

Forest Ownership Patterns

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Abstract

Forests, whether public or private, provide the general public with countless goods and services. As it is the owners who ultimately decide the fate of these forests, it is important to understand forest ownership trends and patterns. As the results of political, economic, social, historic, and biophysical factors, forest ownership patterns vary considerably across the nation and across the urban–rural spectrum. For example, the eastern United States is dominated by private ownership, while the western United States is dominated by public ownerships. Across the urban–rural spectrum, federal and state lands tend to be in more rural areas, while private forest ownerships tend to be in closer proximity to urban areas. The urban–rural spectrum is also correlated with other ownership patterns such as size of family forest holdings, timber harvesting, and some reasons for owning land. The population pressures exerted across the urban–rural spectrum will influence the future of these lands through land use conversions and different values, desires, and expectations for lands depending upon where they are located.

Ownership Matters

It is the owner of a piece of land who ultimately determines its fate. It is the owner who decides if the land will be sold, if it will be developed, or if the trees will be harvested. Therefore, if we are interested in the fate of the forests, we must understand the people and organizations who control the land where forests grow. The urban–rural interface is important in this regard for two reasons. First, generally speaking, the mix of land owners varies along an urban–rural gradient. Second, although the owners are the ultimate decision makers, they are influenced and constrained by the social and ecological environments in which they and their land exist. One of these influences is the urban–rural spectrum. The relative importance of the various goods and services produced on the land will vary along this spectrum (e.g., water recharge and purification may be more important in more urban areas and timber production may be more important in more rural areas) and so too will the owners' uses of their land.

Background

Ownership rights vary depending on the resource being considered, the relevant laws for that part of the world, and the time frame being considered. Ownership is actually a bundle of rights and is often conceptualized as a bundle of sticks (Fig. 7–1). Each stick represents a given aspect, for example the trees, the wildlife, the belowground minerals, or the soil (i.e., the land

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itself). In the United States, trees are considered part of the land and are owned by the landowner. Wildlife is considered to be owned by the people of a given state. The rights to the minerals can be, and often are, owned by someone other than the person who owns the land, which, as is the case with some oil and gas mining, can lead to conflicts.

For a given piece of land in the United States, there is a fee simple owner—a person, group of people, or organization (i.e., an ownership), who has the right to sell it and otherwise use it within bounds. These bounds may be regulatory, such as wetlands protection, or they can be voluntary, such as conservation easements. The landowner also has responsibilities, such as property taxes.

A Brief History of Ownership in the United States

The relationship between people and property (including land) in the United States has changed dramatically through time and will continue to evolve. There is a stark difference between how Native Americans traditionally view land ownership and how Euro-Americans view it. The Native American views vary by tribe, in part due to lifestyle differences, but Chief Sealth (Seattle) encapsulated some of the sentiments when he purportedly asked the President of the United States: “How can you buy or sell the sky, the warmth of the land? The idea is strange to us. If we do not own the freshness of the air and the sparkle of the water, how can you buy them?” (Chief Seattle, 1983).

The English laws brought to the New World by European settlers gave rise to the colonial and then constitutional laws that have been transformed into the property ownership rights of today (Banner, 2011). The English traditions were rooted in monarchical and feudal systems that perpetuated a land-rich aristocracy. These tenets were anathema to the principles of a republic and were changed, over the course of many years, to meet the vision for the new nation. Parts of the old system, such as primogeniture, entail, and joint tenancy, were eventually dropped, and the importance of private property ownership was enshrined in the 5th Amendment of the U.S. Constitution: “No person shall be ... deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.” Land is the quintessential example of property, but there are other examples, such as intellectual property rights and stocks. The concept of property changes, with slavery being an obvious example.

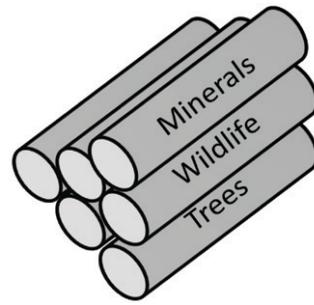


Fig. 7-1. Graphic depiction of the ownership bundle of rights.

Current Forest Ownership Patterns

Forest ownership patterns change over time. There are many, often interrelated, factors that influence forest ownership, including settlement patterns, laws and regulations, markets, topography, and ecoregions, to name but a few. The biophysical factors, such as topography and ecoregions, influence the suitability of given areas for different uses and the potential for the land to grow certain tree species and the rate at which those species can grow. This has all combined to result in forest ownership patterns that vary immensely across the United States (Fig. 7-2), with the western United States dominated by public, primarily federal, ownership, and the eastern United States dominated by private, primarily family, ownership (Fig. 7-3, Box 7-1,).¹

Looking at differences across geographic areas is useful, but there are other dimensions that are equally important, such as the urban–rural spectrum. The urban–rural spectrum is important for both broad- and fine-scale patterns. For example, speaking broadly, most federal and state lands tend to be in more rural areas. At the fine scale, two forest owners, one outside of Boston and one outside of Birmingham, may be more similar (and face more similar circumstances) than one in Boston and one in the hills of rural western Massachusetts, or one outside Birmingham and one in rural northern Alabama.

Forest Ownership along the Urban–Rural Continuum

Pressures on forest owners vary along a continuum from highly populated urban areas to sparsely populated rural areas (Fig. 7-4). For example, development pressures are, on average, much greater in urban areas than in rural areas. These pressures have a large influence on broad

¹ Unless otherwise specified, statistics in this chapter are for the coterminous United States.

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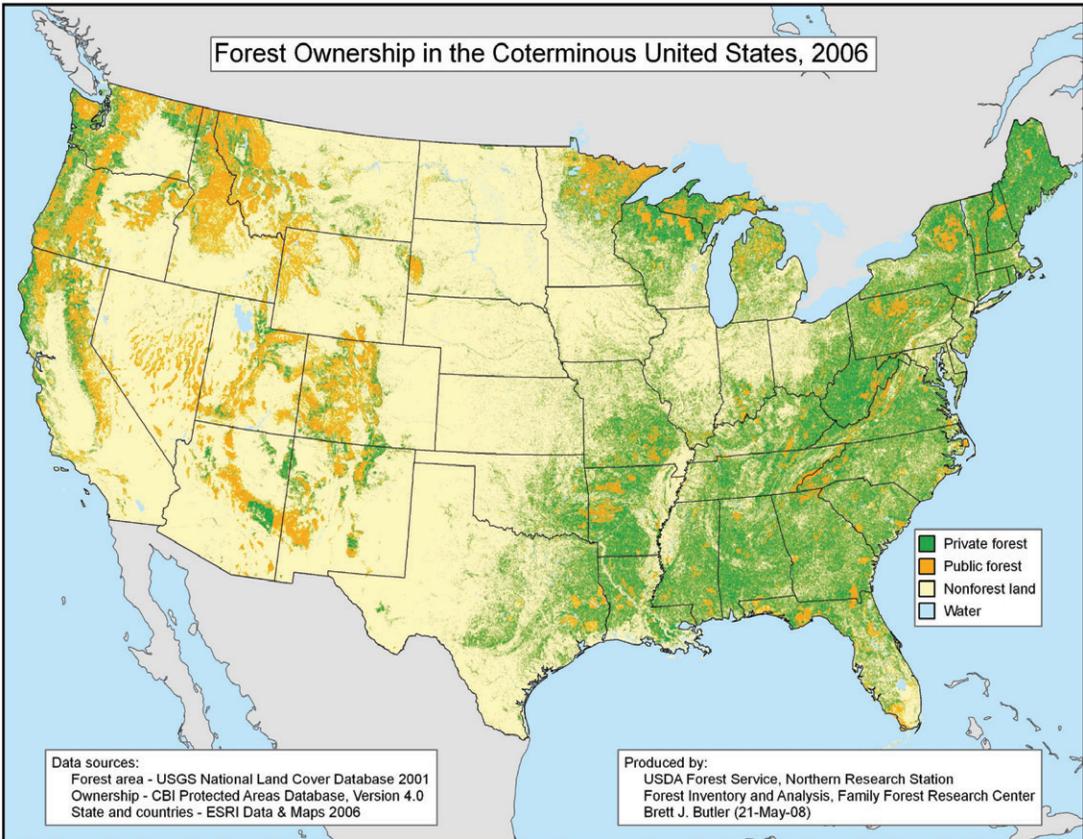


Fig. 7-2. Private and public forest ownership across the coterminous United States (Butler, 2008).

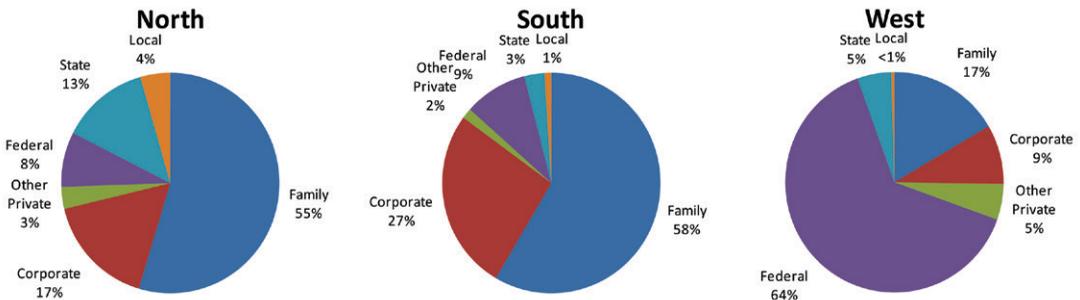


Fig. 7-3. Forestland ownership by region (Butler, 2008; Smith et al., 2009).

Box 7-1. Definitions of Forest Ownership Categories

Private

Family – Families, individuals, trusts, estates, family partnerships, and other unincorporated groups of individuals that own forestland.†

Corporate – Incorporated businesses that own forestland.

Other private – Native American tribes, non-governmental conservation organizations, unincorporated partnerships and other private groups that are neither family nor corporate.

Public

Federal – U.S. Government agencies that administer forestland.

State – State agencies that administer forestland.

Local – County and municipal government agencies that administer forestland.

† Forest land is land at least 10 percent stocked by forest trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. The minimum area for classification of forest land is 0.4 ha (1 acre).

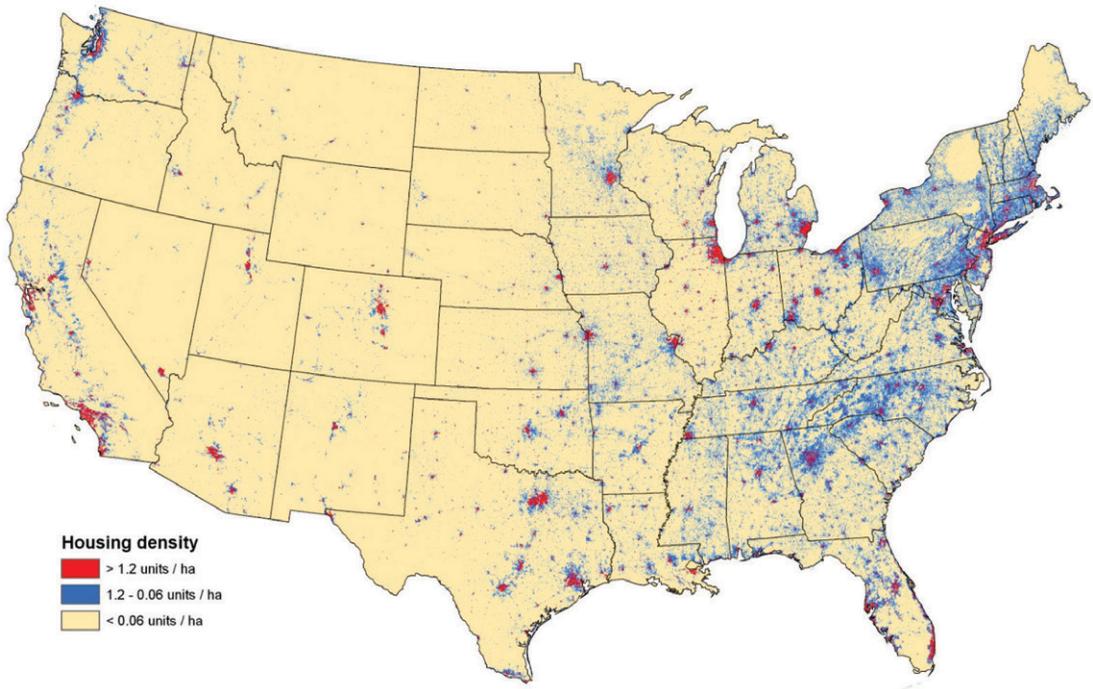


Fig. 7-4. Housing density across the coterminous United States (USEPA, 2009).

forest ownership patterns and are highly correlated with a number of important ownership characteristics.

Broad Ownership Patterns

Although all forest ownership categories exist across a range of urban–rural settings, there are discernible patterns (Fig. 7-5). The magnitudes of the differences vary by region, but the trends are similar. Federal lands, such as National Forests, most commonly exist in rural settings. This is partially due to the fact that many of these holdings are very large, and therefore by definition in rural environments, and is partially an artifact of the initial land acquisitions having been made in remote and sparsely settled areas less suitable for agriculture. State lands are often in smaller management units than federal holdings and are found in areas of higher housing densities. Local, such as county and municipal, forests tend to be in even smaller holdings and occur in even more densely populated areas. These relationships to population density influence people’s interactions with these lands and their expectations for them.

On the private side, family forest holdings tend to be in places with higher population densities and the “other private” owners, such

as conservation organizations, tend to occur in places of relatively lower population densities. In the North and South, corporate ownerships are in places of lower population densities than family forest owners and places similar to or lower than other private ownerships. In the West, the housing density surrounding corporate ownerships is about equal to that of family forest ownerships.

Family Forest Ownership Patterns

Across the 50 states, 56% of forest land is privately owned, and of this families and individuals control nearly two-thirds, approximately 107 million hectares (or 264 million acres) (Butler, 2008). There are more than 10 million family forest owners in the United States; they come from a diversity of backgrounds, have a diversity of reasons for owning land, and do a diversity of things with their land.

Family forest owner characteristics will be examined using data collected by the U.S. Forest Service’s National Woodland Owner Survey (see Box 7-2; Butler, 2008). There are three ways to examine these statistics: ownerships, area, and respondents (Fig. 7-6). The proper way depends on the questions being addressed and the analyses being conducted. Due to the fact that every

hectare has the same probability of being sampled in each state (Butler et al., 2005), the area and respondent metrics are very close and differ only because of stratification and nonresponse issues.

More than 60% of the family forest ownerships have between ~0.4 and 3.6 ha (1 and 9 acres) of forest land, but more than 50% of total private forest land is in holdings of 40.5 ha (100 acres) or more. The size of holdings is important because it determines, to a certain extent, what can and cannot be done with the land. For example, commercial timber harvesting is very difficult on parcels of less than ~4 ha (10 acres), and some would argue less than ~16 ha (40 acres). In addition, size of forest holdings is highly correlated with numerous ownership characteristics, such as reasons for owning and harvesting practices (Butler, 2008).

The median forest holding size changes significantly across the urban–rural spectrum (Fig. 7-7). There exists a variety of holding sizes across the spectrum (i.e., there are large and small holdings in both the most urban and most rural categories), but there is a clear pattern of larger holdings in the more rural areas and smaller holdings in the more urban areas, as one would expect. It should be noted that the *y* axis in Fig. 7-7 is on a log scale; the median value of 5.8 for the most rural category is equal to ~134 ha (330 acres) when it is back-transformed and the median value of 3.9 for the most urban category is equal to ~20 ha (49 acres).

Most owners have multiple reasons for owning forest land; the most common reasons are related to aesthetics, legacy, and privacy (Fig. 7-8). Aesthetics, privacy, and many other common objectives are related to the amenity values, the nonmonetary benefits, that forests provide. Legacy is related to the fact that many owners want to pass their land on to the next generation, usually their children, and many have inherited it from a family member, usually their parents.

Some of these reasons for owning have relationships to the urban–rural continuum, and some do not (Fig. 7-9). Hunting, other recreation, and timber production decrease in importance from rural to urban areas, with hunting having the strongest relationship. There are weak relationships between aesthetics, privacy, and nature protection, with the importance of these ownership objectives increasing slightly from rural to urban areas. Land investment has no discernible pattern across the urban–rural spectrum.

Although timber production is not a major ownership objective for most family forest owners (Fig. 7-8), timber harvesting is a relatively

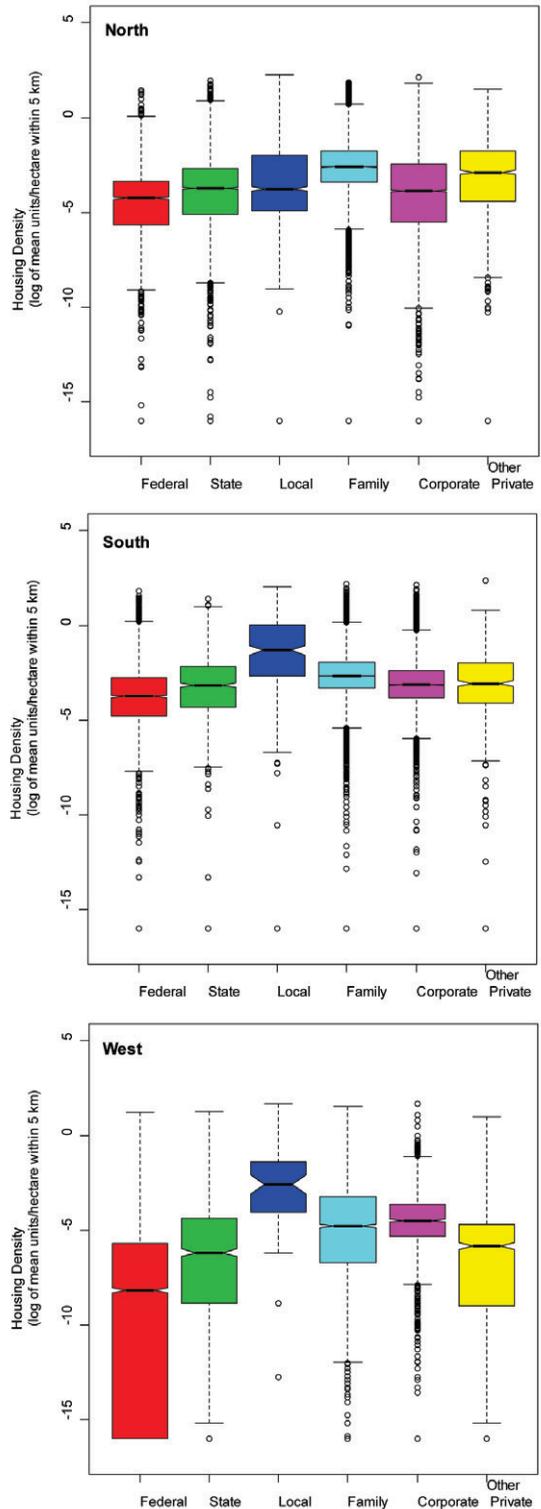


Fig. 7-5. Distributions (box plots) of housing density by ownership category by region. Boxes represent lower, middle (median), and upper quartiles; whiskers represent 1.5 times the interquartile range, and the circles represent outliers. Overlapping notches in the boxes indicate medians that do not significantly differ.

Box 7-2. U.S. Forest Service's National Woodland Owner Survey.

The statistics for this article came from the U.S. Forest Service's National Woodland Owner Survey (NWOS). It is administered by the Forest Inventory & Analysis program as the social complement to its biophysical forest inventory. This survey is conducted in order to better understand:

- Who owns the forests of the United
- Why they own it
- How they have used it in the past
- How they plan to use it in the future

The 2006 data, referenced here, came from 15,440 randomly selected family forest owners from across the United States. In a mail-based survey, participants were asked questions related to their forest holdings, the history of their ownership, reasons for owning, uses of their land, management practices, information sources, concerns, future plans, and their demographics. For more information about the NWOS, visit: www.fia.fs.fed.us/nwos.

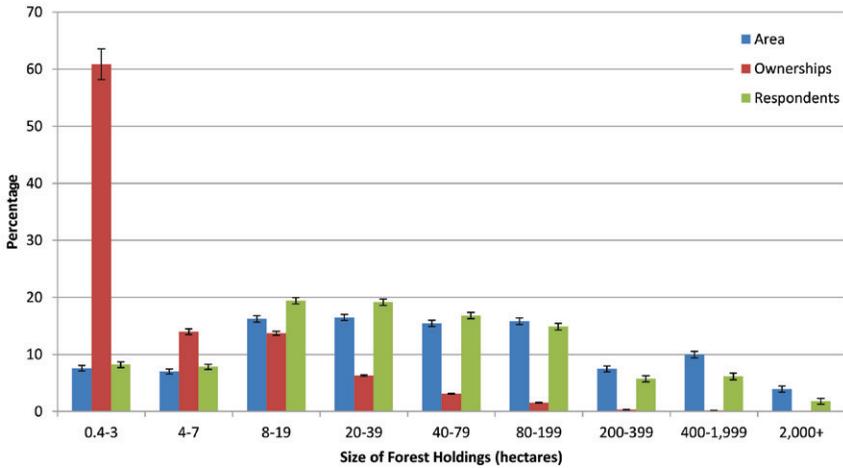


Fig. 7-6. Percentage of family forest ownerships, acreage, and respondents by size of forest holdings in the United States, 2006 (Butler, 2008).

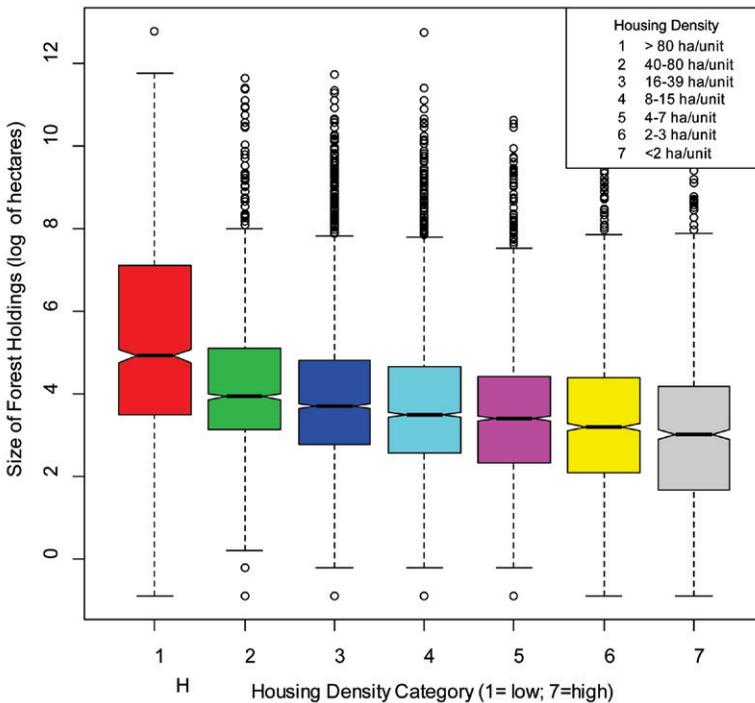


Fig. 7-7. Distributions (box plots) of size of forest holdings by housing density in the United States, 2006. Boxes represent lower, middle (median), and upper quartiles; whiskers represent 1.5 times the inter-quartile range, and the circles represent outliers. Overlapping notches in the boxes indicate medians that do not significantly differ.

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common activity; 27% of the family forest owners, who own 58% of the family forest land, have commercially harvested trees. The probability of commercial timber harvesting is greatest in the most rural areas, but even in these areas there is a significant percentage of owners who have not harvested trees (Fig. 7-10). The probability of harvesting is least in the most urban areas, but even here, there is a significant proportion who reported harvesting. One thing these statistics fail to capture is the volume of trees harvested.

Although many owners harvest timber, the proportion that have a management plan or have received management advice is significantly lower (Fig. 7-10). The ratio of harvesting to management plans is less than 2:1, and this calls into doubt whether the harvesting is being done in the best manner to meet the needs of the owners, the forest, and society. The harvesting/plans ratio is highest in the most rural areas and lowest in the most rural areas.

In contrast to many other characteristics, the demographics of family forest owners are fairly constant across the urban-rural spectrum (Fig. 7-11), but there are a few slight trends. The proportion of female primary decision makers increases from urban to rural. A few of the variables have slightly bimodal distributions; income and education levels are highest in the most rural and the most urban areas and are lower in between.

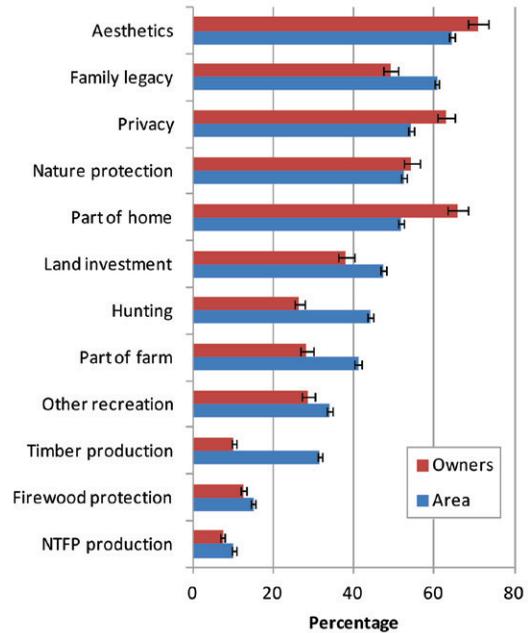


Fig. 7-8. Area and number of family forests in the United States by reason for owning forest land, 2006 (Butler 2008). Numbers include landowners who ranked each objective as very important (1) or important (2) on a seven-point Likert scale. Excludes interior Alaska, Hawaii, Nevada, western Oklahoma, and western Texas. NTFP, Nontimber forest products.

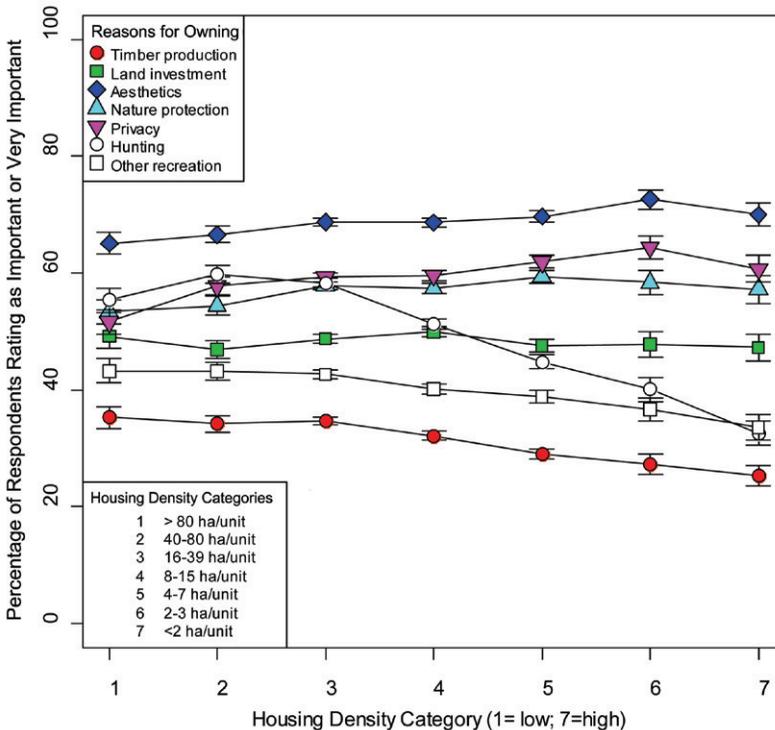


Fig. 7-9. Ownership objectives of family forests in the United States by housing density. Percentages are numbers of respondents who ranked each objective as very important (1) or important (2) on a seven-point Likert scale divided by total number of respondents.

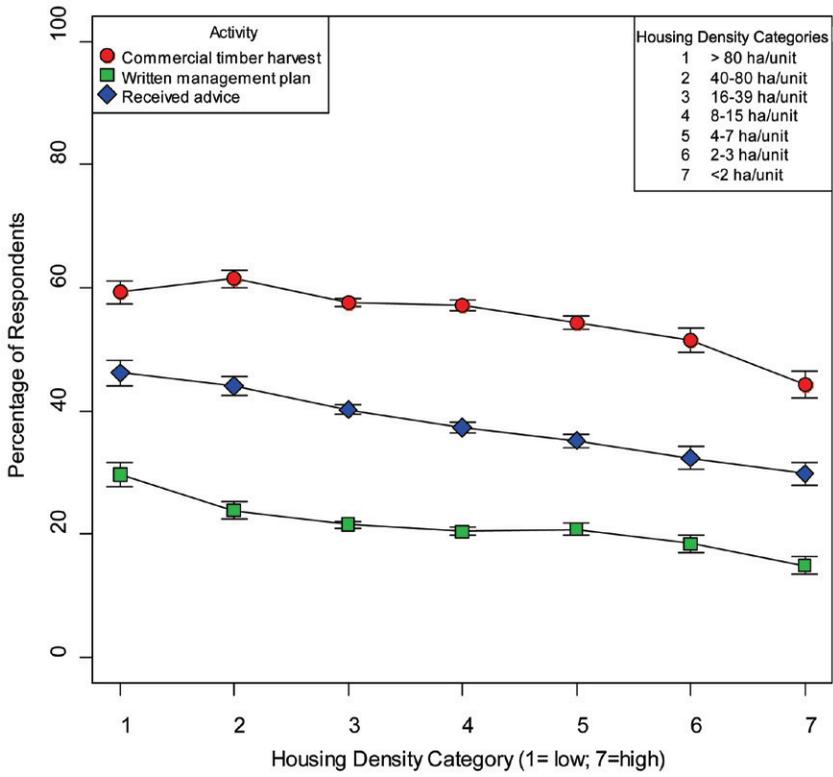


Fig. 7-10. Forest management activities of family forests in the United States by housing density.

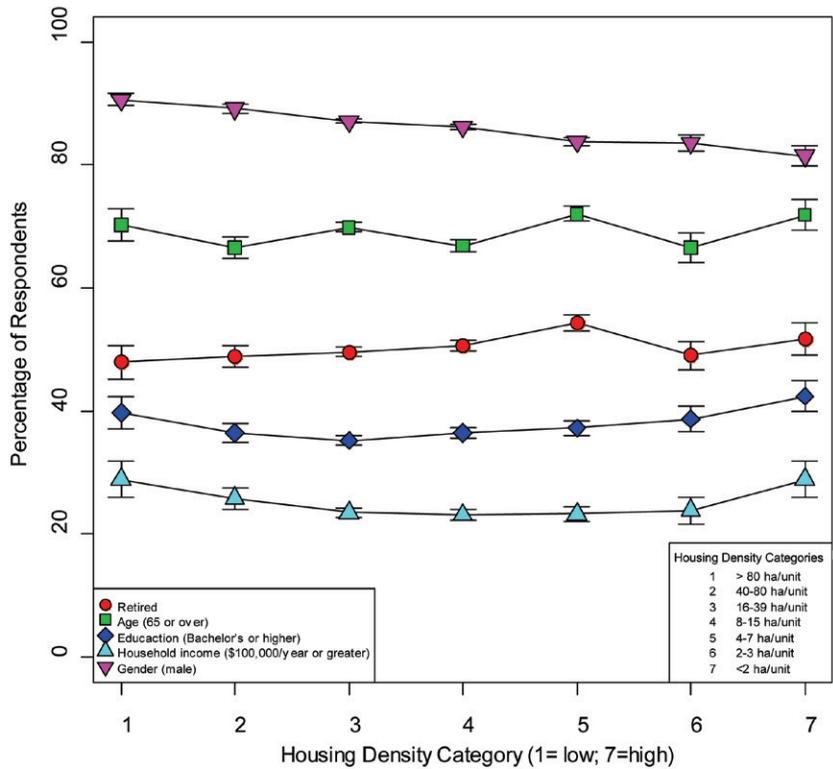


Fig. 7-11. Family forest owner demographics in the United States by housing density.

The Future of Forest Ownership

At the broad scale, the small increases in public ownership are likely to continue. There are numerous owners interested in having a public agency, often a local government, acquire their land, and as more forest and other open spaces are lost, there will be more of a demand to acquire these lands for the public good. Large-scale federal acquisitions would literally take an act of Congress. The last major acquisition program was the Weeks Act (1911) and the likelihood of getting something similar passed now or in the near future is arguably very low. Money from the Land and Water Conservation Fund has been used to acquire land, but these purchases are, in the larger scheme, limited. The Department of Defense, sometimes in conjunction with other partners, has been acquiring lands around military bases to establish buffers.

Over the past 20 years, the traditional, vertically integrated forest industry has sold off most of its landholdings. Concurrent with this shift was an increase in the area owned by Real Estate Investment Trusts (REITs) and Timber Investment Management Organizations (TIMOs). The drivers for this change have included tax structures, shareholder pressures, and broader business strategies. The ultimate consequences of these shifts are still unknown.

With regard to family forest land, parcellation, the act of taking a large parcel and subdividing it into smaller parcels, has been increasing. There are some places where owners are consolidating parcels, but the net change is for smaller parcels. This has important implications for the various characteristics described above. Parcellation will likely lead to fragmentation (the isolation and reconfiguration of forests) and make it harder for land to be financially viable for timber production. On the plus side, parcellation makes it possible for more people to realize the American dream (and part of the vision of the founding fathers) of land ownership.

The relatively advanced age of many family forest owners—15% of the owners, who own 20% of the family forestland, are 75 years old or older (Butler, 2008)—portends a large-scale transfer of forest land in the relatively near future. The current generation of owners is dominated by the Greatest Generation and the next generation of owners will likely be dominated by the Baby Boomers. The owners from the Baby Boomer generation are likely to have different backgrounds and have different expectations for the land than the owners from the Greatest Generation. The ultimate ramifications of this shift are unknown and should be monitored (Mater et al., 2005). In addition, every time a parcel is transferred, there is a possibility for a change in the land (e.g., parcellation) and landowner characteristics (e.g., ownership objectives).

The exact make-up of the future forest ownership is unknown, but the urban–rural spectrum is bound to play a pivotal role in shaping it.

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