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Demographic Trends in National Forest, Recreational, Retirement, and Amenity Areas

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Demographic Trends in National Forest, Recreational, Retirement, and Amenity Areas

Kenneth M. Johnson[1] and Susan I. Stewart[2]

Abstract

Those who live near national forests are both potential forest visitors and neighbors who feel the impact of many forest management decisions. This paper provides some insights about those proximate populations. It does so by measuring the proportion of national forest land within each county and then combining that with an analysis of the patterns of demographic change over the past several decades. Because there is considerable overlap between counties that contain national forests and those designated as recreational, high amenity, and retirement destination counties, demographic trends in such counties are compared. A total of 757 of the 3,141 U.S. counties contain national forest land. More than 66.1 million people resided in these counties in 2000, some 24% of the U.S. total. The population in national forest counties grew by 19% between 1990 and 2000 compared to 13% for the nation as a whole. Most of the population gain in national forest areas resulted from net in-migration. Population gains in national forest counties were slightly smaller than those in recreational and natural amenity counties and significantly less than those in retirement destination counties; however, the gains were considerably larger than those in other counties. National forest counties that are metropolitan have significantly more Hispanics than other metropolitan counties but fewer Blacks and Whites. Nonmetropolitan national forest counties contain a much larger proportion of non-Hispanic Whites than their metropolitan counterparts, a finding consistent with that for nonmetropolitan counties in general. Knowledge about the changing size and demographic structure of the population in national forest counties has particular relevance to Forest Service planners and policymakers.

Introduction

The Forest Service and other land management agencies serve the needs of both users and nonusers of the resources they manage. Some of those they serve reside near the resources while others live at some distance from them. Whether they use the forests or not, those who live near the forests are often affected by their day-to-day management. Current and complete information about the population residing near the national forests enhances resource planning and management by clarifying who will be impacted by forest management. It also provides a profile of some of the forest's potential visitors.

Knowledge of the changing size and demographic structure of the population has particular utility to forest managers and policymakers, in part because population growth in the vicinity of national forests over the past decade has significant implications. Population

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growth is known to increase population density along the forest edge. This puts additional pressure on riparian and environmentally sensitive areas, increases the use of recreational facilities, and complicates forest management and fire suppression (Gobster et al. 2000, Radeloff et al. 2001, Wear and Bolstad 1998, Wear et al. 1998). Changes in the structure of the population within and immediately surrounding the national forests is also significant for forest management and planning. For example, recent research suggests that recreational areas are receiving a net influx of people 30 years old and over (Johnson and Fuguitt 2000). Increased retention of young adults or an influx of this age group is likely to impact the natural environment and local infrastructure differently than would an exodus of this age group, or an influx of retirement age migrants. Young adults are in a phase of the lifecycle that emphasizes family formation and labor force participation, and as a result are likely to consume more land, generate more highway trips, and use recreational and natural areas differently than senior citizens.

The relation between demographic change and natural resources has been explored in some detail since the rural turnaround of the 1970s focused attention on migration patterns in the United States (Fuguitt 1995, Johnson 1998). This rural turnaround marked a shift in net migration patterns, from a predominantly rural-to-urban flow of people to a net urban-to-rural flow (Johnson and Beale 1998). Beginning with the turnaround of the 1970s and continuing after a brief lull in the 1980s with the rural rebound of the 1990s, rural areas attracted and retained more migrants than they lost. This pattern was especially strong in areas with attractive scenery and abundant recreational opportunities. Retirement trends also played a role in the rural rebound because retirees made up a significant number of those leaving urban areas to settle in rural places. Because the presence of national forests, amenity resources, and recreational opportunities influence migration (the most important component of demographic change), our analysis classifies counties using these characteristics and describes the changes occurring in each type of county.

This paper highlights changes over time in the population size and composition (i.e., the relative size of age groups and racial/ethnic groups) in areas of particular relevance to the Forest Service. Areas to be examined include those containing national forests, those where recreational activity is high, those that serve as destinations for retirement migrants and those with significant natural amenities. Although there is considerable overlap among these county types, previous research suggests there are distinct differences among them as well. Population gains have been substantial in recreational, retirement, and natural amenity areas in recent years (Johnson 1999, McGranahan 1999). Less is known about population change in areas containing national forests, but our analysis shows that they are also experiencing both population growth and changing demographic structure.

The U.S. Census Bureau provides a wealth of detailed data about the population. However, additional analysis of census data is always necessary when it is used to address resource management questions because the boundaries of public resources rarely coincide with the standard geographic units used for demographic reporting. For example, national forests do not correspond directly to states, counties, or any other geographic unit used by the Census Bureau to report data. Furthermore, many population characteristics useful in recreation management, such as racial and ethnic group membership, are available only in the decennial censuses (i.e., 1990, 2000). Thus the release of data from the 2000 decennial census offers a unique opportunity to examine demographic characteristics that are particularly relevant to resource managers, and to determine how these characteristics have changed between 1990 and 2000.

Objectives

Our goal is to give resource managers an updated portrait of the population living near the national forest. To accomplish this we focus on four objectives:

- Identify counties with national forest land and measure the proportion of national forest land within each of these counties.
- Summarize the patterns of demographic change between 1990 and 2000 in counties containing national forest land.
- Compare the distribution of national forest counties to that of counties designated as recreational, high amenity, and retirement.
- Compare the patterns of demographic change between 1990 and 2000 in national forest counties to those in counties designated as recreational, high amenity, and retirement.

Methods

This project makes extensive use of data from the 2000 census to produce an overview of the demographic structure in the relevant county groups. The 2000 data are combined with 1990 census data to document demographic change between 1990 and 2000.

Counties are the unit of analysis and are appropriate for this purpose because they have historically stable boundaries and are a basic unit for reporting fertility, mortality, and census data. Counties are delineated as metropolitan or nonmetropolitan by using criteria developed by the Office of Management and Budget. Generally, a county is classified as metropolitan if it contains a city of at least 50,000 or if it is contiguous to a county containing a city of at least 50,000 and is socially and economically integrated with it. For example, a county made up of bedroom communities surrounding an urban center is considered integrated with that urban area and is classified as a metropolitan area. Because metropolitan reclassification complicates efforts to compare nonmetropolitan areas across time, a consistent 1993 metropolitan definition is used for the analysis. The United States contains 3,141 counties or county equivalents. As of 1993, 837 counties were defined as metropolitan with the remainder defined as nonmetropolitan. The terms rural and nonmetropolitan are used interchangeably here, as are the terms metropolitan and urban.

Recreational, natural amenity, and retirement destination counties are delineated by using existing classification systems (see below). These classification systems are applied just to nonmetropolitan areas. This allows trends in metropolitan counties (as a separate category) to be compared to trends in recreational, natural amenity, and retirement destination counties, and to those in all other nonmetropolitan counties.

Identification of Recreational, Amenity, Retirement, and Forest Counties

Johnson and Beale (2002) identified 329 recreational counties using a classification procedure combining quantitative analysis of indicators of recreational activity (high earnings and employment from recreational businesses, high spending on hotels and motels, high proportion of seasonal housing) with a contextual analysis of travel literature. This recreational county classification updates their earlier effort to identify recreational counties (Beale and Johnson 1998). Research using their earlier index documented substantially higher population gains in counties designated as recreational (Johnson and Fuguitt 2000).

McGranahan (1999) created a natural amenity index using data on natural and scenic amenities (lakes and water, elevation, temperature and climate variation, etc.). The amenity index focuses on the physical attributes of a county. As such, it does an excellent job of identifying counties with attractive viewscapes, riparian areas, and scenic and natural amenities. The amenity index assigns a score to each county based on its relative position on the various natural amenities. McGranahan documented a substantial positive relationship between population growth and high scores on his amenity index.

Retirement counties are defined as those in which the population 60 and over in 1990 increased by 15% or more between 1980 and 1990 through the net in-movement of older people (Cook and Mizer 1994). There are 190 retirement destination counties in nonmetropolitan America. There is considerable overlap between the recreational and amenity counties discussed above and the retirement destination counties. In part, this is because those moving at retirement age are attracted to the same natural amenities and recreational opportunities that appeal to the rest of the population. Prior research suggests that counties that were both recreational and retirement destinations gained more population between 1990 and 1999 than any other group of counties (Johnson 1999). Most of the population gain in such counties came from migration. Such migration often represents the culmination of a chain of events commencing with vacationing in the area and progressing to second home ownership and migration (Stewart and Stynes 1994).

There is considerable overlap between the recreation and amenity classification systems, but there are also important differences. The amenity index was designed to identify amenity-rich areas nationwide and is, therefore, relatively insensitive to modest local variation in physical surroundings. Thus, a county which has several lakes, in a region where lakes are uncommon, or attractive viewscapes, in a relatively flat area of the country, would likely receive only a moderately high score. This is despite the fact that the county may be the most attractive site within a considerable distance. The amenity index is also insensitive to the proximity of population centers to amenity areas. This is a particular concern for researchers examining how urban populations use recreational and scenic areas. These weaknesses in the amenity index are most evident in the Midwest. In this region, minimal elevation changes and substantial climate variation limits the index scores for many recreational areas. In contrast, the recreational typology developed by Johnson and Beale identifies counties with high recreational activity levels, but does not directly measure the physical attributes of the area. The recreational typology is certainly sensitive to natural amenities because lakes, forest, and topography all generate considerable recreational activity. It is also acutely sensitive to local recreational activity levels because it measures usage rather than physical amenities. Because the proximity of large population concentrations increases the amount of recreational use in areas with significant natural amenities, the recreational typology is more likely to capture the recreational activity sphere of large urban areas. In addition, because the recreational typology is more sensitive to recreation and tourism activity levels than to the physical attributes of an area, it is more likely to identify recreational areas in the Midwest. Using both typologies maximizes the probability that areas where the natural environment produces significant recreational activity will be identified.

An important objective of this study is to delineate counties in which national forests represent a significant local feature. The starting point for identifying national forest counties is the inventory of counties containing national forest land included in the Forest Service land area reports (www.fs.fed.us\land\staff\lar\nfsmap.htm). From this report and census data on the total land area of each county, the percentage of a county's land area that is in a national forest is determined. We calculate the percentage of national forest land as of 2001. If the national forest county designation is to have analytical utility and be consistent with the recreation, amenity, and retirement designations used here, a county must contain a significant amount of national forest land. For purposes of this analysis, counties with at least 10% of their land area in national forests are considered separately from those with less of their land area in national forests. The utility of this distinction and the relation between the proportion of land in national forests and demographic change are examined in more detail below.

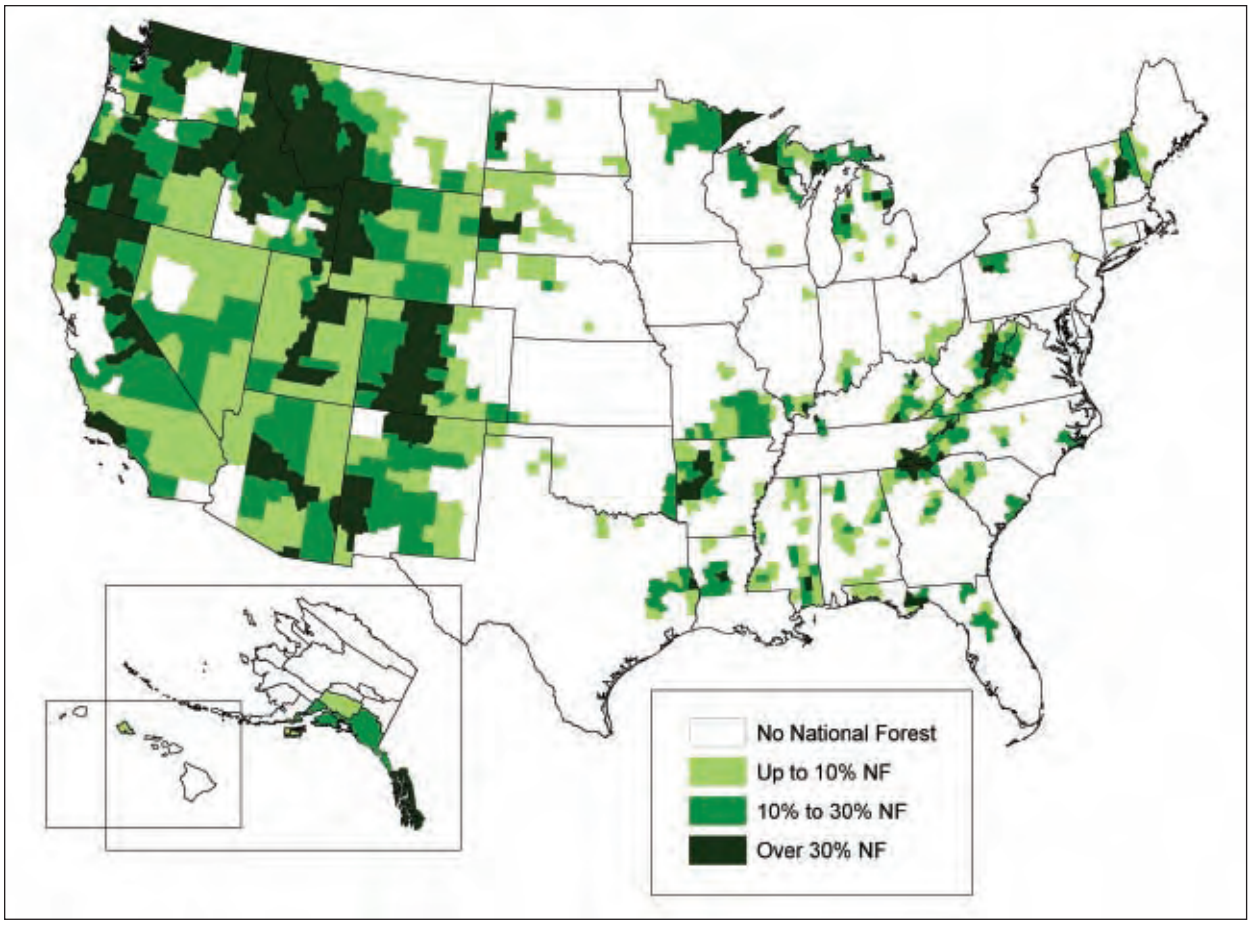

Figure 1—National forest counties, 2001. Source: Forest Service land area reports, 2000 Census.

Results

National forests are widely dispersed across the nation. Forty-four of the fifty states contain national forests. Although national forests are widespread, the distribution of these lands is uneven. The largest concentrations of national forest lands are in the West, the Upper Great Lakes and in the Southeast and South Central regions of the country (fig.1).

In all, 757 of the 3,141 U.S. counties (24%) contain national forest land. The proportion of its land area that any county has in national forests varies greatly. Some 192 (25%) of the 757 counties with national forests have 5% or less of their land in national forests. Another 111 (15%) have between 5 and 10% of the county in national forests. National forests make up between 10 and 20% of the land area in 157 (21%) of the counties with national forests. Another 110 counties (15%) with national forest lands have between 20 and 30% of their land area in national forests. In some 69 counties (9%) national forests make up between 30 and 40% of the land area. Finally, 116 counties (16%) have more than 40% of their land area in national forests. The 757 national forest counties contained 66.1 million Americans, or 24% of the U.S. population in 2000.

Population Growth

There appears to be a fairly strong link between demographic change and the presence of national forests. Most counties with national forests (84%) are

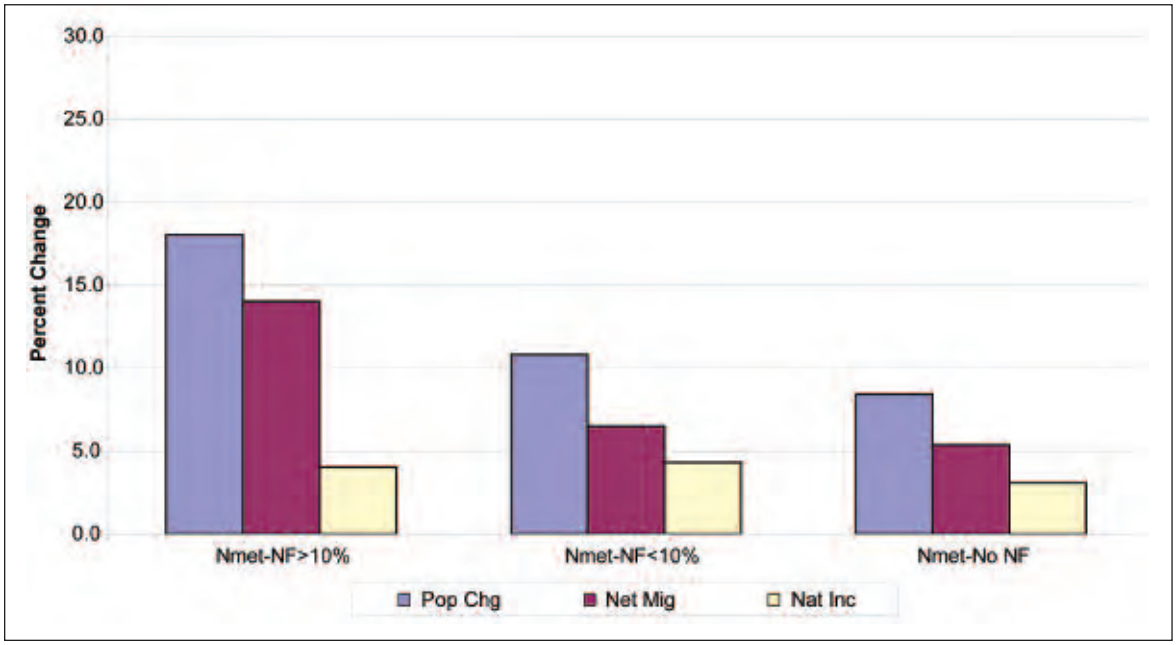

Figure 2—Demographic change, 1990-2000, in nonmetropolitan areas, by national forest status. Source: 1990 and 2000 U.S. Census.

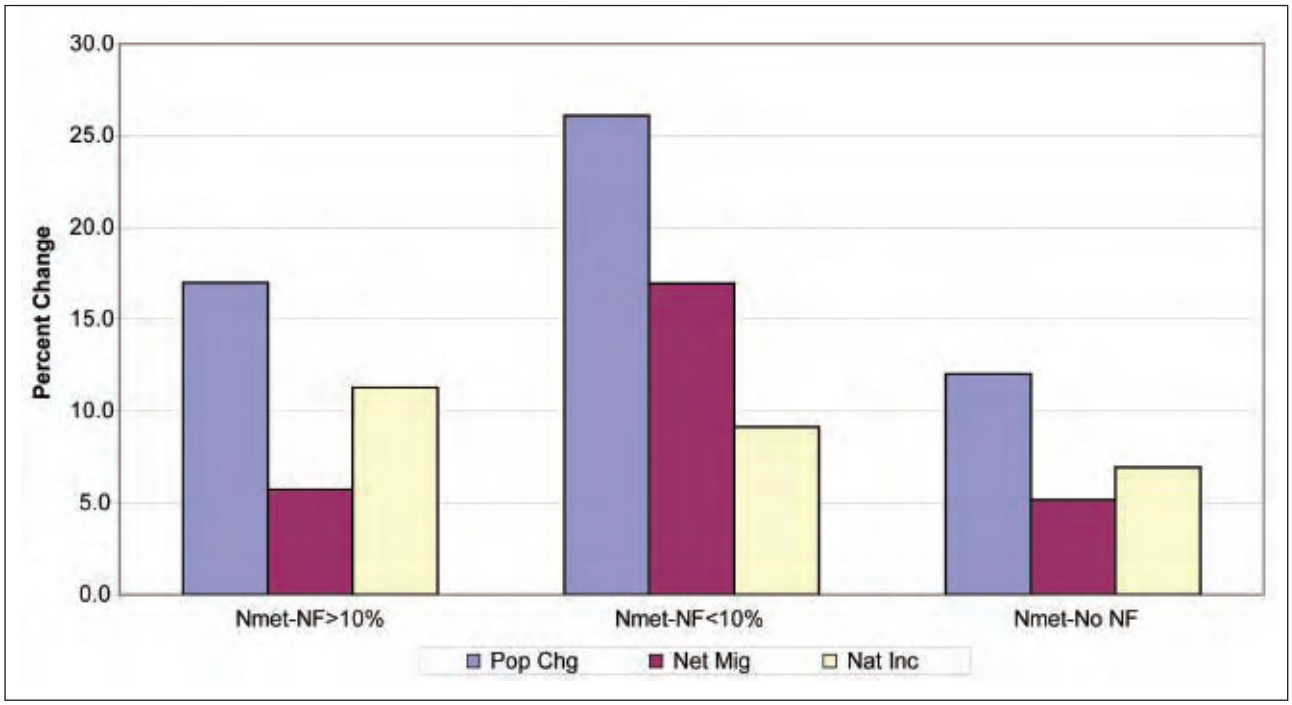

Figure 3—Demographic change, 1990-2000, in metropolitan areas, by national forest status. Source: 1990 and 2000 U.S. Census.

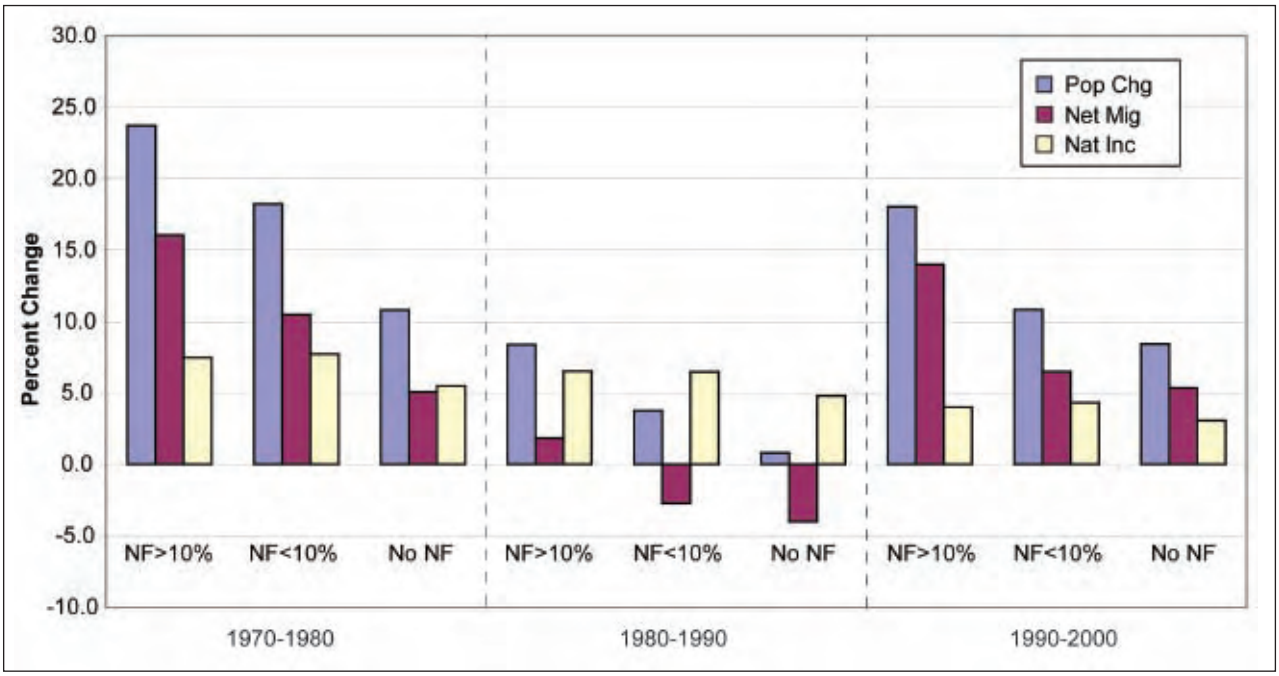

Figure 4—Demographic change by national forest status, 1970-2000, for nonmetropolitan counties. Source: 1970 to 2000 U.S. Census.

nonmetropolitan. In all, 27% of all nonmetropolitan counties have at least some national forest land within them. In nonmetropolitan areas, the populations in counties with more than 10% of their land in national forests grew by 18% between 1990 and 2000 (fig. 2). Most of this growth was fueled by net migration gains. Counties with less than 10% of their land in national forests grew by 10.8%, with both natural increase and net migration making significant contributions to the population gain. Population gains were considerably smaller in nonmetropolitan counties that did not contain any national forests.

National forests are also present in 118 (14%) metropolitan counties. Such national forests are associated with population gains in metropolitan counties, although the association here is more complex. Metropolitan counties with national forests within them did grow more rapidly than metropolitan counties without a national forest. However, the growth rate was greatest (26%) in counties with less than 10% of their land in national forests (fig. 3). Migration fueled most of this rapid population increase. Among metropolitan counties with more than 10% of their land in national forests, the population grew by 17%, whereas those with no national forests grew by 12%. Natural increase accounted for most of the growth in two of these metropolitan groups.

Rapid population gains in counties containing national forests are not a recent phenomenon. In nonmetropolitan areas, counties with more than 10% of their land in national forests grew by significantly larger margins than other counties in each of the last three decades (fig. 4). Even during the 1980s, when most nonmetropolitan counties experienced minimal population gains and migration losses, counties with significant amounts of national forest land continued to grow. Counties with substantial national forest holdings grew primarily through net inmigration. Net inmigration is a function of the ability of an area to attract new residents and the ability of the area to retain existing residents. Clearly national forest counties have achieved this during each of the last three decades.

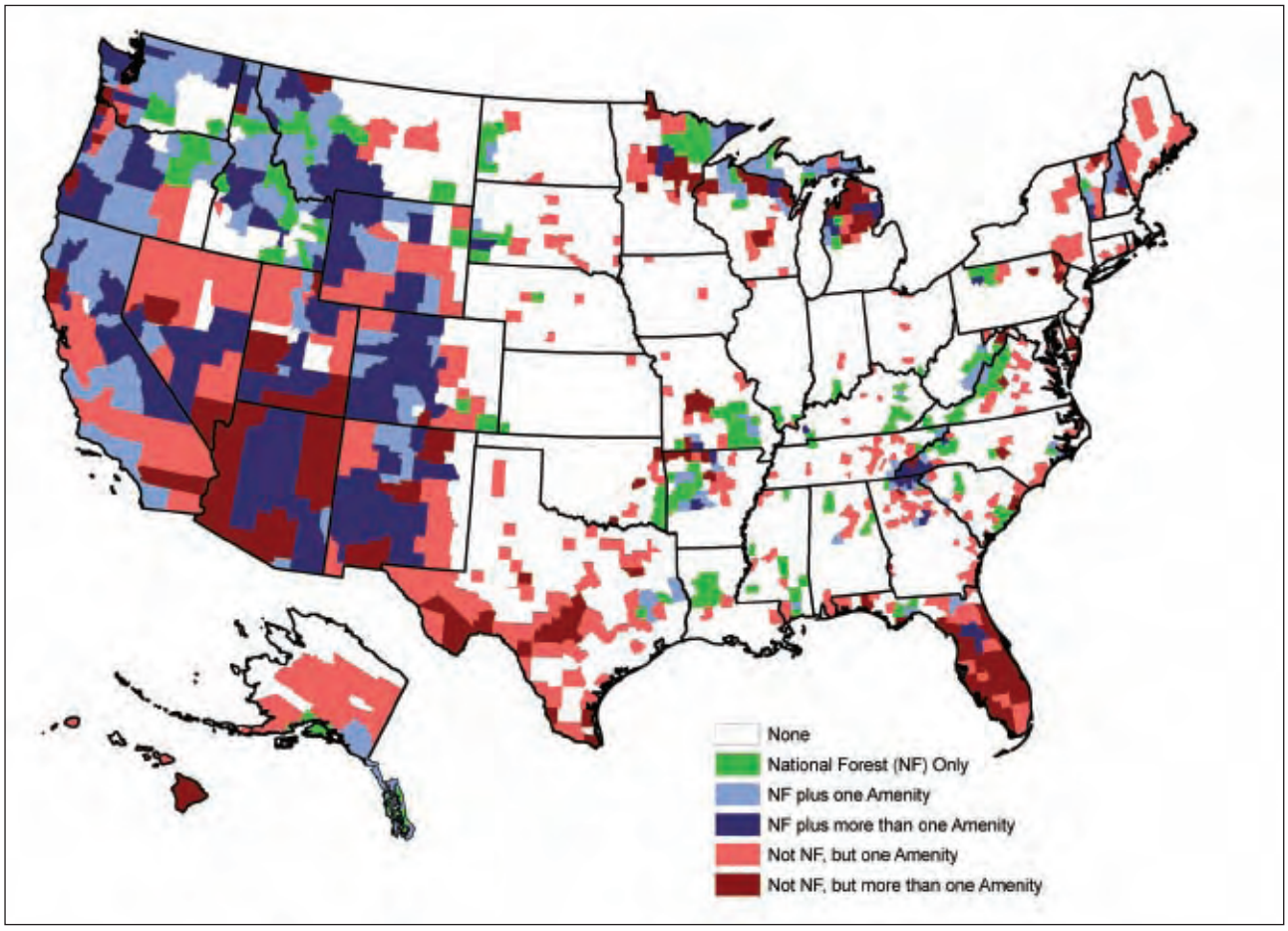

Figure 5—National forest, recreation, amenity, and retirement counties. Data: USDA Forest Service; USDA Economic Research Service; Johnson and Beale (2002)

National forests represent one of several factors that make an area attractive to current residents and appealing to migrants. Other factors include the natural amenities of an area, the recreational opportunities it provides, and the appeal of the county as a retirement destination. There is considerable overlap between these factors because areas with many natural amenities are likely to have numerous opportunities for recreational activities, such as hiking, swimming, boating, and fishing, that might also attract retirement migrants. Counties with national forests also tend to have other favorable characteristics. For example, there are 386 counties that are nonmetropolitan and have at least 10% of their land area in national forests. We will refer to these as national forest counties. In all, 205 counties classified as national forest counties also rank very high on the natural amenity index (McGranahan 1999). There is also considerable overlap between the national forest and recreational county groups. Some 150 national forest counties are also among the recreation counties delineated by Johnson and Beale (2002). And, 77 of the national forest counties are also classified as retirement destination counties by the Economic Research Service (Cook and Mizer 1994). In many cases, a national forest county may fall into more than one of the other three groupings. The overlaps are evident in the accompanying map (fig. 5), which clearly shows concentrations of multifactor counties in the West, the Upper Great Lakes and in portions of the Southeast.

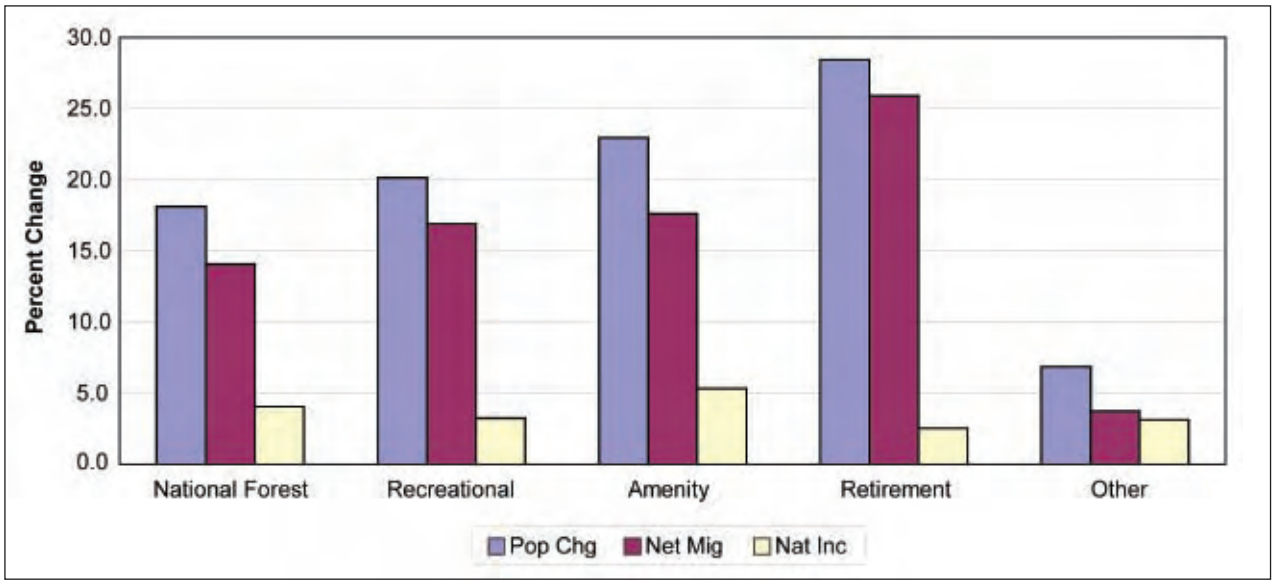

Figure 6—Demographic change, 1990–2000, by county type. Source: 1990 and 2000 U.S. Census; USDA Forest Service; USDA Economic Research Service; Johnson and Beale (2002).

The population gain of 18% in nonmetropolitan national forest counties during the 1990s was considerably higher than the overall nonmetropolitan gain of 10% (fig. 6). It was slightly lower than the gain in recreational (20%) and amenity counties (23%), and considerably less than that in retirement destination counties (28%). Though smaller in magnitude, the population gain in national forest counties was fueled primarily by net migration just as it was in recreational, retirement, and amenity counties. Some 86% of all national forest counties grew by net inmigration, and the overall gain from net inmigration was 14%. Thus, national forests appear to be attractive destinations for migrants just as recreational, retirement, and amenity counties are. Because migration can stimulate rapid population gain and alter the landscape of an area, the rapid population and migration gains in national forest areas have significant implications for the future development of the area.

Racial and Ethnic Composition and Change

The racial and ethnic structure of counties containing national forest land differs to some degree from that of other counties. Non-Hispanic Whites account for 66% of the population in the 757 counties containing national forests compared to 70% of the population in the other 2,384 counties (fig. 7). Counties with national forest land contain fewer Blacks (6%) than do other counties (14%). In contrast, counties containing national forests have considerably more Hispanics (19%) than do other counties (10%). Counties with national forest land also contain a larger proportion of individuals in the “other minorities” category (Asians, Native Americas, etc., subsequently termed “other minorities”) than do other counties (9% compared to 6%). Overall, the population of counties with national forests is slightly more diverse than the population elsewhere in the Untied States. A comparison of metropolitan and nonmetropolitan areas provides additional insights into the racial and ethnic structure of the population. Metropolitan

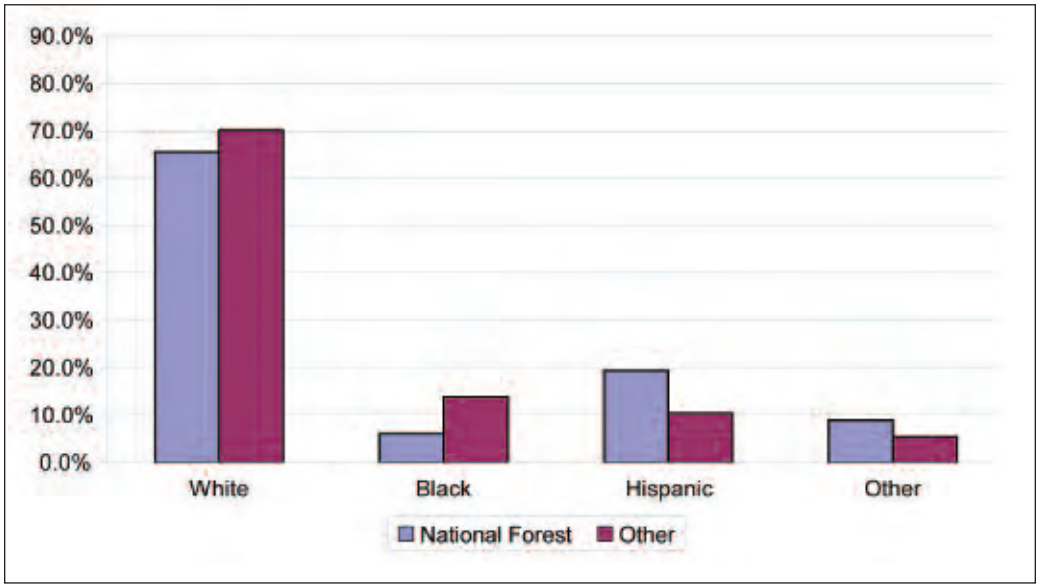

Figure 7—Race and ethnic structure, by national forest status, 2000. Source: 2000 U.S. Census. Note: Hispanics of any race are included in the Hispanic category. All other categories are non-Hispanic.

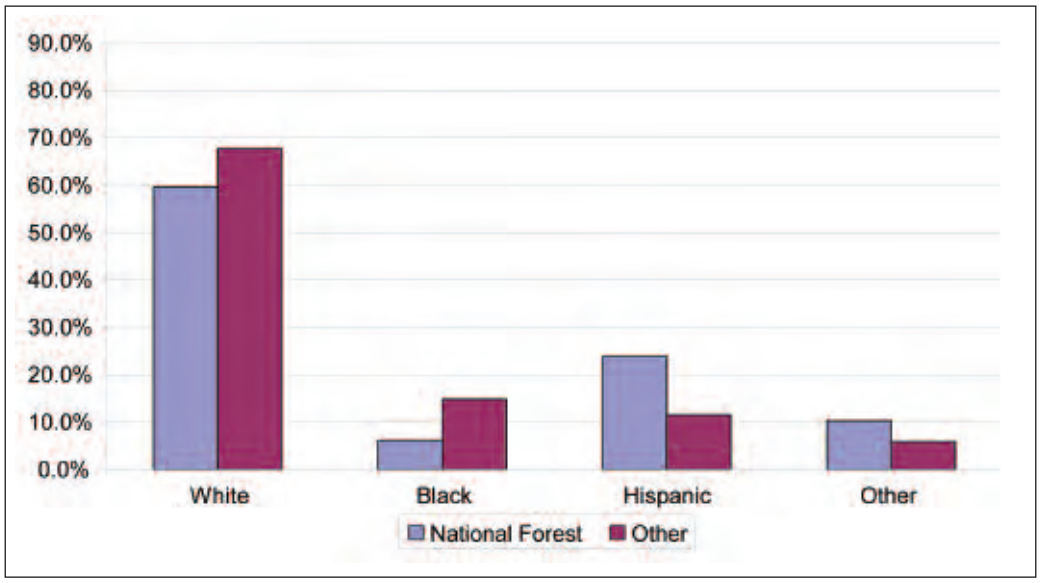

Figure 8—Race and ethnic structure in metropolitan counties, by national forest status, 2000. Source: 2000 U.S. Census. Note: Hispanics of any race are included in the Hispanic category. All other categories are non-Hispanic.

counties that include national forests are more diverse than other metropolitan counties (fig. 8). The proportion of Hispanics in metropolitan counties with national forests (24%) is more than twice that in metropolitan counties that do not contain national forests (12%). Metropolitan counties containing national forests also contain a larger proportion of other minorities (10%) than do their non-national forest counterparts (6%). In

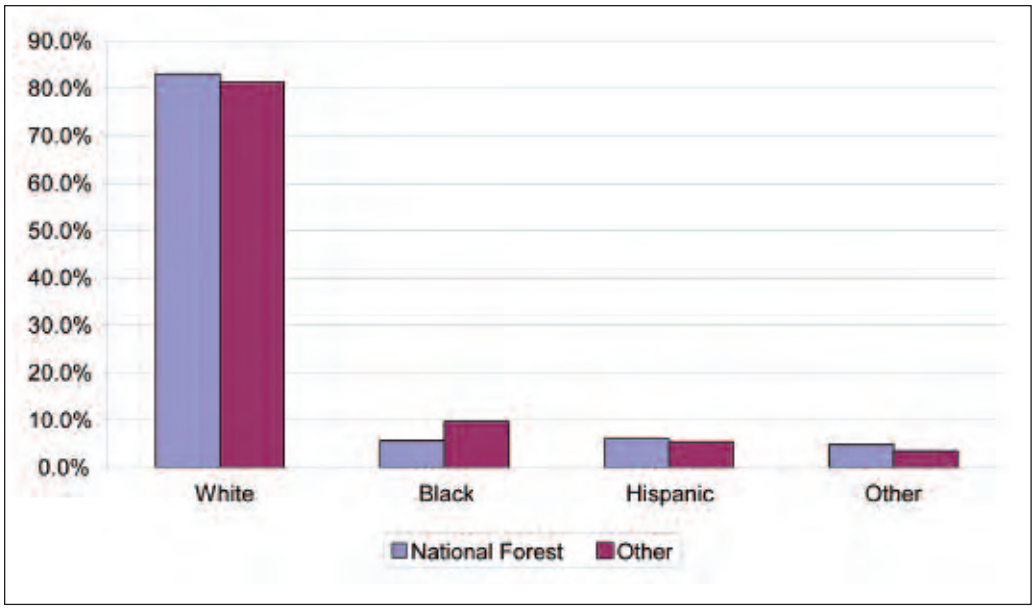

Figure 9—Race and ethnic structure in nonmetropolitan counties, by national forest status, 2000. Source: 2000 U.S. Census. Note: Hispanics of any race are included in the Hispanic category. All other categories are non-Hispanic.

contrast, the proportion of Whites (60%) and Blacks (6%) in metropolitan counties with national forest is less than in other metropolitan counties (68% and 15%, respectively).

In nonmetropolitan counties, the racial and ethnic differences between counties containing national forests and those that do not are much less pronounced. In fact, nonmetropolitan counties with national forests are slightly less diverse than those without national forests (fig. 9). Non-Hispanic Whites make up 83% of the population of nonmetropolitan counties containing national forests compared to 81% in counties without national forests. Counties with national forest in nonmetropolitan areas do contain a larger proportion of Hispanics and other minorities than their nonforest counterparts, but the differences are more modest than in metropolitan areas. The proportion of Blacks in nonmetropolitan counties containing national forests is also lower than for those nonmetropolitan counties without national forests.

The racial and ethnic differences between counties with national forests and other counties stem, in part, from the geographic distribution of the two types of counties. Most metropolitan areas that contain national forests are in the West, where the Hispanic population represents a larger proportion of the overall population. (Los Angeles County alone contains 4.2 million Hispanics, nearly 12% of the U.S. total). To a lesser extent, this also accounts for the larger proportion of other minorities in metropolitan counties with national forest land because most of the other minority population is Asian. Asians are also more concentrated in western metropolitan areas than elsewhere in the country. Blacks represent a smaller proportion of the population in the metropolitan West than they do elsewhere. The overall effect is that metropolitan counties with national forests have more Hispanics and other minorities and a smaller proportion of Whites and Blacks than elsewhere. Counties containing national forests are spread more widely through nonmetropolitan areas. As a result, the differences between national forest and non-national forest counties in nonmetropolitan areas are smaller. In addition, a greater proportion

of the population in nonmetropolitan areas is non-Hispanic White (82%) than in metropolitan counties (66%). So, it is not surprising that counties containing national forests in nonmetropolitan areas have a much higher proportion of Whites residing in them than do their metropolitan counterparts. Fewer Blacks are also evident in nonmetropolitan counties containing national forests because such counties are clustered in areas where Blacks did not originally settle and to which they have not migrated. The slightly higher proportion of Hispanics in nonmetropolitan counties containing national forests reflects the influence of the West. The higher proportion of other minorities in nonmetropolitan counties containing national forests is, at least in part, due to the presence of Native Americans in many national forest areas in rural America. Thus, counties containing national forests reflect patterns of race and ethnic diversity at least as complex as those in the nation as a whole.

Conclusions and Implications

Changes in the size, structure, and distribution of the population are among the most powerful forces impacting the natural environment. Thus, resource managers need a clear understanding of the links between the population and the natural environment based on a detailed analysis of population growth and change. Recreational and natural amenity areas are experiencing dramatic demographic changes (Frey and Johnson 1998, Johnson and Beale 2002). The rate of population increase in such areas is among the highest of any identifiable group of counties. Recreational areas in close proximity to large urban concentrations appear to be particularly prone to rapid population growth, so those landscapes are potentially most prone to impacts related to that growth. Recent research suggests that nearly 100 million urban Americans reside in metropolitan areas adjacent to such recreational counties (Johnson 2001). Some of these amenity counties contain national forests; others have significant concentrations of lakes and coastal areas, and almost all have environmentally sensitive areas. To protect the forests, riparian areas and natural amenities in such areas, while providing public access for recreation and commerce, requires a current, detailed knowledge of the changing demographic structure of these areas.

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