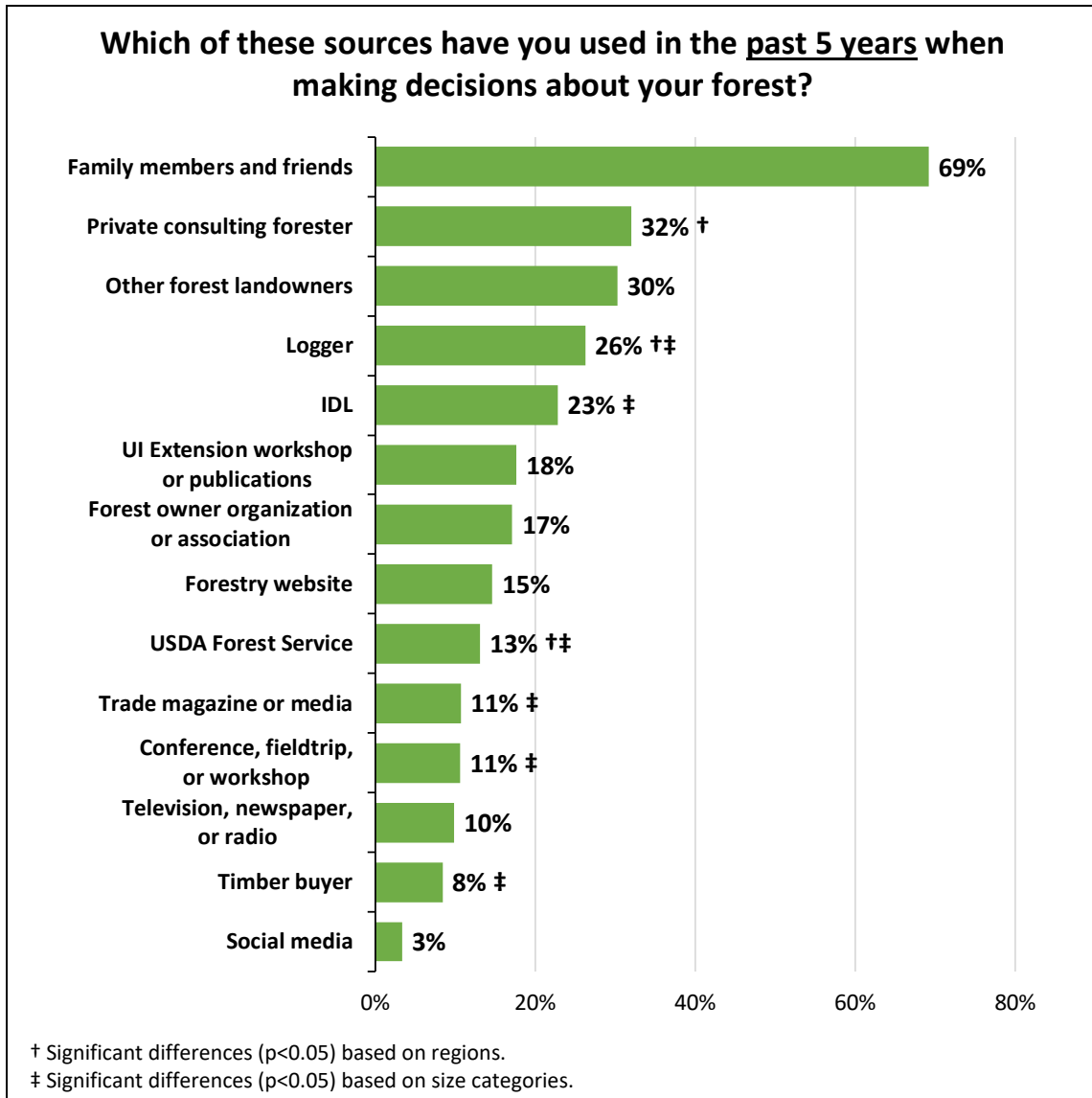
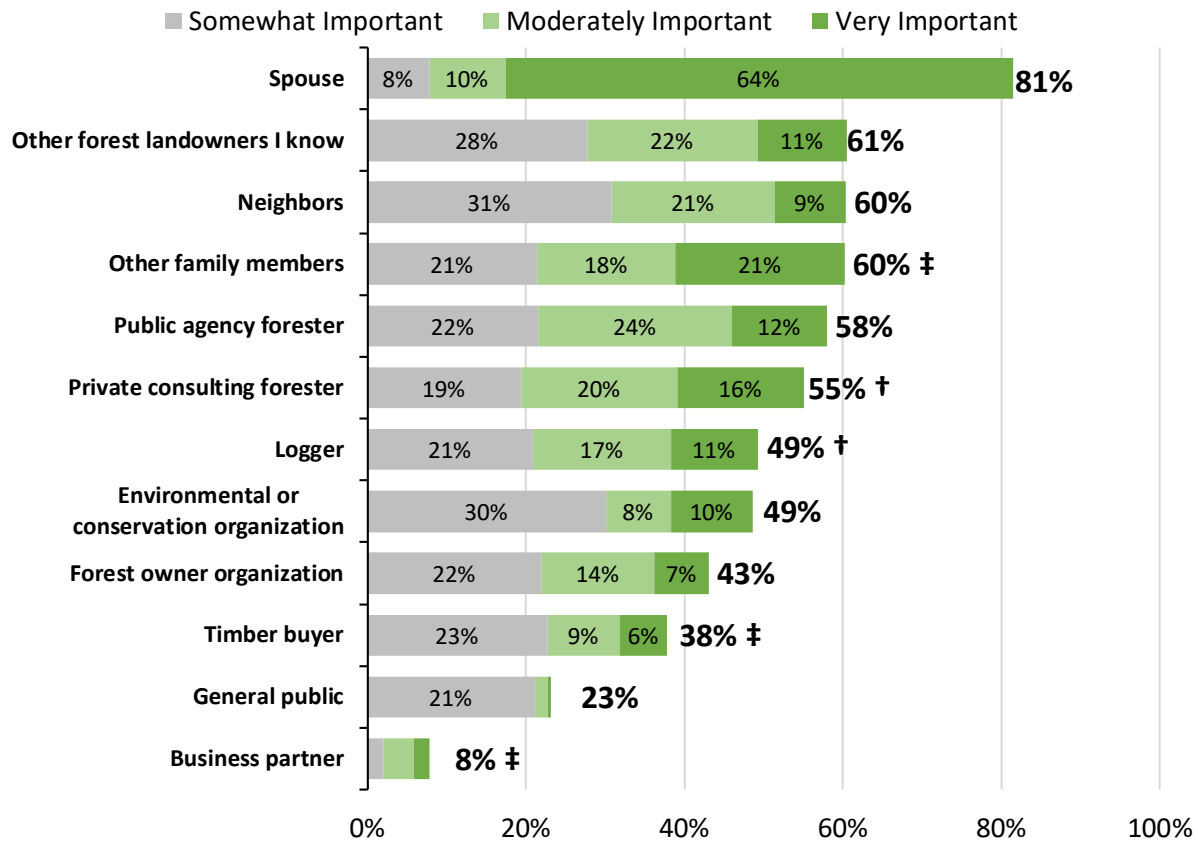


Figure 24. Sources of information used by owners for decision-making about family forests.

Few differences among information sources and demographic variables existed. Other forest owners were less likely to have been a source of information as age and income increased. Loggers, UI Extension, and social media were more likely to have been information sources for owners who live on or near their forest lands. Owners with college degrees were less likely to have used IDL but more likely to have used a forestry website as an information source.

With respect to the information owners find to be most important to decision-making, spouse’s recommendations and opinions were very important to decision-making for almost two-thirds (64%) of owners (**Figure 25**), by far the most important source. Recommendations and opinions of other forest owners, neighbors, and other family members also rated highly (60% or more with some degree of importance), followed by public agency and private consulting foresters. Recommendations and opinions of business partners rated lowest, perhaps because many family forest owners may not have business partners.

When making decisions about your forest land, how important are the following people's recommendations or opinions?*



* 4-point Likert-type scale: Very important, moderately important, slightly important, and not at all important.

† Significant differences ($p < 0.05$) based on regions; slightly, moderately, and very important combined versus not at all important.

‡ Significant differences ($p < 0.05$) based on size categories; slightly, moderately, and very important combined versus not at all important.

Figure 25. Importance of sources for decision-making for family forest owners.

More owners in the Northern Region placed importance on the recommendations and opinions of private consulting foresters, probably because of their prevalence and use by owners in the region. More owners in the Northern and North Central region placed importance on the recommendations and opinions of loggers, again probably for the same reasons. In contrast, fewer owners in the South & East Region placed importance on private consulting foresters and loggers, again probably because fewer work in the region.

Fewer Small owners placed importance on other family members, timber buyers, and business partners. More Very Large owners placed importance on business partners, probably because Very Large owners were more likely to have business partner relationships.

With respect to how owners prefer to receive information about forestry programs or activities, mail was the most preferred (61%; **Figure 26**). Social media and word of mouth were least preferred. Approximately 1-in-5 (18%) chose “none of the above,” perhaps indicating a concern that they would be contacted based on their response.

No regional differences in responses existed. The only size category difference was with Small owners expressing less preference for mail and Medium owners expressing greater preference for mail.

Few demographic differences existed in preferences for receiving information about programs. Age was positively correlated with preference for word of mouth. Owners with a college degree were more likely to prefer social media. Owners with higher incomes were more likely to prefer mail and less likely to prefer word of mouth.

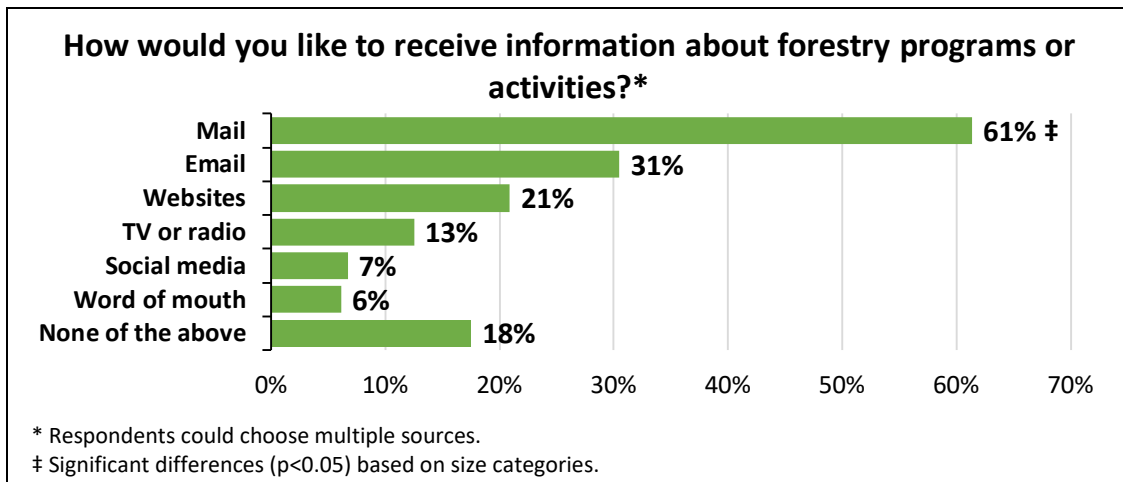


Figure 26. Family forest owners’ preferences for receiving information about programs.

Technical Assistance

Both IDL and UI Extension are charged with providing technical assistance and information to family forest owners in Idaho. Approximately 20% of Idaho’s family forest owners reported having received information or assistance from an IDL service forester in the last five years, and 23% of all owners reported having received information or assistance from UI Extension (**Figure 27**). Fewer Small owners have received assistance from IDL than owners in larger size categories. Almost all landowners who have received assistance reported high levels of satisfaction with UI Extension and IDL service foresters.

Highlights

- Fewer than 1-in-4 Idaho family forest owners have sought information or assistance from IDL or UI Extension in the past five years.
- However, those who have sought assistance are very satisfied with it.
- Owners who have sought assistance tend to more actively manage their forests than those who have not.

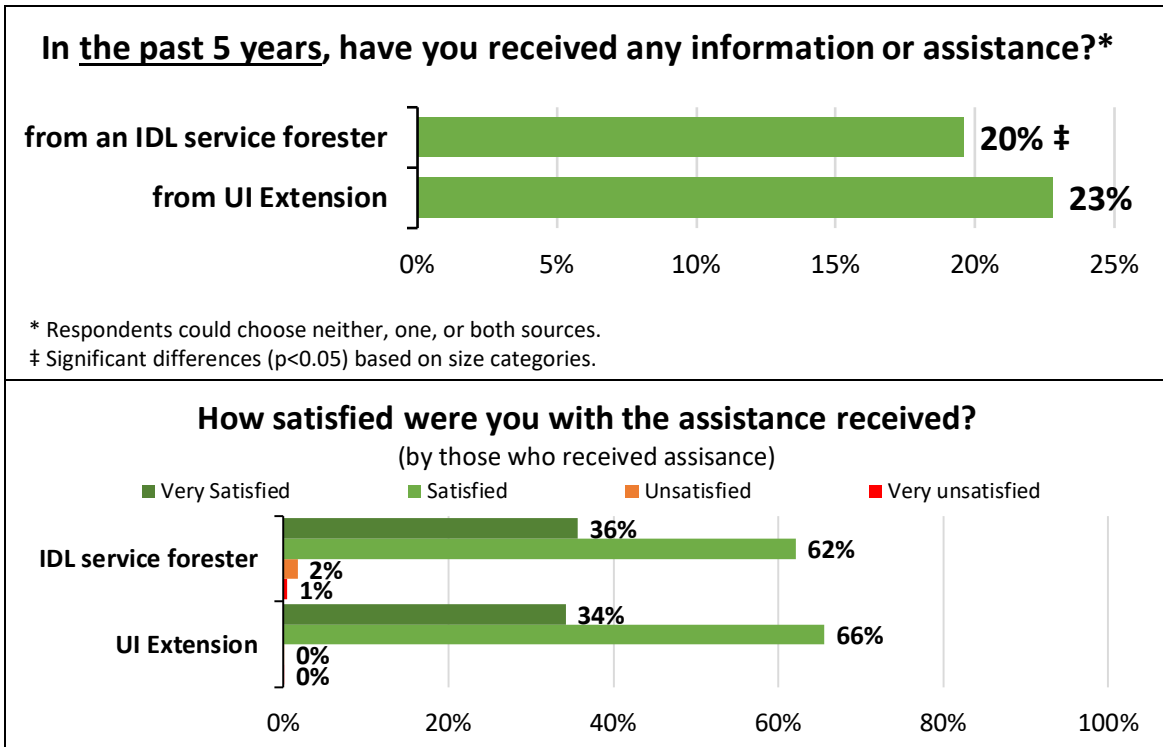


Figure 27. Use of assistance for family forest owners from UI Extension or Idaho Department of Lands and satisfaction with it.

Most landowners who have received assistance from UI Extension have received information about wildfire or defensible space (55%) and forest insects and diseases (50%; **Figure 28**). Help writing a forest management or stewardship plan was the most frequently cited (46%) type of assistance received from an IDL service forester.

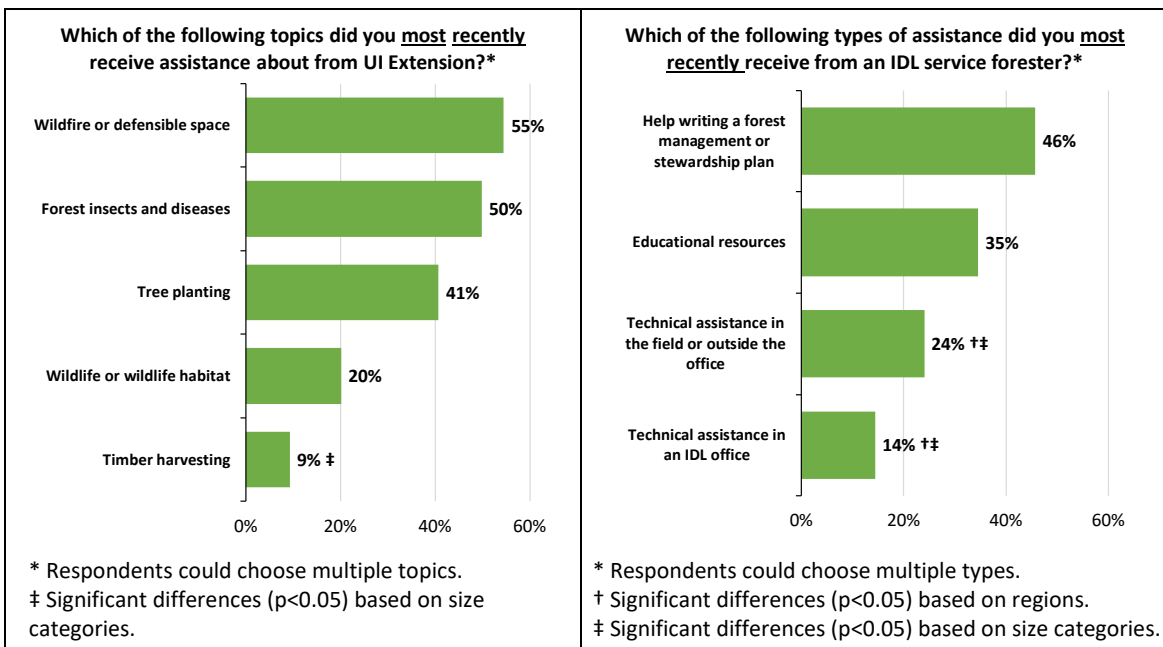


Figure 28. Types of technical assistance received by family forest owners.

Forest owners who had received information or assistance from UI Extension were more likely to have reduced wildfire risk, removed invasive plants, improved wildlife habitat, planted trees, and managed roads or trails than owners who had not used UI Extension (**Figure 29**). Owners who received assistance from an IDL service forester were more likely to have thinned trees, managed roads or trails, and managed water crossings, perhaps because IDL has regulatory oversight of water quality issues associated with timber harvesting (**Figure 30**). Overall, owners who sought assistance from IDL took significantly ($p < 0.05$) more management actions on their forests in the past (average 8.4 versus 6.2) and planned to do so in the next five years (8.7 versus 6.6). The same was true for UI Extension (past actions: average 8.7 versus 6.0; future actions: 8.5 versus 6.7). Whether increased action was a result of information provided by IDL or UI Extension, or owners who sought information were predisposed to taking action, is unknown.

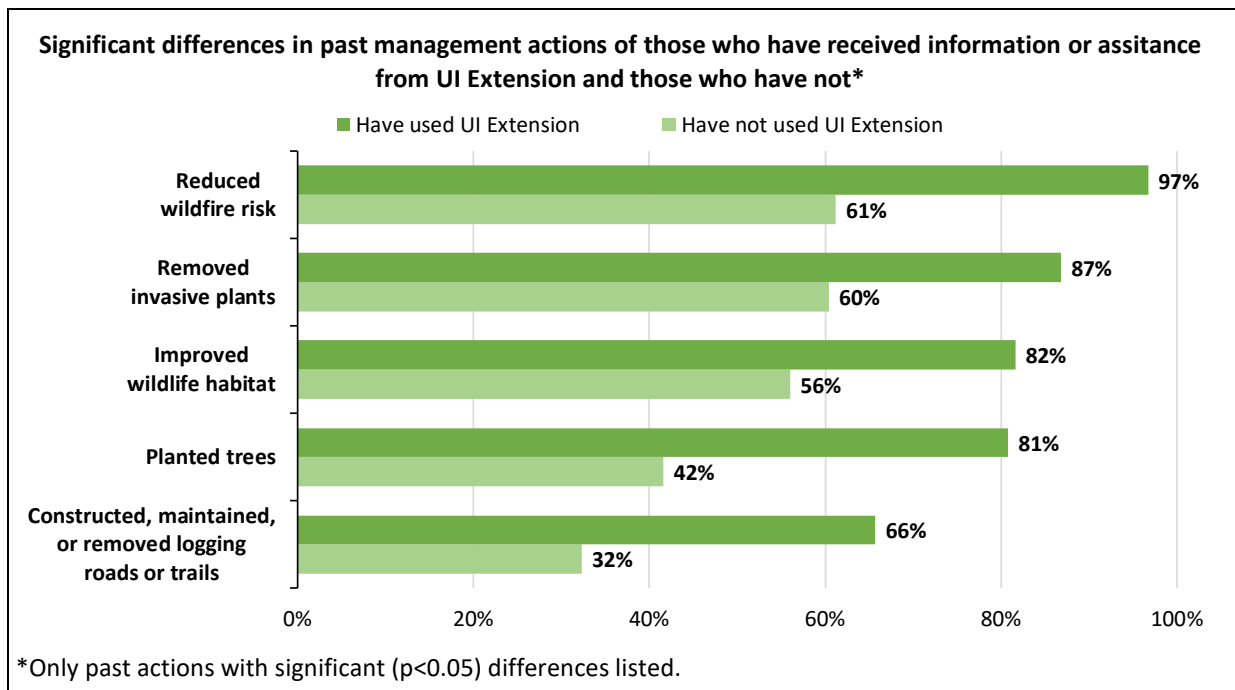


Figure 29. Differences in past management actions of family forest owners who received assistance from UI Extension and those who did not.

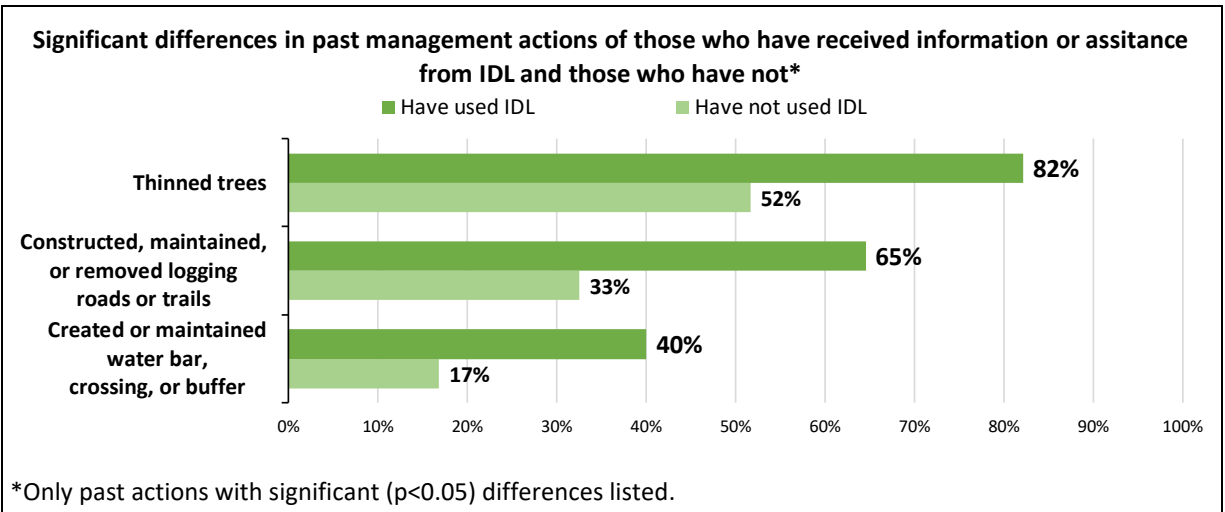


Figure 30. Differences in past management actions of family forest owners who received assistance from IDL and those that did not.

UI Extension Forestry Shortcourse

UI Extension offers an 18-hour Forestry Shortcourse that enhances family forest owners' understanding of forest planning, forest ecology, silviculture, insects, disease, wildlife habitat, taxes and other forest stewardship topics.

As outlined in the Methods section, all 386 participants in the Forestry Shortcourse between 1992 and 2016 were sent a survey to help evaluate effectiveness of the course. Almost 53% responded (196 respondents; 14 undeliverables). After applying appropriate design weights, Forestry Shortcourse participants represented about 4% of respondents statewide (**Figure 31**). There were more respondents who had participated in the course in the Northern and North Central Regions, and more Very Large owners.

Highlights

- Forestry Shortcourse participation is higher in the Northern and North Central Regions, closer to where the course is offered.
- Course participants are more likely to have their residence on or near their land and be older than non-participants.
- Course participants are more engaged in management of their lands as evidenced by past actions, including commercial timber harvesting, and future planned actions.

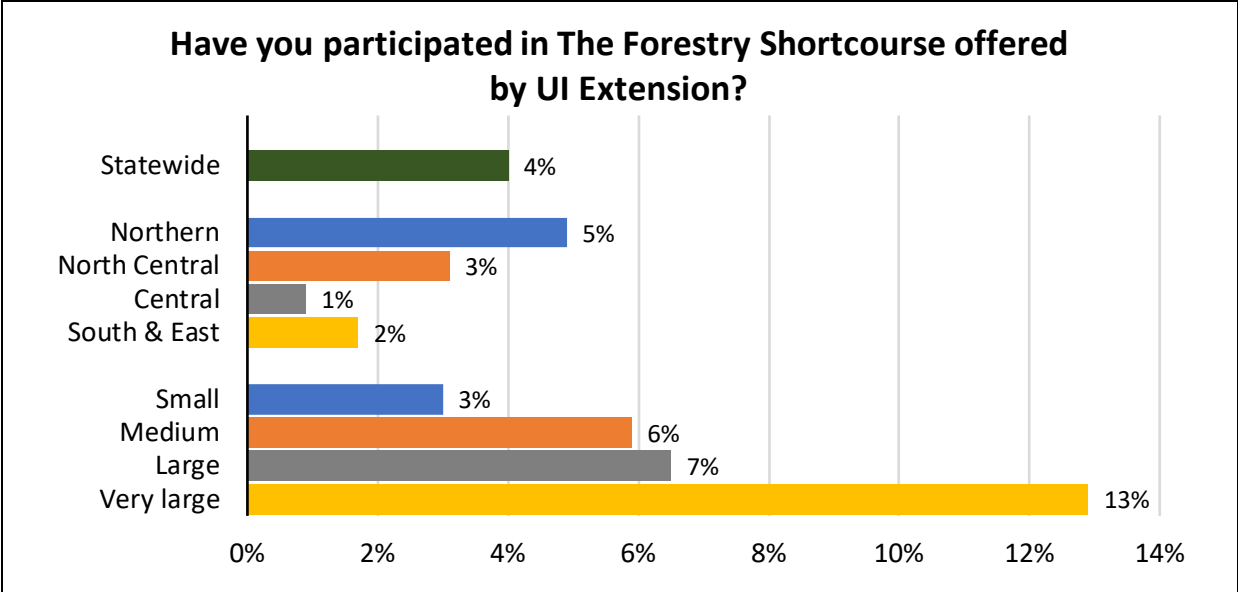
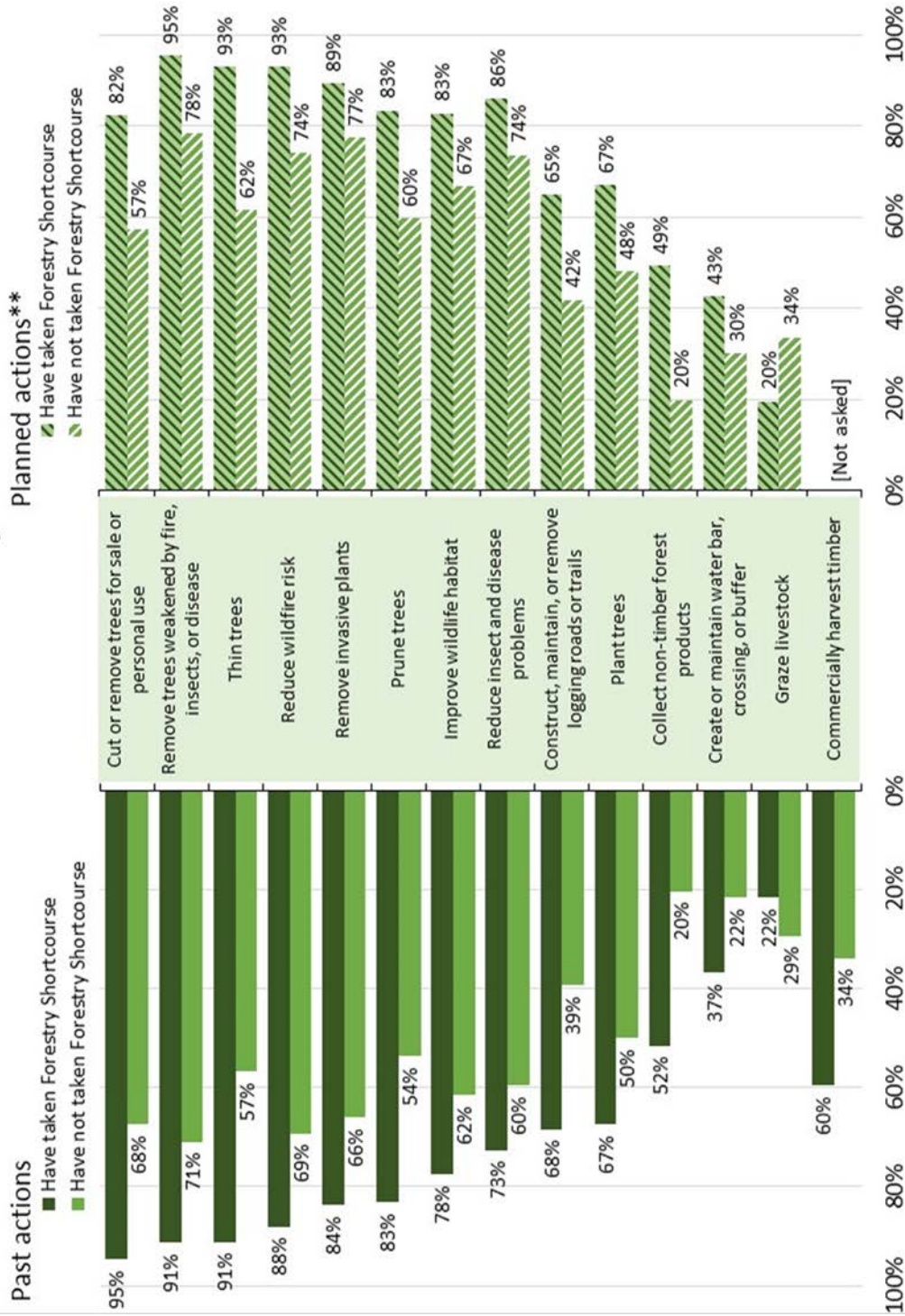


Figure 31. Percent of respondents that had participated in UI Extension Forestry Shortcourse, after applying design weights.

Participants in the Forestry Shortcourse were different from other family forest owners in numerous ways. On average, course participants were older than non-participants, and were more likely to be residents on or near their forest land, spend more days on their lands, and take advantage of forest land property tax categories (Category 6 or Category 7). They were more likely to know the property tax category of their lands.

Forestry Shortcourse participants were more likely than other owners to place importance on timber and non-timber products as reasons for owning forest land and less likely to place importance on a vacation home site. Course participants were more likely to have taken every on-the-ground management action, except for grazing livestock (**Figure 32**). The same holds true for planned future actions. Overall, course participants had taken and planned to take more actions than other owners (average 9.2 versus 6.6 and 9.4 versus 7.2, respectively). More participants also had commercially harvested timber than owners who had not taken the course (60% versus 34%).

Significant differences between past and planned actions of those who have and have not taken the UI Extension Forestry Shortcourse*



* All past and planned actions have significant difference (p<0.05), except graze livestock.
 * Likely and very likely combined.

Figure 32. Significant differences between past and planned management actions of family forest owners who have and have not taken the UI Extension Forestry Shortcourse.

Discussion

The primary objectives of this study were to better understand management behaviors and preferences of family forest owners in Idaho, and to evaluate the influence of assistance and educational programs offered by IDL and UI Extension. Evidence for how to more effectively influence and communicate with family forest owners also was sought. This research identified characteristics and trends that may influence management of Idaho's family forests in the future so that educational and assistance programs can adapt to changing needs.

Most of Idaho's family forest owners actively manage their forest lands, as measured by the types and number of on-the-ground management actions they have taken in the past and plan to take in the future. The most frequently cited management actions are those related to improving forest conditions—e.g., removing trees weakened by fire, insects, or diseases; and reducing wildfire risk—that bode well for continuing productivity and ecosystem function of Idaho's family forests.

More of Idaho's family forest owners appear to actively manage their forests than owners in other parts of the country. For example, the 2013 National Woodland Owners Survey found that nationwide 15% of family forest owners took actions to reduce fire risk, 23% removed invasive species, and 33% reduced insects and disease problems (Butler et al. 2017). In contrast, this study found 71%, 66%, and 59%, respectively, of Idaho family forest owners took those same actions. The reasons that Idaho's family forest owners are different from those in other parts of the country are unknown, but may be worth exploring to increase effectiveness of assistance and education programming in other states.

Other findings of this study offer a cautionary note and indicate issues that assistance and education programs could target in the future. For example, family forests provide fiber to Idaho's forest products industry (and income to forest owners); however, the contribution of family forests to Idaho's timber supply is from a relatively limited proportion of owners. Despite actively managing their forests, this study found that only one-third of family forest owners had commercially harvested timber in the past, and just over half (58%) were likely or very likely to harvest trees for sale or personal use in the future. In addition, this study found that one-quarter of commercial timber harvests took place more than 20 years ago. These findings are not surprising given that only one-quarter of forest owners cited timber products as a very or moderately important reason for owning their forest land, and that most family forests are small ownerships where the operational efficiency of commercial timber harvesting may be economically challenging (Hatcher et al. 2013). However, if increasing the contribution of Idaho's family forests to Idaho's timber supply is a goal, implications of these findings, including the condition of family forests and limitations expressed about harvesting, need to be addressed in assistance programming.

Written management plans can provide important guidance to family forest owners. One of the primary purposes of the federally-funded and state-implemented Forest Stewardship Program is to encourage written forest stewardship plans (USDA Forest Service 2015). Some research at the national level and in other parts of the country suggests that written plans are correlated with more active forest management (e.g., Egan et al. 2001; Esseks and Morehouse 2005); however, other forms of assistance, including financial, may contribute to increased activity (Kilgore et al. 2015). This study found that family forest owners in Idaho with written plans were more actively managing their forests than those without plans. However, less than one-third of Idaho's family forest owners reported having a written management plan, almost two-thirds of plans were written or most recently updated more than 10

years ago, and one-quarter of owners with plans were uncertain about how to follow up on proposals in their plans. Assistance programs may want to focus on increasing the number, recentness, and implementation of written plans. For instance, understanding how counties enforce or are involved in forest taxation could illuminate the roles of management planning in accomplishing these objectives. Counties provide tax relief to family forest owners with the expectation that they will eventually harvest timber, but how many landowners actually harvest?

Customer satisfaction was good news for IDL and UI Extension; almost every family forest owner who received assistance from either organization was satisfied or very satisfied with the assistance they received. Also encouraging was that forest owners who sought assistance from either agency were more actively managing their forests than those that did not, as evidenced by more past and planned actions overall. Similarly, forest owners who had participated in the UI Forestry Shortcourse more actively managed their forests as evidenced by past and planned actions, including commercial timber harvesting. It is impossible to determine cause and effect (i.e., do owners with propensity to be more active managers seek out assistance, or does assistance increase an owner's propensity to be an active manager), but a positive correlation between assistance and active management exists.

The caution is that relatively few family forest owners seek IDL or UI Extension assistance; less than one-quarter of family forest owners had sought assistance from UI Extension and only one-fifth had sought assistance from IDL in the last five years. Effectiveness of assistance programming, as measured by forest owner participation, could be improved. And given that forest owners sought and valued information predominately from family, friends, and other members of their social networks, suggests peer and social network connections facilitated by assistance programming have the potential to reach more landowners.

Some research has questioned the effectiveness of traditional forestry assistance programming and communications strategies (e.g., Kittredge 2004; Ma et al. 2012). These studies suggest that the traditional transfer-of-knowledge model may be less effective than a peer learning model and stress the importance of forest owners' peer networks in decision-making (e.g., Ma et al. 2012; Kittredge et al. 2013; Kueper et al. 2014 and 2015). This study's results add support: spouses, other family members, friends, neighbors, and other forest owners—owners' peer and social networks—were the most used and most important sources of information that influence decision-making. Assistance programming that takes advantage of peer and social networks, such as UI Extension's Idaho Master Forest Stewards program (UI Extension 2018), may improve both efficiency and effectiveness.

Using social networks should not be confused with using social media as a communications strategy. In this study, social media ranked lowest in the proportion of forest owners who use it as a source of information for decision-making, and it was preferred by very few owners as a communications method to learn about forestry assistance programs. Other electronic media, such as websites and email, also were not as preferred for communication when compared to traditional surface mail. While it may be tempting to attribute the low ranking of electronic and social media to the older age of Idaho's family forest owners, no statistically significant relationship between age and those variables was found. Study findings suggest that despite its expense, forestry assistance agencies may need to continue to rely on printed and mail media for communications about their programming.

As far as measuring effectiveness of IDL and UI Extension assistance, that depends, in part, on the goals of their programs. For example, if a goal is to increase the proportion of owners who actively manage their forests, an objective could be to increase the proportion of owners who have written management plans. Over half of owners without plans identified not needing one as the most important reason they did not have a written plan. More emphasis by forestry agencies on communicating the benefits of written plans may persuade some owners to create them. A majority of owners with plans reported private consulting foresters assisted in writing them. Financial assistance for owners to create plans and perhaps increasing collaborative efforts between IDL and consulting foresters might increase the number of plans written.

If maintaining or increasing the contribution of family forests to Idaho's timber supply is a goal, IDL and UI Extension need to be sensitive to the reasons that family forests are owned. Producing timber was not important for many owners; scenic beauty, personal privacy, wildlife habitat, and nature protection dominated reasons for ownership. However, many owners who did not place importance on producing timber have taken or plan to take actions that result in the removal of trees from their forests, including commercial timber harvesting. The reasons for removal are related to improving forest conditions or wildfire risk reduction, not specifically to produce timber. Forestry assistance information and communications that emphasize improving forest conditions and wildfire risk reduction may be likely to achieve more timber harvesting than those targeted only at income production. This study's finding is similar to that of many studies across the nation (e.g., see Ma and Kittredge 2011).

Among reasons that limit the decision to harvest timber, and are under an owner's control, negative effects on wildlife, aesthetics, or recreation were most limiting for Idaho's family forest owners. Assistance programming that demonstrates how to reduce or mitigate these negative effects (real or perceived) may positively influence owners' decisions about timber harvesting. Also, half of all family forest owners reported some level of limitation about harvesting timber because they were uncertain about what to do. Assistance efforts that help family forest owners navigate the process of planning and implementing a timber harvest could reduce apprehensions.

Financial and personnel resources for both IDL and UI Extension are limited, so targeting resources where and how they will be most effective is important. Some guidance provided by results of this study are intuitive. For example, timber production is important to more owners in northern Idaho, where forests are more prevalent. If increasing the proportion of family forest owners providing timber supply is a goal, then continuing to concentrate efforts in the Northern Region may be efficient. However, increasing resources targeted at the North Central Region also may produce significant gains because of the number of owners, larger sizes of forest properties, and lack of written management plans. Study results suggest that targeting larger landowners (not Small), who tend to place more importance on timber production, would also be efficient. However, if assistance program goals are more generally related to forest stewardship, such as reducing wildfire risk, this study found few differences between regions or size categories related for those types of past or planned actions. This finding does not provide much guidance about specific groups of owners to target for programming; forest owners throughout the state and of all sizes are interested in maintaining or improving the conditions of their forests.

What does the future hold for Idaho's family forests? Several demographic and ownership characteristics suggest changes ahead. Over half of Idaho's family forest lands are owned by someone at least 65 years old. Although this study did not find a significant relationship between age and plans to sell or give away forest ownerships or plans for future management actions, an owner's age will eventually influence those decisions. Over one-quarter of Idaho's family forest owners said it is likely or very likely they will sell or give away a portion of their land in the next five years. This translates into the potential for up to one-third (560,000 acres) of Idaho's family forest lands to change hands in the near future. Assistance and educational programming may want to address issues associated with intergenerational transfer (whether forests stay in the family or not) and selling of forest properties. It is not known how new owners may differ from current owners nor what experiences they may have managing forests. But if there are many new owners, then assistance and educational programming may need to target audiences with less experience, training, or practice managing family forests. Many of these new owners may also be absentee, spending less time on their forests and owning them for different reasons than their predecessors. How might the role of written forest management plans change to reflect different values?

If the past is a predictor of the future, Idaho's family forests and their owners may change in some ways, but remain consistent in others. Although differences in questionnaires do not allow exact comparisons with the last in-depth survey of Idaho's family forest owners in 1987 (Force and Lee 1991), a few general comparisons are noteworthy. Among the characteristics that have remained remarkably consistent are the importance of amenity and wildlife-related reasons for ownership and the proportion of owners who value their lands for timber production. Among the characteristics that have changed, the average age of owners is older now, a smaller percentage have commercially harvested timber than 30 years ago, a larger percentage plan to sell or transfer ownership soon, and a smaller percentage have sought assistance from a public forestry agency. Interestingly, today's family forest owners appear to be more active managers than they were 30 years ago, but perhaps this is because today's family forest owners face more threats to forest conditions and higher wildfire risk.

Future Research Opportunities

The survey analysis and results presented in this report concentrate on the regional and size category differences and similarities of family forests and their owners. This analysis only scratched the surface of informative results the survey data may reveal. For example, future analysis could address questions such as: Are family forest owners enrolled in Idaho's bare land & yield (Category 7) forestland taxation category actively harvesting timber? How is their propensity for harvesting timber affecting county tax revenues? How effective are county requirements for written forest management plans? How are absentee landowners managing their forests, and how can forestry assistance agencies more effectively engage them, especially given demographic changes? What additional implications are there for the large amount of family forests potentially being sold or otherwise transferring ownership in the near future?

Numerous studies of family forest owners have used the marketing-based technique of customer segmentation to better target assistance and programming (e.g., Salmon et al. 2006; Metcalf et al. 2016). Based on reasons for forest ownership and other characteristics, family forest owners often have been segmented into categories such as "amenity-focused owners," "timber-focused owners," or "passive owners." This study attempted to segment Idaho family forest owners using multi-variate

techniques such as factor analysis and cluster analysis that have been used in other studies. However, these efforts produced statistically insignificant results (e.g., low percentage of variance explained in factor analysis; low Cronbach alphas for scale reliability; poor model fit for cluster analysis). Further investigation is warranted to determine if other segmentation and modelling techniques would produce reliable and useful results, or are Idaho family forest owners really different in that they are more homogenous and do not readily cluster into distinct customer segments.

In addition, future research could improve on the shortcomings of this study's methodology. For example, geographically locating each parcel of family forest land in a GIS database and cross referencing it with vegetation cover GIS data could improve the accuracy of estimates of acreage of family forests. Also, although this study applied design weights to correct for nonresponse error related to region and size of ownership, assessing nonresponse error for other characteristics may improve the accuracy of estimates of characteristics of the family forest owner population as a whole.

Forests and their owners are dynamic. Future research and continued monitoring and assessment of the status of Idaho's family forests and the actions and intentions of their owners will allow IDL, UI Extension, and other organizations to identify how best to address changing conditions and needs.

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Appendices. Selected Results by Region

Forest owners, resource professionals, assistance agencies, and local policy makers may be interested in results for a specific region. The following appendices display results for many survey variables, regardless of whether differences between regions were statistically significant.

Appendix A—Northern Region

Appendix B—North Central Region

Appendix C—Central Region

Appendix D—South & East Central Region

Appendix A. Northern Region

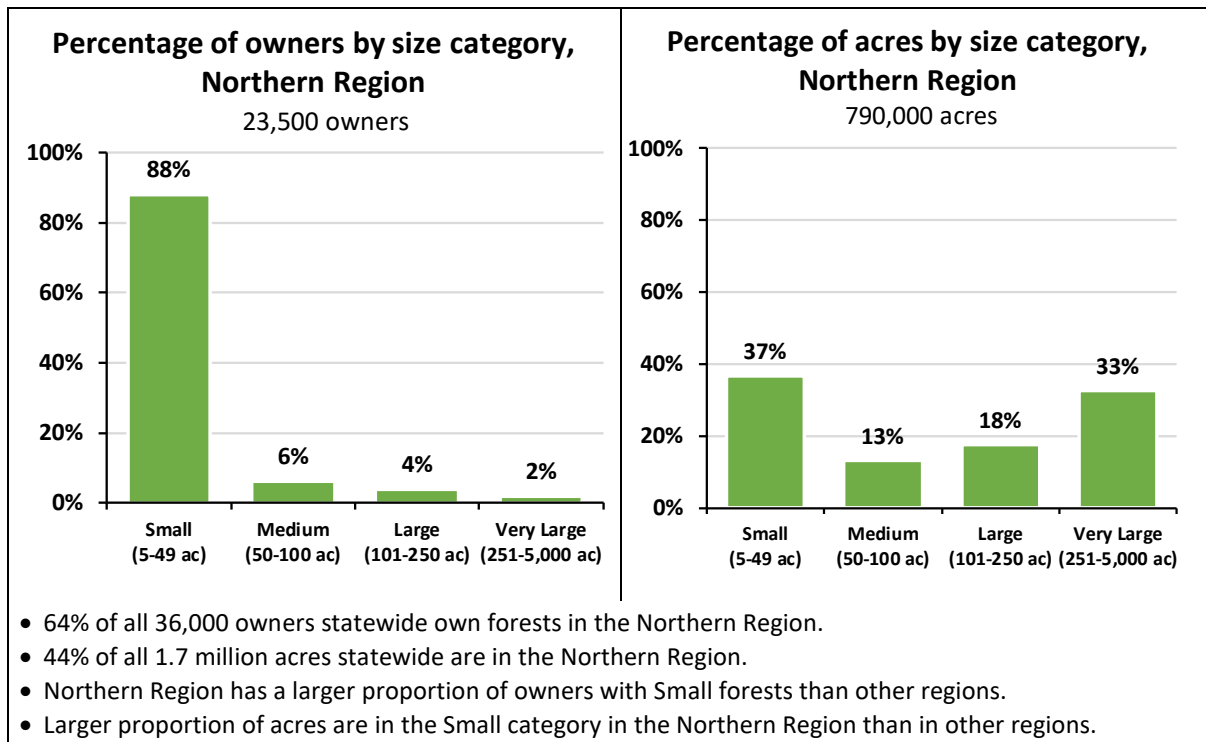


Figure A-1. Percentage of family forest owners and acres, by size category, Northern Region.

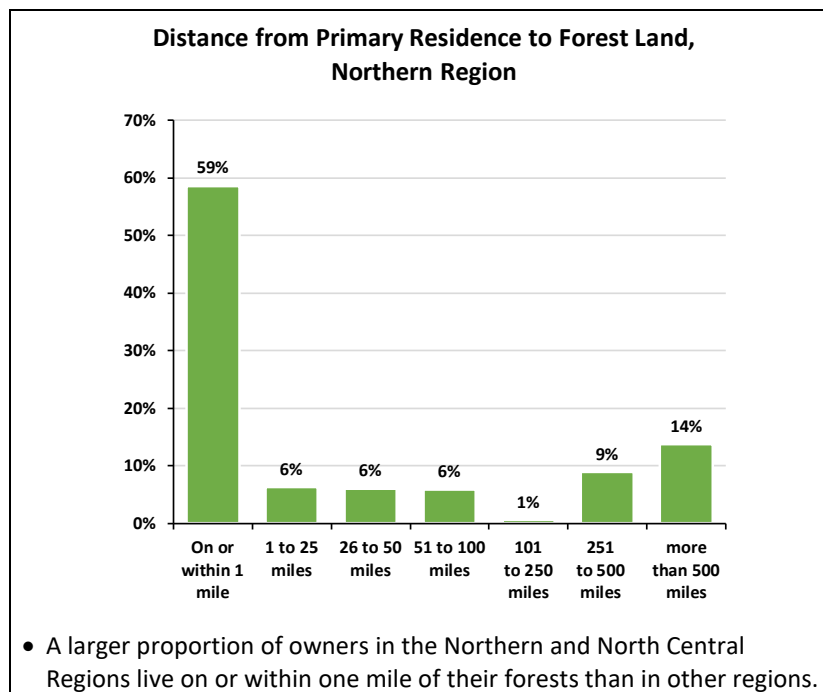


Figure A-2. Distance from primary residence to forest land, Northern Region.

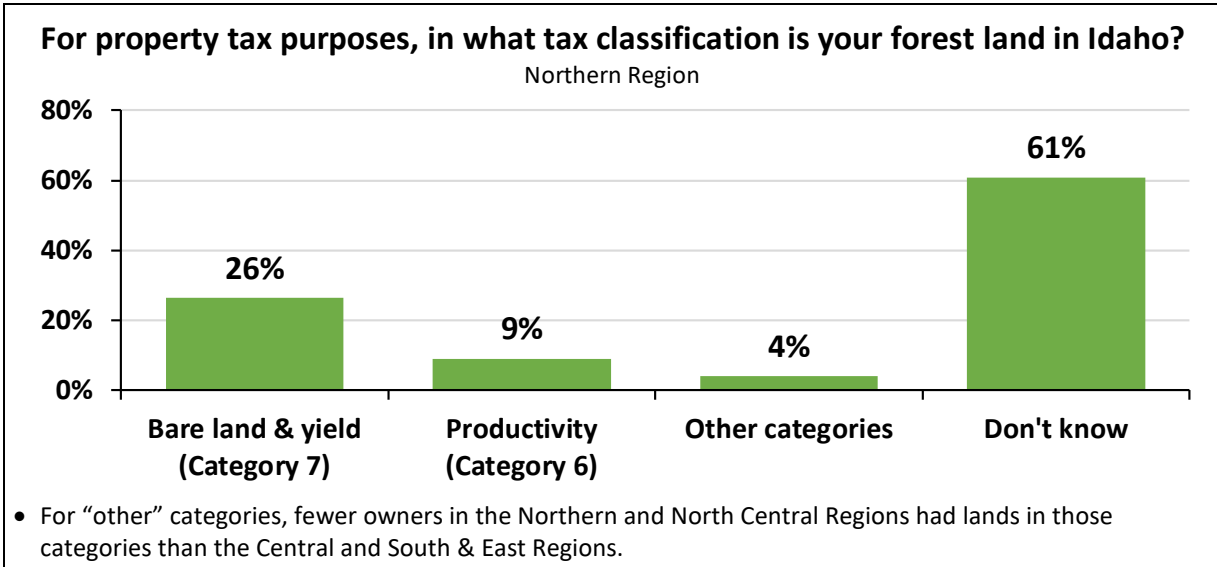


Figure A-3. Property tax classification of forest land, Northern Region.

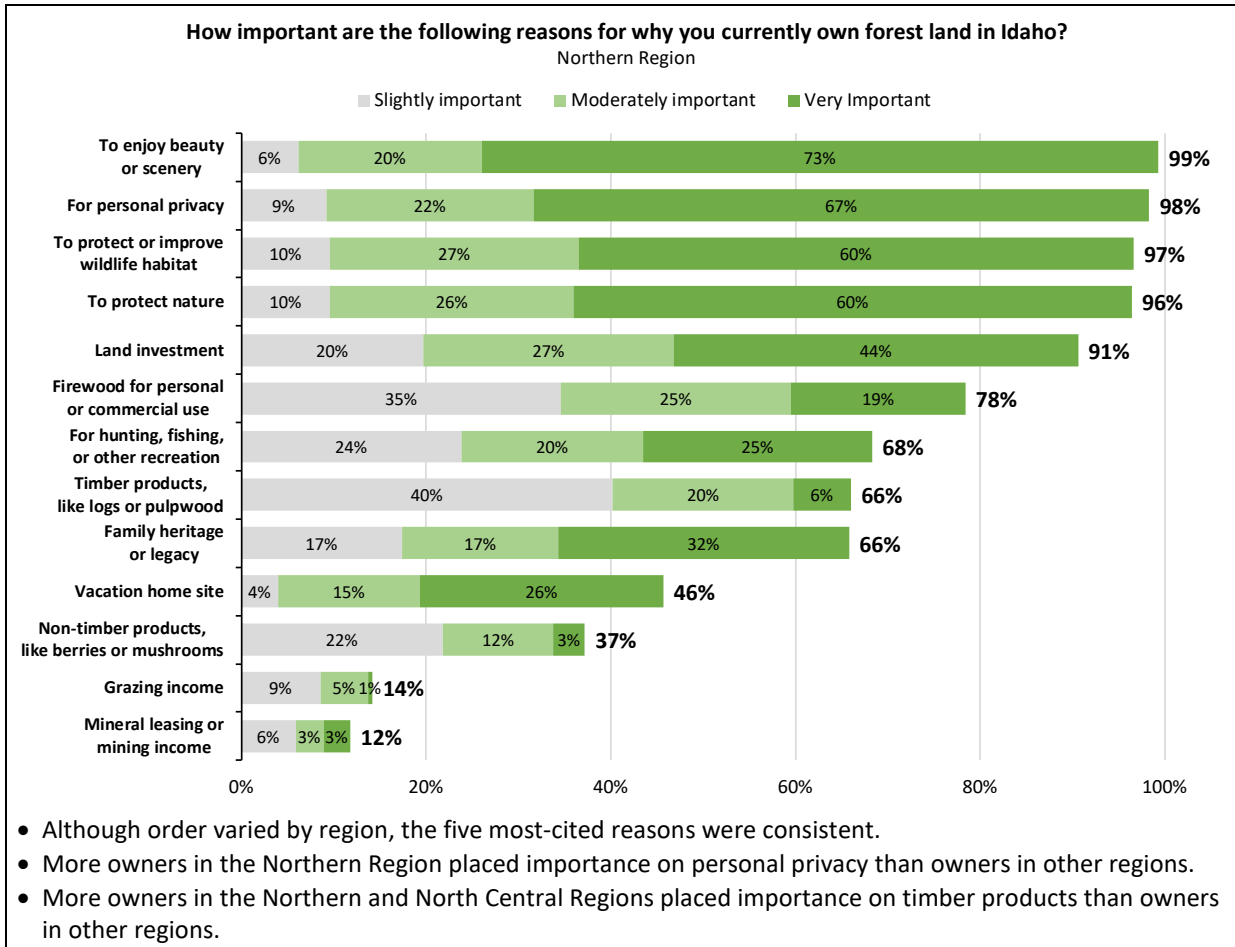


Figure A-4. Importance of reasons for owning forest land, Northern Region.

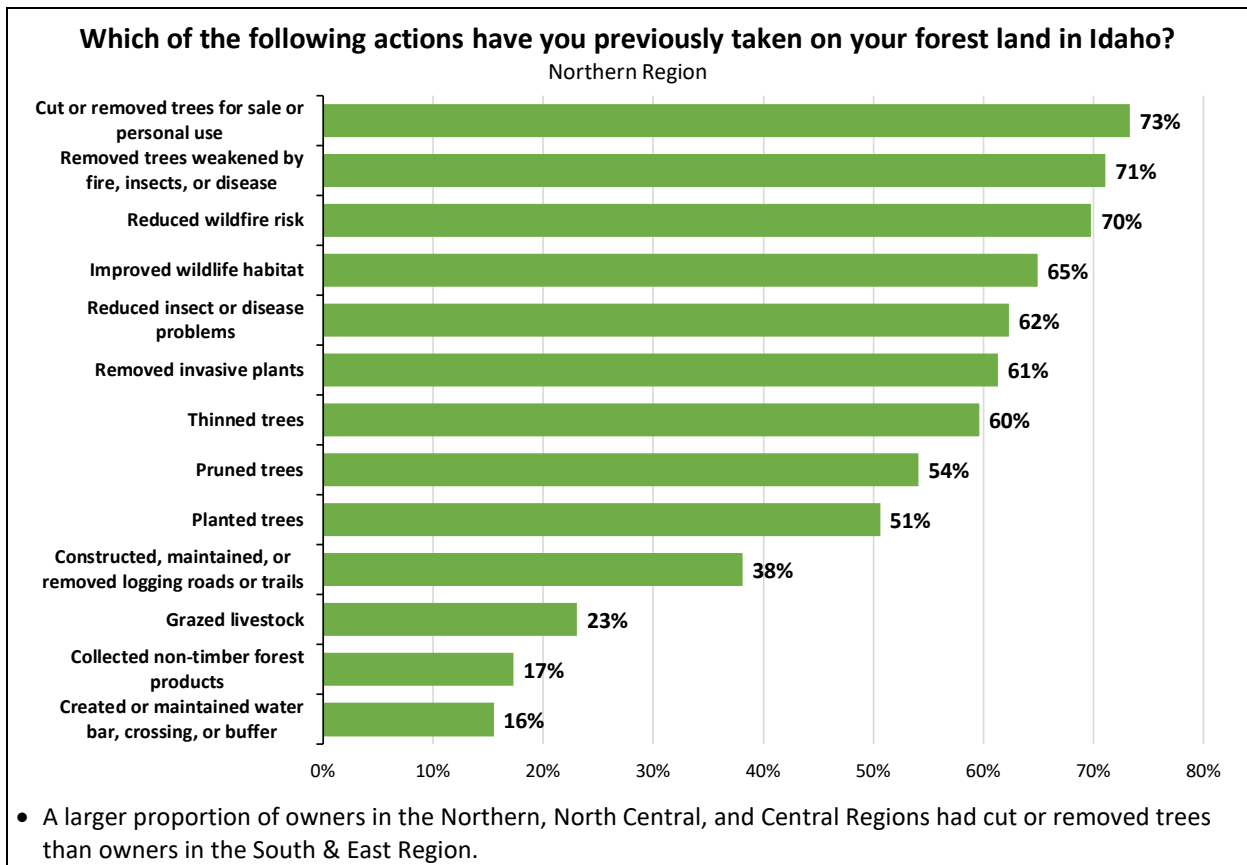


Figure A-5. Past management actions, Northern Region.

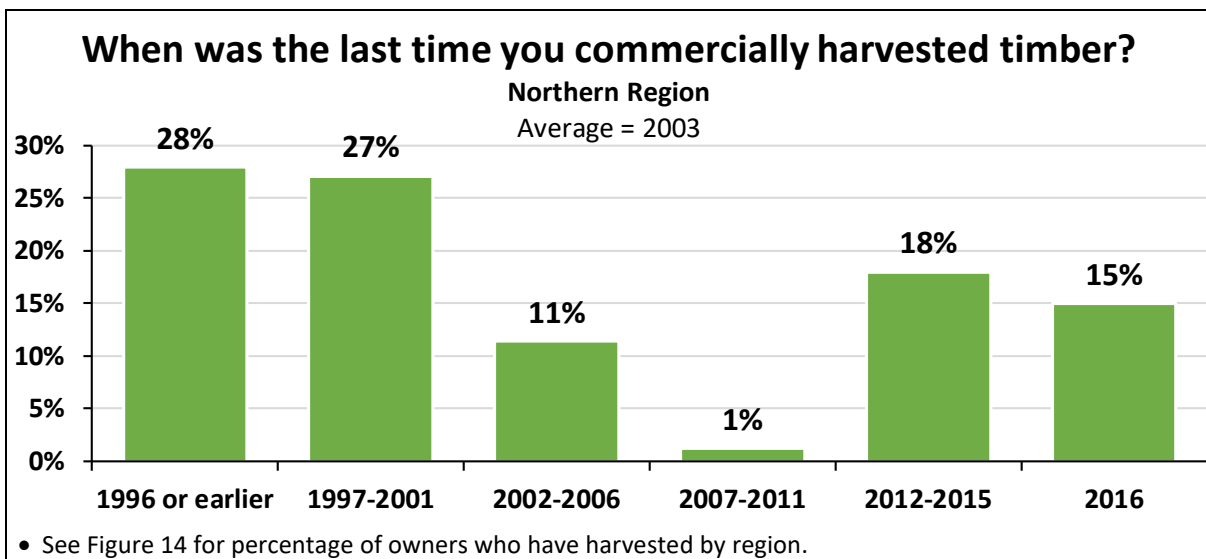


Figure A-6. Year of last commercial timber harvest, Northern Region.

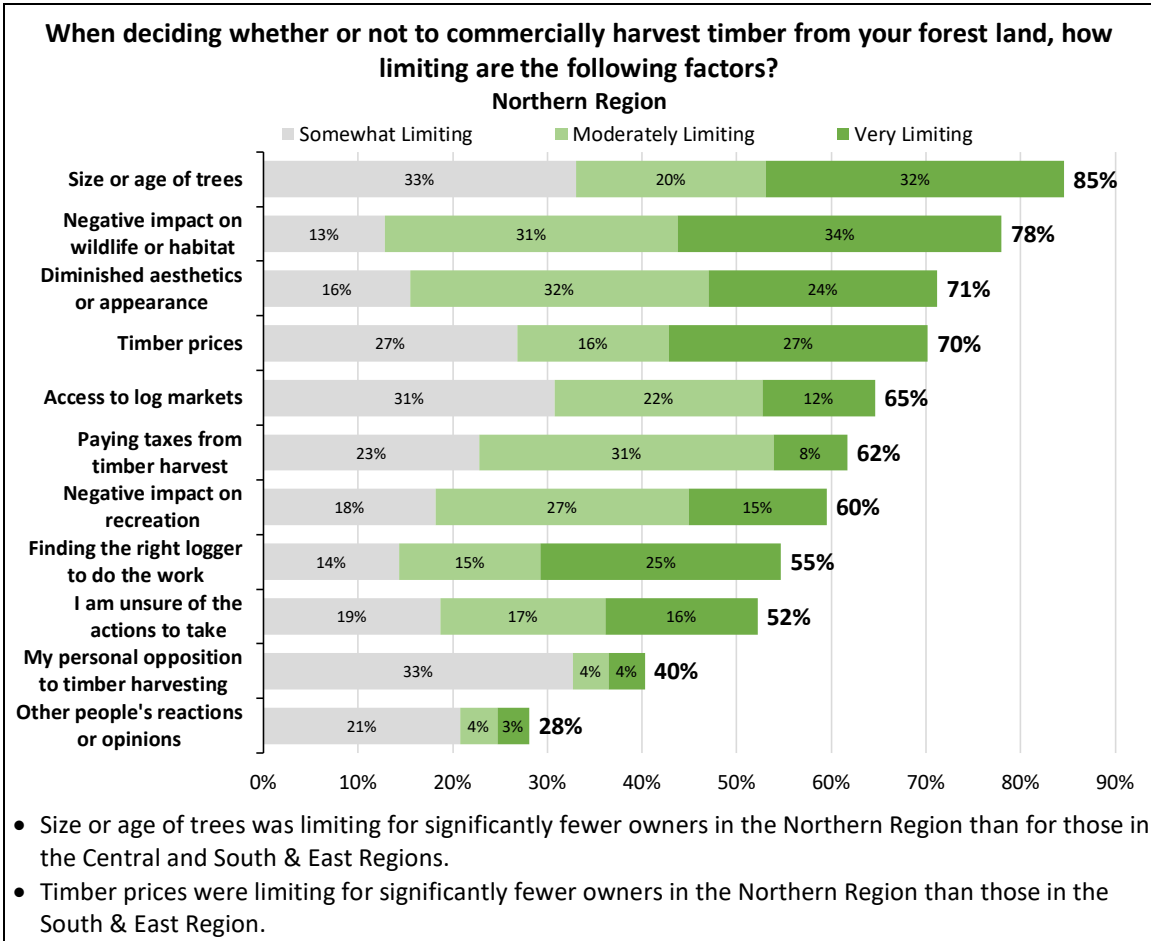


Figure A-7. Limitations to commercial timber harvesting, Northern Region.

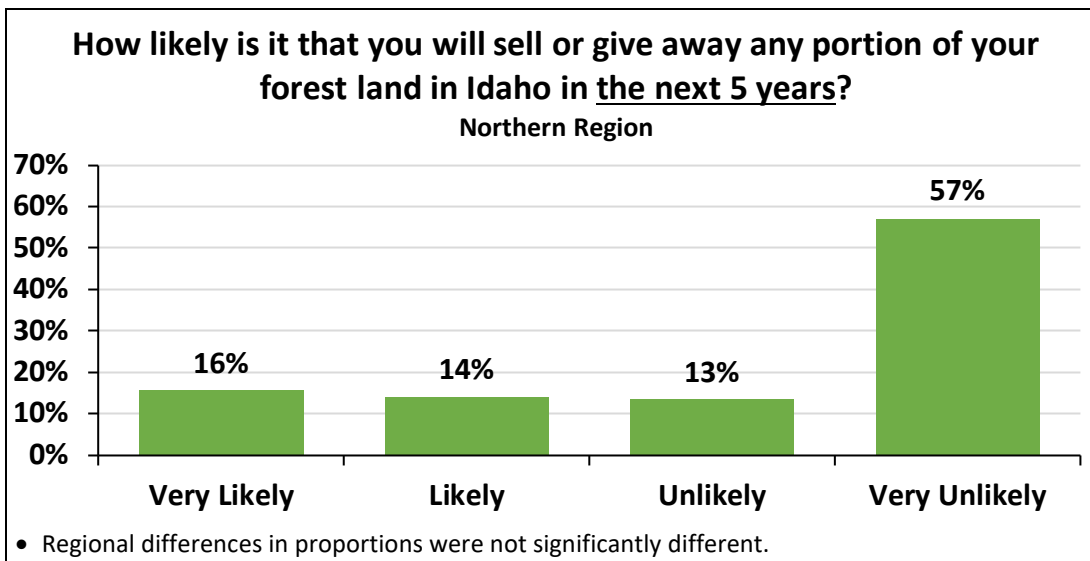


Figure A-8. Likelihood of ownership transfer, Northern Region.

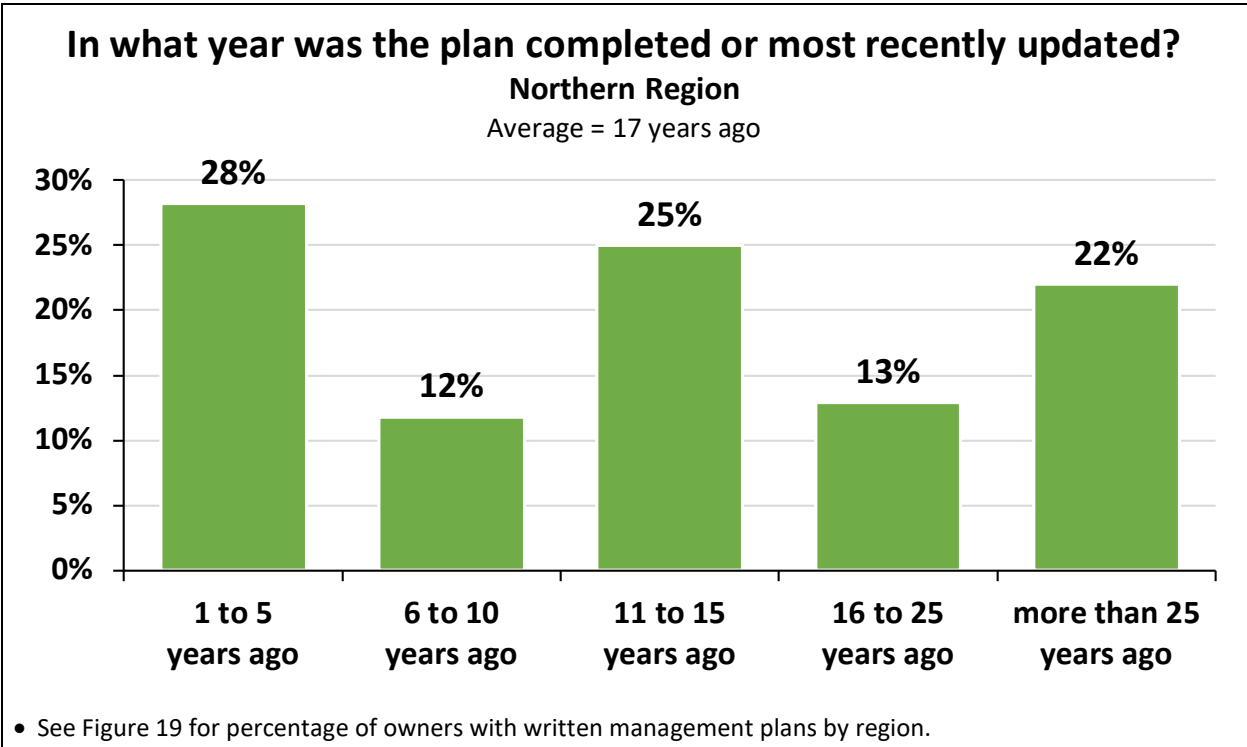


Figure A-9. Age of management plan, Northern Region.

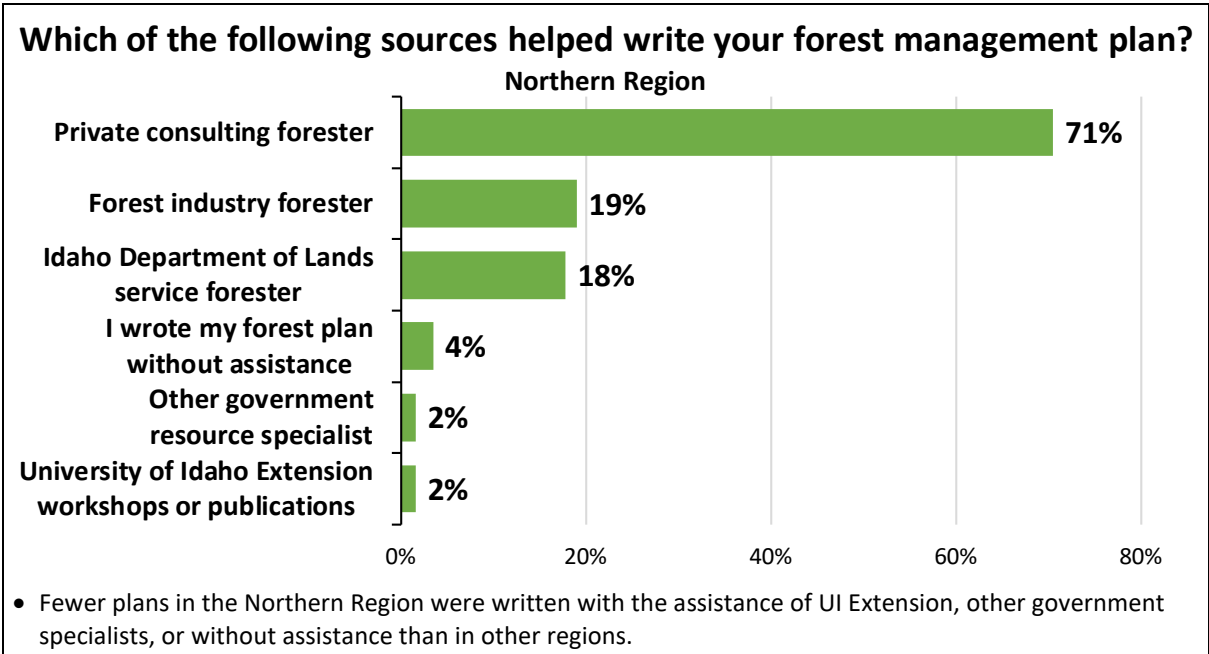


Figure A-10. Assistance with writing management plan, Northern Region.

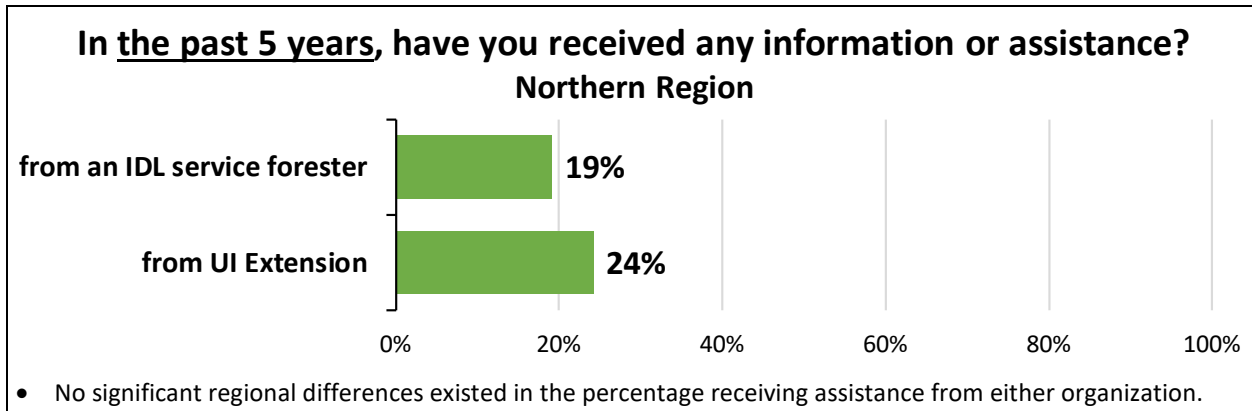


Figure A-11. Assistance from UI Extension or Idaho Department of Lands, Northern Region.

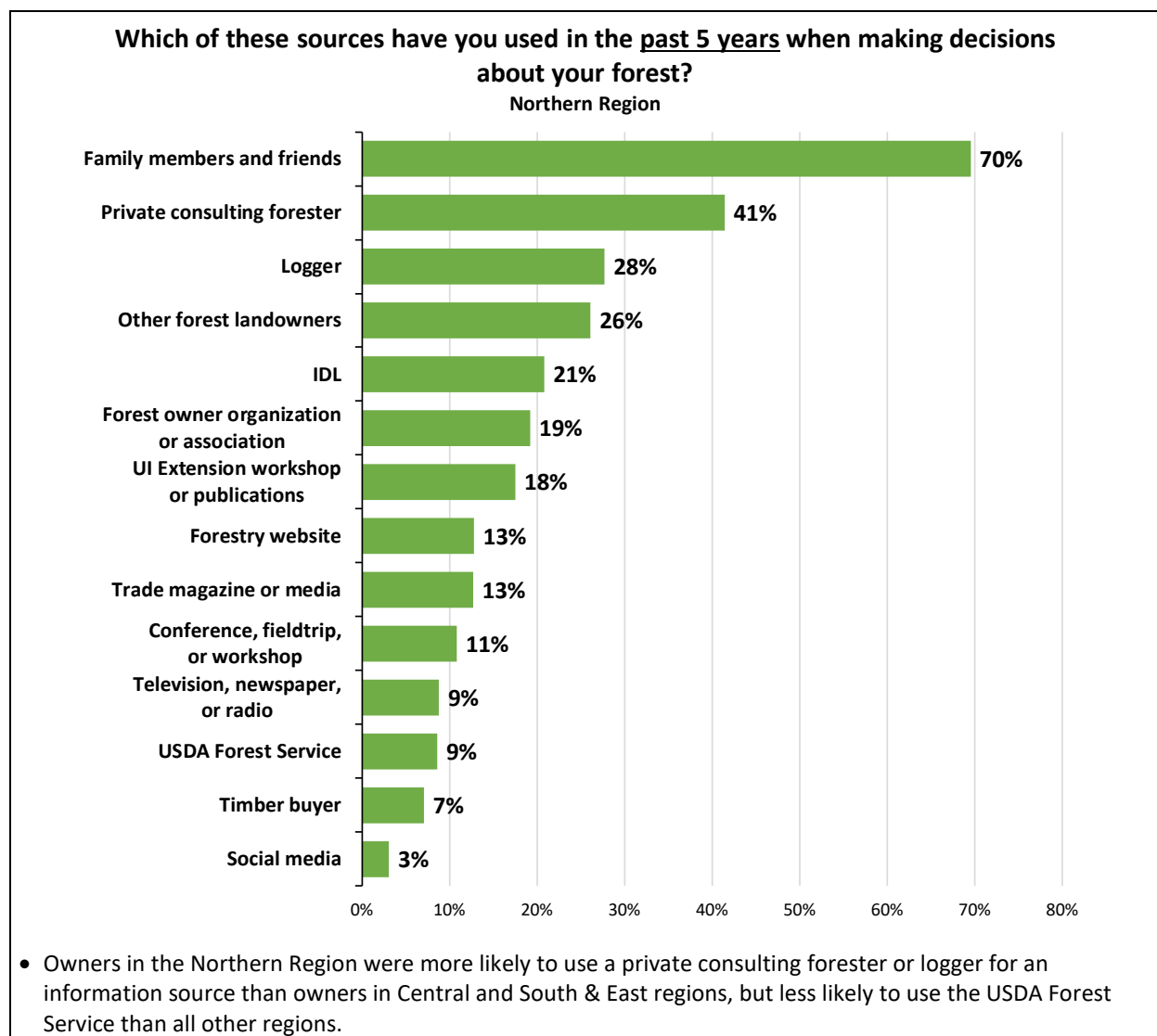
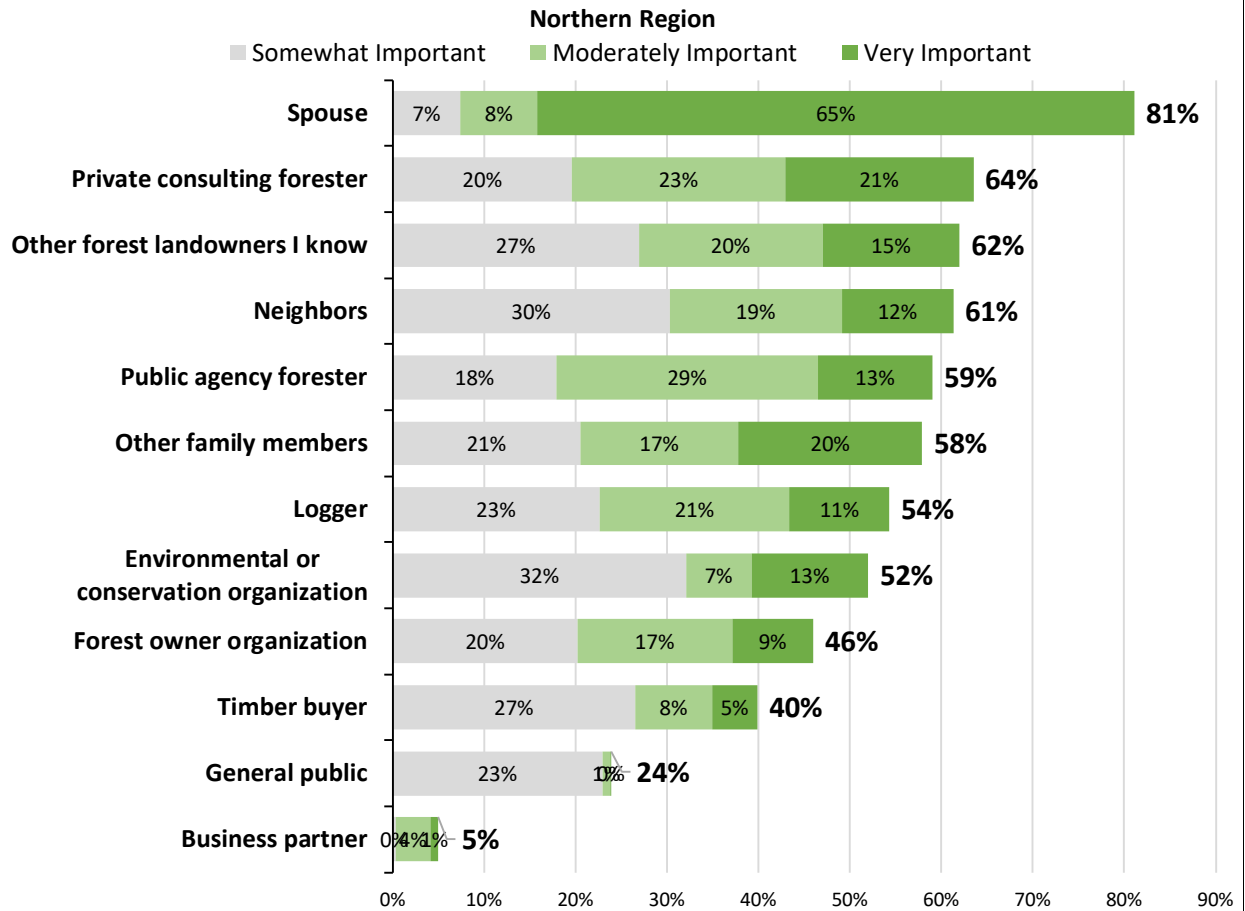


Figure A-12. Sources of information used for decision-making, Northern Region.

When making decisions about your forest land, how important are the following people's recommendations or opinions?



- Owners in the Northern Region were more likely to place importance on the recommendations and opinions of private consulting foresters than owners in all other regions, and more likely to place importance on the recommendations and opinions of loggers than owners in the Central and South & East Regions.

Figure A-13. Importance of sources for decision-making, Northern Region.

Appendix B. North Central Region

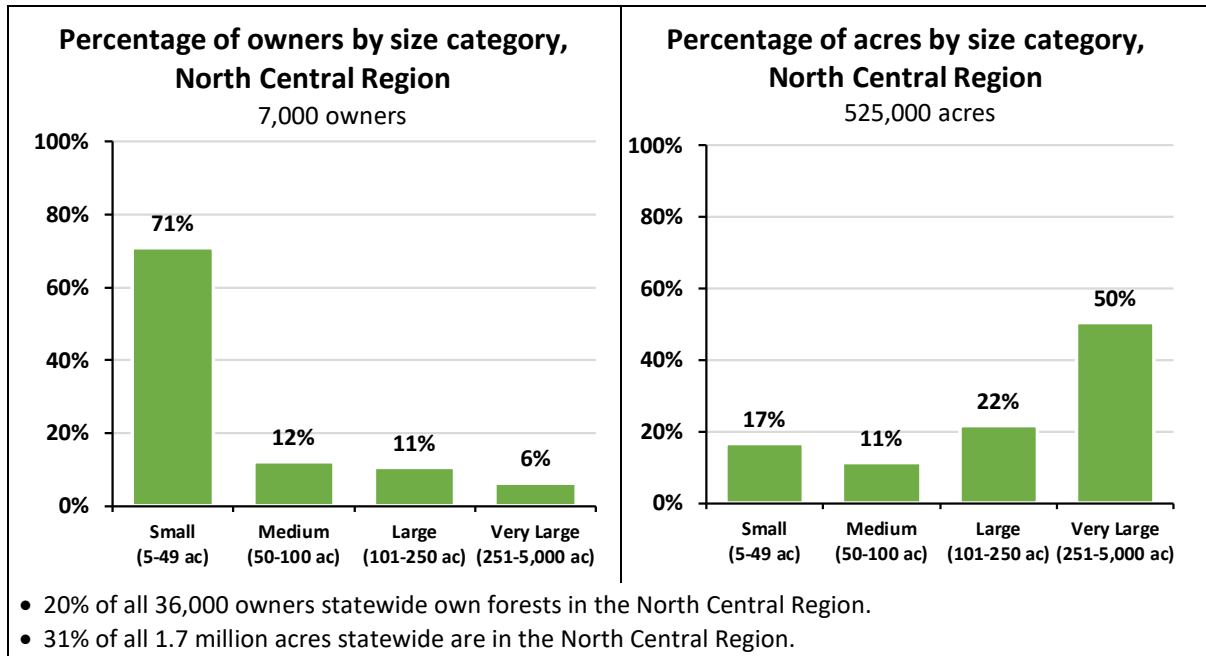


Figure B-1. Percentage of family forest owners and acres, by size category, North Central Region.

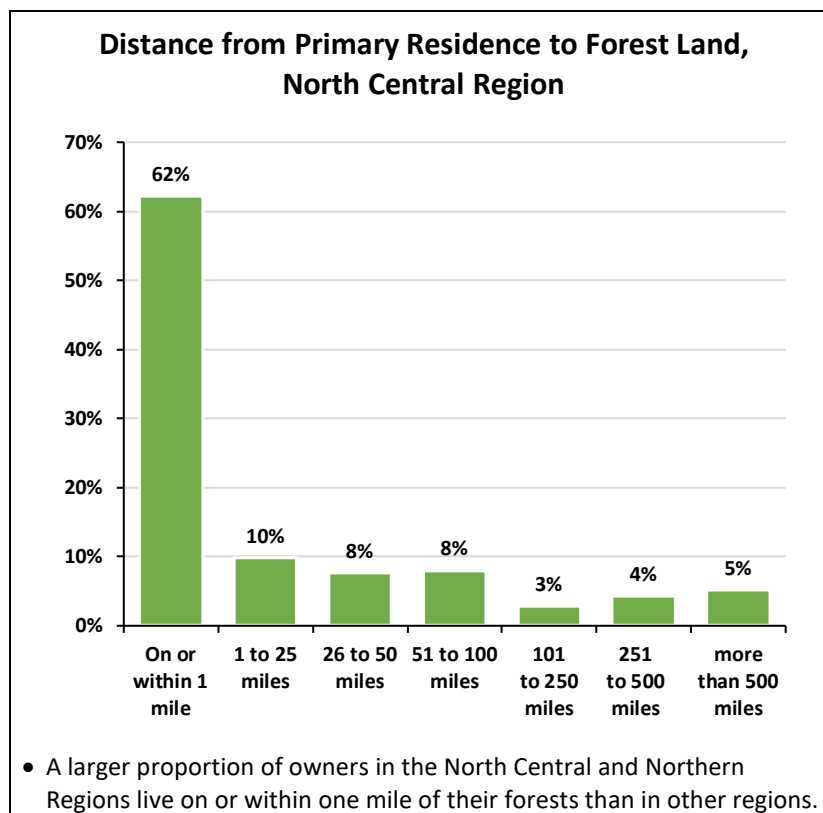


Figure B-2. Distance from primary residence to forest land, North Central Region.

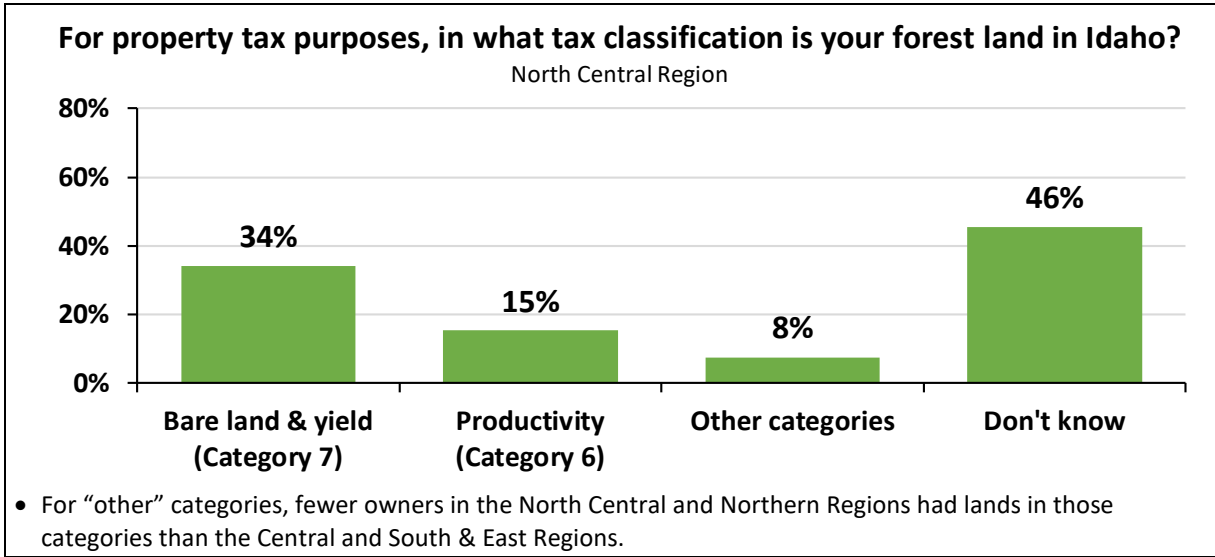


Figure B-3. Property tax classification of forest land, North Central Region.

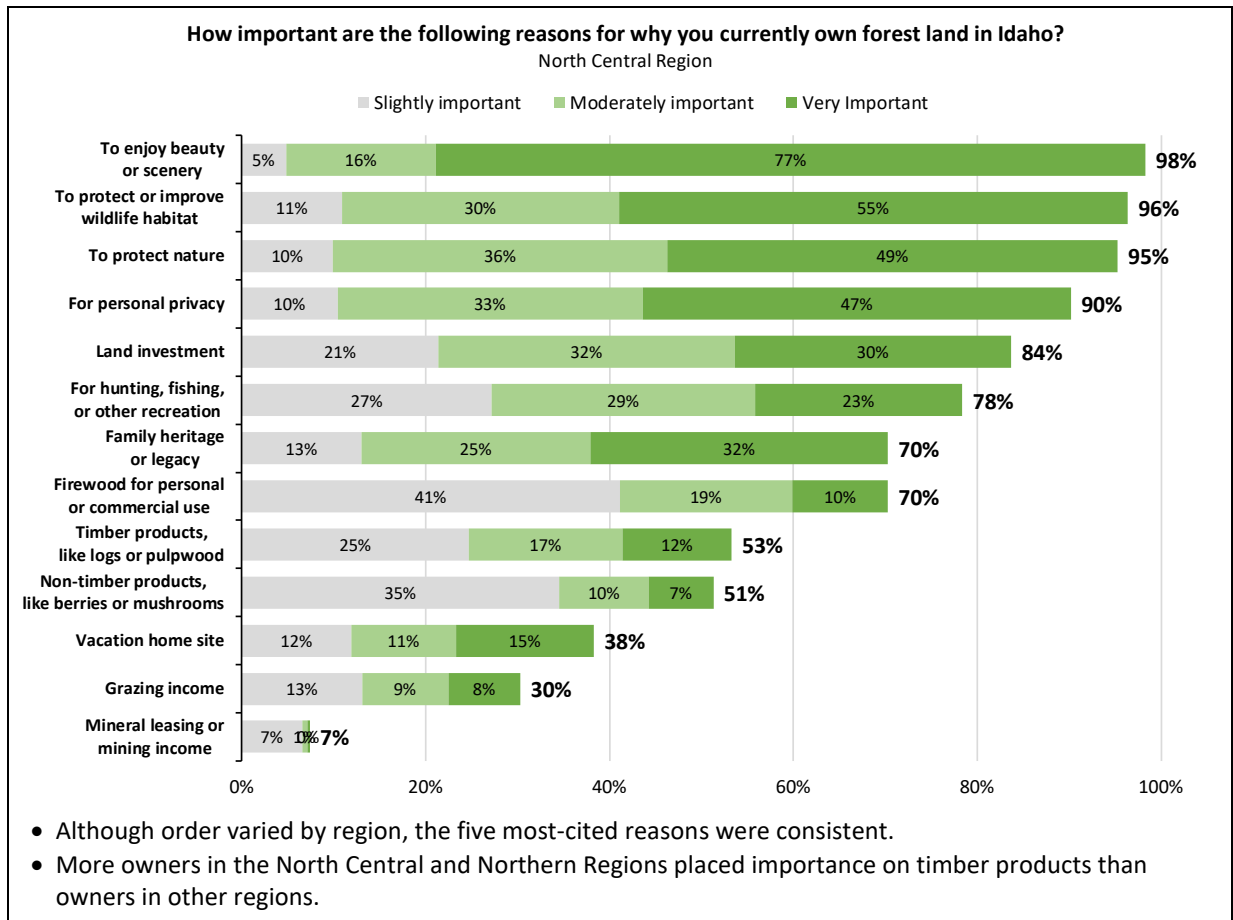


Figure B-4. Importance of reasons for owning forest land, North Central Region.

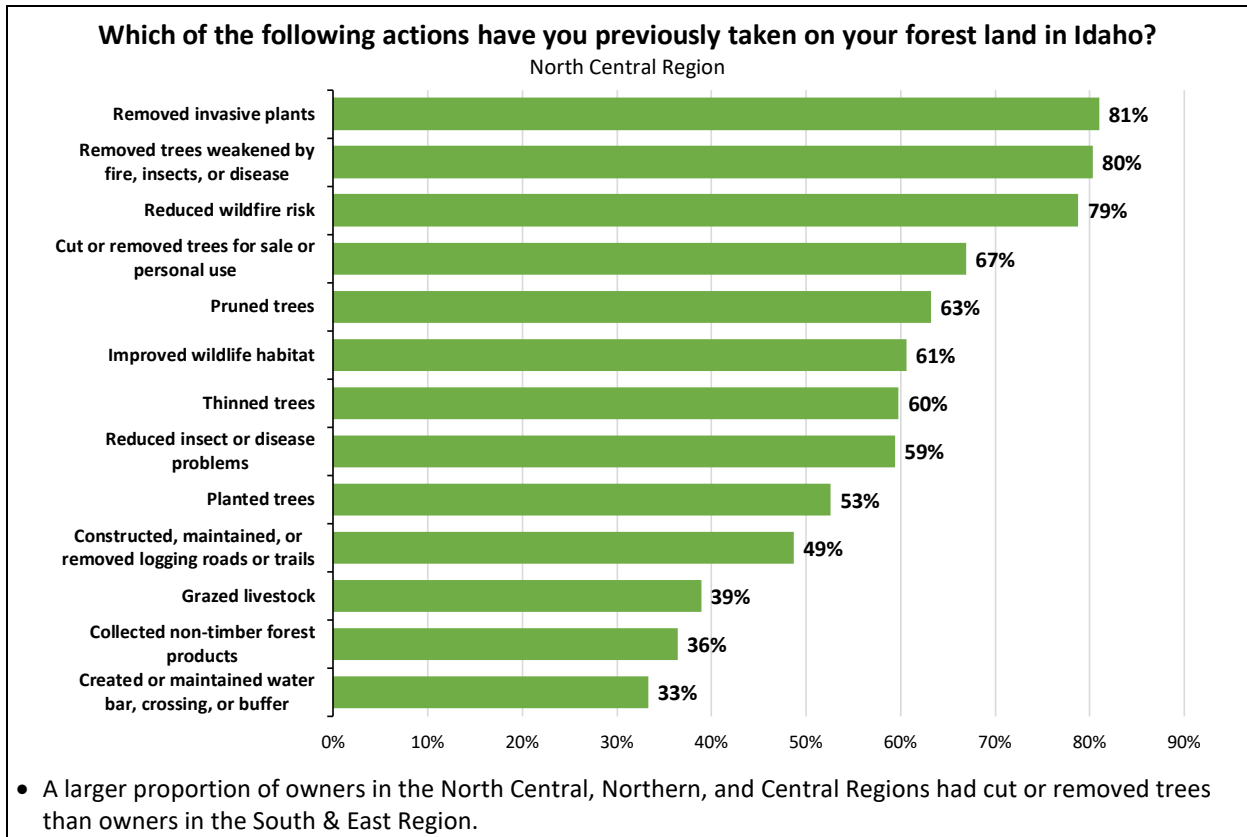


Figure B-5. Past management actions, North Central Region.

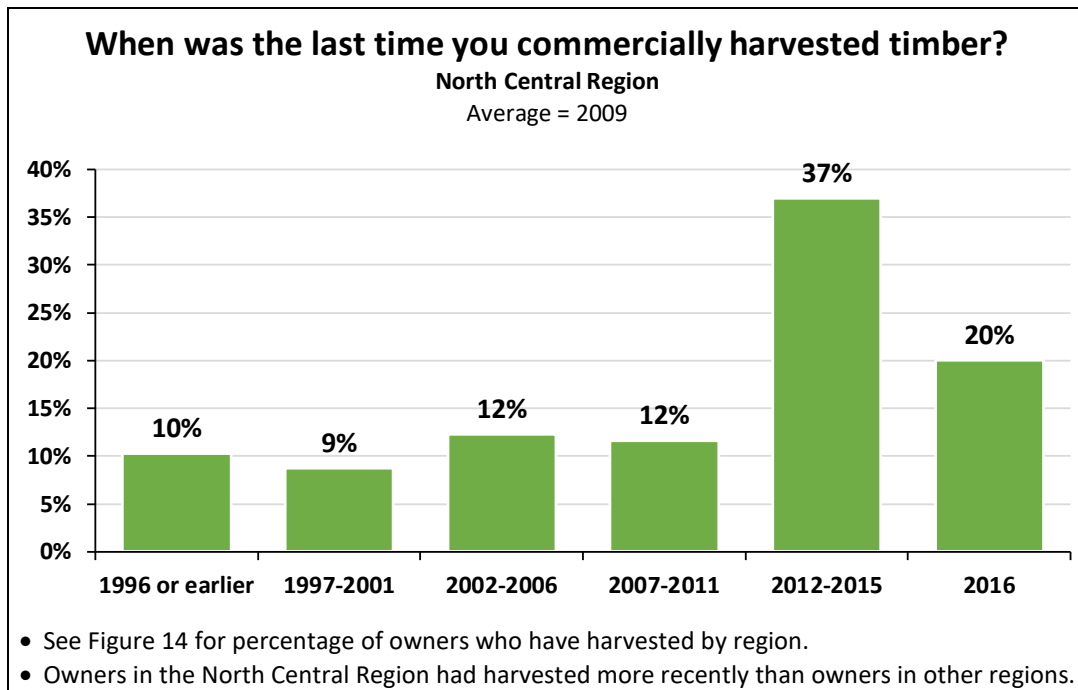


Figure B-6. Year of last commercial timber harvest, North Central Region.

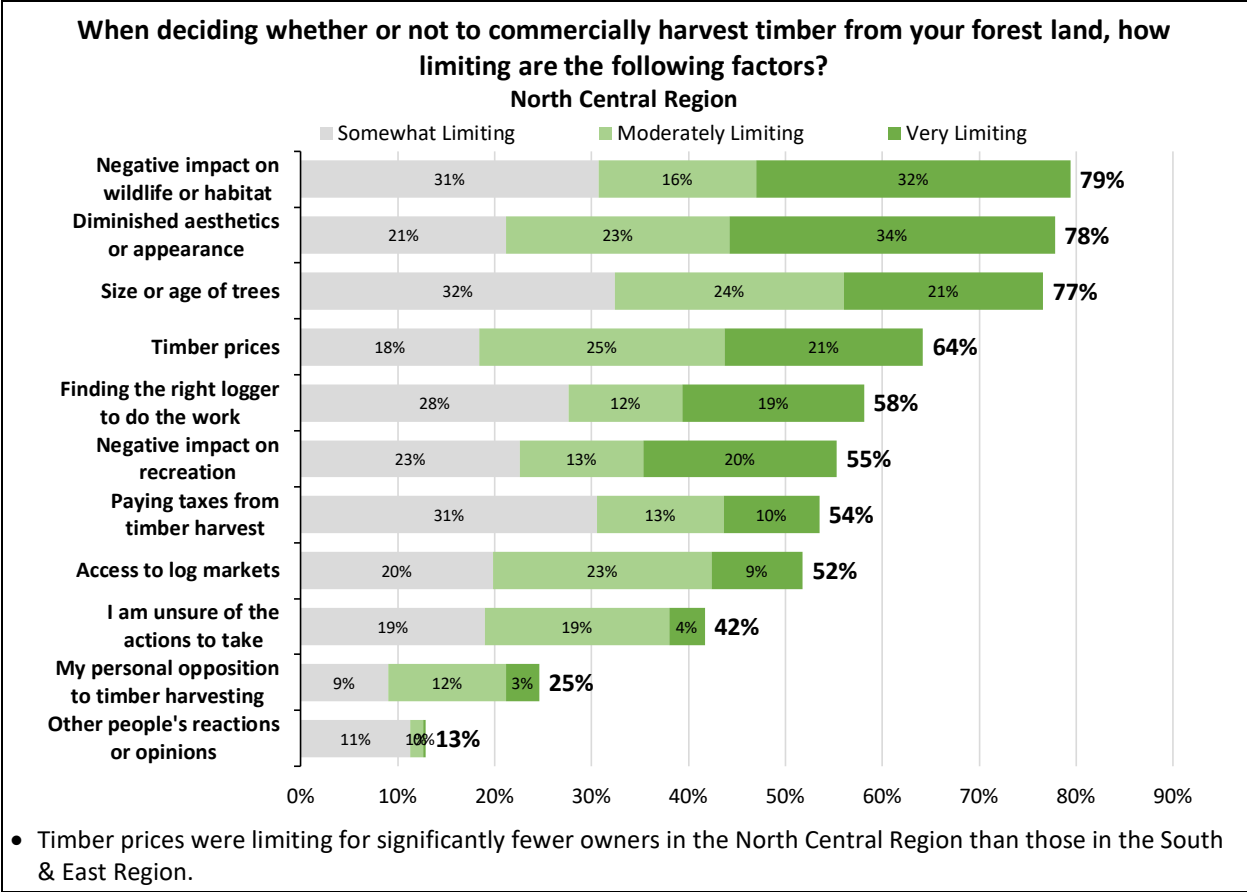


Figure B-7. Limitations to commercial timber harvesting, North Central Region.

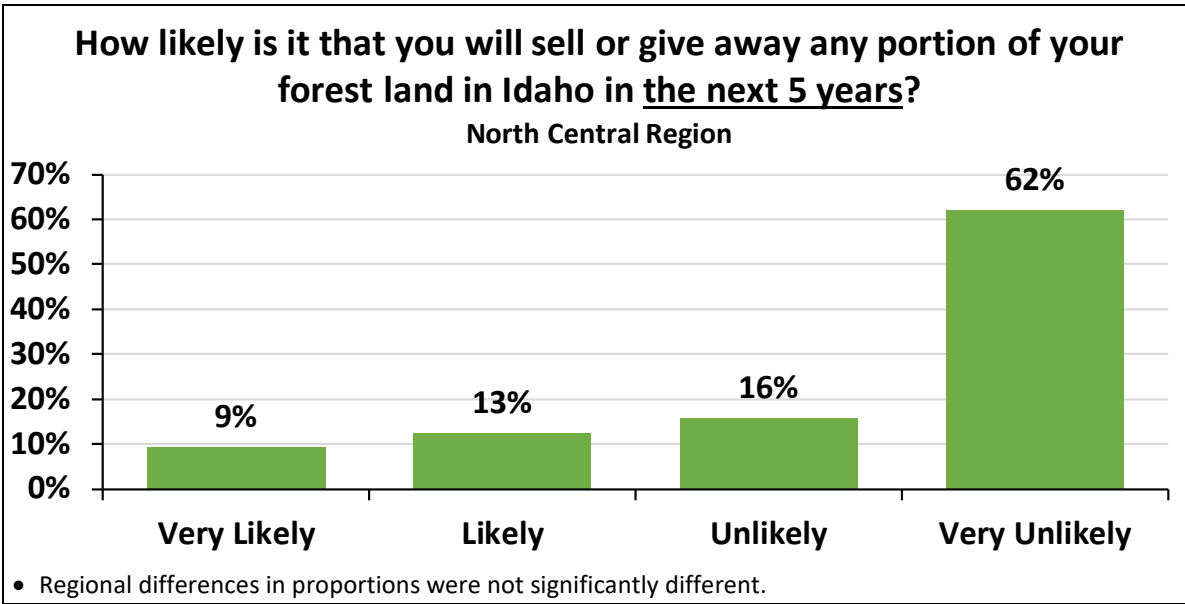


Figure B-8. Likelihood of ownership transfer, North Central Region.

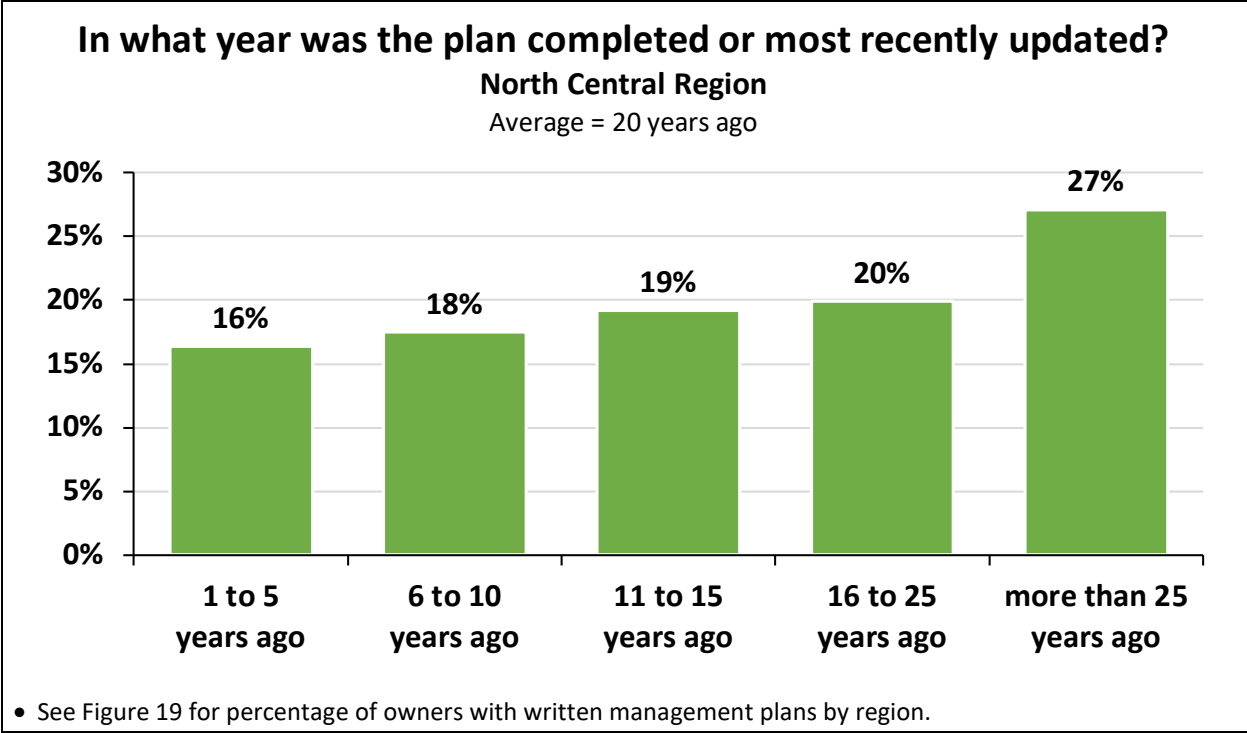


Figure B-9. Age of management plan, North Central Region.

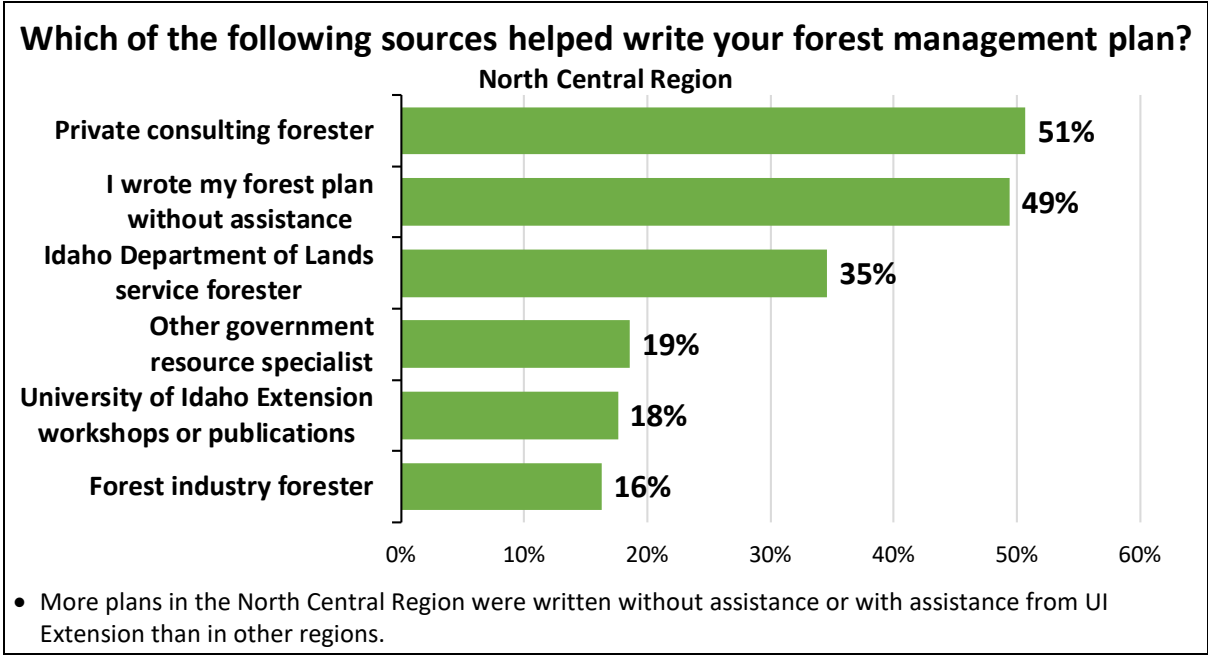


Figure B-10. Assistance with writing management plan, North Central Region.

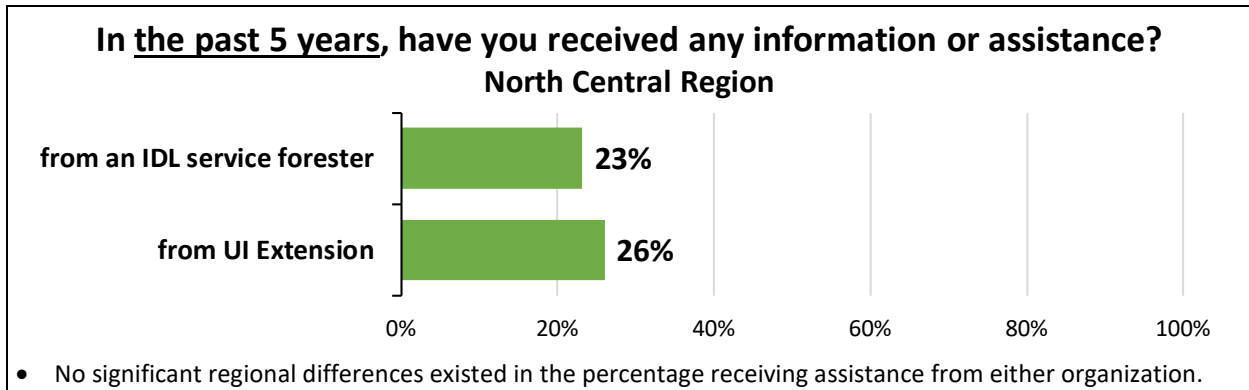


Figure B-11. Assistance from UI Extension or Idaho Department of Lands, North Central Region.

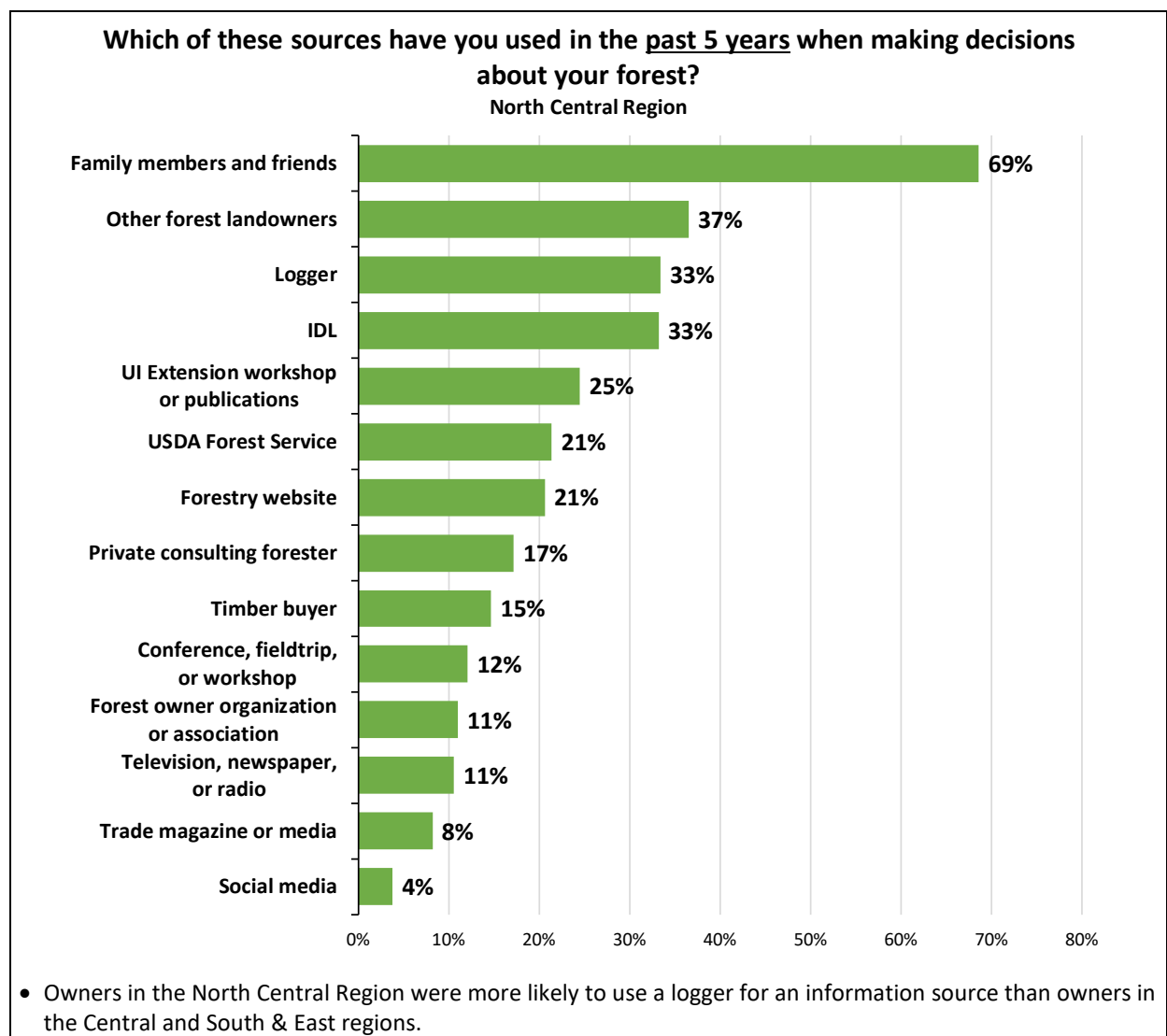


Figure B-12. Sources of information used for decision-making, North Central Region.

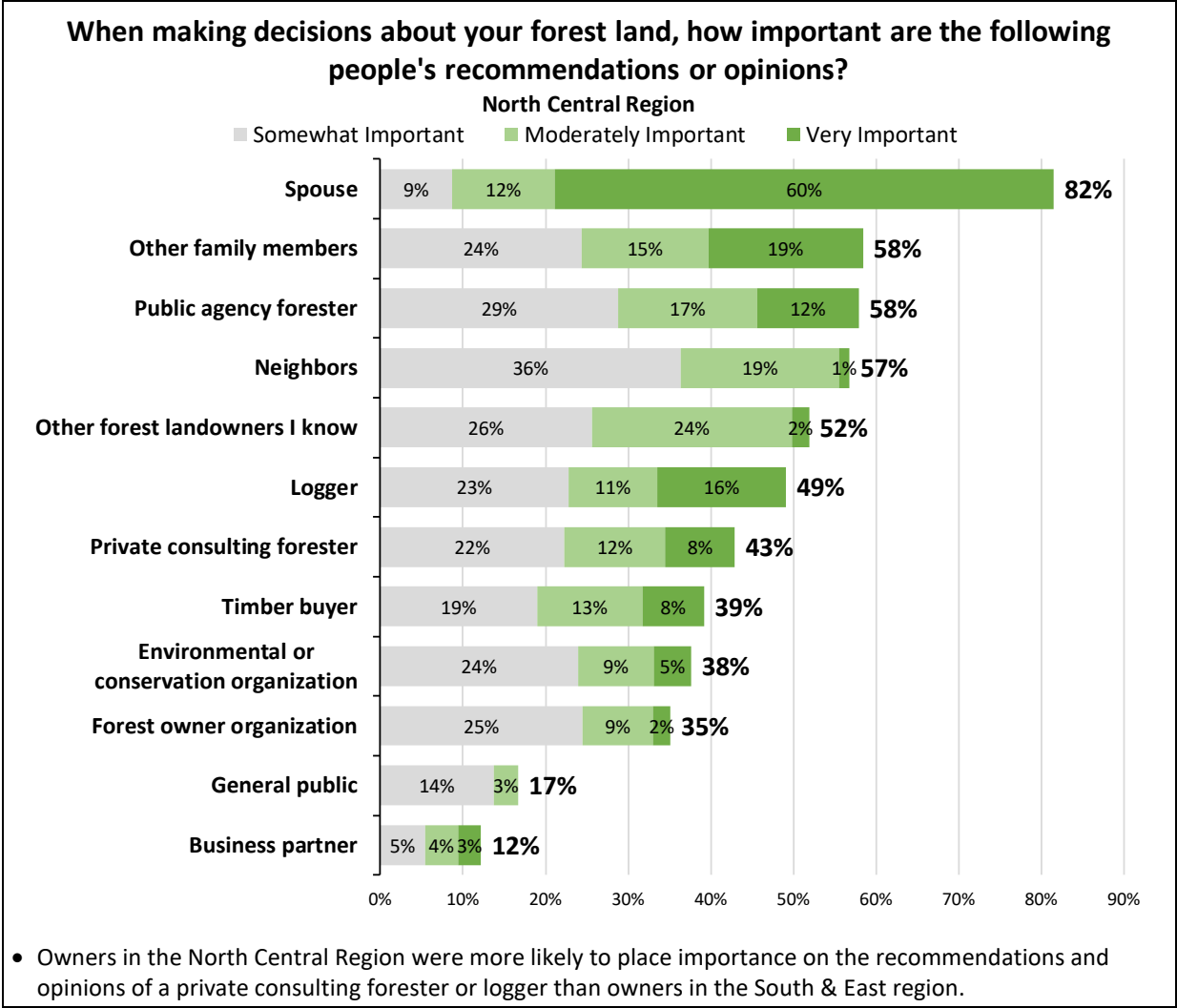


Figure B-13. Importance of sources for decision-making, North Central Region.

Appendix C. Central Region

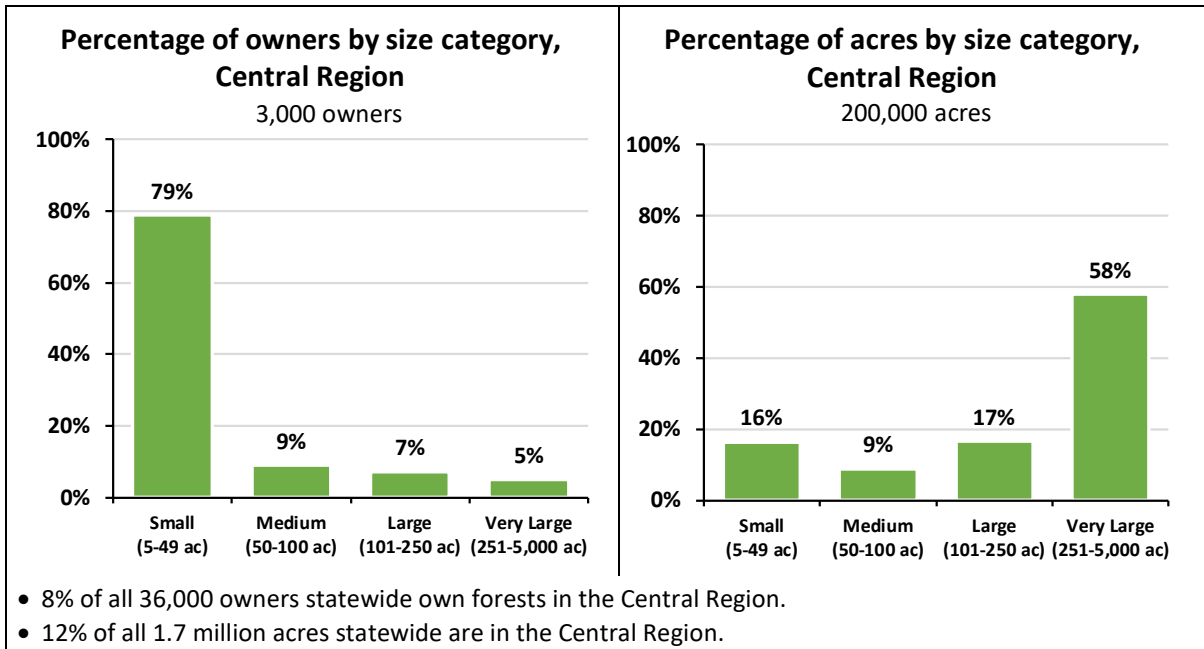


Figure C-1. Percentage of family forest owners and acres, by size category, Central Region.

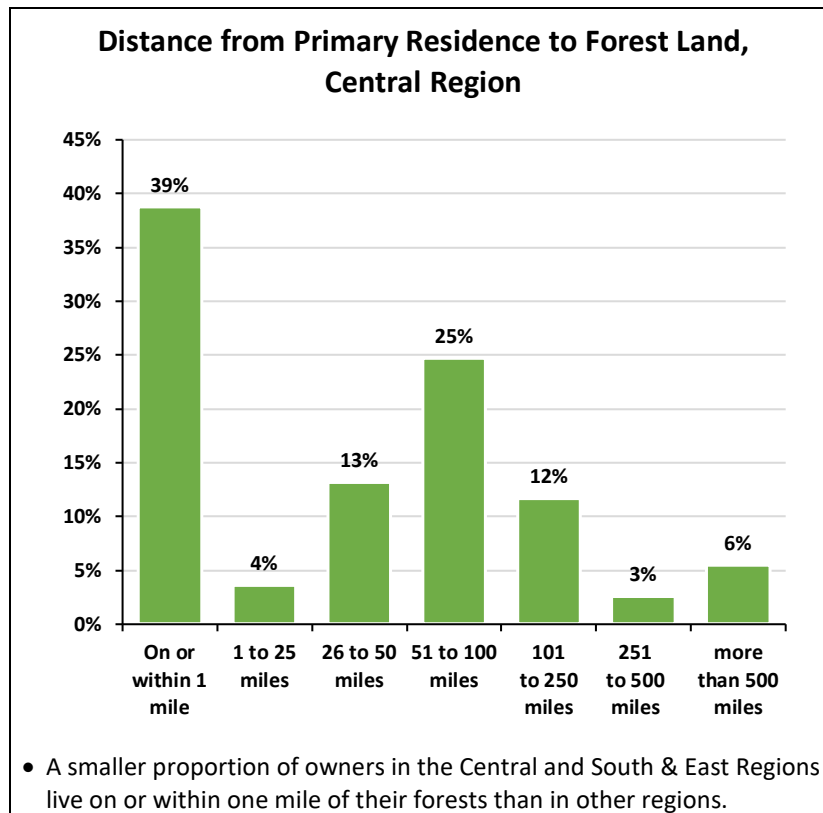


Figure C-2. Distance from primary residence to forest land, Central Region.

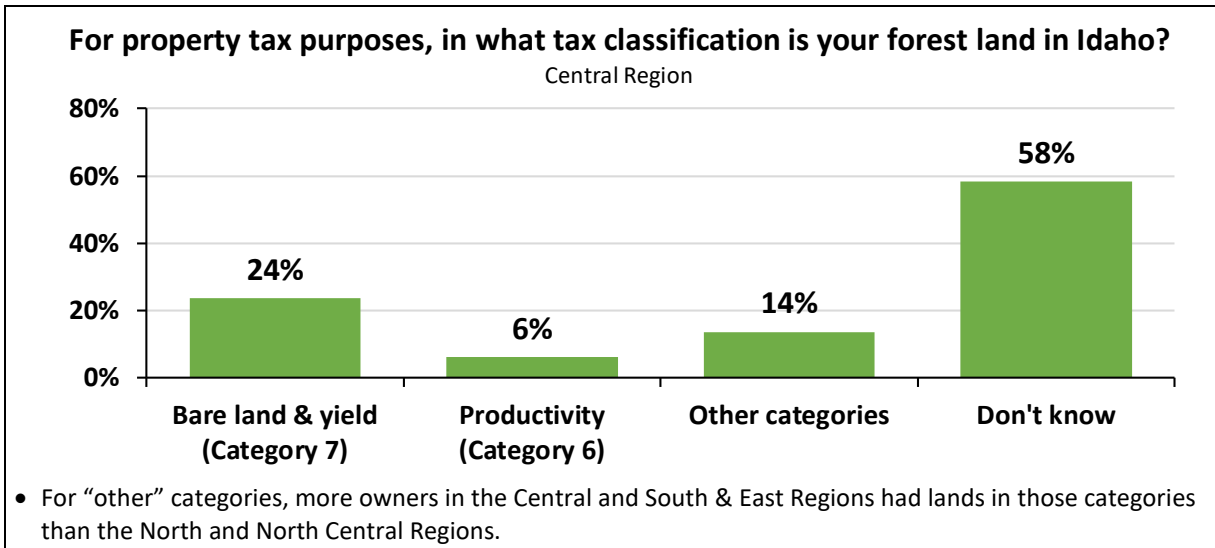


Figure C-3. Property tax classification of forest land, Central Region.

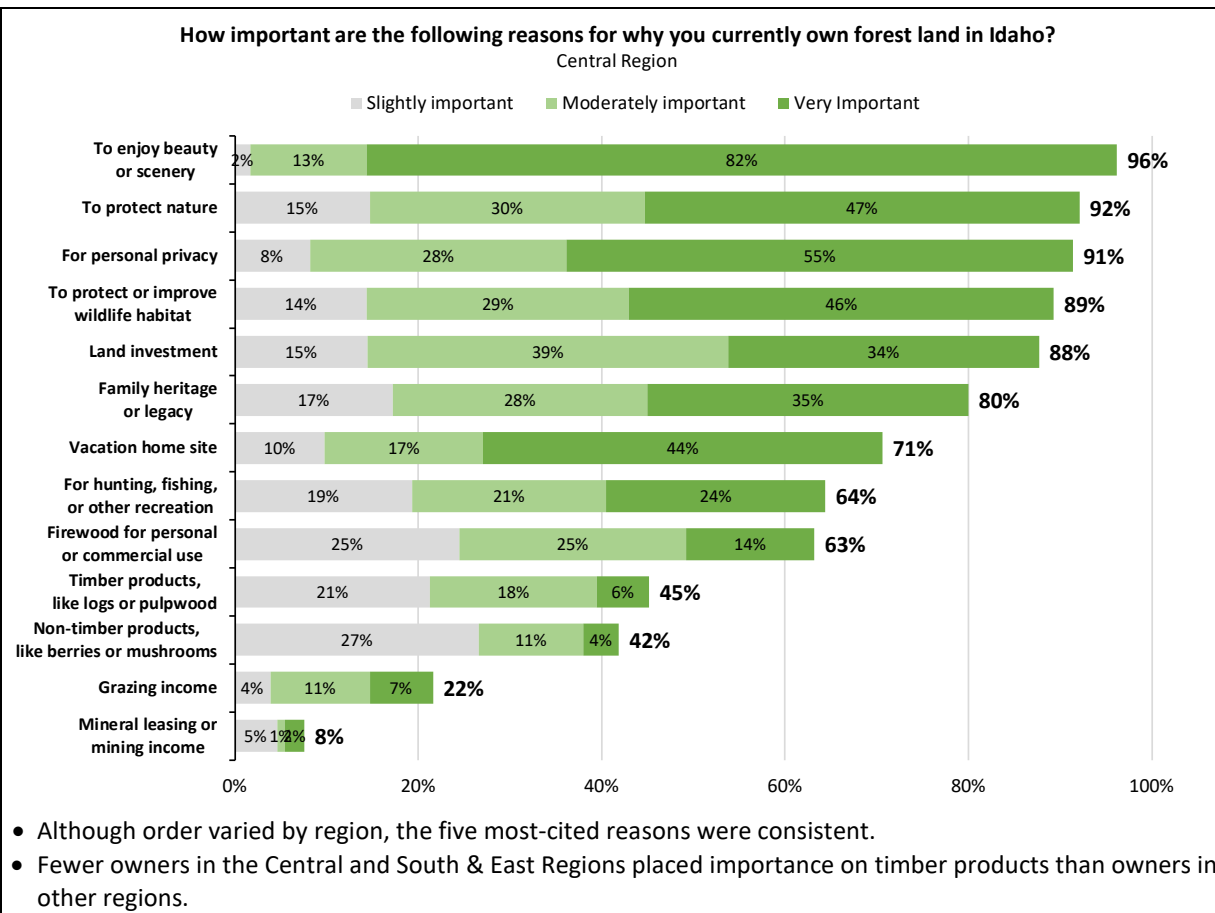


Figure C-4. Importance of reasons for owning forest land, Central Region.

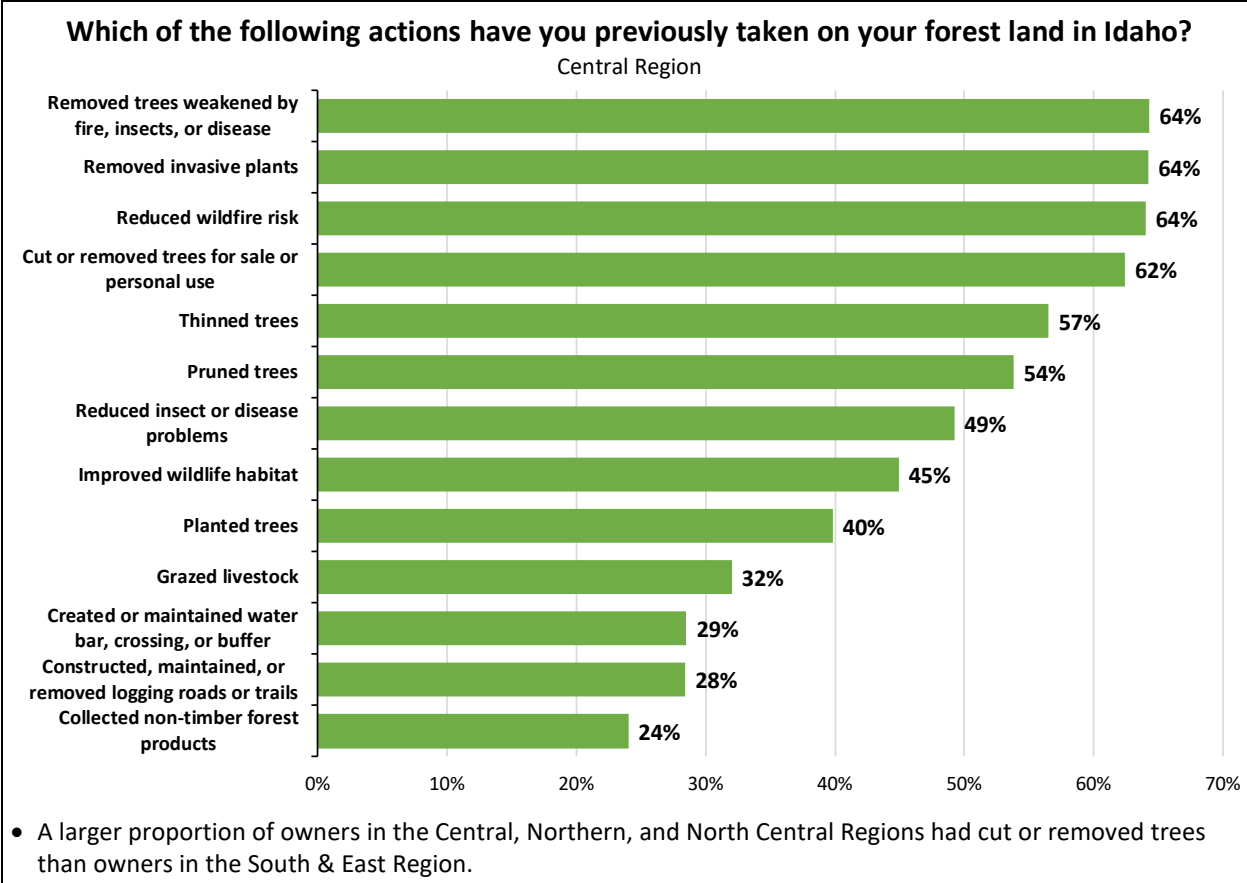


Figure C-5. Past management actions, Central Region.

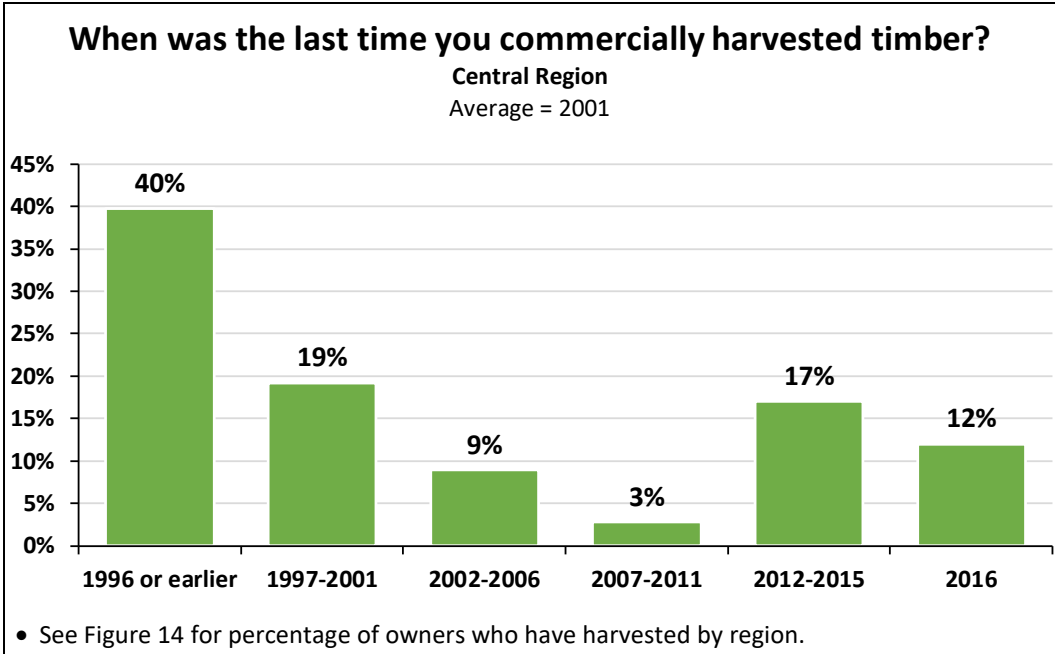


Figure C-6. Year of last commercial timber harvest, Central Region.

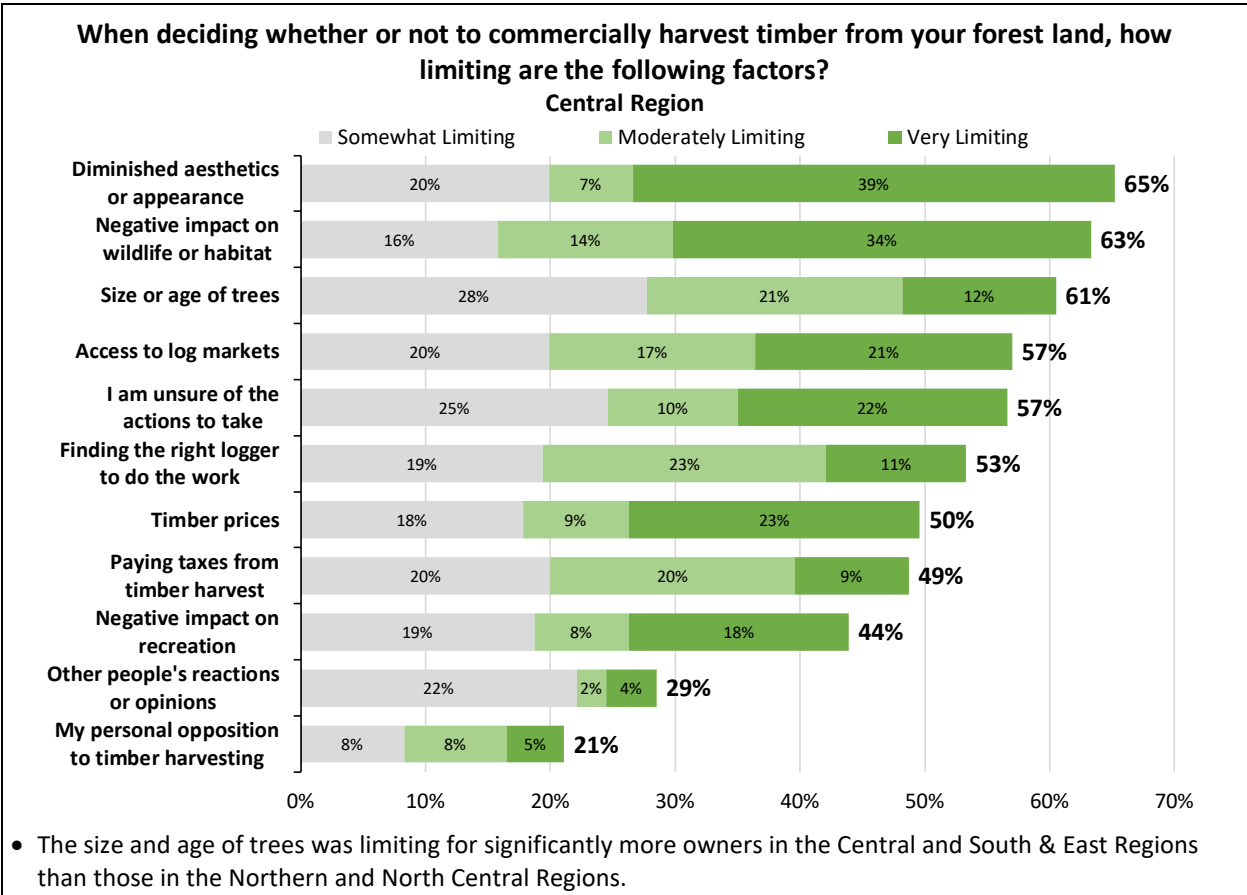


Figure C-7. Limitations to commercial timber harvesting, Central Region.

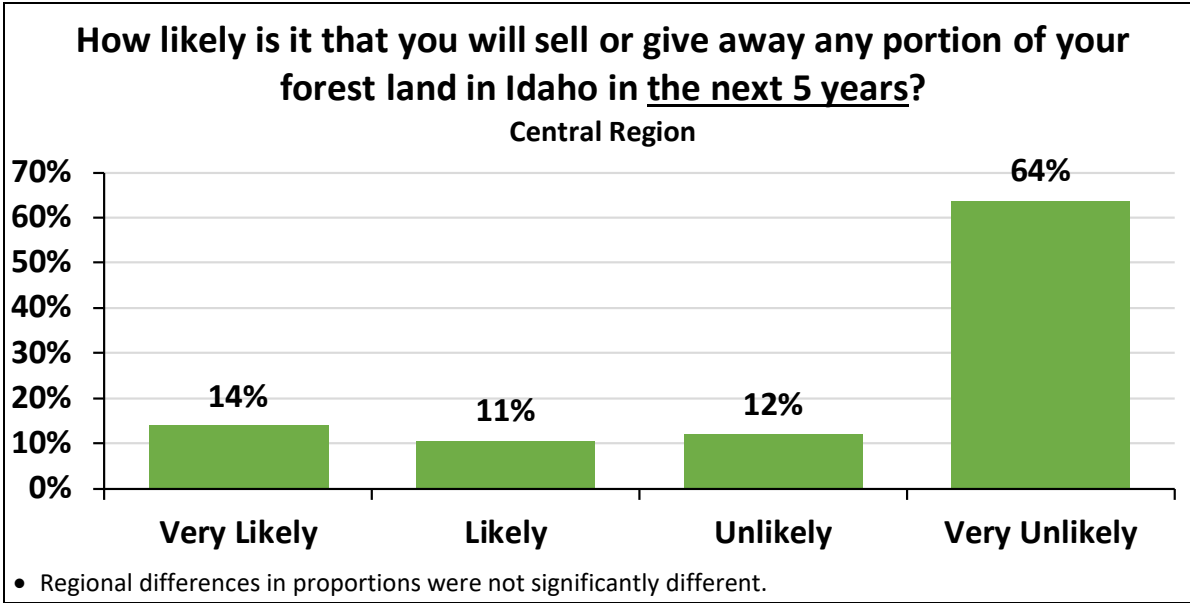


Figure C-8. Likelihood of ownership transfer, Central Region.

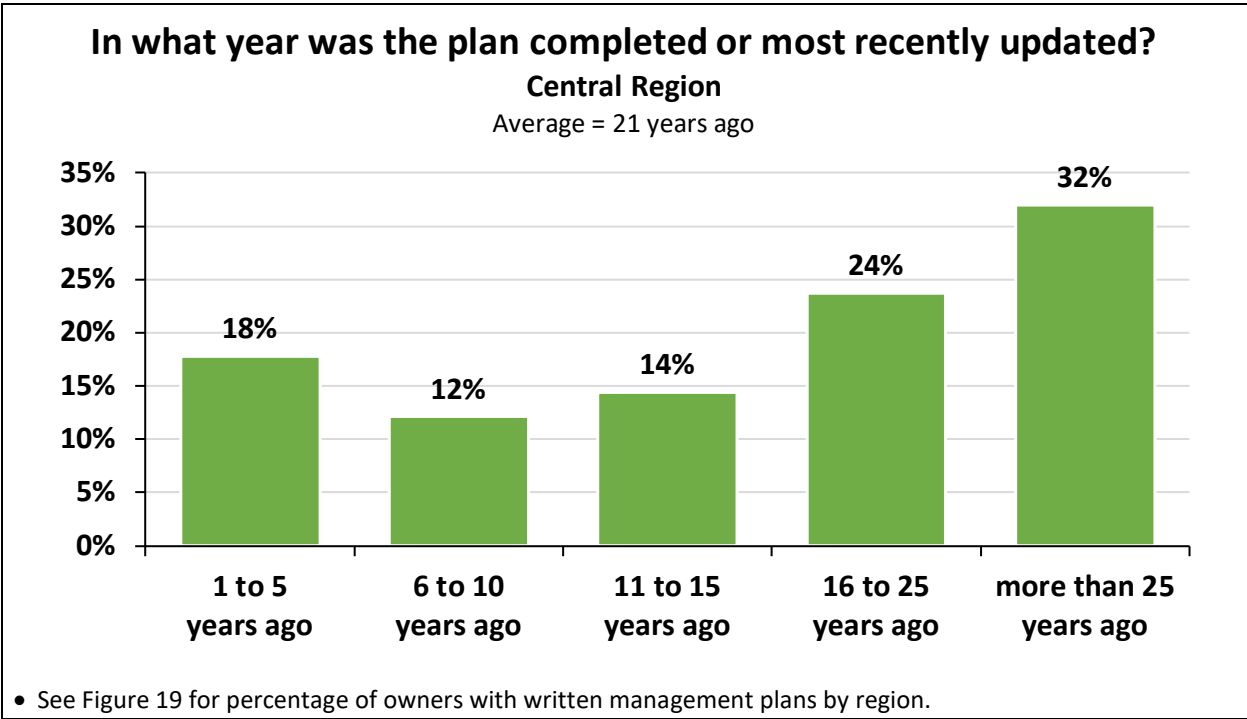


Figure C-9. Age of management plan, Central Region.

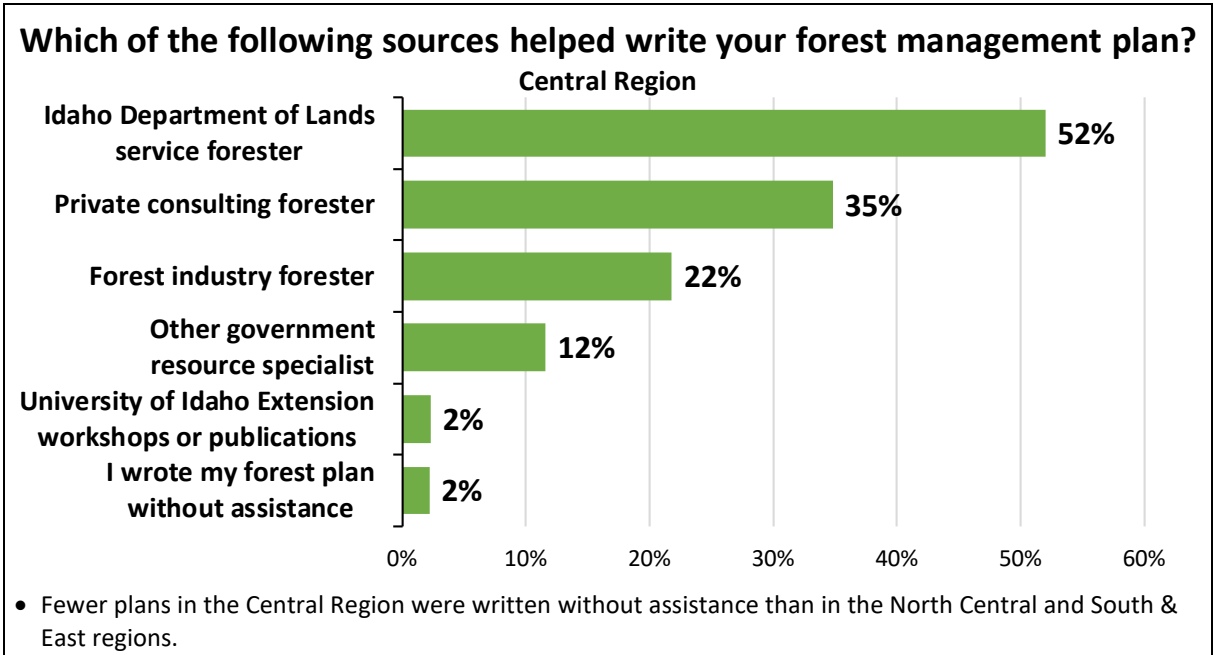


Figure C-10. Assistance with writing management plan, Central Region.

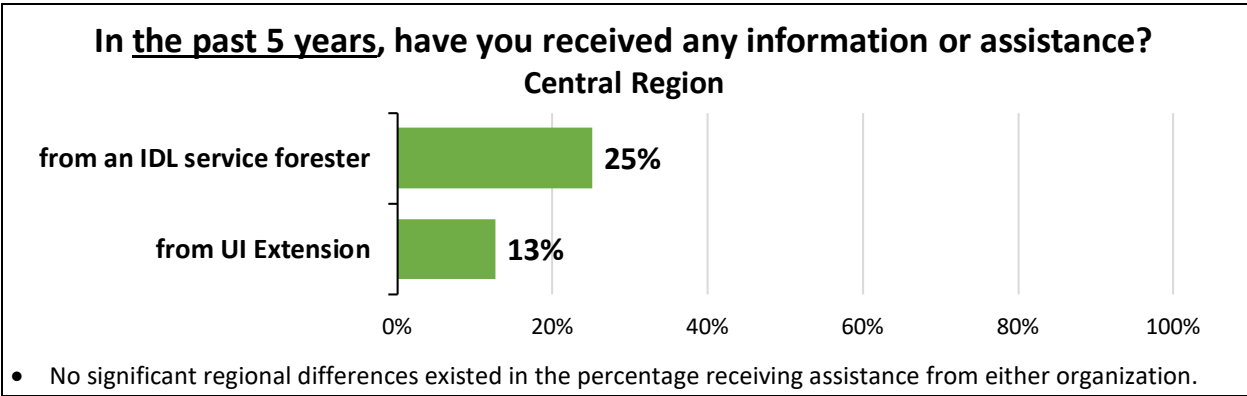


Figure C-11. Assistance from UI Extension or Idaho Department of Lands, Central Region.

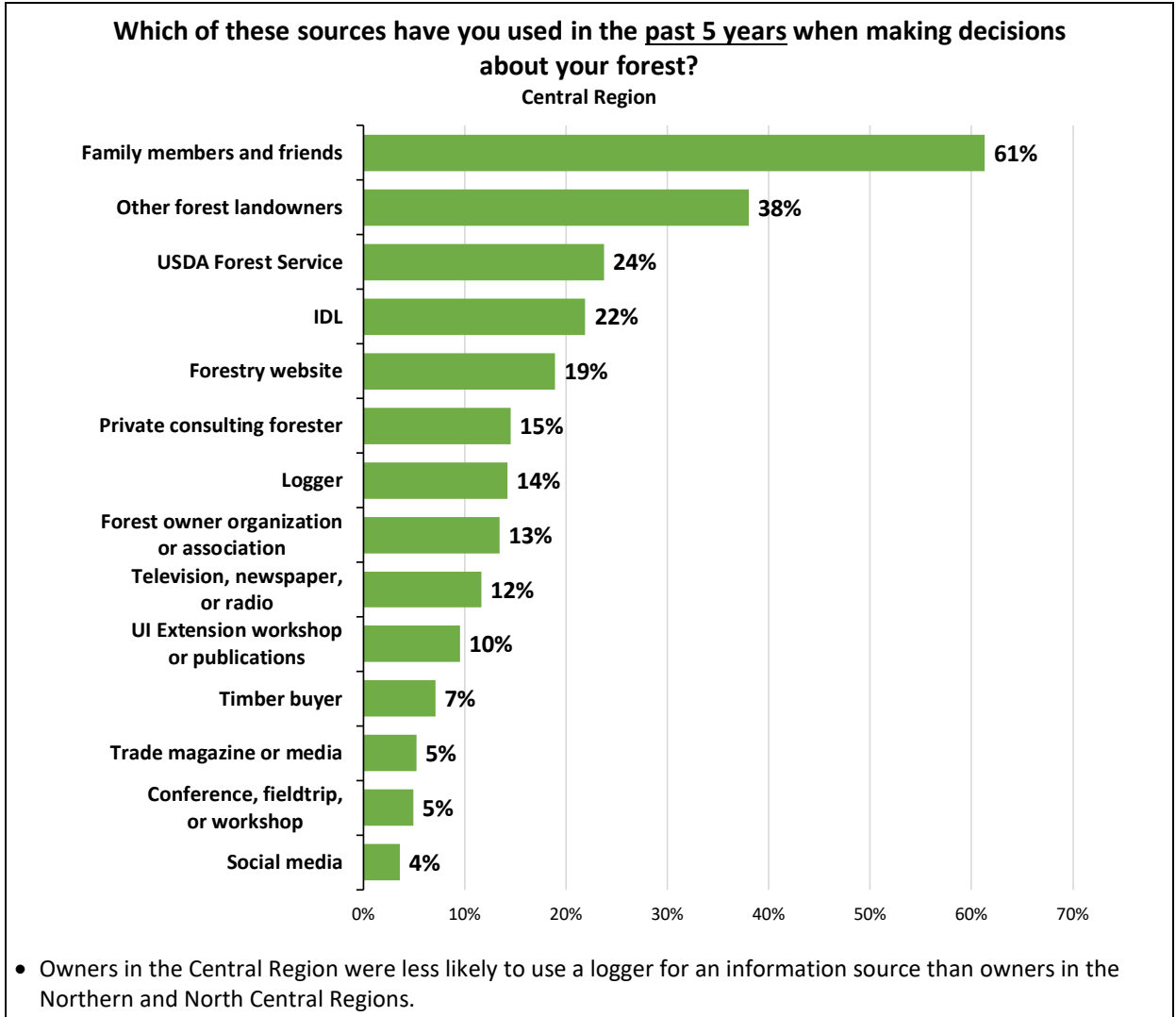


Figure C-12. Sources of information used for decision-making, Central Region.

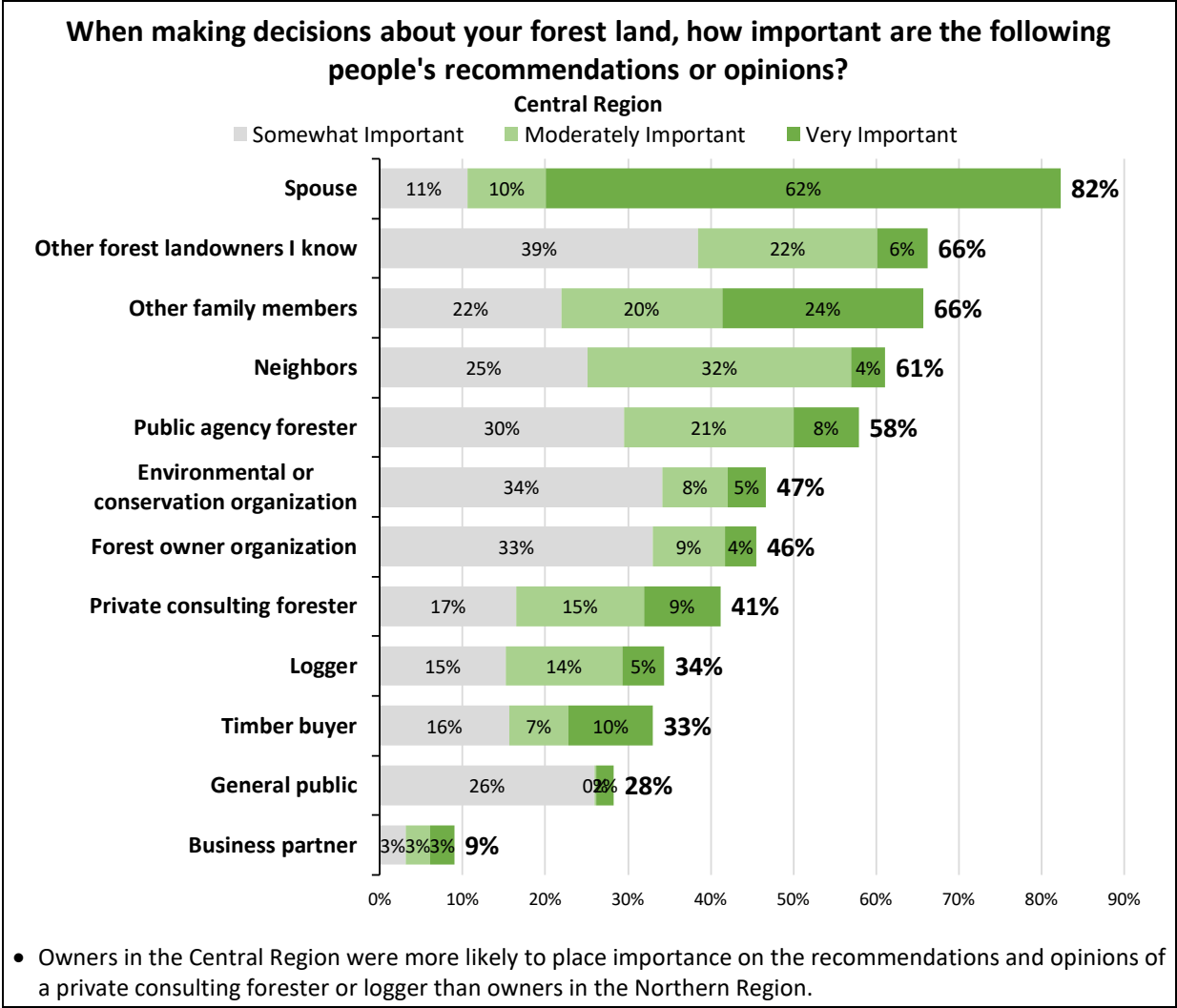


Figure C-13. Importance of sources for decision-making, Central Region.

Appendix D. South & East Central Region

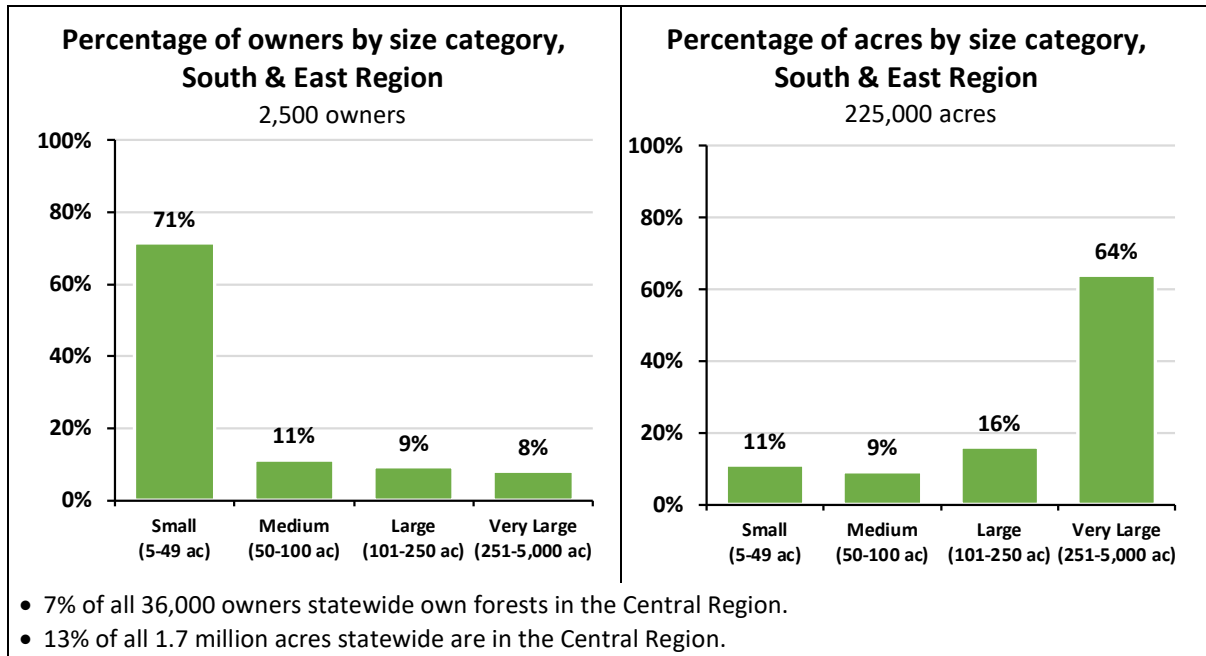


Figure D-1. Percentage of family forest owners and acres, by size category, South & East Region.

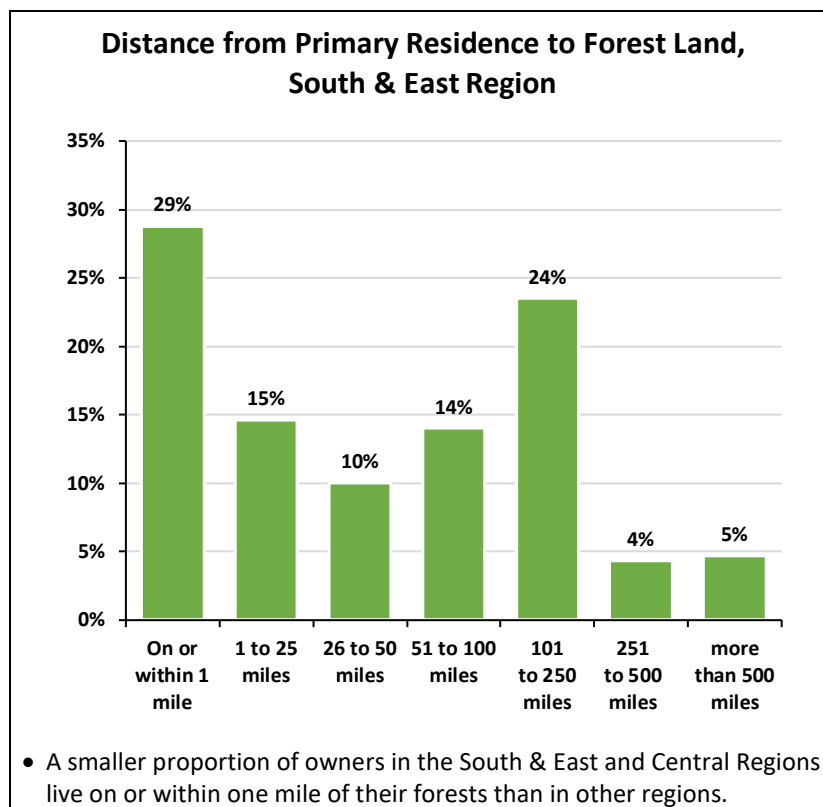


Figure D-2. Distance from primary residence to forest land, South & East Region.

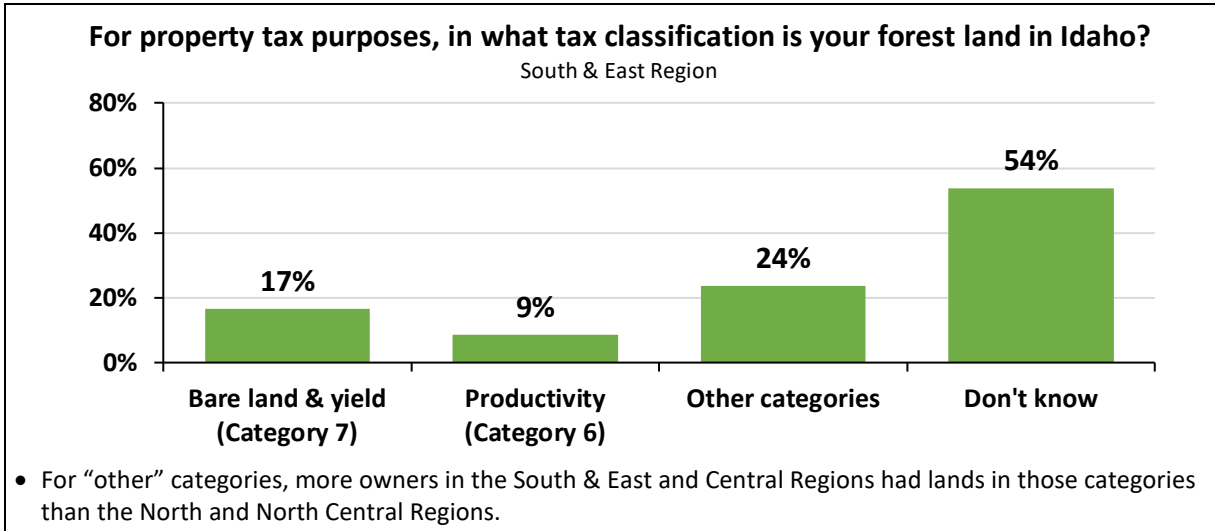


Figure D-3. Property tax classification of forest land, South & East Region.

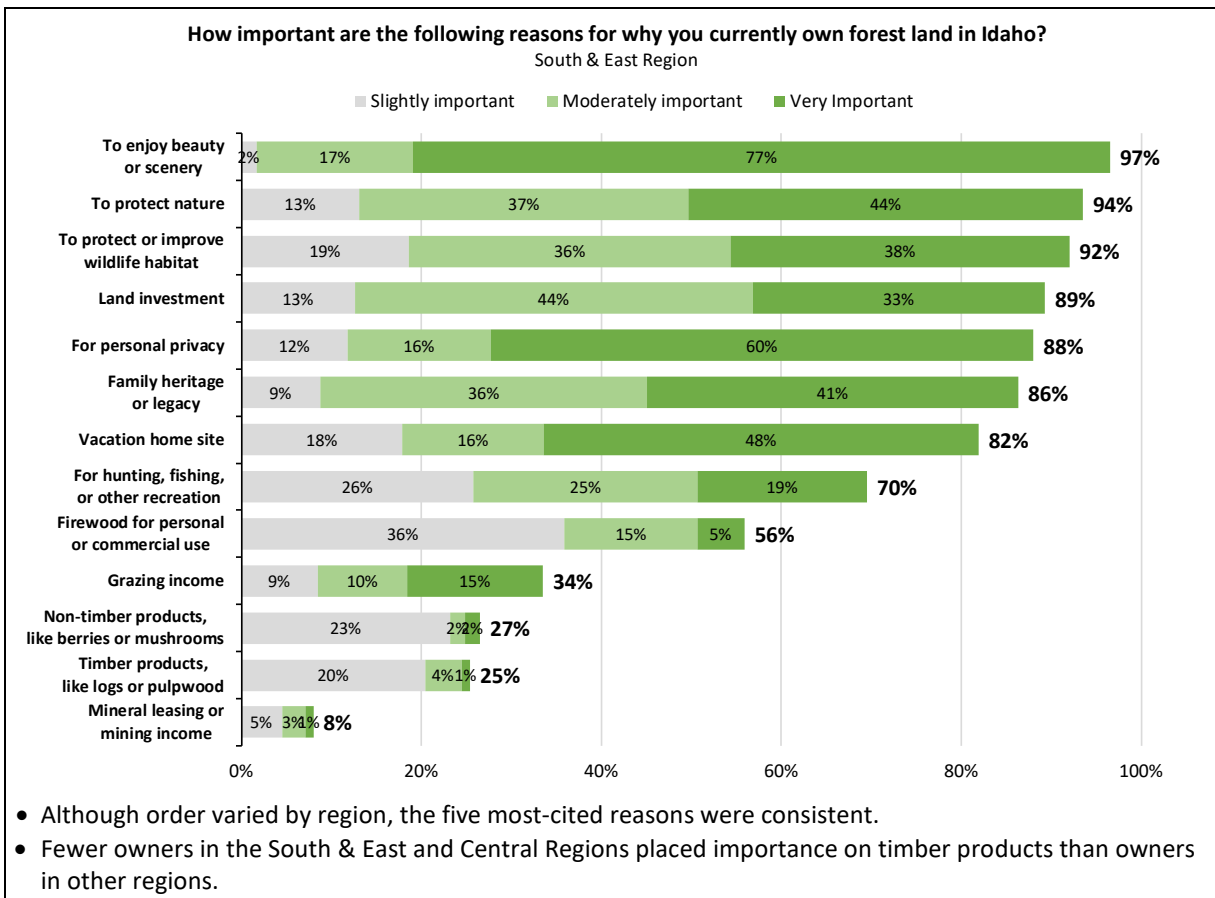


Figure D-4. Importance of reasons for owning forest land, South & East Region.

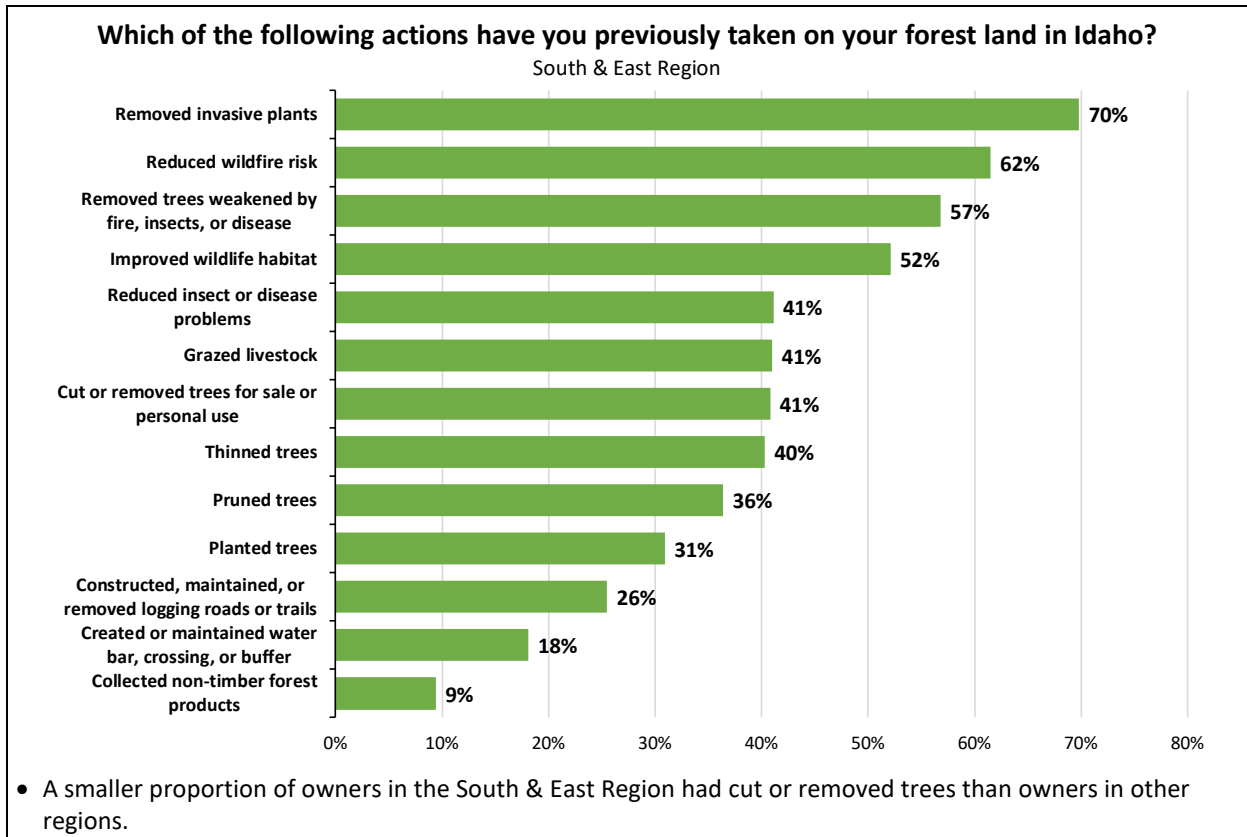


Figure D-5. Past management actions, South & East Region.

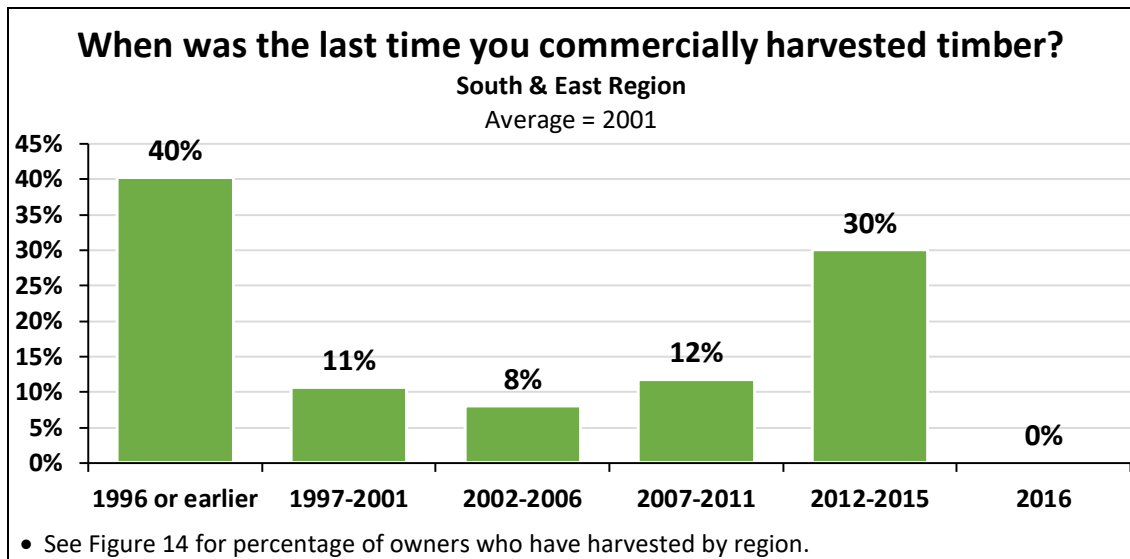


Figure D-6. Year of last commercial timber harvest, South & East Region.

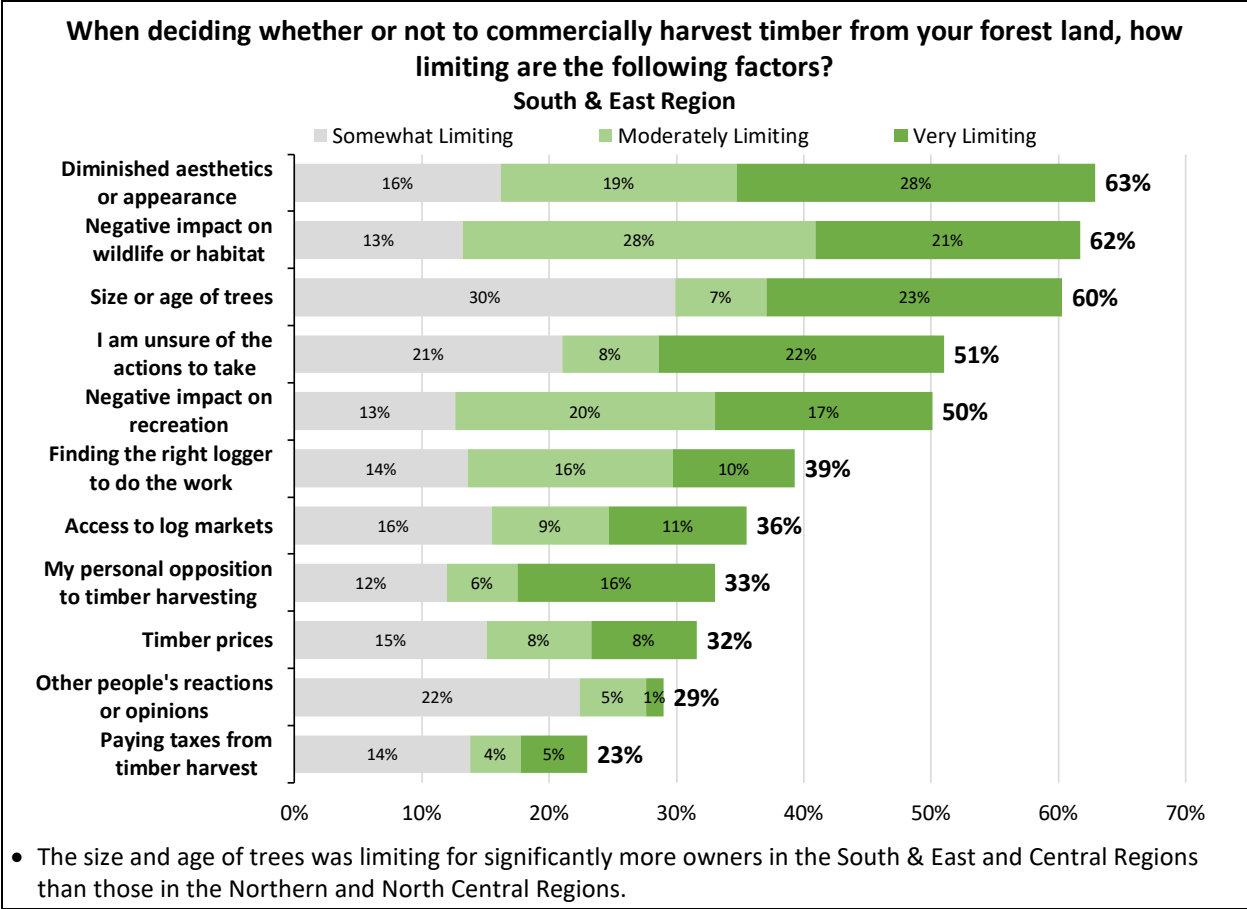


Figure D-7. Limitations to commercial timber harvesting, South & East Region.

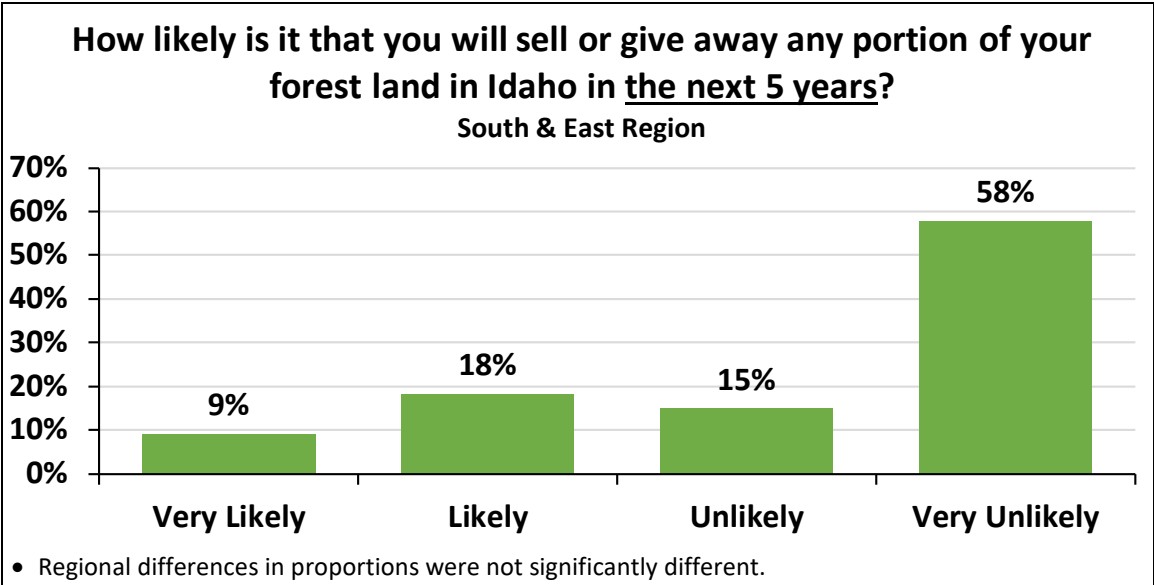


Figure D-8. Likelihood of ownership transfer, South & East Region.

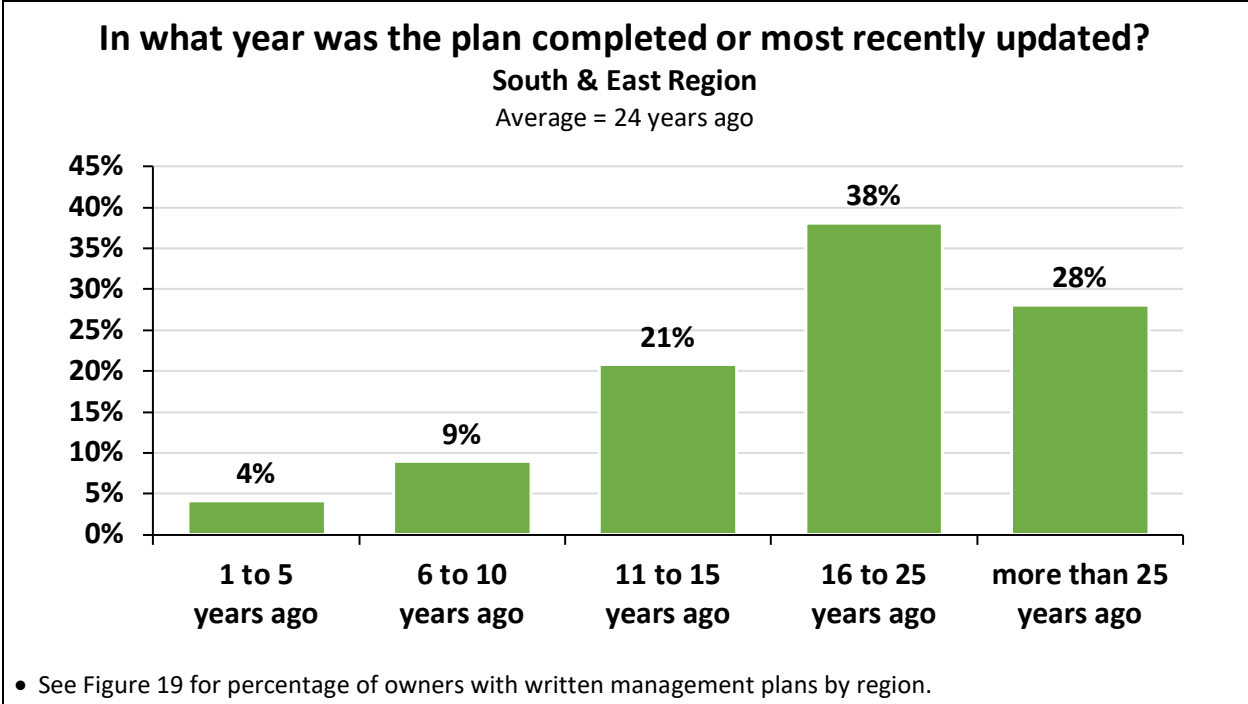


Figure D-9. Age of management plan, South & East Region.

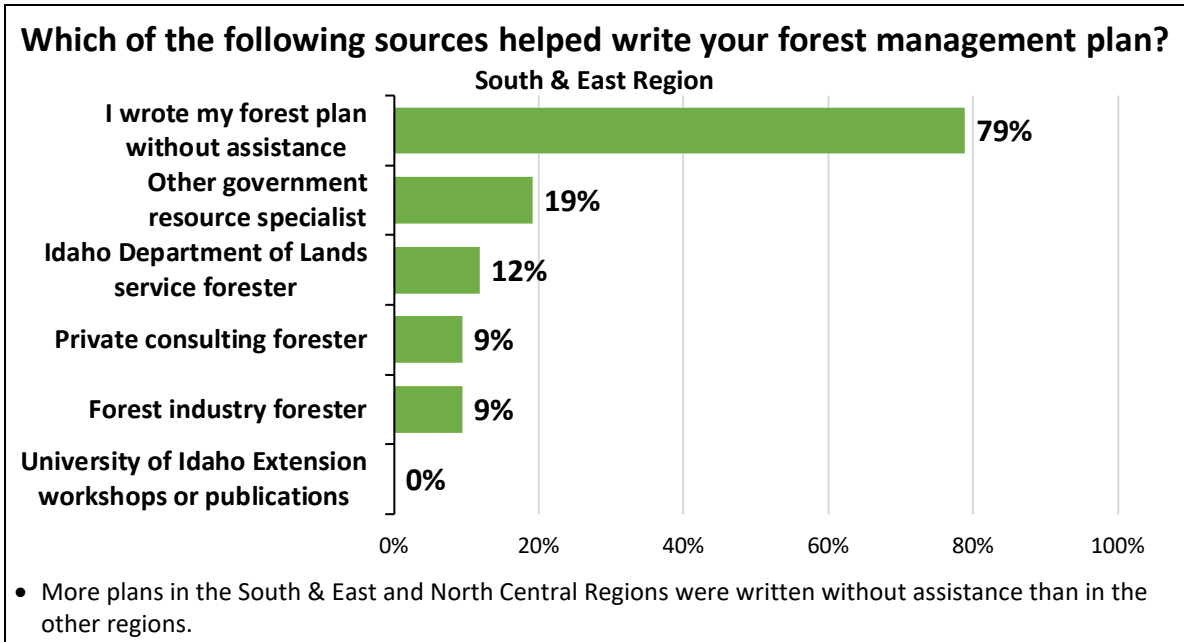


Figure D-10. Assistance with writing management plan, South & East Region.

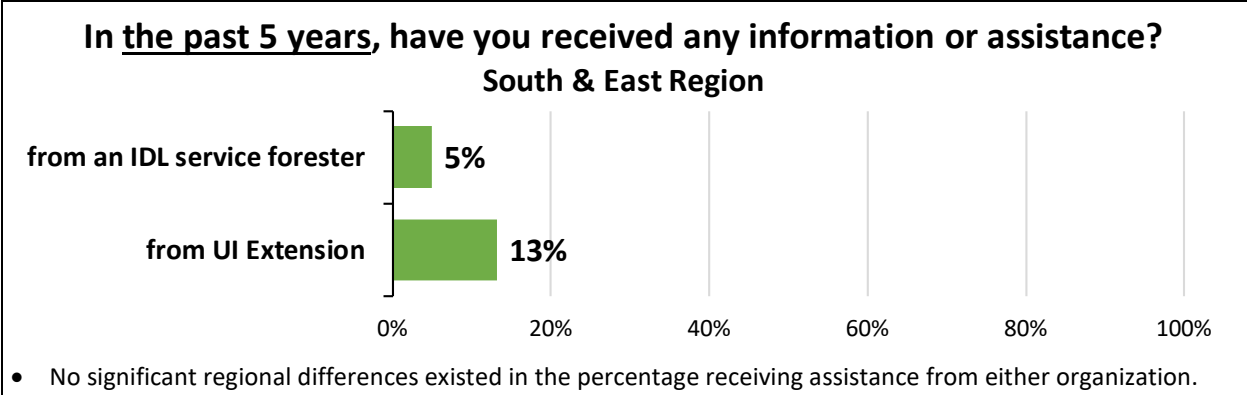


Figure D-11. Assistance from UI Extension or Idaho Department of Lands, South & East Region.

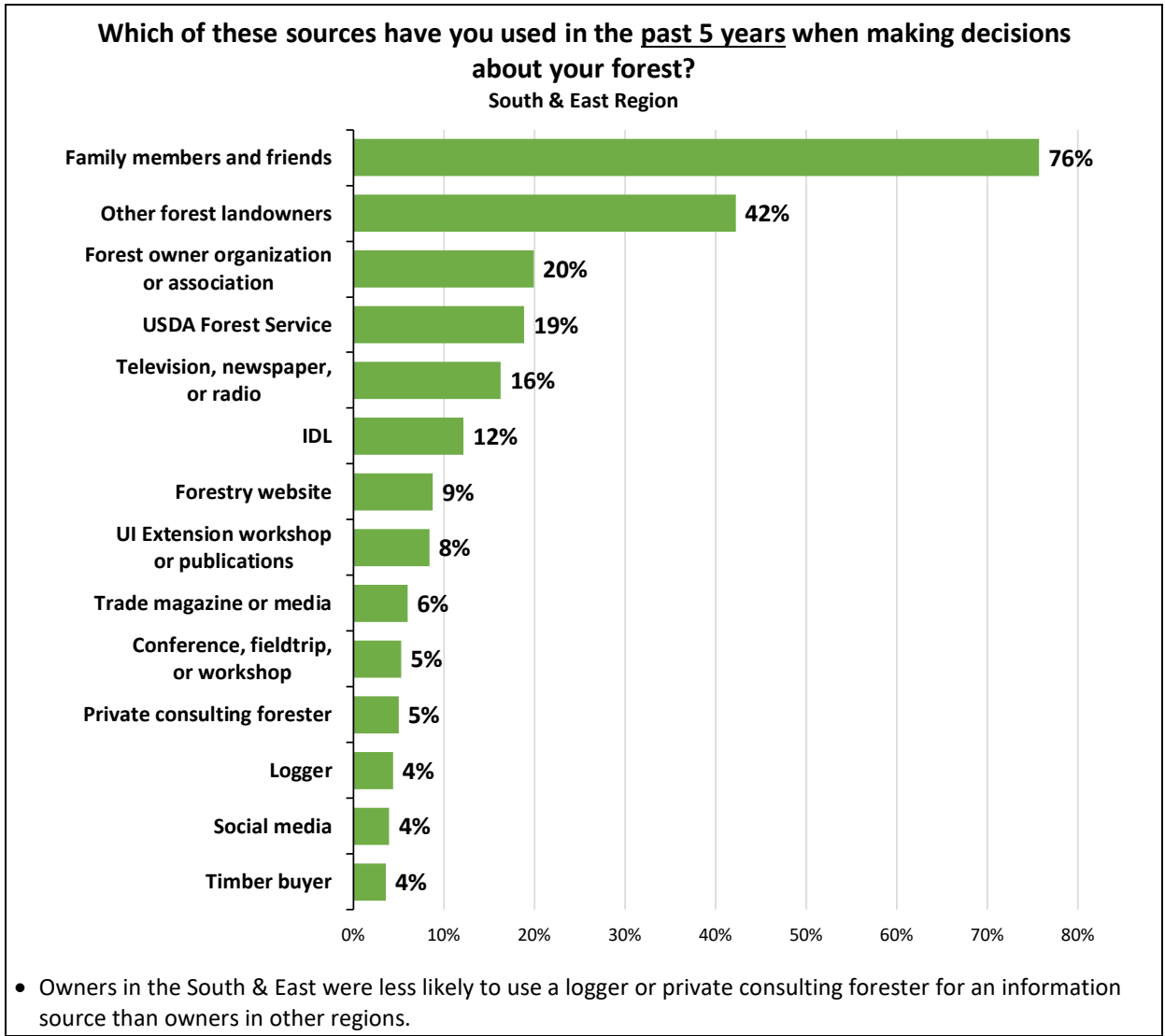


Figure D-12. Sources of information used for decision-making, South & East Region.

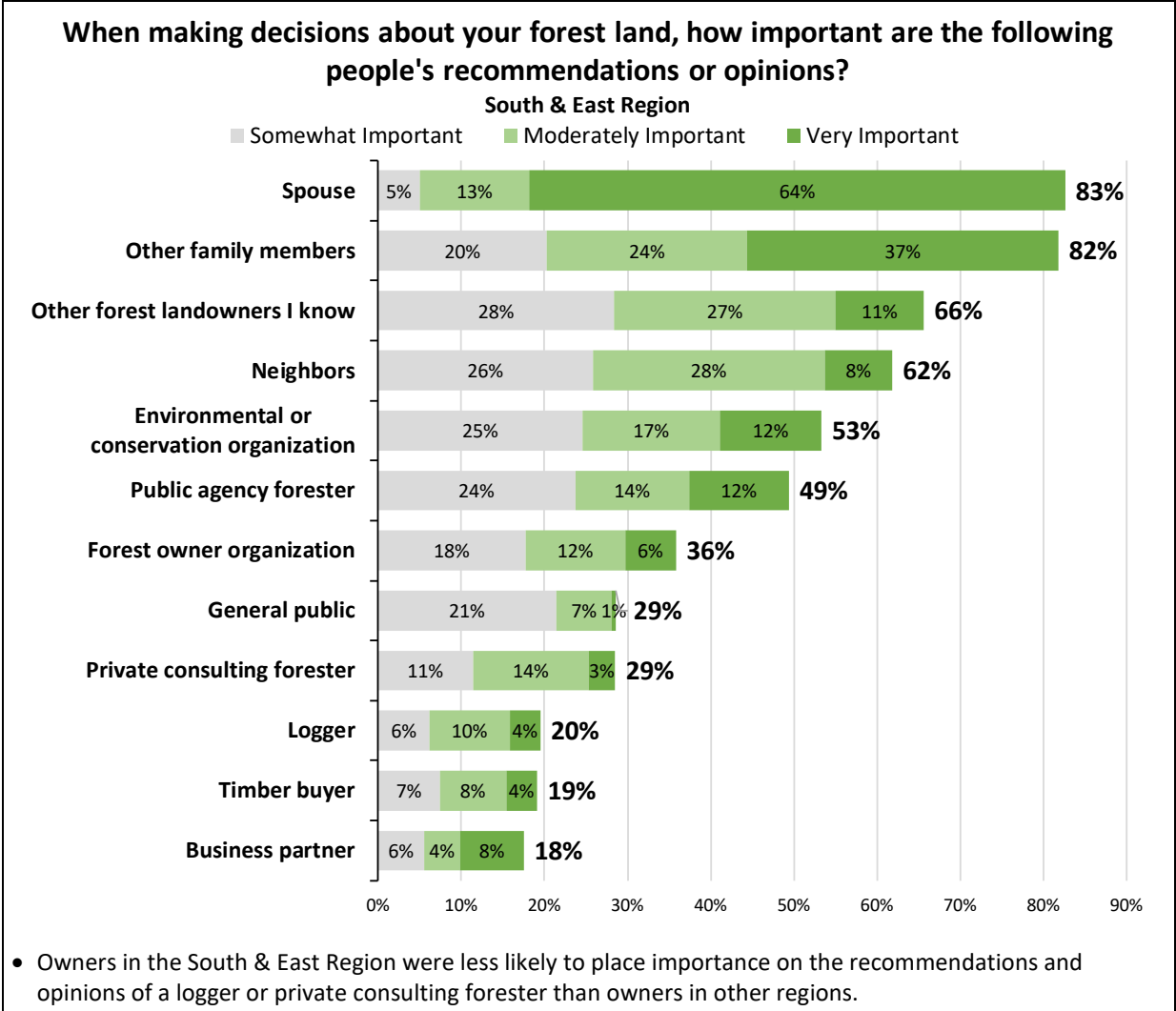


Figure D-13. Importance of sources for decision-making, South & East Region.