

# Loss and Fragmentation of Open Space

## What is loss of open space?

Loss of open space occurs when forest and rangelands are divided into small isolated parcels, most commonly by subdivision and development. This conversion of forest and rangelands from rural to urban use increases landscape fragmentation and decreases ecosystem function. Loss of open space poses a threat to the health and sustainability of ecosystems, viability of natural resource-dependent communities, and character of rural, suburban, and urban communities. In recent speeches, the Forest Service Chief identified loss of open space as one of four threats to the nation's forests and rangelands. The accelerated pace of subdivision and development of lands, both bordering national forests and on the fringe of communities, results in environmental, social, and economic impacts. These include reduced land base for forest products, limited outdoor recreation opportunities, and environmental services (benefits provided by a functioning ecosystem such as clean water and healthy vegetation).

Loss of open space is increasingly important. Citizens are concerned about the accelerating pace of land-use changes surrounding their communities and want to preserve landscapes while creating liveable areas. The causes and effects of decreasing open space differ regionally across the country but the issue is critical to all communities—rural, suburban, and urban.

## Trends and current status of land use conversion:

Combined recent trends have resulted in an increased public awareness of land-use conversion and the associated loss of open space. Though the types and affects of conversion and development vary regionally, ubiquitous changes and the accelerated pace of development have drawn national attention. The Forest Service's Research and Development division and academic researchers have defined trends in land use conversion and parcelization throughout the United States.

The United States is predominantly an urban nation. In 2000, more than 80 percent of the population lived in urban areas, the urban population was growing by more than 2 million people per year, and rural land was being converted to urban uses at a rate faster than 3 million acres per year (Macie and Hermansen, 2002).

Conversion of forest and rangeland is increasing faster than population growth. Between 1945 and 1992, about one-half acre was converted to urban uses for each new person. From 1992 to 1997, the conversion rate more than doubled, with 1.2 acres of undeveloped land converted for each new person. (DeCoster 2000).

The conversion of private larger acreage parcels from farming, ranching, and forestry to urban use has accelerated in recent years. Data from the National Resource Inventory (USDA Natural Resources Conservation Service, 1997) indicate that the average rate of conversion of private forest lands was 426,000 acres per year from 1982 to 1987 and increased to 795,000 acres per year from 1992 to 1997. These lands are no longer functioning as forests either economically or ecologically.

Loss of open space is a national concern, but the nature of the threat varies across the country (USDA Natural Resources Conservation Service 1997). Near urban centers, the issue is urbanization of previously rural areas, which affects community character and ecological stability. In the more sparsely populated West, the issue is the subdivision of larger landscapes of farms and ranches into “ranchettes” smaller than 40 acres. While visible differences exist between the two types of forest and rangeland conversion, both have social, economic and ecological consequences.

## **Urbanizing landscapes**

As cities and suburbs spread into previously agricultural landscapes, loss of open space near national forests and other conservation lands occurs. This issue dramatically affects the management of urban national forests, which are loosely defined as national forests within a one-hour drive for one million people.

Much Forest Service research on urbanization has focused on the Midwest, East Coast, and, most recently, the Southeast through the Southern Forest Resource Assessment (Wear and Greis 2002). This research defines the accelerated nature of land conversion in the United States, in terms of location, ownership, and parcel size.

Rates of forest loss were most rapid along major roads and interstate highways and near urban centers in the South (Wear and Greis 2002) and near major recreational areas (such as national forests and parks) nationwide. Areas that experience high recreation demands are typically developed for tourism, and eventually become urban-interface areas (Macie and Hermansen 2002).

The number of Southern landowners involved in agriculture and forest products is decreasing, as are the sizes of land parcels being held and sold (Wear and Greis 2002). Many of the 5 million owners of forestland in the South have smaller parcels than in the past. Even in areas of the South that remain predominately rural, there is a change in size of parcels being sold.

Increasing forest conversion on the urban fringe has social, economic, and ecological impacts. Fragmented forests and rangelands may be too small to sustain viable populations of certain wildlife species, including many neotropical songbirds. Economic pressure has compelled owners of large land parcels to sell all or part of their lands for subdivision and development. Subdivision raises land values, taxes, and the costs for local governments, thus undermining rural land uses and contributing to further conversion of forest and rangelands. These changes can have a profound social impact and forever alter the character of rural, suburban, and urban communities.

## **Conversion of private woodlots and rangelands**

In rural areas, parcelization of large landscapes formerly in farms, ranches or forested plots is occurring at a frantic pace. In the West, large ranches are interspersed with public land. Public and private rangelands in the West have long interacted both economically and ecologically. Generally speaking, the lowlands surrounding rivers and streams are privately owned, and the high elevation summer range and mountainous regions are in public ownership, primarily National Forests and Grasslands (Sayre 2003).

Cattle move between winter and summer range, and so does the wildlife. Thus, as large ranches are sold into smaller and smaller pieces, the associated conversion of land use impacts public land management goals such as providing wildlife habitat. Many landowners depend on National Forest grazing permits to provide summer high-elevation grazing and to make their ranches economically viable. Public lands management affects the economic viability of private forest and ranch operations (Grippe and Thomas 2002). Many ranchers continue to operate despite financial difficulties because of non-economic factors such as sense of place, attractiveness of lifestyle, family values, and tradition (Rowe et al 2001).

A number of factors influence the selling and subsequent subdivision of ranchlands, including an aging landowner base, rising property taxes and property values. A reduction in number or increase in price of federal grazing permits can also cause ranchers to go out of business.

## **What is the role of the Forest Service?**

Loss of open space is an issue that could be considered outside of the Forest Service's traditional role in land management. However, forest and rangeland conversion is an issue of increasingly national importance, and the Forest Service and other public lands management agencies can assist and advise community and regional efforts. Though essentially affecting private landscapes, land use conversion increasingly occurs at the border of public lands. Increasing parcelization and changes in land use affect national forest boundaries, community character, and the landscape of America.

Each division of the Forest Service has a unique role in addressing forest and rangeland conversion effects. (1) Research and Development assists with regional assessment and discerns trends in land use. (2) Staff on National Forests work in partnership with affected communities and landowners along national forest boundaries as well as engaging in land acquisition and exchange to consolidate small parcels within and near National Forests boundaries, thereby reducing habitat fragmentation. (3) State and Private Forestry, through their Forest Legacy, Urban and Community Forestry, and Land Stewardship programs, provides tools and assistance to assist state natural resources professionals, communities, and individual landowners. (4) International Programs seeks to utilize Forest Service expertise in addressing land conversion problems in other countries. In the past, these divisions worked separately but the new emphasis is to combine their expertise with a focus on helping communities address the "threat" of open space loss.

## **Current policies of the Forest Service**

Current Forest Service policies and programs are intended to reduce conversion of forest and rangeland that leads to fragmentation of rural landscapes by subdivision and development. The mission of the Forest Service is to "sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." In order to sustain the nation's forest and grasslands, the Forest Service must use its technical and organizational expertise to help states and communities address

issues that affect forest and rangeland health beyond the boundaries of national forests. This goal is contained Forest Service strategic plan (USDA Forest Service, 2003) and defined there by two objectives: “improve the sustainability of the Nation’s rural and urban forests” and “maintain the environmental, social, and economic benefits of forests and grasslands by reducing their conversion to other uses.” These objectives will be met through a combination of focused research, shifts in land allocations on National Forest lands, landowner and community assistance programs, and exchanging ideas and professional assistance with other countries.

## **International context**

Loss of open space and other “threats” to the health of forest and rangelands cross more than National Forest or public lands boundaries. They also cross international boundaries. Increasing population and demand for resources has led to increasing land use conversion worldwide, especially in tropical regions.

Forest loss and land conversion have a great impact on each country’s ability to maintain interior forests and functioning ecosystems for supporting wildlife species and maintaining water quality. Increased road building and intensive agriculture through or adjacent to undeveloped forests creates access for illegal logging and the conversion of forest to other land uses. Small management parcels complicate cooperative management efforts on the watershed and landscape level. In addition, land-use changes commonly lead to social conflict, internationally as well as locally.

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