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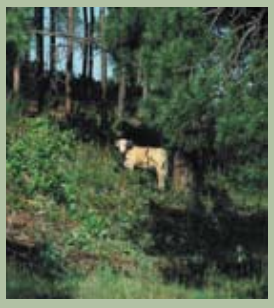
COOPERATING ACROSS BOUNDARIES

PARTNERSHIPS TO CONSERVE OPEN SPACE IN RURAL AMERICA







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LETTER FROM THE CHIEF OF THE FOREST SERVICE

COOPERATING ACROSS BOUNDARIES—PARTNERSHIPS TO CONSERVE OPEN SPACE IN RURAL AMERICA

Growth and land conservation are often seen as two opposing forces—with proponents of each scrambling to beat the other to valuable land. Fortunately, a new paradigm is emerging. Development and conservation of open space can be compatible and complementary when applied in strategic, collaborative ways.

This publication focuses on the benefits of partnerships and working across jurisdictional boundaries to conserve the rapidly dwindling open space of rural America. We are losing 6,000 acres of open space each day across the United States, at a rate of 4 acres per minute. Our land development is outpacing population growth, especially in rural areas where the pattern of growth is low density, dispersed housing.

The Nation's forests are particularly vulnerable. Counties with national forests and grasslands are experiencing some of the highest growth rates as people move to be close to public lands. Unfortunately, as lands near the national forest borders are subdivided, our ability to manage the public land for healthy forests and public enjoyment becomes increasingly difficult. The future is even less certain where forests are in private ownership —as the vast majority are—since residential growth alters the ability of these forests to provide ecosystem services and public benefits such as water quality, wildlife habitat, and a sustainable flow of forest products.

Our agency is committed to helping find solutions. Let me emphasize that the Forest Service is not in the business of regulating private lands—landowners and

Chief Bosworth (front) has identified the loss of open space as one of four threats facing our Nation's forests and grasslands.

local elected officials have the principal responsibility for deciding which lands can be developed and which should be conserved as open space. We are also not the only agency with a role in open space conservation. However, we are committed to working in partnership with others on this issue and can contribute many resources to help conserve vital lands in rural America.

Vibrant rural economies and rural jobs are inextricably linked to conserving the foundation of today's growth in our scenic rural communities—plentiful open space.

Dale N. Bosworth

DALE N. BOSWORTH
Chief
USDA Forest Service

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CONTENTS

USFWS

Columbine and Parnassian Butterfly.

Photos on cover provided by USDA Forest Service (USDA FS), USDA Natural Resources Conservation Service (USDA NRCS) and U.S. Fish and Wildlife Service (USFWS).

EXECUTIVE SUMMARY

RURAL AREAS with open space are experiencing unprecedented growth. Retirees, second home owners, commuters, and others are choosing to build homes in rural areas to enjoy the many benefits provided by forests, lakes, rivers, coasts, mountains, and public land. The fastest developing areas include the South, Northeast, Rocky Mountain West, Upper Great Lakes, and Ozarks.

As more people have the means to move to scenic countrysides, the open space that attracts these new residents is increasingly at risk of development. The health and well-being of our rural open space affects city and country residents alike. Undeveloped forests and grasslands—including working farms, ranches, and timberlands—provide clean drinking water, wood and agricultural products, wildlife habitat, recreation opportunities, and natural-resource-based jobs. Urban areas often depend on rural open spaces for water, food, and fiber production.

Current growth trends are showing a steady loss of open space. From 1982 to 2001, 34 million acres of open space, equivalent to the State of Illinois, were converted to development. For forest land alone, the United States lost 10 million acres to development from 1982 to 1997, with 26 million additional acres projected to be developed by 2030 (Alig and Plantinga 2004).

The patterns of rural growth are as significant as the total amount of development. People move to the country to find elbow room. This low-density growth (whether 5-acre or 40-acre parcels) scattered across the landscape results in ecological and economic impacts as open spaces are divided into small ownership parcels. Each new house added to the rural landscape affects a larger area than a house on the urban fringe. Often, the most desirable home sites lie in ecologically fragile areas, like streamsides or winter ranges of deer or elk.

New houses with large lots are fragmenting forests and farms at a higher rate than if they were clustered together .

USDA NRCS

People are building homes in rural areas to enjoy scenic beauty and other open space amenities.

As we subdivide forests and grasslands, rural areas face a dwindling of economic returns to farming, ranching, and logging enterprises. New roads and other infrastructure that serve scattered homes fragment wildlife habitat, block wildlife movement, and foster the spread of invasive species. Counties pay more for services to outlying residences than they take in from property taxes. Converting forests to buildings and paved surfaces, like roads and parking, results in the loss of natural filters that cleanse our water.

When we build more homes within and adjacent to wildlands, we put more property and people at risk to wildfire. More than one-third of all houses now fall within this wildland-urban interface (Radeloff et al. 2005). In addition, the increasing population living near national forests and other public lands has led to an upsurge in unmanaged recreational use that damages fragile resources.

Finding a sustainable balance between built areas and open space helps protect water quality; conserves native wildlife; buffers homes from wildfire; assures a future for working farms, ranches, and timberlands; supplies access to outdoor recreation; elevates home values; reduces the cost of community services; and enhances our quality of life.

A promising strategy to achieve a sustainable balance is to work cooperatively across boundaries to protect and manage open spaces across the landscape. Case studies featured in this publication illustrate how communities are taking innovative approaches to protect open space and accommodate new growth.

USDA NRCS

Open space includes beautiful landscapes like this one in Idaho—natural areas that are also providing us with many services, from clean water to wildlife habitat (see factsheet on page 10).

Who should read this publication:

County and municipal officials, landowners, State and Federal agencies, nonprofit organizations, private companies, citizens, and others interested in conserving rural open space.

Purpose of the Document:

Encourage cross-boundary partnerships to strategically conserve open space across the landscape. Share research on the importance of open space and how growth trends may affect the benefits these lands provide to society. Offer Forest Service resources and information to help communities balance growth and conservation.

This Document includes:

- Key research findings from Forest Service and other researchers.
- Case studies of how communities across the United States are conserving open space and guiding growth in rural areas.
- Examples and highlights of how the Forest Service can help.

INTRODUCTION

A CHANGING RURAL AMERICA

"The quality of life offered by the experience of wild lands attracts people who want to move to our community: It attracts tourism visitors and it also attracts people who appreciate it so much they decide to relocate their businesses here, which in turn helps diversify our economy."

– SUN VALLEY CHAMBER OF COMMERCE, IDAHO (Rasker et al. 2004)

"It seems like every woodlot is for sale, and everybody's looking for that piece of property that's close to public property. They develop and build around it."

– FLORIDA (USDA FS 2002)

USDA FS

Permanent migration to a rural area often follows three steps: 1. vacation, 2. second home ownership, and 3. migration (Stewart and Stynes 1994).

Walk into the corner café in any "discovered" rural paradise and you might catch a heated conversation over mugs of coffee that goes something like—

"All this growth is good for business. People moving in are keeping this place alive."

"But everywhere you look, there's a new house. We're losing our open lands and that's what folks are coming for."

"It's getting harder to get around. There's more traffic and people who drive too fast. Don't those new folks realize we live at a slower pace here?"

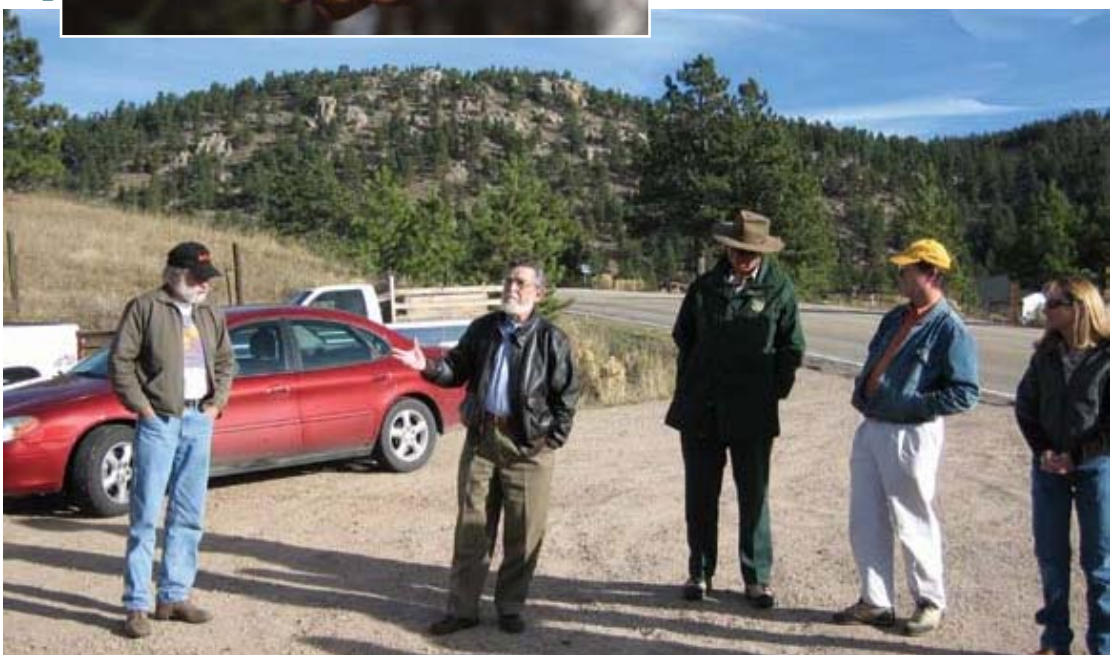
Grappling with growth and change is a common theme in many parts of rural America. Trends reveal two interrelated types of rural growth. The first—and the focus of this publication—is driven by the appeal of natural amenities, outdoor recreation, and favorable retirement locations. The second kind of rural growth results from expanding urban and manufacturing areas, where people move for jobs or affordability.

Businesses are increasingly locating in rural areas with open space amenities because of the competitive advantage of a high quality of life for their employees. Industries such as tourism, outdoor recreation, and second home construction capitalize on scenic beauty and the proximity of places to hike, bike, and fish.

As people seek the good life, rural communities struggle to adjust to change. While welcoming new jobs and economies, they are worried about losing the lands and way of life they have known.

USDA NRCS

USDA FS



USDA FS

A private landowner in Colorado discusses growth issues with representatives from the USDA Forest Service, Colorado State Forest Service, and other landowners.

COMING TOGETHER TO ADDRESS GROWTH

What is the answer to those morning coffee debates in cafés across rural America? Establishing a dialogue and process for sharing information is a good place to start working together to build a landscape vision that maintains rural values important to both old and new residents.

Who should sit at the table to help chart the course? In regions like the Eastern United States, open lands are predominantly in private ownership. Here, the stakeholders and partners might include large landowners, such as timber companies, family forest owners, State agencies, and local officials.

In the West where public lands can dominate, forest rangers, biologists, and other Federal and State agency officials have an opportunity to join with county commissioners; planners; homeowners; private landowners, such as farmers and ranchers; and others to tackle the issue of open space loss as a cross-boundary issue.

PRIVATE LAND CHANGES AFFECT PUBLIC LANDS

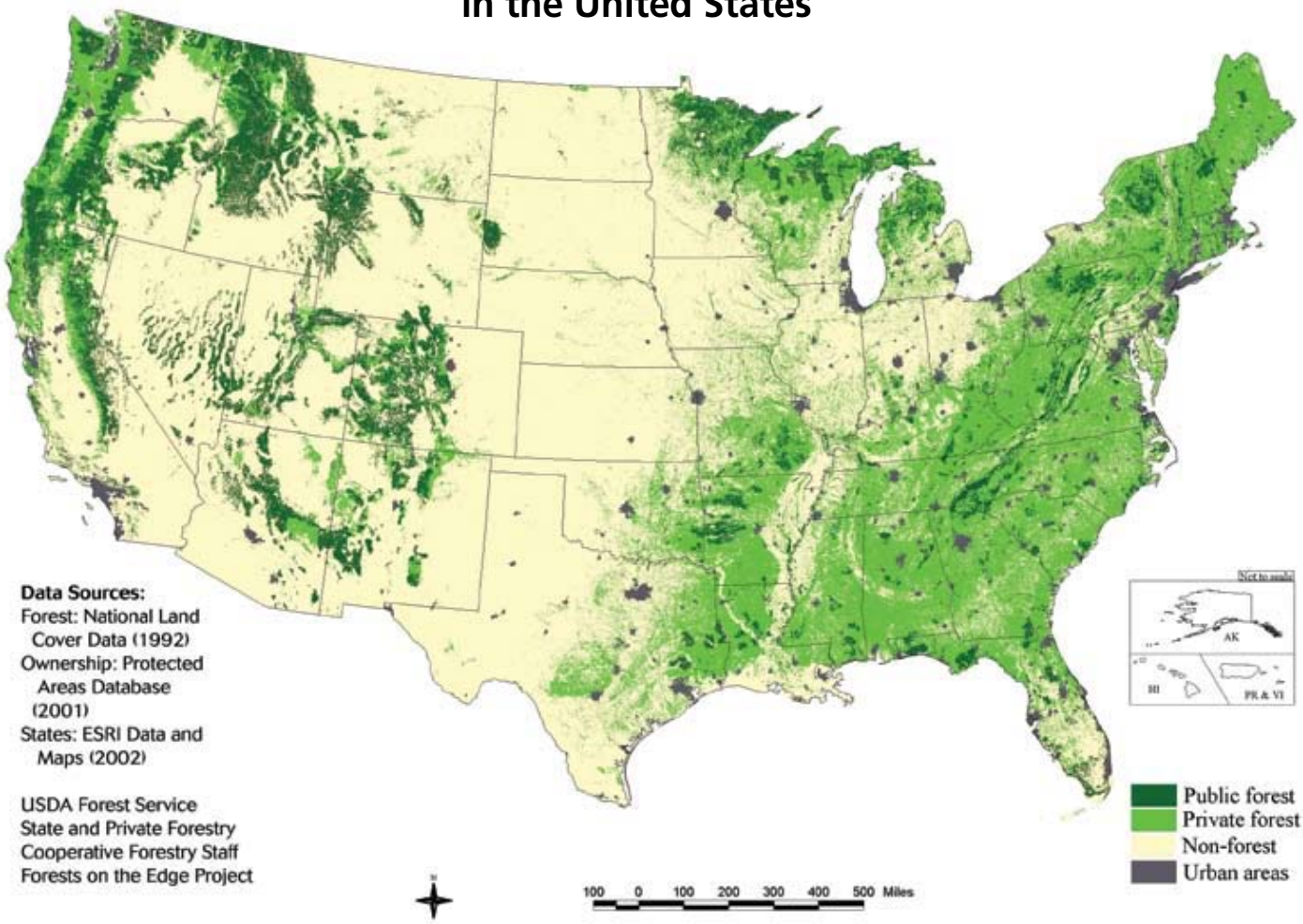
Increasingly, national forests and other public lands are becoming islands of wild and semi-wild lands embedded in a matrix of developed lands. Private lands in rural areas are developing because people are attracted to the amenities of public lands. Yet, many of these public land amenities are connected to open spaces on private lands. Water flows across borders. Wildlife migrates. Fires that maintain healthy forests and grasslands need room to burn without endangering people and their homes. Conserving open space is not a private land or a public land issue, but a common challenge to be addressed at local, regional, and national levels.

Brad Pruitt, WA Department of Natural Resources

Public land, like these mountains and forests in Washington, attract growth to rural areas.

MAP 1

Public and Private Forest Ownership in the United States



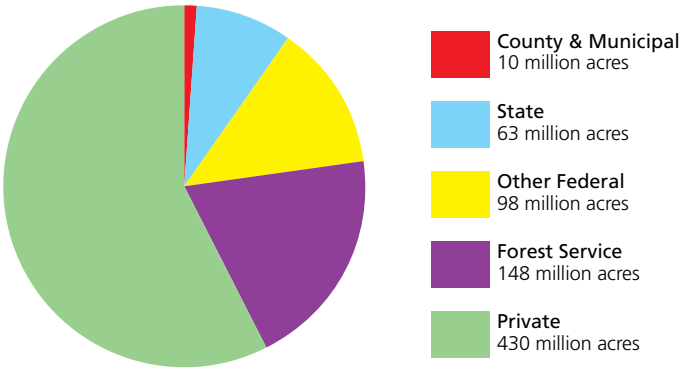
THE NATION'S FORESTS AND THE ROLE OF THE FOREST SERVICE

The "Nation's forests" consist of 749 million acres of public and private forests. The USDA Forest Service manages 147 million of these acres, along with 45 million acres of range and grassland, as the "national forests and grasslands." There are 155 national forests and 20 national grasslands, dispersed among 43 States and Territories, with the largest concentrations in the West (USDA FS Sept. 2005).

The USDA Forest Service also partners with other Federal agencies, States, and Territories to provide assistance to landowners and communities to care for private forests through State and Private Forestry programs.

The largest forestry research organization in the world is housed within the USDA Forest Service. Scientists carry out basic and applied research to study biological, physical, and social sciences. Research provides information necessary to best manage and protect our Nation's forests so they can continue providing quality water and air, wildlife habitat, forest products, and places for recreation and renewal.

Who Owns the Nation's Forests?



Source: Smith et al, 2004

KEY TERMS AND DEFINITIONS

Open Space. *n*. Natural areas such as forests and grasslands, as well as working farms, ranches, and timberlands. Open space also includes parks, stream and river corridors, and other natural areas within urban and suburban areas. Open space lands may be protected or unprotected, public or private. This report focuses on open space lands in rural areas.

Open Space Amenities. *n*. Environmental, social, and economic benefits provided by open space. Amenities include scenic beauty; places to recreate; clean water; wildlife to view, hunt and fish; and land-based livelihoods like farming, ranching, and forestry. These amenities are attracting new residents to many rural areas throughout the United States. Favorite destinations include places with forests, lakes, rivers, coasts, mountains, and public land.

Rural. *adj*. Areas outside of cities and suburbs with low population densities. Often a rural area includes towns surrounded by farms, forests, or ranches. Rural areas occur at the outskirts of cities as well as in remote, nonmetropolitan locations. The majority of land in rural areas remains as open space with few houses and other buildings.

Urban. *adj*. Cities and suburbs with moderate to high population densities, and with the majority of land developed as residences, stores, offices, and roads.

USDA NRCS.

Housing developments in urban and suburban areas utilize less land per house than in rural areas.

Rural Growth. *n*. The trend of building new homes and commercial structures at low densities in rural areas. This type of growth differs from "urban sprawl" in that houses are built on larger lots (1.7 to 40 acres) than in suburban areas. Some refer to this trend as "rural sprawl" or "exurban growth." Rural growth can occur without a corresponding increase in population when the growth is predominately from vacation and second homes.

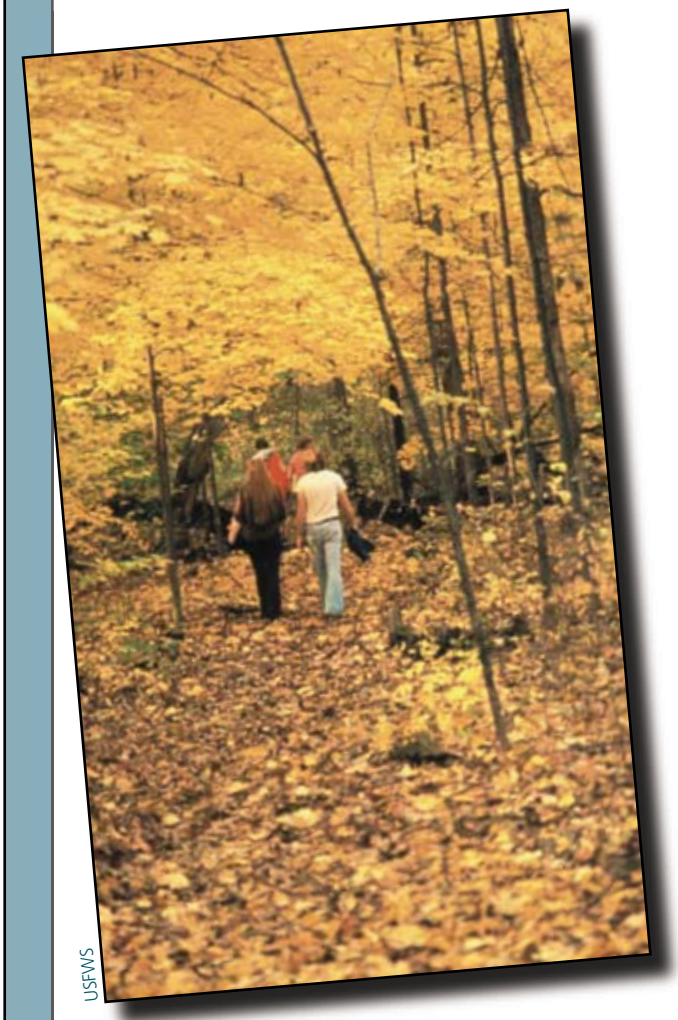
The development trend in rural areas is to build houses on large lots.

Conservation. *n*. The preservation and management of open space to maintain environmental, economic, and social benefits. Key conservation tools include public purchase of land, conservation easements (see page 26), sustainable management practices (see page 28), and smart growth (see page 26). The case studies included in this publication provide examples of how these tools and others are being used to conserve open spaces throughout the United States.

FACTSHEET

Why is Open Space Important?

Open space is vital to our health, our economy, and our well-being. While we commonly place a dollar figure on the worth of goods from farms, ranches, and timberlands, only recently have we recognized that our natural open space is yielding ecosystem services worth trillions of dollars globally (Costanza et al. 1997). Those ecosystem services range from purifying air and water to pollinating crops, helping stabilize climate, and cycling nutrients. To simplify the list, consider what people and wildlife alike need to survive: water, food, and shelter. Open space—natural areas plus working lands—is providing these basic needs every day.



USFWS

USDA NRCS

WATER

Clean Water

More than two-thirds of America's water originates in forests (USDA-FS, Jan 2000). Forests naturally filter and remove pollutants, and lower the risk of sediment entering streams and rivers from landslides and erosion. This natural filter can help reduce the cost of purifying water to drinkable standards. When faced with a choice between spending $8 billion on a water treatment facility for New York City or $1 billion to protect and restore the watershed that produces much of the city's drinking water, the city chose to conserve the watershed forests (Dudley and Stolton 2003).

Natural Flood Control

Rain falling in forests is slowed by leaves and plants, and soaks into the soil, but rain pouring on bare soil or pavement runs off the surface, causing erosion and flash flooding. Nature's stormwater management systems are intact forests. Natural flood control also comes in the form of wetlands like marshes and swamps that absorb storm deluges.

Reliable Water Supply

Our farms and ranches require a steady source of water. Forests often capture and store water that fills our aquifers and reservoirs—important for irrigation and for drinking water. In many parts of the western United States, late summer water flows come from gradually melting snowpack in the forested watersheds of high mountains. Trees also work like a giant pump, returning water from the ground to the atmosphere.

Deborah Richie Oberbillig

USFWS

FOOD

Farms and Ranches Close to Home

When communities conserve fertile agricultural lands, they are keeping sources of food and rural livelihoods nearby, rather than relying on distant imports. Working and open lands also generate more tax revenue than they receive in public services—as shown by economic studies in 94 counties and townships. In contrast, residential properties on average generate less public revenue than they cost (AFT 2002).

Pollination

Worldwide, 100,000 species of pollinators —bees, birds, butterflies, bats, and more—are giving our wild plants and 70 percent of our agricultural crop species the chance to reproduce. In turn, these pollinators need a wide variety of habitats to survive. One-third of our food comes from plants that must have wild pollinators (Daily et al. 1997).

Wild Harvest

Hunters and anglers seek out open space to find trout in streams, waterfowl on lakes, upland birds on grasslands, and deer in forests. Open space also yields wild berries, mushrooms, and medicinal plants. An impressive 118 of the top 150 prescription drugs in the United States are based on natural sources, including 9 of the top 10 drugs (Daily et al. 1997).

SHELTER

Wildlife Habitat

While people are drawn to live close to open space, many species of wildlife require the shelter of open space, especially when conserved as contiguous blocks of habitat rather than patches. Just as our homes are more than roofs over our heads, open space needs to be of sufficient quality to maintain healthy animals, fish, and plant populations.

Timber

We build our houses from natural materials—especially wood—that come from our working forests. When we conserve forests, we retain a source of timber within the United States. Private forests accounted for 92 percent of all U.S. timber harvested in 2001 (Smith et al. 2004).

Scenery and Recreation

For many people, part of what makes a home livable is proximity to nature, whether a small park or a sweeping expanse of land for hiking, biking, birdwatching, or other outdoor pursuits. Open space can be considered a key part of human habitat as well as home for wildlife.

RATES & TRENDS
A CHANGING RURAL AMERICA

"We're 75 miles from Madison and 75 miles from LaCrosse, but in the last few years there have been many new homes going in within a few miles where I live. All of a sudden they just blossomed, some on wooded, some on open land."

– WISCONSIN (GOBSTER AND RICKENBACH 2004)

DEVELOPMENT RATES EXCEED POPULATION RATES

As the U.S. population grows, our development generally spreads at higher rates (See Chart 1). As a result, our cities are expanding and so are many of our rural communities. In the post World War II era, rural areas were viewed as places losing population to cities. However, rural areas with natural amenities are now developing quickly, with accelerated growth predicted. In addition, rural residences occupy more than seven times more land area than urban residences nationwide, as illustrated in Chart 2 (Theobald 2005).

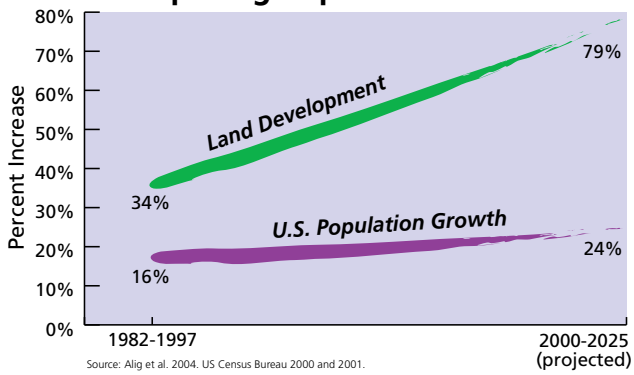
Approximately 297 million people live in the United States (US Census Bureau Nov 2005). By 2050, the United States is projected to gain 120 million more people sharing a finite land base. By 2100, the population is predicted to double from the year 2000—reaching 571 million. Key factors driving population growth are longer life expectancies, an average of 2.1 births per woman, and a constant net immigration rate of 1 million per year (Cordell and Overdevest 2001).

Much of that growth will take place near metropolitan areas, with the South (the sunbelt) generally growing fastest. Cities like Charlotte, North Carolina, are rapidly adding population and spreading out as new residents seek affordable homes with bigger lots. Charlotte's population grew by 33 percent in the 1990s and its urban area by 44 percent (Alig and Plantinga 2004).

The trend for rural growth is dispersed development. This pattern of growth results in higher environmental impacts per house than urban or suburban development, due to the larger areas affected and incursion into areas less altered by human presence (Radeloff, Hammer, and Stewart 2005). Rural development on large lots (1.7 to 40 acres) has been growing at a rate of 10-15 percent per year, exceeding urban and suburban expansion rates (Theobald 2003).

CHART 1

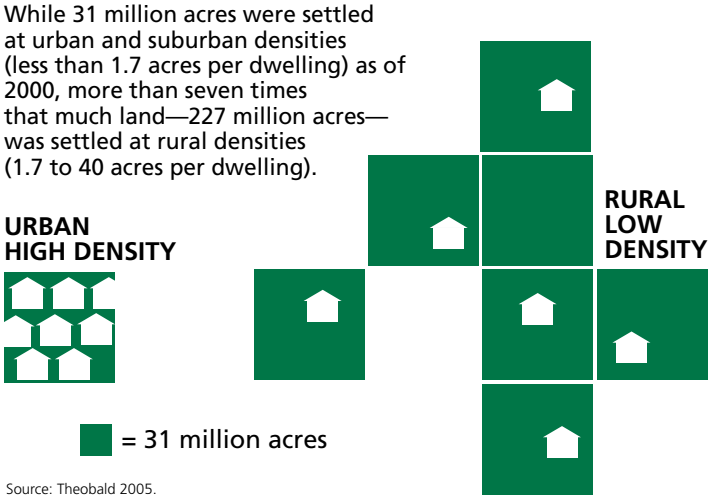
Land Development is Outpacing Population Growth



Source: Alig et al. 2004. US Census Bureau 2000 and 2001.

CHART 2

Rural Residences Occupy More Land than Urban Residences



Source: Theobald 2005.

FOREST LAND RATES OF CHANGE

"Two-thirds of the state is in forest cover. The trend is an increasing amount of forest cover. But if we could see property lines out there, we'd see many more forest landowners owning smaller and smaller parcels of forestland."

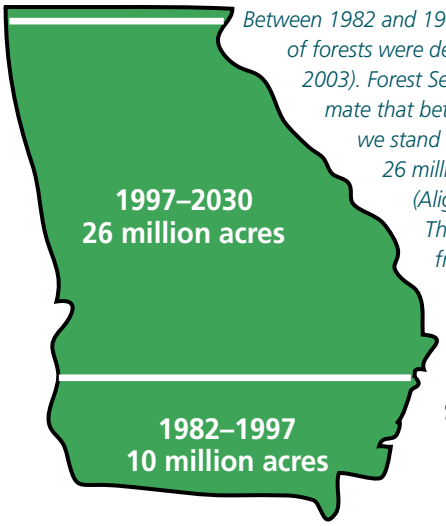
– VIRGINIA (USDA-FS 2002)

Forest lands of the United States are changing as more people seek homes in the woods. When measuring and projecting forest land rates of change, researchers evaluate three trends: conversion, fragmentation, and parcelization.

First, **conversion** refers to the replacement of trees with houses, buildings, lawns, and pavement. Forest Service researchers estimate that by 2030, we will convert 26 million acres of forest land (Alig and Plantinga 2004). This figure is based on examining the loss of forest cover. Regions that have seen net losses of forest cover include the South and Pacific Coast (Alig et al. 2003).

CHART 3

U.S. Forest Land Change from 1982 to 1997
(with projections to 2030)



Between 1982 and 1997, 10 million acres of forests were developed (USDA NRCS 2003). Forest Service researchers estimate that between 1997 and 2030, we stand to lose an additional 26 million acres of forestland (Alig and Plantinga 2004). The total loss of forests from 1982 and projected to 2030 would be close to the size of the state of Georgia.

State of Georgia
38 million acres

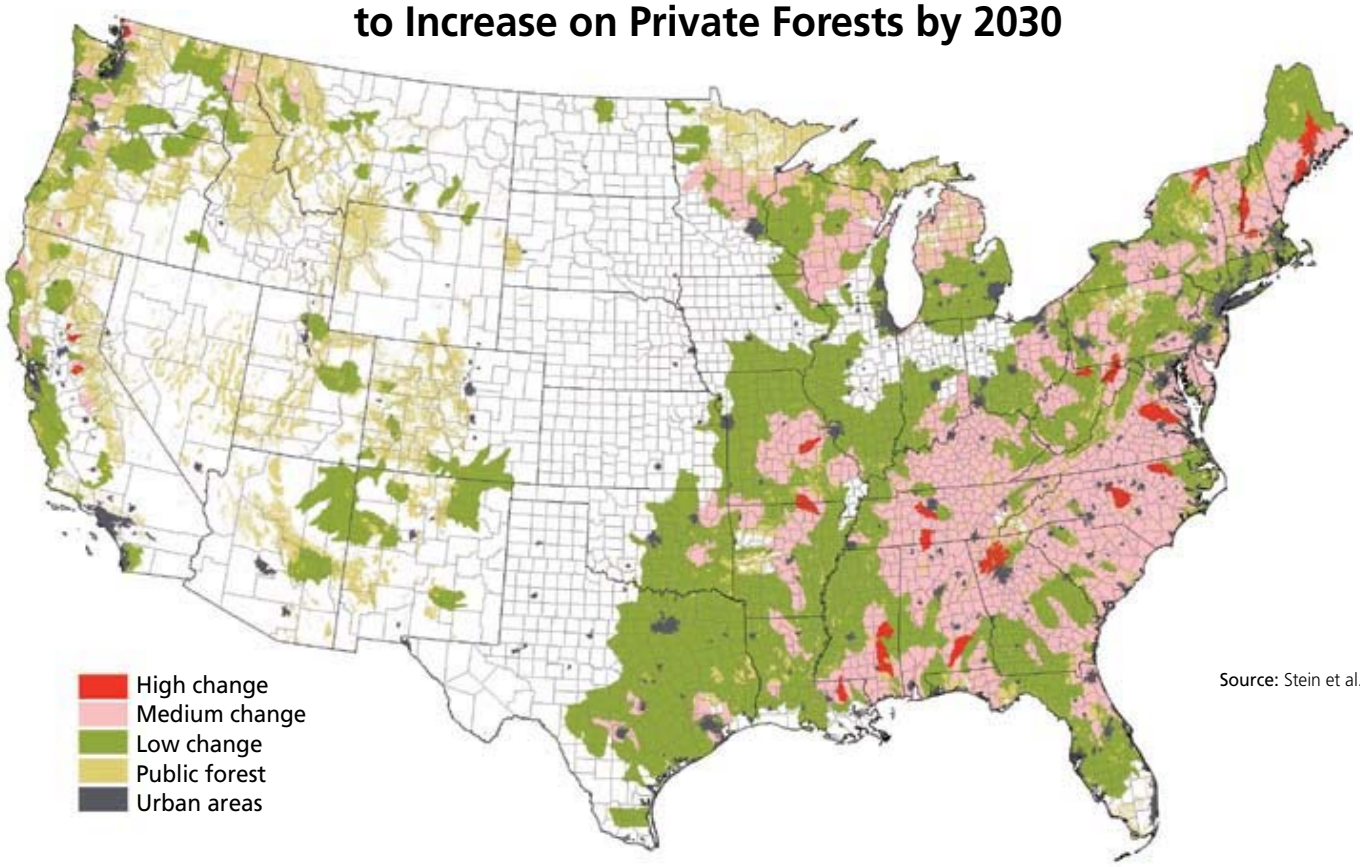
Not all regions are losing forests. Over the past 50 years, both Northeast and the Rocky Mountain States have seen net increases in forest cover. The primary driver of forest gains has been the regrowth of trees on agricultural lands. Many farms and ranches are no longer competitive in the marketplace as technological changes have enabled food to be produced on fewer acres. Other factors include a century of fire suppression leading to more forest growth and tree planting. Despite net gains, significant losses of forests to development are still occurring in these regions—as forests are gained in one location, other forests are lost to development somewhere else (Alig et al. 2003; Alig and Plantinga 2004).

The second trend, **fragmentation**, refers to the disturbance zone beyond the footprint of the development. Roads and power lines that service new homes divide forests into fragments. This lowers

Roads and other infrastructure that service homes on large lots divide forests into fragments.

MAP 2

Watersheds in Which Housing Density is Projected to Increase on Private Forests by 2030



Source: Stein et al. 2005

the quality of wildlife habitat provided by the forest, especially for those species that are sensitive to human disturbance. Fragmentation also encourages the spread of invasive species as roads and utility cooridors provide vectors for new invasions.

One indicator of the degree of fragmentation across a landscape is housing density. This gives us a more detailed look at what is happening to our forests. While forests may appear unbroken from an aerial view, beneath the canopy there may be a surprising number of homes. Studies in the southern Appalachian forests demonstrate that measuring land cover changes alone cannot account for the impacts on biodiversity and ecosystems when houses are built within forests (Turner et al. 2003).

According to recent findings from the Forests on the Edge project of the Forest Service, more than 44 million acres of private forest lands could experience sizeable increases in housing density by 2030. The South, Northeast, and parts of California and the Pacific Northwest are projected to have the most extensive housing increases. The greatest impacts will be felt in the Southeast, a region of high biodiversity and timber productivity (Stein et al. 2005) (See Map 2).

The third measure of forest change is **parcelization**. In general, as forest properties become smaller in size, the potential grows for those lands to be developed for housing. From 1993 to 2003, the number of family forest owners swelled from 9.3 million to 10.3 million, controlling 42 percent of the U.S. forest lands (Butler and Leatherberry 2004).

Smaller properties tend to be also more difficult to manage for forest land values like timber, water, and wildlife. Nine of 10 family forest owners have fewer than 50 acres, over half of which own 1-9 acres (usually as a houselot) (Butler and Leatherberry 2004). Preliminary data from the National Woodland Survey indicates that the acreage of private forests held in small parcels has increased by almost 8 million acres since 1993, but still only accounts for approximately 20 percent of private forest land (National Woodland Survey 2004).

TRACKING THE RURAL RENAISSANCE

Rural living defined America in the late 1700s when only 5 percent of people lived in cities, but by the 1820s the pace of city growth began to pick up markedly. The 20th century ushered in the Industrial Age and a steady exodus of rural residents to cities. By the 1920s, half the population lived in cities and suburbs. Today that number has swelled to 80 percent.

Post-World War II America experienced a sharp rise in population, land development, personal incomes, and suburbanization. During this era, population grew by more than half while the amount of developed land doubled. Average family income increased by 150 percent—giving more people the ability to own larger houses and yards at the urban fringe.

Meanwhile, the rural decline continued. While farming and other land-based activities still prospered, the advent of big machines and corporate ownership drastically reduced the number of workers.

Then something remarkable happened in the 1970s—a turnaround for parts of rural America. Suddenly, people were fleeing the cities and seeking a pastoral setting—resulting in a 14-percent jump in population in sparsely populated areas. The farm crisis of the 1980s slowed and, in some cases, halted the rural renaissance—temporarily. In the 1990s, rural counties grew by 3 million people and benefited from a faster rate of job growth than metropolitan areas (Johnson and Beale 1998).

Note that the return to rural living does not equate with a return to land-based activities like farming. Economic and technological changes are allowing people a greater mobility of workplace (as explored in Drivers of Change Section).

The revival of rural living is not happening everywhere. People continue to leave the Great Plains, Western Corn Belt, and Mississippi Delta—places closely linked to agriculture.

NRCS

Forests owned as small parcels are more likely to be developed for housing.

The Mountain West, Upper Great Lakes, Ozarks, and parts of the South and Northeast show the greatest population gains (Johnson and Beale 1998).

A study of western States found that rural counties with the strongest economic growth and higher wage service jobs share an important trait. Those counties are close to protected public lands, such as wilderness areas and national parks, and have air or road access to metropolitan areas (Rasker et al. 2004).

Forest Service research on open space amenity migration shows that counties with national forests are seeing higher population growth rates than counties without these public lands. Long-term trends in the U.S. economy indicate that the migration to amenity-rich locations is likely to increase for the foreseeable future (Garber-Yonts 2004. Johnson and Stewart, in press).

REGIONAL SNAPSHOTS

Research can help predict not just the rates of rural growth, but specific areas that have the right combination of features for growth in the future. As the following regional snapshots show, factors such as topography (how much developable land is available), land ownership, existing transportation networks, and land use planning influence rates and trends.

CASE STUDY

Greater Wasatch Area, Utah
Envision the Future to Guide Growth

When planners in Utah forecasted 3 million more residents living in the Salt Lake City area and close to the Uinta and Wasatch-Cache National Forests by 2050, citizens and public officials took notice. **Envision Utah,** a public/private partnership that began in 1997, developed a strategy for growth that involves as many of today's 1.6 million residents as possible. The new inhabitants of 2050 will mostly be their children and grandchildren.

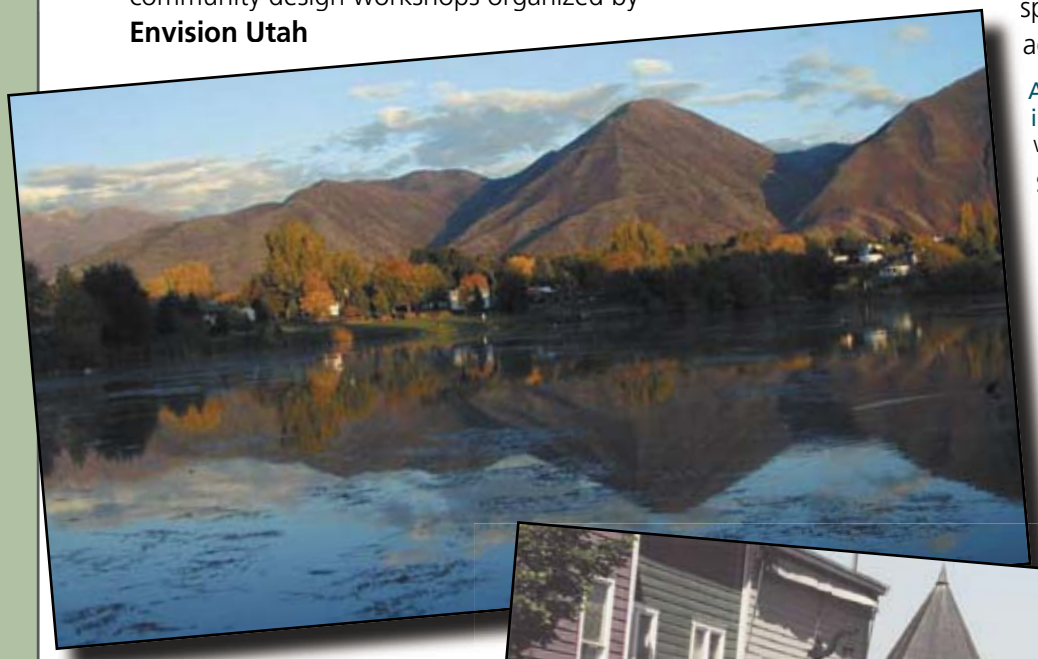
Without changing patterns of growth, urbanized lands are predicted to quadruple by 2050. However, that picture could be far different under scenarios created by local residents, mayors, city council representatives, and other stakeholders. Dozens of community design workshops organized by **Envision Utah** in 1998 gave participants the chance to take a look at where to place more people on the land within constraints of land and water.

Four **growth scenarios** for this Greater Wasatch Region (covering 23,000 square miles of central Utah) emerged from the workshops. Envision Utah shared these four scenarios in 50 town meetings. Every household in the region received a newspaper insert with illustrations analyzing each scenario.

Over 19,000 citizens responded and the vast majority supported a growth strategy that promotes preservation of critical lands, supports a variety of transportation choices, and develops more walkable communities. Families would still enjoy single-family homes, but on slightly smaller lots situated in villages and towns. New development would be placed in existing urban areas or clustered along transit routes, leaving more land for open space and agriculture.

Additional information:
www.envisionutah.org

Source:
Envision Utah 2004.



Coalition for Utah's Future

Coalition for Utah's Future

SOUTHEAST

A warm climate and attractive natural features combine to make this the fastest growing region with the highest levels of sprawl outside cities. Some of the most desirable locations —coastal areas and southern Appalachians—are also the most fragile ecologically. The Southeast boasts high plant and wildlife diversity—a staggering 1,208 vertebrate species, of which 132 are "of concern" and 28 are critically imperiled. The primary threat is habitat loss from converting or modifying lands (Wear and Greis 2002). The region also produces the most timber in the country and has 89 percent of its forests in private ownership.

A comprehensive assessment of southern forests concluded that urbanization will have the "most direct, immediate and permanent" effects on southern forests—of all forces of change (Wear and Greis, Oct 2002).

INDEX OF OPEN SPACE CHANGE IN THE UNITED STATES

- Percent of land considered rural: 83
- Percent of population that is rural: 20

- Amount of land settled at urban high densities as of 2000, in acres: 31 million
- Amount of land settled at rural low densities as of 2000, in acres: 227 million

- Open space loss to development between 1992 to 1997, in square miles: 24,000
- Size of West Virginia in square miles: 24,000

- Open space projected to be developed by 2020, in square miles: 100,000
- Size of California in square miles: 100,000

- Rate of open space loss per day, in acres: 6,000
- Rate of open space loss per minute, in acres: 4

- Percentage of forest lands that are privately owned in U.S.: 57
- Number of private forestland owners: ~10 million

- Amount of private forestland lost to development from 1982-1997, in acres: 10 million
- Net amount of forest projected to be developed from 1997 to 2030, in acres: 26 million

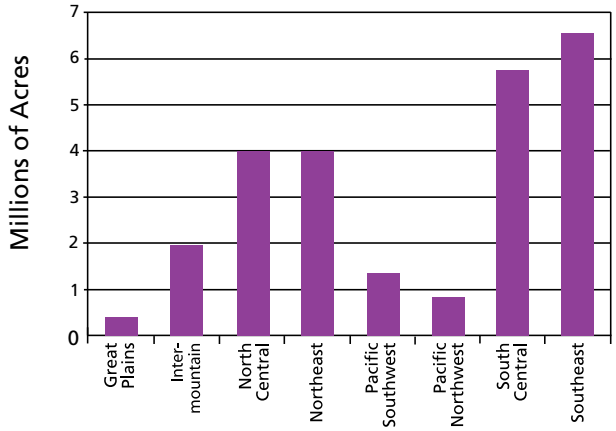
Sources: Cordell and Overdevest 2001, Theobald 2005, USDA NRCS 2003, Alig and Plantinga 2004.

CHART 4

Change in Developed Area in U.S. by Region, 1982-1997

The Southeast Experienced the Highest Growth

Sources: Alig et al. 2004. USDA NRCS 2001.

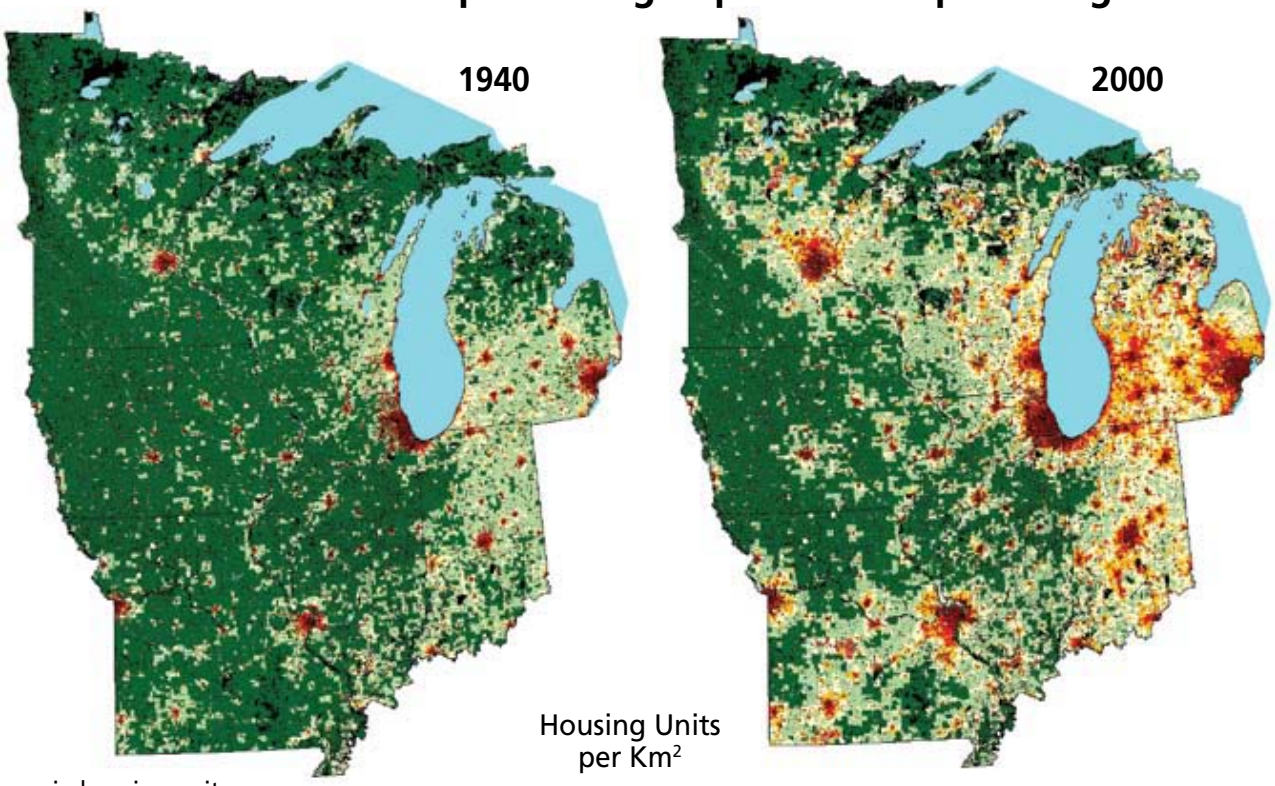


USFWS

Southeastern forests are home to many endangered species like this Red Hills Salamander in Alabama.

MAP 3

The Midwest is Experiencing Rapid Landscape Changes



- Increase in housing units between 1940 and 2000 in the Midwest, percent: 146
- Growth of medium density housing (4-32 houses per square km) between 1940 and 2000 in the Midwest, percent: > 250

Sources:
R.B. Hammer and V.C. Radeloff
University of Wisconsin-Madison (map)
Gobster and Haight 2004 (statistics)

NORTH CENTRAL

This land of many lakes and private forests that stretch across gentle terrain is undergoing rapid landscape changes (See Map 3). More and more second homes are sprouting around lakes, rivers, and in forests with good road access to major cities. Two-thirds of forests contain at least 10 housing units per square mile. Forests traditionally managed for timber are being subdivided. As large expanses of northern forests start to fragment, there is concern among biologists whether those forests will continue to serve as homes for wildlife that have lost habitat elsewhere (Gobster and Haight 2004).

NRCS

Housing development next to farmland in Dane County, Wisconsin.

ROCKY MOUNTAIN WEST

In contrast to the Southeast and Northeast, there is a high level of public land ownership in western mountainous States. Much of the public land falls in higher elevation lands, including the dramatic Rockies—favored destinations for recreationists. Many kinds of wildlife—from elk to warblers—require both public lands of the mountains and lower elevation private lands for survival. Often, valleys and rivers in private ownership have the highest ecological values. Much of the region is arid, where wildfires play a natural role but also endanger the increasing number of houses and communities in the wildland-urban interface (Romme 1997). Fourteen of the fastest growing counties in the United States are in the Rocky Mountain West and rural population growth rates are exceeding urban rates (Cordell and Overdevest 2001).

USDA FS

Rural growth in the Rocky Mountain West is occuring in both forests and grasslands.

PACIFIC NORTHWEST – OREGON

Oregon is known for its rugged coastlines, lush forests, Cascade Mountains, and high desert. It is also known for a pioneering comprehensive statewide land use-planning program enacted in 1973. To achieve its goals, Oregon's cities and counties are required to concentrate new development inside urban growth boundaries and to protect farm and forest uses through zoning outside the boundaries. Research suggests the program has been measurably successful at shaping development in ways that conserve prime farmlands, forests, and other open spaces (Kline 2005).

However, a 2004 voter-approved initiative now requires the State government to compensate landowners for property value losses from land-use decisions such as zoning. Whether Oregon's land use planning can be enforced after this measure is questionable. Research predictions suggest that a lapse in zoning enforcement would result in greater development in western Oregon's forests and agricultural lands (Kline, June 2005). Today, planners, policymakers, and researchers in Oregon are taking a new look at whether zoning alone can be effective in the long run as populations and land values increase.

USDA NRCS

Oregon has instituted urban growth boundaries to protect farms and forests.

USDA NRCS

One million acres of Central Valley farmland are predicted to be lost by 2040. (USDA FS 2003)

SOUTHERN CALIFORNIA

Four national forests are within easy driving distance of Los Angeles and other highly urbanized areas. The warm dry climate and Pacific coast have drawn people here for many years, making southern California the most populous region in the United States. Now the population is expanding from the coast counties into the Central Valley and Inland Empire, where population is forecast to increase from 5.4 million in 1998 to 15.6 million by 2040. Demographics are shifting too, with an increase in Hispanic and Asian populations (USDA FS 2003).

New homes are peppering canyons and hillsides that are at high risk for wildfires. Productive farms are giving way to housing developments; the predicted loss of farmland in the Central Valley is 1 million acres by 2040. The challenges for the region include managing increased and changing recreation use of public lands, conserving wildlife habitats and working farms, and contending with more houses in the wildland-urban interface (USDA FS 2003).

REGIONAL OPEN SPACE KEY QUESTIONS

- Can the South produce high levels of timber, protect and manage for biodiversity, meet the demand for outdoor recreation, and house millions more people in rural areas?
- Can the Great Lake States conserve northern forests and lakes that are strongholds for birds and animals that have lost habitat to the south?
- What are strategies to steer growth away from fire-prone forests in the Rocky Mountain West?
- Can Oregon still conserve forest and farmlands now that the 2004 voter-approved initiative mandates affected landowners to be compensated for reductions in land values?
- How will Southern California accommodate increasing levels of recreation use on public lands?

DRIVERS OF CHANGE

MIGRATION TO RURAL AMERICA

CATSKILL MOUNTAIN FOOTHILLS…NEW YORK
TYPE: LAKEFRONT LAND
PRICE: $172,500
FRONTS A 46-ACRE MOUNTAIN LAKE

"Exceptionally rare 25-acre lake front property with 1,400 feet of lake frontage on a 46-acre mountain lake. Located on a quiet Town Road next to a 1,000-acre private reserve. Pretty meadow, hardwoods, and a view. Walking trail along the lake. If it's the life-style or simply an investment, look no further."

To better grasp why rural areas with open space amenities have become a target for growth, social scientists are studying the drivers behind rural growth. They have documented how we have become a nation of nomadic people —moving from place to place for jobs or to find a desirable location to put down roots.

Retirees and working-age people alike are relocating to rural areas where they can have daily access to the outdoors for recreation and for solitude. This greater mobility of where we live comes from rising incomes since World War II and transportation advances like the interstate highway system that put the countryside within commuting range of cities.

This publication does not focus on suburban areas expanding from cities. However, there are rural areas just beyond the suburbs that are growing rapidly. People are willing to commute farther to work to experience a rural lifestyle and find affordable housing. Now, 3.4 million Americans endure a daily "extreme commute" of 90 minutes or more each way to work (U.S. Census 2005).

FULLERTON GULCH…MONTANA
TYPE: RANCH
PRICE: $250,000
ADJACENT TO THE NATIONAL FOREST

"67 acres with year-round creek, national forest land on three sides. Great building site that is very remote yet only minutes to town by paved road. This is a must-see if you're looking for a real Montana home setting."

USDA NRCS

Rural Montana is growing faster than the State's cities and towns (Theobald 2003).

Meanwhile, a survey conducted for the National Association of Realtors and Smart Growth America found that 79 percent of recent homebuyers ranked a commute time of 45 minutes or less as a top priority in their choice of where to live. Another high priority (72 percent) is the ability to walk to shops, restaurants, libraries, schools, and public transportation. For people planning to buy a home, 87 percent placed top priority on a shorter commute. The survey shows a clear demand for livable communities with walkable neighborhoods close to services rather than the traditional kind of large lot suburban setting (National Association of Realtors and Smart Growth America 2004). This suggests that one strategy to keep rural areas rural is to build communities that feature compact, mixed use, and walkable neighborhoods.

WHO'S MOVING TO RURAL AREAS AND WHY?

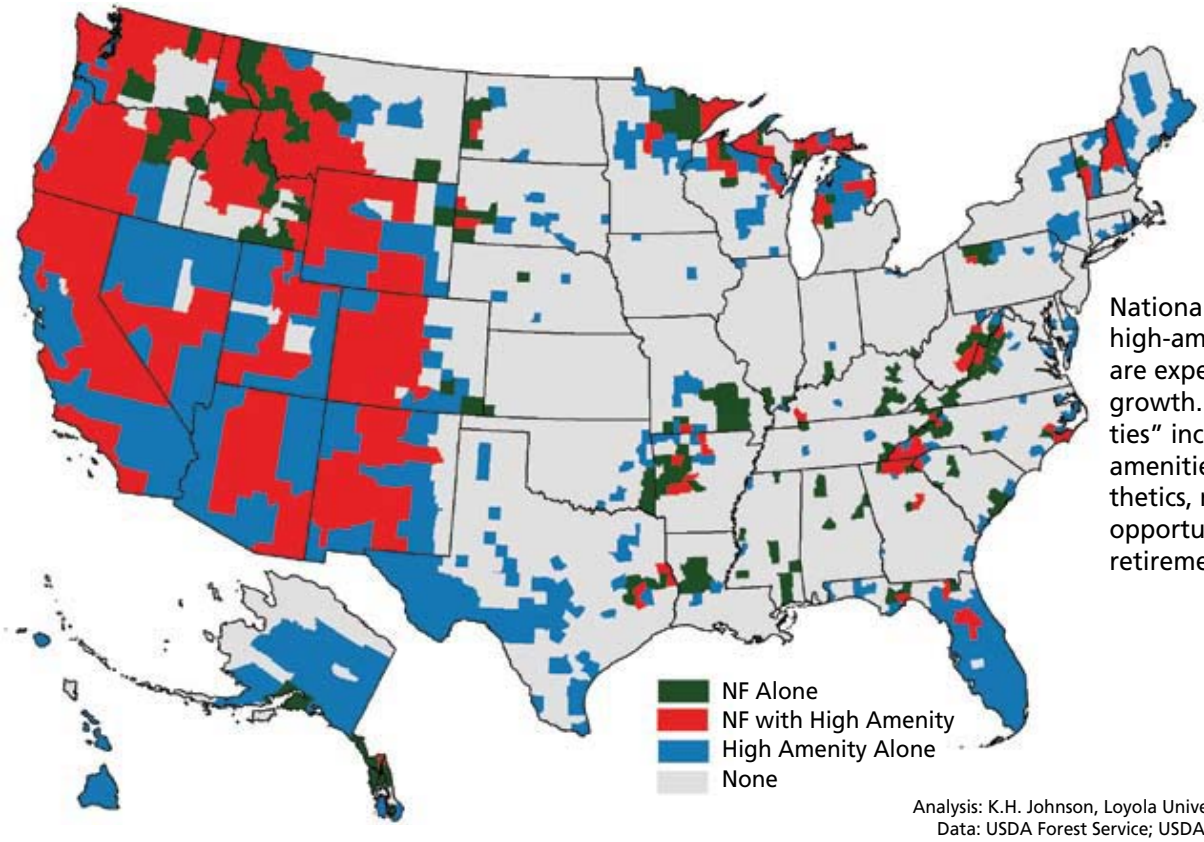
Retirees and the Baby Boom Generation

Throughout the United States, people are moving to rural areas to enjoy open space amenities, such as lakes, scenic views, and forests. Retirees are a leading force behind this migration trend. Portable pensions and dispersed families enable retirees to choose amenity-rich locations. Between 1990 and 2000, counties with national forests, recreation opportunities, natural resources, and aesthetic qualities (see Map 4) experienced high population growth rates—between 15 and 30 percent. These growth rates are expected to accelerate as 70 million baby boomers (born between 1946 and 1964) reach retirement age (Johnson and Stewart, in press).

USFWS

MAP 4

National Forest and High-Amenity Counties



National forest and high-amenity counties are experiencing rapid growth. "High amenities" include natural amenities such as aesthetics, recreational opportunities, and retirement appeal.

Analysis: K.H. Johnson, Loyola University Chicago
Data: USDA Forest Service; USDA Economic Research Service. Johnson and Beale (2002)

Working Age – the 30+ group

But it is not just retirees who have the ability to choose where they live. Working-age people have discovered an alternative to traffic jams on weekends and holidays. When faced with a choice of a higher salary living in the city or a pay cut to live close to their favorite outdoor recreation spots, the choice appears obvious to a growing number of city dwellers.

Renewed rural prosperity reverses the trend of young adults leaving home to find jobs elsewhere. Now in some rural areas former residents are returning home to find jobs that did not exist before. Working-age residents tend to support schools and community programs.

USDA NRCS

Backyard in rural Kentucky.

Deborah Richie Oberbillig

A study of middle-aged newcomers to Oregon who chose its natural amenities as a reason for relocating showed they reduced their annual household incomes by an average of $10,000 (Judson et al. 1999).

Technology and Accessibility

The new economy of rural areas favors individual enterprise. Log onto the Internet, check in by cell phone, send a fax and anywhere you choose to live can become a work place. Rural areas that also have air service and proximity to interstates make commutes and business travel to cities possible.

In northern Wisconsin, rural areas beyond typical commuting distances are now destinations for both permanent and seasonal residences. Highway improvements may increase the number of migrants as commutes take less time (Gobster and Rickenbach 2004).

Similarly, proximity to airports may facilitate rural growth. For example, skiers and other recreationists fly into western resort communities like Aspen, Vail, and Steamboat Springs in Colorado, and Sun Valley in Idaho. Burgeoning second and permanent homes surround such ski destinations.

Second Homes

A rise in personal incomes, particularly before the stock market decline of 2002, gave homeowners the means to purchase or build vacation homes in their favorite rural areas. In some of the Great Lakes counties, up to 80 percent of residences are second homes. Permanent migration to a rural area often follows a three-step process: 1. vacation; 2. second home ownership; and 3. migration (Stewart and Stynes 1994).

A study of 500 property owners close to 12 lakes in Walworth County, Wisconsin, revealed that 62 percent were second-home owners, with primary residences in Chicago, a 2-hour drive away. Almost 40 percent intend to become permanent residents. (Gobster and Haight 2004)

Search for Nature

America is known as a melting pot, and a restless one. Research shows Americans have a strong need for contact with nature that in turn leads to development of natural habitats, loss of open space values, and an exodus to the next last best place (Kaplan and Austin 2004). In the West, migrants into Colorado are moving to Montana and other States to find the next unspoiled rural and affordable haven (Robb and Reibsame 1997). And as urban areas expand into rural lands, people move farther from the city to find a country experience.

Appeal of Large Lots

The rural dream of owning a piece of paradise helps support a market for large lots. Realtors and developers market and respond to this demand. In fact, 80 percent of land converted for recent residential housing lies outside urban areas and 94 percent of the acreage is divided into lots of 1 acre or larger. More than half of those lots are sized at 10 acres or more (ERS 2005).

Zoning, too, can lead to larger lots. When rural communities zone for minimum lot sizes, they discourage development of clustered, denser communities with large adjacent open spaces. In Colorado, landowners have an incentive to subdivide into 35-acre parcels, the minimum size for dividing lands without going to a zoning board for approval.

Housing Affordability

When rural areas first grow, the appealing large home sites tend to be affordable. Some of the attraction for new migrants lies in the combination of cheaper land than they can find within commuting distance of a city, combined with proximity to wildlife and solitude.

Housing affordability becomes a strong driver in areas like Los Angeles where housing prices have climbed steeply. Many urban workers commute 60 miles or more from inland communities like Riverside (US Census 2005). As more jobs move out to suburbs, rural areas are also increasingly within commuting distance.

However, rural growth eventually drives up land prices and taxes. The real estate market for country living provides landowners with an incentive to subdivide and sell. The returns are often far greater than traditional forestry and agricultural incomes. In the Southeast, the weighted average value of land in forest use for 473 counties is $415 per acre compared to an urban use value of $36,216 per acre – 90 times higher (Alig and Plantinga 2004).

CASE STUDY

Collier County, Florida
Concentrating New Development Away from Environmentally Valuable Land

Retirees and immigrants are flocking to sunny, coastal Collier County in southwest Florida. In 2000, a group of landowners created incentives and a new marketplace to conserve ecologically rich rural lands while welcoming more people on the land.

The Collier landowners hired a consulting firm, WilsonMiller, Inc., to assess their natural resources and develop a new model for land use planning. Using a geospatial analysis, WilsonMiller quantified and assigned values to environmentally sensitive features, such as wetlands and panther habitats, for a 195,000-acre area. This analysis is used to add "value" to traditional market prices for land.

Here is how it works. **A Rural Land Stewardship plan** identifies sending and receiving areas. The sending areas cover land with sensitive or rare natural resources like native pine forests. Landowners within the sending area can choose to sell **Stewardship Credits** to developers. The number of credits available for sale depends on the specific natural characteristics of the property. In addition, a landowner can gain "bonus credits" for choosing to restore some acres or place them under permanent conservation agreements.

The Ave Maria development project recently tested the new market. A new town and university are being built on 5,000 acres within the designated receiving area. The developer purchased approximately 8 credits per developed acre to protect 17,000 acres of open natural land surrounding the community. The new town is being built as a compact, mixed-use community that concentrates growth in walkable neighborhoods close to stores and offices.

The Collier Rural Lands Stewardship Area will accommodate the projected 2025 population in new rural towns and villages. These towns will occupy only one-tenth of the land formerly needed for 5-acre home sites. This win-win solution will protect 90 percent of all native wetlands and upland forests at no cost to the public, and will provide an income stream to all landowners in the area. Now, landowners have an incentive and economic return for the protection of environmentally sensitive lands.

In recognition of the potential and uniqueness of this approach, the State of Florida in 2004 codified the use of **Stewardship Credits** in State law, and encouraged other counties to use Collier County as a model for rural lands planning.

Stewardship Credits: a tradable value for land that accounts for variation in environmental characteristics and land uses. Stewardship credits are used in designated areas to guide development away from environmentally valuable land and to encourage compact growth that preserves open space.

Rural Land Stewardship Plan: a land use plan that designates sending and receiving areas. Landowners in sending areas can choose to sell stewardship credits to cash in the value of their open space. Developers must purchase stewardship credits to gain approval for new development projects, and have a monetary incentive to concentrate growth in compact developments. All new development occurs in the receiving areas.

Additional information: Rural Lands Stewardship Program – http://privatelands.org/rural/RLSP.htm or www.WilsonMiller.com

Sources: Demers 2003. Jenkins 2005.

WilsonMiller, Inc.

SIGNIFICANCE OF OPEN SPACE

"The question is not whether we should develop, but rather how best to use the land to maintain or enhance the goods and services provided by ecosystems."

WAYNE ZIPPERER, FOREST SERVICE RESEARCH FORESTER

(USDA FS 2002)

In the 2004 fall election, voters in 26 States approved $3.25 billion in public funds for parks and open space. The approval rate of open space bond initiatives was 75 percent.

(TPL 2005)

When open space is functioning well, the seamless natural fabric of the land is often unappreciated. Open space plays significant roles in our every day life. Forests regulate climate, clean water and air, maintain hydrologic cycles, and contribute to healthy, fertile soils. Periodic burns in fire-adapted forests and grasslands provide a service in rejuvenating soils, plants, fisheries, and in reducing fuels. The trick is to give these natural processes room to perform their jobs. Open space can be working land as well, important for harvesting timber, ranching, and farming.

USFWS

Indigo bunting nests are parasitized by cowbirds 3–12 times more frequently in urban fields (Thompson and burhans 2003).

USFWS

Brown-headed cowbirds lay their eggs in songbird nests.

When open space frays and the seams unravel, the losses become clear, one strand at a time. Water quality drops. Nonnative and invasive species increase. Wildlife diversity declines. Sometimes it takes a discerning eye to recognize those fraying pieces.

Take this story of two fields in Missouri, subjects of a Forest Service research study (Thompson and Burhans 2003). At first glance, the fields appear remarkably similar, except that one is found in an urbanized setting—the city of Columbia, Missouri, and the other in nearby rural Boone County. Now, ask a birdwatcher to tell you the difference between the two. The rural field features much higher bird diversity and uncommon species like the blue-winged warbler and white-eyed vireo. Fewer bird species living in the urban field is directly related to brown-headed cowbirds that thrive in nearby lawns and disturbed areas. Cowbirds lay their eggs in songbird nests. The songbirds then raise cowbird chicks at the expense of their own. The researchers compared a number of rural and urban fields and concluded that the nests of northern cardinals, yellow-breasted chats, and indigo buntings were parasitized by cowbirds 3 to 12 times more frequently in urban fields.

Keeping open space intact is important not only to birds and birdwatchers, but to all of us, whether we live in urban or rural lands. Open space provides critical services and benefits that we all need and enjoy.

USFWS

Forests are a key source of clean water.

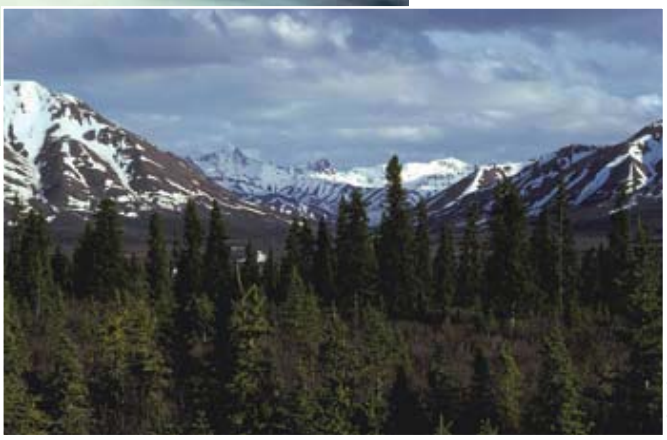
WHAT'S AT STAKE?

1. FRESH WATER DELIVERY AND FLOOD CONTROL

Forests serve a vital function connected to clean water. Some 66 percent of the Nation's fresh water originates in forests (USDA FS 2000). Here, trees help filter stormwater and convey it to groundwater aquifers. In western mountains, forested headwaters hold snow that in turn becomes a critical source of late season flows for ranchers irrigating hay meadows in valleys below. Trees also slow storm runoff and reduce flooding.

USDA NRCS

A restored wetland in Yolo County, CA, filters sediments and pollutants.



USFWS

What's at stake for water quality

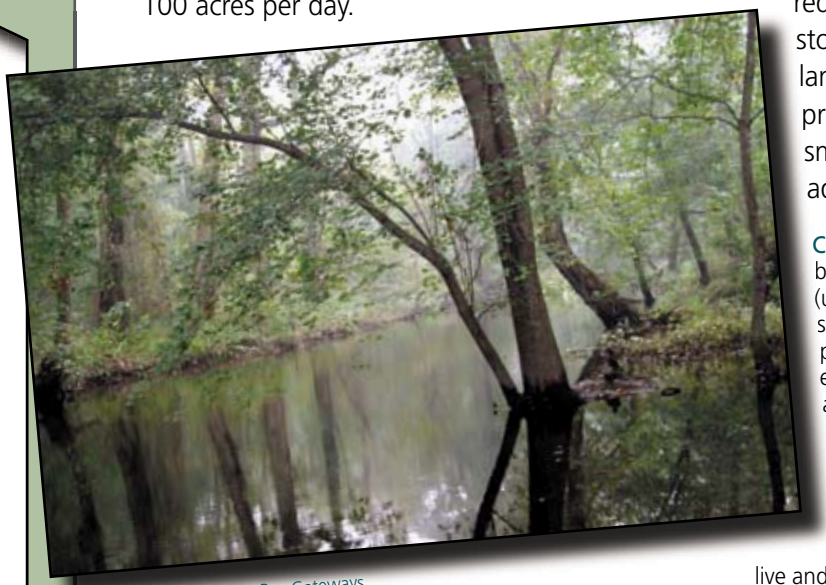
When forests give way to residential and commercial development, we lose the services they provide. For example, the loss of trees between 1972 and 1996 in the Puget Sound watershed (near Seattle, Washington) has increased stormwater flow by 1.2 billion cubic feet in the region during peak storm events. Replacing the lost stormwater retention capacity with reservoirs and engineered systems would cost $2.4 billion (American Forests 1998).

Open lands, whether forested or grassland, assure rains and snows are absorbed into the ground. Water cannot percolate through pavement. When water runs off roads into streams, clean water suffers as sediments and pollutants are swept into streams, rivers, and lakes. In Anchorage, Alaska, researchers found that the abundance and diversity of aquatic insects suffered when parking lots and other pavement converted just 5 percent of the watershed (Ourso and Frenzel 2003).

CASE STUDY

Chesapeake Bay Watershed
Protecting Forests to Restore Water Quality

The Chesapeake Bay is the Nation's largest estuary and one of the most productive ecosystems in the world. The bay supports a wealth of wildlife, fish, and birds. It also supports a thriving fishing industry whose harvests of fish and shellfish are enjoyed by people throughout the country. Keys to the bay's health are in the trees and forests in the watershed. Forests filter out pollutants before they enter streams, rivers, and the bay. Once, over 95 percent of the 41-million-acre watershed was forested, but that number has dropped to 58 percent as development and agriculture replaced trees. Current forest loss in the watershed is estimated to be 100 acres per day.



Mike Land, Chesapeake Bay Gateways

Today, Forest Service and government agencies from Maryland, Virginia, Pennsylvania, and the District of Columbia, as well as nonprofit groups, are working together to conserve and restore watershed forests. In 2000, the partners set a goal to permanently protect 20 percent of the watershed (6.5 million acres) by 2010, using donated and publicly purchased **conservation easements, tax incentives,** and **parkland purchases** to add to already existing protected lands. They are also working to conserve and restore forests along 70 percent of streams and shorelines in the watershed.

The Washington, D.C., region's **Smart Growth Alliance** has contributed as well, encouraging developers in the watershed to build in ways that minimize water pollution and maintain tree cover. The Alliance, made up of the Chesapeake Bay Foundation, Coalition for Smarter Growth, Greater Washington Board of Trade, Greater Washington Builders Alliance, and the Urban Land Institute, hosts a "jury" of environmentalists, developers, and planners who certify whether development projects meet smart growth criteria, including building in and around existing communities, reducing impervious surfaces, managing stormwater, and maintaining trees and wetlands. Developers pay to have their project proposal evaluated. If the project meets smart growth standards, jury members advocate for the project at local hearings.

Conservation Easement. A legal agreement between a landowner and an eligible organization (usually a land trust or government entity) that restricts future development activities on the land to protect its conservation value. Most conservation easements are perpetual and apply to both current and future landowners.

Smart Growth. Smart growth describes development patterns that create attractive, distinctive, and walkable communities that give people of varying age, wealth, and physical ability a range of safe, convenient choices in where they live and how they get around. Growing smart also ensures that we use our existing infrastructure efficiently by focusing most new growth near existing development, achieving more compact forms and patterns of growth, and preserving both the rural lands and historic buildings that shape our communities.

Additional information:

Chesapeake Bay Program –
visit www.chesapeakebay.net or call1-800-YOUR-BAY.

Washington Smart Growth Alliance
www.sgalliance.org.

Smart Growth Network
visit www.smartgrowth.org

Sources: USDA FS 2004. Washington Smart Growth Alliance 2005. Claggett 2005. Epstein 2005.


USDA FS

2. RURAL WAYS OF LIFE

Keeping open space intact is an important factor in maintaining traditional rural livelihoods. The landscape challenge is to conserve the most appropriate places for pursuits like farming, ranching, and logging and to integrate new economies with the old.

What's at stake for timber harvest

What happens when more houses are built in timber harvesting areas? Researchers found that in some regions, as housing density increases, timber harvest decreases (Wear et al. 1999; Sabor et al. 2003). A study in Virginia concluded that when population densities reach between 20-70 people per square mile, the likelihood that remaining forestlands can be commercially managed declines. At 70 people per square mile, commercial forestry is only likely on 25 percent of remaining forest land (Wear et al. 1999). In the Great Lake States, less than 10 percent of harvesting takes place in areas where housing density exceeds 50 units per square mile. (Sabor et al. 2003).

The relationship between housing density and forest harvest levels involves many different factors, including such practical difficulties as gaining access to lands surrounded by houses. New owners whose scenic views are affected by management may also be opposed to extensive management activity and harvesting. The continued growth of housing in the forested areas of this region suggests growing impacts on timber harvests.

In Oregon, findings show less connection between rural development and decreased timber harvest, because of a greater amount of timberland available relative to the amount of development that has occurred (Kline et al. 2004).

What's at stake for farming and ranching

Rising property values, tax burdens, and changing global markets for agricultural products place economic pressure on farmers and ranchers to sell their land, despite desires to continue living off the land and passing that heritage to their children. Often, lands that are most easily paved over for roads and housing are the best lands for farming. Isolated farms within subdivided lands sometimes face resistance from new neighbors to traditional practices like field burning. Subdivided farms also become too small for viable farm operations.

In the West, a common pattern of development is dividing ranches into "ranchettes" that often fall along the foothills of fire-prone public forest lands and mountains. Homes are often built on high ground with panoramic views, which leads to greater fragmentation of open spaces to connect roads to these premium building spots. The subdivision of ranches near Gunnison, Colorado, increased road length by 60 percent on these properties and doubled the number of houses (Theobald et al. 1996).


NRCS

Grazing near Tucson, Arizona

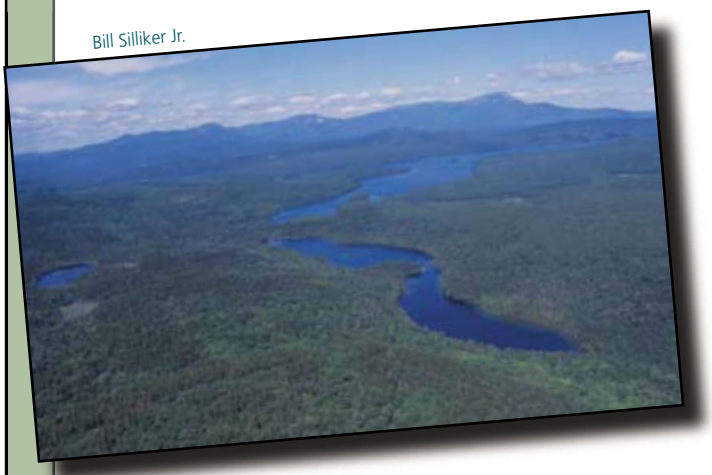
CASE STUDY

The Northern Forest
Maintaining Working Landscapes

The Northern Forest spans 80 million acres in northern New England and Canada and 26 million of these acres are in Maine, New Hampshire, Vermont, and New York. Vast areas, especially in Maine, are uninhabited industrial forests whose spruce and hardwood have long provided wood for paper mills and sawmills.

In 1988, citizens in the four-State area became alarmed after British financier Sir James Goldsmith acquired Diamond International Corporation's 976,000 acres of timberland. Goldsmith's business strategy was to resell this land in smaller parcels for substantially more value than the original sale. Concerned about the future of working forests, Congress commissioned the Forest Service to develop a **Northern Forest Lands Study** to assess how land ownership and use changes would affect the region and timber towns.

In 1994, a multi-State Northern Forest Lands Council used the Northern Forest Lands Study to recommend increased public funding for the Forest Service's **Forest Legacy program**, which conserves land primarily via **conservation easements** (see page 28), a form of voluntary land protection. Today, over 2.5 million acres are covered by conservation easements in the four-State region—of which 570,000 acres were protected by the Forest Legacy program. Participating landowners either donated the easement or were compensated for the development value of their lands, and can continue to harvest timber.



Bill Silliker Jr.

In the backyard of Millinocket, Maine—a paper mill town that has long relied on the forest for woods and mill jobs—a landmark partnership has helped conserve 750,000 acres of unbroken forests. In 2002, The Nature Conservancy helped Great Northern Paper Co. delay bankruptcy by purchasing $50 million of its loans, retiring $14 million of the debt and refinancing the remainder at competitive rates. In exchange, the company granted a conservation easement on 195,000 acres of Maine forests abutting Baxter State Park, and transferred 41,000 acres in fee to the Conservancy. With support from the Forest Legacy program and matching State funds, the Conservancy is making a bargain sale of the Katahdin Forest Project easement lands to the State of Maine Bureau of Parks and Lands.

Now an expansive forest will continue to stretch beneath Mount Katahdin. The core land owned by the Conservancy serves as a biological preserve and critical breeding ground for birds and animals. Surrounding the preserve, the easement land remains permanently open for public recreation access while **sustainable management** of the forests provides timber for nearby mills.

Forest Legacy program. Part of the State and Private Forestry division of the Forest Service, the agency administers Forest Legacy in partnership with States and works with interested private landowners to acquire lands and conservation easements. To date, the program has protected over 1 million acres of environmentally important forests—this land has remained in private ownership or has become State land.

Sustainable Management. Management to maintain the long-term health of ecosystems and sustain a full range of environmental, economic, and social benefits for current and future generations. A sustainably managed forest provides not just timber and other economic products, but also public benefits like water quality, recreation, and wildlife habitat.

Additional information.
Northern Forest Lands –
www.northernforestlands.org

The Nature Conservancy –
www.nature.org/success/katahdin.html

USDA FS Forest Legacy Program – 202-205-1389
www.fs.fed.us/cooperativeforestry/programs/loa/flp.shtml

Sources: The Nature Conservancy 2004.
Northern Forest Lands Council 1994.
NESFA 2004. Byers and Ponte 2005. Dempsey 2005.

3. WILDLIFE DIVERSITY AND CORRIDORS

Species diversity is highest where open space is functioning well. For example, many species of songbirds require contiguous blocks of habitat to successfully breed and raise their young. Identifying the "hot spots" for birds and other wildlife allows local governments to steer development away from these important habitats. Biologists at the planning table can answer questions on where wildlife nest, den, raise young, or rest during migration.

Despite an abundance of public lands in many western States, many wildlife "hot spots" are found on private lands. These include winter ranges for elk and deer, and streamside areas for a high diversity of birds. In Montana, 55 percent of breeding bird species (134 species) depend on riparian areas that make up only 4 percent of the State—70 percent are found on private lands (Montana Partners in Flight 2000). In Colorado, 69 percent of bald eagle winter habitat is found on private lands (Romme 1997).

USFWS

Wolf tracks at Nogabahara Sand Dunes, Alaska.

The Southeast has 14 critically endangered forest communities, reduced in size by 98 percent since European settlement. Those communities fall within seven classes, yet only two—old growth and spruce-fir—are found on the small amount (11 percent) of public land in this region. The remainder and their associated wildlife species are in private ownership. Public forests can serve to protect only some habitats and species. Large blocks of forests are important for conserving sensitive plant and wildlife species, yet only 16 percent of the remaining forests are in tracts greater than 500 acres (USDA FS 2002).

USDA FS

Bald Eagle

In addition to large blocks, many wildlife species—from river otters to grizzly bears—require natural corridors that connect the chunks of remaining open lands. Corridors allow wildlife populations to mix, keeping the gene pool healthy, and link wildlife feeding places and migration routes.

People, too, can benefit from corridors, especially near urban areas where greenways are growing in popularity among recreationists seeking long trails and connected bike paths. To meet the needs of people and wildlife, those corridors need to be wide enough for both. For example, Dunham Lake in Hartland Michigan features a greenway buffer that ranges between 100 and 400 feet that preserves the pristine waters and waterfowl habitat while offering the many adjacent homes a lakeside trail (Arendt 1994). Guidelines for width differ depending on geography, habitat and species—another reason to make sure biologists are at the planning table.

What's at stake for biodiversity

Planning for corridors and open space with wildlife needs in mind can help maintain diversity and prevent species decline.

USFWS

Red-cockaded Woodpecker

Habitat loss is the number one threat to biodiversity loss. The number two threat is the rising tide of invasive plants and animals—nonnatives that spread and can wipe out native species. Approximately 46 percent of the plants and animals federally listed as endangered species have been negatively impacted by invasive species

USDA ARS

Invasive white knapweed prospers when land is disturbed.

(Wilcove et al. 1998). Many kinds of noxious weeds take hold and prosper when land is disturbed, an inevitable part of constructing new houses and roads in rural lands. Controlling weeds on small parcels of land is more difficult than on large intact parcels.

When houses and roads enter a forest, they provide access for nest predators and parasites like crows, jays, and cowbirds. A team of scientists from the University of Wisconsin and the Forest Service demonstrated that 37 of 137 bird species declined with increases in housing and agricultural use (Lepczyk, in review). Housing and fields disrupt native forest habitats, putting at risk birds such as the red-eyed vireo and ovenbird that depend on interior forests.

Houses also bring in free-ranging domestic cats, which prey on numerous songbirds and small mammals in rural areas each year. Studies in Wisconsin estimate that cats kill 39 million birds in that State each year (Coleman et al. 1997).

Wildlife habitat and rural housing preferences often intersect in the most sensitive and fragile places. For instance, research in the Yellowstone area found that home densities are nearly 70 percent higher within a mile of these hot spots (Hansen and Rotella 2002). Almost all of the identified hot spots fell on private lands in an area where biodiversity is highest at lower elevations, which are at the most risk of development.

What's at stake for wildlife on the move

As wild animals move to find the habitats they need, they often face a potential threat—roads. Highways and even smaller roads can block natural corridors for travel. Cars collide with wildlife—a danger to people and animals alike. Even small dirt roads connecting homes on large lots can cause problems for wildlife. Many amphibians, small mammals and invertebrates shy away from roads, and lose connectivity to important habitats. Slow-moving reptiles like turtles and snakes seeking the warmth of a road during the day are regular casualties. Roads also disturb ground and become a vector for weeds to spread into open spaces (Mitchell et al. 1997).

Scott Jackson

Underpasses designed for wildlife can provide for safe passage and link habitats.

Today, the Federal Highway Administration has projects in most States to link habitats and cut down on highway mortality—from a salamander underpass in Massachusetts to a desert tortoise culvert under a highway in southern California. Underpasses on I-75 in Florida are saving endangered panthers from being struck and killed (Federal Highway Administration 2005).

CASE STUDY

Greater Yellowstone Region
Coordinating Among Ownerships To Conserve the Ecosystem

America's first national park rests in the heart of a much larger ecosystem. Surrounding Yellowstone National Park are six national forests, two national wildlife refuges, the Grand Teton National Park, and the J.D. Rockefeller Memorial Parkway. This ecosystem is the last stronghold for a suite of species no longer found together anywhere in the world—grizzly bears, wolves, bison, wolverines, and trumpeter swans.

The 20 counties within the ecosystem are among the fastest growing in the United States—a 62-percent population increase from 1970 to 2000, with an accompanying 350-percent rise in developed lands. The large amount of land affected by each new house reveals a pattern of low-density growth as ranches and farms are subdivided. Today, about 370,000 people live as permanent residents on these private lands in Idaho, Montana, and Wyoming.

Private lands fall in foothills, valleys, and along the Yellowstone, Madison, Clarks Fork, and Snake Rivers. Most public lands are at higher elevation. Wildlife moves between the two, and much of their essential habitat is on private lands. To conserve the Yellowstone ecosystem requires considerable coordination.

Fortunately, Federal agencies in the region had the foresight in 1964 to create the **Greater Yellowstone Coordinating Committee (GYCC).** National forest supervisors, park superintendents, and refuge managers communicate regularly to foster partnerships, and contribute resources to address priorities most effectively addressed across all land areas.

Controlling the spread of invasive weeds offers one example of the benefits of cooperation. When treating weeds, all it takes is one untreated parcel of land to serve as a seed source for re-infecting nearby lands. The rising number of new landowners and smaller parcels of lands could be a deadly combination—allowing for the spread of invasive weeds that can choke-out native plants and in turn harm wildlife that depend on the native plants for food.

To tackle the problem, the GYCC leverages funds to partners for monitoring, mapping, and treating weed infestations in certain areas. The committee also takes on projects that benefit the entire Greater Yellowstone Area, such as producing homeowner guides to weed control and establishing weed-free certification standards. By 2004, the GYCC completed a weed database and map to identify top-priority infestations. That same year marked the establishment of **Cooperative Weed Management Areas** covering 100 percent of the area. In addition, private citizens who want to contribute to managing and preventing the spread of invasive weeds can find help from the multi-partner GYCC subcommittee, The Greater Yellowstone Area Weed Working Group.

The result? While invasive weeds continue to be a threat, the vigilant efforts of many individuals and groups are keeping the worst of the weeds at bay. The success record with weeds offers a model and inspiration for guiding residential growth and protecting valuable private lands from fragmentation—a challenge also being addressed by partners across the ecosystem.

Deborah Richie Oberbillig

Additional information:
Greater Yellowstone Coordination Committee: http://mpin.nbii.org/projects/gycc

Sonoran Institute: www.sonoran.org

Sources: GYCC 2005. Maj 2005. Sonoran Institute 2005.

Forest fire in Colorado

USFWS

4. WILDLAND FIRE

Wildland fires play a natural role in keeping forests healthy, reducing fuels, and adding nutrients to soils. However, a century of fire suppression has led to a build-up of fuels in many forests, which can lead to severe wildfires that are difficult to control. Today, the Forest Service and other land management agencies balance fire prevention, suppression, and prescribed fire. Where open space is extensive and connected, managers can successfully prescribe fires with the goal of restoring ecological processes and reducing fuels. When private and public landowners collaborate, there is a better chance of guiding development away from high-risk fire areas, and of protecting existing houses by reducing fuels around them.

Designated public open space can also become a showcase for communities to appreciate the ecological role of fire. For example, in Boulder, Colorado, resource managers for the Open Space and Mountain Parks combine prescribed fires, selective thinning, and some grazing to replicate natural processes and keep lands healthy. Education and public outreach is an important component, including on-the-ground illustrations of benefits. The city can show citizens where a 130-acre prescribed fire in 1998 became the turning point in slowing a wildfire's advance in September 2000. When the flames reached the previously burned area, the lack of fuels slowed the fire long enough for firefighters to stop the fire from reaching houses (Boulder County 2005).

What's at Stake for the Wildland-Urban Interface

"We've got steep, dead-end roads that go up hillsides to homes. Firefighters are at risk trying to reach these people's homes."

– GEORGIA (USDA FS 2002)

Today, more homes than ever are being built in a relatively narrow part of the landscape, termed the wildland-urban interface—the area where houses meet or intermingle with undeveloped forests and grasslands. More than one-third of all housing units (44.3 million) fall in this wildland-urban interface, which covers about one-tenth of the land area of the conterminous United States (Radeloff et al. 2005).

USFWS

Houses that fall in wildfire-prone parts of the wildland-urban interface—such as the California chaparral—can be difficult and sometimes impossible to defend from raging fires. More people living in these areas also correlates with more human-caused fires. For example, during the record-setting fire season of 2000, human-caused fires burned 1.6 million acres (NIFC 2005).

California has 5.1 million houses built in the interface, more than any other State. Almost all of the 4,200 houses destroyed by wildland fires in 2003 were in southern California, resulting in $2 billion in damages (Radeloff et al. 2005). Yet those California fires burned only a small part of this interface, leaving much of the area at risk for future large fires.

When the wildland-urban interface is fragmented, it is tough to protect houses from wildfire and reduce fuels with tools like prescribed fire, because of the danger of fires burning too close to houses.

USDA NRCS

Ranch boys going fishing in Colorado

USDA NRCS

House in forest in California

5. RECREATION OPPORTUNITIES

Demand for more outdoor recreation opportunities is part of the picture of rural growth. Open space offers appealing, scenic places to hike, mountain bike, ride horses, picnic, and camp. Where private lands are few, the protected and accessible public open space becomes increasingly important. Where public lands are abundant, the challenge for managers lies in protecting fragile resources, while addressing strongly held and differing views of an increasing number of recreationists (Dwyer and Childs 2004).

What's at stake for recreational access

Subdividing parcels of land along the borders of national forests and other public land presents two dilemmas. First, new residents have their own private access points. Each year hundreds of miles of unplanned trails and roads are created by off-road vehicles—damaging fragile ecological and cultural areas. Second, subdividing can cut off traditional access points to public land, leading to more pressure on the remaining access points. Solutions include working across ownership lines, conserving key public access points, and educating the public about responsible recreation use.

In the East, where private lands are critical as places to recreate, turning large tracts of lands into smaller parcels with new owners often results in new restrictions on public access for recreation like hunting, fishing, and bird watching. With fewer places available, the remaining public lands become used more heavily. In the South, public land managers are faced with the quandary of conserving critical refuges for threatened and endangered species, while providing recreation for more people with fewer places to go.

ATV Safety Institute

Off-road vehicle recreation

CASE STUDY

Washington State
Conserving Land in a Scenic Corridor

Picture a scenic greenway stretching from Seattle's waterfront, across the Cascades, to the edge of the grasslands of Central Washington. In the 1990s, a group of citizens started with a dream and quickly went to work in a race against time as an estimated 100 acres of forest land were cleared each day to make way for the expanding city.

These citizens rallied others to form a private/public alliance with municipalities, counties, government agencies, and citizen's groups. A regional map has served as a blueprint for a 100-mile **Mountains to Sound Greenway** along Interstate 90. The goal is to retain a corridor of family farms, State parks, private timberland, national forests, and small towns. For motorists, the greenway will offer scenic views and picnic spots; for hikers and cyclists, a connected system of trails; and for wildlife, a lifeline of forest and stream habitats.

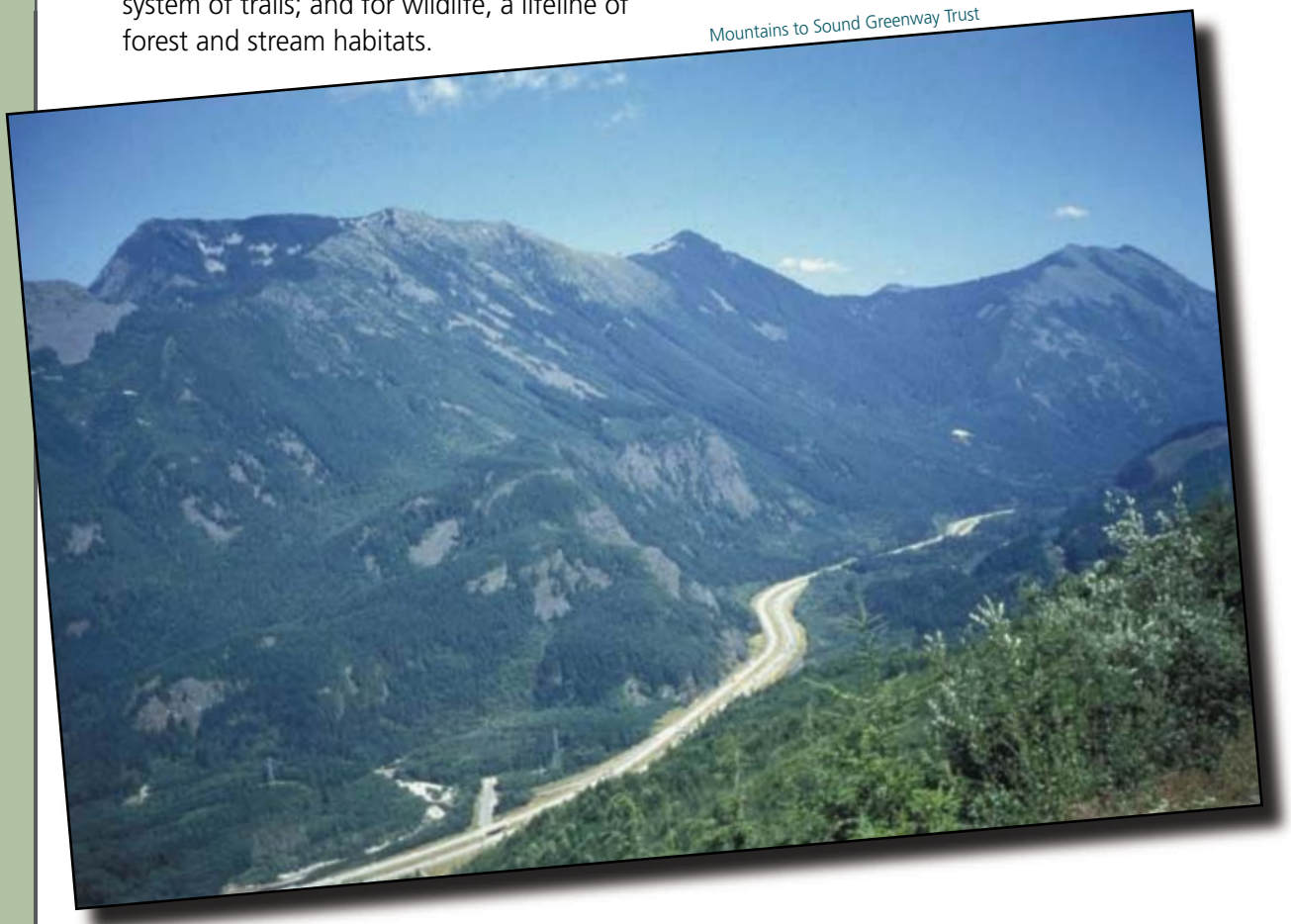
As of 2003, the greenway has protected over 125,000 acres with Federal, State, and county funds, as well as private donations. The Forest Service contributed funds for almost 60 percent of these acres. Using land and water conservation funds, the Forest Service helped protect 125 acres of Snoqualmie Point – this popular spot provides sweeping views of the Cascade Range and Snoqualmie Pass.

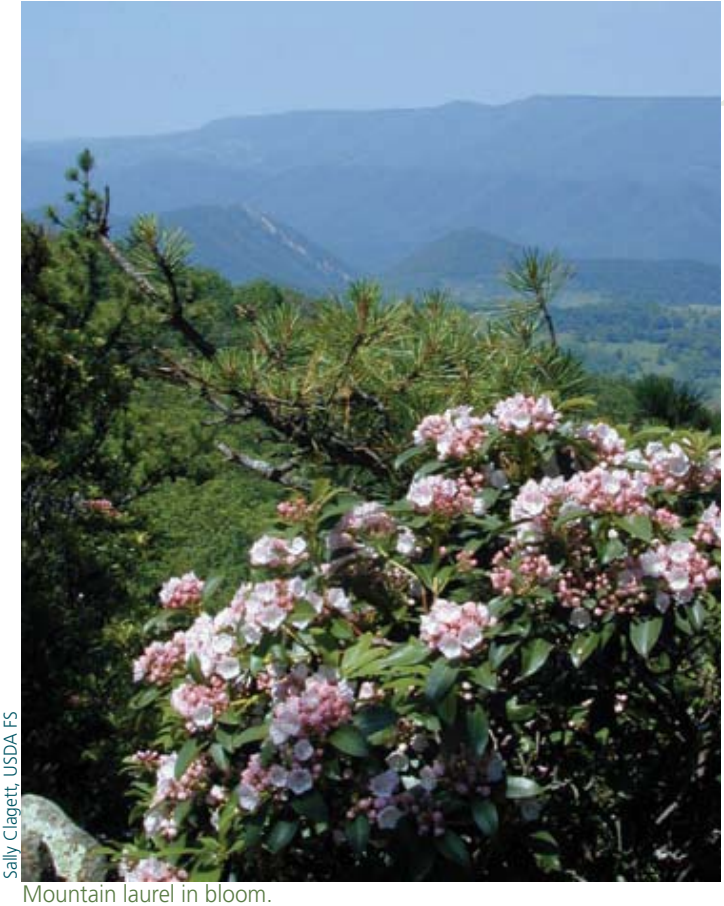
The Forest Service exchanged land with two timber companies to add over 55,000 acres to national forests within the greenway. The Forest Service's Forest Legacy program has purchased development rights from eight landowners to permanently protect over 5,000 acres of private forests. Those acres protected by the Forest Legacy program remain in private ownership as working forests.

Additional information:
http://www.mtsgreenway.org/

Source:
Mountains to Sound Greenway Trust 2001 and 2003.

Mountains to Sound Greenway Trust





Sally Clagett, USDA FS

Mountain laurel in bloom.

6. ECONOMIC BENEFITS OF OPEN LANDS

"A local park ... adds more to the value of the remaining land in the residential area which it serves than the value of the land withdrawn to create it."

– 1919, FREDERICK LAW OLMSTED, LANDSCAPE ARCHITECT

Rural prosperity is tied to the attraction of open space, particularly scenic and protected open space. Economic values also can be measured by assigning dollar amounts to ecosystem services like water delivery. For example, the value of water flowing from national forests is at least $3.7 billion per year (USDA FS 2000).

Real estate values also demonstrate the value of open space lands. Property values are measurably higher when adjacent to open space lands, and are even higher when those lands are permanently protected (Goeghegan 2002).

How much people willingly pay for open space conservation also indicates its value. Where rural areas are growing swiftly and residents see dwindling open space, they no longer take it for granted. American voters pass three of every four funding measures for conserving open space and parks. Since 1997, voters have approved $27 billion in funding in 44 States (TPL 2005).

IFICANCE
EN SPACE

What's at stake financially

Replacing working farms, ranches, and natural areas with residential homes might appear at first glance to be a tax benefit. However, numerous cost of community service studies suggest that costs to service these outlying houses and subdivisions exceed new revenues. Take the example of fast-growing Custer County, Colorado. A 160-acre hay meadow paid $540 in taxes, while a subdivision close to the same size paid $21,000 in taxes. However, the hay meadow demanded fewer than $290 in government services, while the subdivision called for $23,000 in services (Haggerty 2000). On average, residential use costs communities $1.16 for every dollar of tax revenue, while working and open lands only cost $0.36 per dollar (AFT 2002).

Conserving blocks of open space by clustering growth is cost-effective, according to a 2004 Brookings Institution review of the best empirical research literature that analyzes fiscal implications of alternative land development patterns (Muro and Puentes 2004). Research repeatedly suggests that States and localities can reduce their capital expenditures by 10 to 20 percent or more by making sure growth is compact. Nationwide, predictions for government cost savings include $110 billion from 25-year road building costs and $12.6 billion from 25-year water and sewer costs (Muro and Puentes 2004).

Matt Dalbey, EPA

INDEX OF OPEN SPACE SIGNIFICANCE AND THREATS

WATER AND SOIL

- Largest single source of water in the United States: national forests
- Number of people that depend on public drinking water systems from watersheds containing national forests: 60 million
- Cost of acquiring 8,500 acres of wetlands in the Charles River Basin, Massachusetts, to serve as a natural valley storage area for floodwaters: $10 million
- Alternative cost of building dams and levees: $100 million
- Erosion from inadequately controlled construction sites, compared to erosion from agricultural lands: 10 to 20 times greater.
- Compared to forested lands: 1000 to 2000 times greater

USDA FS

ROADS AND WILDLIFE

- Miles of road in the United States.: 4 million
- Number of vertebrates run over by cars each day: 1 million
- Percent of total land area of contiguous United States within 1 kilometer of a road: 83
- Percent of land paved or adjacent to a road of any size: 4.5

USDA FS

INVASIVE PLANTS AND ANIMALS

- Number of invasive plant species in the United States.: 2000
- Acres of national forests infested with invasive weeds: 3.5 million
- Cost to the public of invasive species per year: > $120 billion
- Percent of endangered species at further risk from invasive species: 46

USFWS

Birdwatching at Bosque del Apache National Wildlife Refuge, New Mexico.

RECREATION

- Number of off-highway vehicle users in 1972: 5 million
- Number of off-highway vehicle users in 2000: 36 million
- Number of Americans who watch birds: 71 million
- Birdwatching increase in participation from 1982 to 2001: 236 percent

ECONOMICS

- Amount spent by birdwatchers to further their interest in 2001: $32 billion
- Amount approved by voters in November 2004 to fund parks and open space: $3.25 billion
- Approval rate of park and open space measures in November 2004, in percent: 75
- Number of States passing ballot measures in November 2004: 26
- Amount South Carolina would save in infrastructure costs over 20 years if the State implements higher density housing: $2.7 billion
- Acres of open space saved for every brownfield acre that is redeveloped: 4.5

Sources: USDA FS 2000. TPL 2002. Weiss 1995. Federal Highway Administration 2005. Riitters and Wickham 2003. USDA FS 2001. Pimentel et al. 2005. USFWS 2001. TPL 2004. TPL 1999. Deason et al. 2001.

PARTNERSHIPS FOR COOPERATING ACROSS BOUNDARIES

"We believe the good life has its roots in clean air, sparkling water, rich soil, healthy economies and diverse living landscapes. Maintaining the good life for generations to come begins with everyday choices about natural resources."
NORTH CENTRAL RESEARCH STATION, FOREST SERVICE

(USDA FS 2005)

Every day communities are making choices about the future of open space, whether it is deciding where to place new growth or allowing development to proceed largely unchecked. Wherever new houses are built in rural lands, the impacts are felt in adjacent ownerships and even further away. Taking a landscape perspective and working together are important strategies for balancing growth with open space conservation.

WORKING TOGETHER ACROSS THE LANDSCAPE

Partnerships and communication are vital to protecting open space. As the case studies demonstrate, communities and others across the United States are working together across jurisdictional boundaries to find a sustainable balance between open space and new growth.

Ecological processes are not confined within individual ownerships or county and municipal boundaries, yet land use decisions are made in these local contexts. Strategic partnerships enable coordination and communication across these boundaries to ensure the end result across the landscape does not lead to unintended consequences.

Communication across boundaries helps partners answer questions like, "What kind of growth can we expect? Where do people want to live and why? Where are the wildlife hot spots and migration routes? How can we protect our water? Where are the most appropriate places to build with the least impact on open space values?"

New geospatial technologies are proving very helpful in fostering these conversations by providing digital renderings of how the landscape will look with new growth and by generating data on the potential impacts of different decisions. More accurate and comprehensive maps enable partners to pinpoint areas most desirable for development and critical lands for open space conservation.

Tracy Bignell

Partners with the Blackfoot Challenge in Montana (shown here) have a secret to success: "Focus on the 80 percent that folks can agree on and not the 20 percent that divide us." (www.blackfootchallenge.org)

USING THE MANY TOOLS IN THE TOOLBOX

Citizens throughout the United States appear to be seeking a balance between growth and open space preservation. On one hand, voters regularly approve open space bonds to purchase space. On the other hand, as shown in the recent referendum in Oregon, voters are leery of land use planning that limits property owners' options.

Coming up with innovative solutions takes bridging the divide between private property rights and public desire to keep our open space open. As shown in the case studies, partners can successfully use a variety of approaches to protect open space while preserving the rights of private landowners.

USDA FS

This sign identifies Forest Legacy conservation easement land.

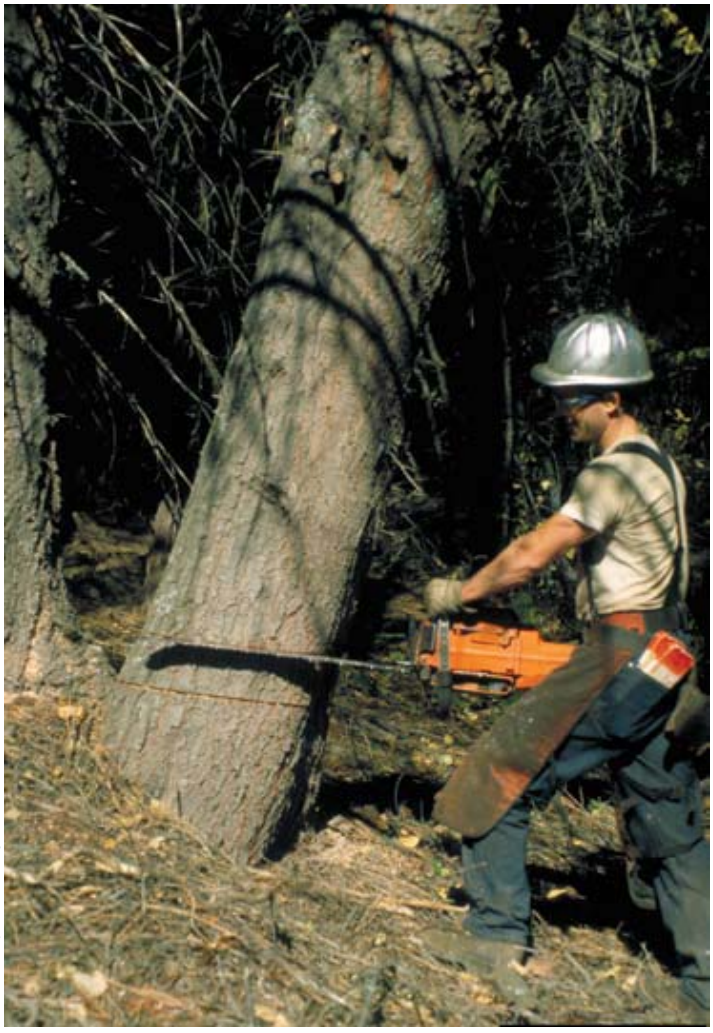
KEY TOOLS INCLUDE:

1. Protect environmentally important land through land acquisition and conservation easements.

In these cases, the purchaser of the land or the conservation easement (usually a government or nonprofit entity) compensates the landowner for the market value of the land or the development rights. Many landowners also choose to donate conservation easements on their land to receive tax benefits.

2. Maintain working lands.

Working lands—such as timberland, farms, and ranches—provide income to landowners, as well as an economic incentive for these individuals to keep their land instead of selling to developers. Encouraging people to buy local products such as food at a farmers market and wood from a local sawmill is one strategy for helping landowners afford to keep their land as open space.



Chris Schnepf, University of Idaho

Buying local wood helps support local jobs and helps landowners keep their forests as forests.

Lynn Richards, EPA

Main streets in rural towns enable neighbors to socialize and attract tourists.

3. Cluster growth in existing or new towns.

Many communities have begun to recognize the environmental and social benefits of concentrating growth within existing towns, adjacent to existing towns, or in new town-like developments. Towns can enable neighbors to socialize, walk to stores and restaurants, and enjoy nature in nearby rural lands. As discussed in the Collier County and Boulder County case studies (see pages 23 and 40), communities can encourage compact growth by establishing transfer of development rights programs that compensate rural landowners while still maintaining these lands as open space.

4. Minimize environmental impacts of existing and new developments.

Innovative design principles and strategies can help maintain ecosystem functions and reduce the impacts of fragmentation and land conversion from developments. For example, developers can incorporate stream buffers into community plans, minimize the use of fences that prevent wildlife movement, and maintain existing trees and native vegetation.

New tools are also under development. A current hot topic is the potential of new markets for ecosystem services. The idea is to develop market-based ways of compensating landowners for the environmental and social benefits that they currently provide to society for free. Carbon markets are one example—under this system companies and others who produce carbon emissions would buy credits from landowners whose forests are helping remove carbon from the atmosphere. Similarly, some municipalities may be able to provide money to landowners who maintain forest land as an alternative to investing in costly water treatment systems. These types of markets would provide revenue streams for landowners and create an economic incentive to maintain forests as forests.

USDA FS

A West Virginia town surrounded by intact forest.

CASE STUDY

Boulder County, Colorado
Growing Existing Towns to Conserve Rural Spaces

Known for its vibrant university town, Boulder County is mostly rural with a mix of prairie farms and mountain forests—including some 137,000 acres of national forest. Agriculture has been a mainstay in this area since the early 1800s. As nearby metropolitan Denver expanded westward toward Boulder, agricultural land gave way to housing developments. More than 80,000 acres of farmland were lost between 1982 and 1997.

To save their rural lands, 10 incorporated towns in Boulder County teamed up to assure that new developments fall within or adjacent to existing towns. Together, they identified lands best suited for development and those best saved as rural lands. This shared vision was formalized through intergovernmental agreements that specify **urban growth boundaries** for each city and town. Within those boundaries, communities encourage compact growth.

Cathy Bryarly, Boulder County

One method of saving land is an innovative program that **transfers development rights** from unincorporated, rural lands. Developers purchase these development rights from rural landowners and then use the rights to build within or near town. Most residents accept compact growth that is simultaneously protecting rural lands.

Open space bonds, routinely passed since 1993, fund land purchases, adding to the livability of communities. The Boulder County Parks and Open Space Department owns or has conservation easements on almost 75,000 acres of open space—of which 27,000 acres are leased to farmers and ranchers.

Additional information:
www.co.boulder.co.us/openspace/

Source: Stewart, R. 2005.

Cathy Bryarly, Boulder County

USDA FS

State and nonprofit partners discuss a Forest Legacy conservation project in Washington that utilized Forest Service funds.

THE FOREST SERVICE AS A PARTNER

The Forest Service is willing and able to engage in partnerships for open space conservation. The agency has resources and expertise to share, and is actively seeking ways to help by:

1. Facilitating communication, partnerships, and collaboration to find local solutions;
2. Bringing information and technical resources to help inform the local planning and management process; and
3. Offering creative and flexible programs to help address open space conservation.

The Forest Service recognizes the rights of private property owners and the lead role of State and local units of government in land use planning. Our intention is to provide useful research and programs, and be an active partner at the table especially in places where we manage public land and have a stake in what is happening outside our borders.

The agency currently has a number of programs and projects to help landowners, communities, and others conserve open space (see page 44). In addition, the Forest Service is engaged in a variety of open space partnerships across the country. Some of these were described earlier in this publication (see The Northern Forest, Chesapeake Bay, Greater Yellowstone, and Washington State case studies). Additional examples are provided below as short vignettes of how the Forest Service can be involved as a partner, stakeholder, or resource.

MISSOULA PUBLIC LAND MANAGERS

In Missoula, Montana, the Forest Service has been actively involved in a partnership of Federal, State, and local land managers. The group originated in the fall of 2004 when the Lolo National Forest Supervisor and Missoula District Ranger met with county commissioners and the city of Missoula's Park Director to discuss the benefits of coming together to discuss common land management issues. Today the partnership includes key people at the Bureau of Land Management, Forest Service, Montana Department of Fish, Wildlife and Parks, Montana Department of Natural Resources and Conservation, University of Montana, local land trusts, and county and city planners and open space staff. In 1 year, the group has produced a useful product—a map with layers depicting major land ownerships, conservation easements, elk winter range, riparian areas, and other significant features. Mapping helps meet the goal of fostering ongoing communication and coordination in this rapidly developing area of Montana. Balancing development with open space and wildlife needs is often the focus of these informal and constructive discussions that take place approximately every 6 weeks (Corday 2005).

J. Corday, City of Missoula

Missoula, Montana

George Aronson

NEW YORK–NEW JERSEY HIGHLANDS

In 1992, the Northeastern Area of the Forest Service conducted a resource assessment of the New York-New Jersey Highlands region with a focus on potential impacts of development trends. This region is a nationally significant area that provides recreational opportunities for some 14 million people per year, contains numerous cultural and natural resources, and is an important source of drinking water for the New York metropolitan area. A bi-State, interdisciplinary workgroup with 120 participants collaborated on the interpretation of findings and developed conservation strategies. The end product spurred local support for open space conservation. As of June 2002, all seven of the Highlands counties in New Jersey had established open space funding programs for land acquisition. In addition, some counties in the region used information from the study to inform comprehensive land use plans and zoning ordinances (USDA FS Dec 2002). The Highlands study was updated in 2002 to stay current with continued population growth and land-use changes.

MISSISSIPPI BASIN – GREEN INFRASTRUCTURE

The Forest Service has partnered with the National Association of Regional Councils to help communities throughout the Mississippi Basin adopt "green infrastructure" approaches to improve water quality and reduce flooding. This work is part of the interagency White Water to Blue Water Partnership Initiative focused on reducing point and non-point water pollution sources to improve the health of the Mississippi River and the Gulf of Mexico. Green Infrastructure is a strategic approach to conservation that helps identify and plan for multipurpose green space networks. This approach has proven especially useful in helping communities manage stormwater through natural solutions.

One example is Topeka, Kansas—in 2000, Topeka with the help of the USDA Agroforestry Center (a joint-venture of the Forest Service and Natural Resources Conservation Service) joined together numerous partners to develop a Stormwater Master Plan. This plan established a stream buffer ordinance to preserve key lands along the city's waterways, a landscaping ordinance to promote the planting of trees in parking lots and on commercial sites, and a stormwater utility fee to encourage residents to reduce the amount of impervious surfaces on their land (City of Topeka, 2002).

USDA FS

Volunteers plant trees in Topeka, Kansas.


USDA FS

Martha Ketelle (center), the White River Forest Supervisor, "built bridges" with local community partners.

WHITE RIVER NATIONAL FOREST – BUILDING BRIDGES PROJECT

In the Blue River Watershed in Colorado, local elected officials, community leaders, and Bureau of Land Management and Forest Service land managers were all feeling the effects of demands on the land from dramatically increasing populations of residents, second-home owners, and visitors. In recognition of their mutual interests in the watershed, local governments and citizens joined with Federal land management agencies to start the Building Bridges Project, with the goal of collaborative land use planning and management. The project involves two counties, six towns, multiple nonprofit organizations, three Forest Service Ranger Districts on the White River National Forest, the Bureau of Land Management, the Northwest Colorado Council of Governments, and Colorado State University. Together, these groups strive to improve communication, establish partnerships, identify shared goals, and encourage local leadership to work with the national forest. To date, the Building Bridges Project has led to grassroots collaboration with the Forest Service in river restoration, wildfire mitigation and forest health planning, and recreation trail development fundraising in the Blue River watershed (NWC 2005).

CONCLUSION
FIVE KEY MESSAGES

The Forest Service and the many partners who made this publication possible hope the highlighted research on open space trends and benefits will generate new discussions and partnerships. The case studies offer practical solutions and inspiration for meeting the challenges of open space conservation in the face of accelerating rural growth. Throughout the document certain themes are reiterated, which can be summed up as five simple points:

1. Open space provides clean water, habitat for wildlife, places to recreate, a rural way of life, and can buffer homes from wildfire.
2. Both public and private lands provide open space benefits.
3. Rural areas with scenic forests, lakes, and public lands are attracting new residents and businesses at record rates.
4. Low-density patterns of rural growth can negatively impact the environment and local economies.
5. Cooperating across boundaries can lead to informed decisions, and can help keep forests and grasslands healthy across the landscape.


USDA FS

Antioch Dunes Evening Primrose

Forest Service Tools for Open Space Conservation

The Forest Service has tools to share in addition to a wealth of staff expertise. The agency can supply useful data and information to local governments, identify areas of special risk or need, and offer programs to help conserve open space and to develop with the least impact on wildlife, water, clean air, and other open space benefits. To stem the tide of open space loss takes working at multiple scales —nationally, regionally, and locally—and tailoring approaches to fit geographic regions.

The following highlights give a sampling of what the Forest Service brings to the table through Research and Development, State and Private Forestry, and the National Forest System.

RESEARCH AND DEVELOPMENT—PROVIDING USEFUL INFORMATION

Forest Service scientists work throughout the country to assess the biological, physical, and social dimensions of managing our Nation's forests and grasslands. Researchers work at six regional research stations and numerous partner universities, and offer a wide range of expertise in natural resource conservation and management.

For general information about Forest Service research and to access the regional research stations, visit: www.fs.fed.us/research

Useful research products range from scientific publications to comprehensive resource assessments. Assessments give an in-depth picture of the consequences of land use changes nationwide, both nationally and regionally.

Some recent assessments include:

2003 National Report on Sustainable Forests
www.fs.fed.us/research/sustain

2000 RPA Assessment of Forest and Range Lands www.fs.fed.us/pl/rpa

Forests on the Edge
www.fs.fed.us/projects/fote

Southern Forest Resource Assessment
www.srs.fs.usda.gov/sustain

New York-New Jersey Highlands Regional Study: 2002 Update
www.fs.fed.us/na/highlands/highlands

The Changing Midwest Assessment
www.ncrs.fs.fed.us/IntegratedPrograms/lc/

Southern California Socioeconomic Assessment
www.fs.fed.us/psw/publications/documents/psw_gtr187/gtr187index.html

The Forest Service research branch also conducts an ongoing forest census that provides data and maps about current forest conditions and trends. This information can be accessed at: www.fia.fs.fed.us

STATE AND PRIVATE FORESTRY—OFFERING PROGRAMS TO CONSERVE OPEN SPACE

The Forest Service offers a number of programs to help landowners and communities conserve and manage forests. These programs are administered in partnership with States, with the local contact typically being staff from State Forest Service agencies. Relevant programs include:

The Forest Legacy Program
This program purchases land and establishes conservation easements to protect environmentally important forests.
www.fs.fed.us/cooperativeforestry

The Forest Stewardship and Forest Land Enhancement Programs

These programs provide technical and financial forestry assistance to landowners to help them develop and implement stewardship plans. The plans help landowners manage their forests sustainably so their open space continues to provide multiple benefits to the public.
www.fs.fed.us/cooperativeforestry

Urban & Community Forestry

This program provides assistance to communities to help them manage forest resources within cities and towns.
www.fs.fed.us/ucf

State and Private Forestry also works in partnership with others to develop useful resources and initiatives. A sampling of these efforts include:

Green Infrastructure

The Forest Service, in partnership with The Conservation Fund, provides training and information on green infrastructure. Green infrastructure is a strategic approach to conservation that helps communities design and protect networks of green spaces.
www.greeninfrastructure.net

Forest Taxation

A network of Federal, State, and university experts provide training and outreach to landowners and professionals on the tax code and estate planning. This information helps landowners and their children keep their land as open space.
www.timbertax.org

PrivateForest.org

This website is produced in partnership with the Nature Conservancy and provides information and ideas to help landowners manage their forests.
www.privateforest.org

NATIONAL FOREST SYSTEM—BEING A GOOD NEIGHBOR

The Forest Service manages over 190 million acres of public land. In some counties, these lands comprise upwards of 80 percent of the land base. A strong relationship between local communities and national forest staff is vital. Development trends and local land use plans have a direct impact on the public land and the Forest Service's ability to manage this land for recreation, wildlife, and wildfire protection. Similarly, Forest Service decisions about use of the national forests have direct impacts on the quality of life for local residents and economic opportunities.

The Forest Service strives to be a good neighbor and to work in partnership with communities and landowners along national forest boundaries. If you are interested in working with a nearby national forest, contact the forest supervisor or local district ranger. Ideas for how communities and national forests can work together include:

- Communicate! Share information about current and potential land use decisions. Include each other in planning sessions, whether it is for forest plans or local comprehensive plans.
- Make use of local Forest Service staff's biological and resource management expertise to help identify conservation needs and priorities.
- Jointly develop community protection plans to reduce potential loss of life and property from wildfires.
- Seek funds through the Land and Water Conservation Fund to add critical open space to the national forests, and to buffer the public land from encroachment.
- Consider the impacts of public land decisions on the local economy and subsequent spin-off impacts on private open space.

For contacts and other information about your local national forest or national grassland, visit www.fs.fed.us and search under "Find a Forest or Grassland."

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