



## **Loss of U.S. Forest Land**

### **A Position Statement of the Society of American Foresters**

Originally adopted by the SAF Council on December 5, 2004 this position statement was revised and renewed by the Council on December 5, 2009. It will expire on December 5, 2014 unless after subsequent review it's further extended by the SAF Council.

### **Position Summary**

The loss of forested land is the result of numerous individual decisions, but those decisions are influenced strongly by the financial value of alternative land uses, as well as by public policy and institutional factors. SAF supports the use of a variety of tools by local governments, landowners, and individual citizens. Tools that can help conserve forestland include: 1) an appropriate role for forests, forest management and carbon storage in harvested wood products in addressing climate change, 2) land-use policies that recognize the multiple values of forests and respect the rights and responsibilities of forest owners, 3) forest taxation systems that encourage long-term investment in sustainable forest management and do not encourage parcelization, 4) public and landowner education programs about the importance of maintaining forests, and 5) voluntary agreements, such as conservation easements, that encourage active management of forests while decreasing land use conversion.

Over the past 50 years, forestland has been developed increasingly for housing and associated infrastructure. SAF believes that much of the permanent loss of forestland occurring today is avoidable and often the result of the high financial value of alternative land uses in some areas, as well as ineffective land use policies and limited economic incentives to own and manage forestland. SAF recognizes the importance of forestlands to the citizens of our local communities and states, and to the nation as a whole. SAF urges citizens and policymakers at all levels of government to recognize the essential role of forests in providing watershed and water quality protection, wildlife habitat, outdoor recreation opportunities, and the forest products that contribute to our social and economic well-being.

### **Issue**

Conversion of forestland to other land uses has many undesirable ecological, social, and economic consequences. The gradual, but largely irreversible, fragmentation and parcelization

of extensive forested landscapes into smaller, disconnected tracts creates an expanding urban-forest interface, leading to increased risk of damaging floods and catastrophic wildfire. The US Forest Service projects that within the next 50 years, more than 50 million acres of forestland will be converted to developed uses (Alig et al 2004). Permanent conversion of forests often leads to increased runoff and sedimentation, higher peak stream flows, loss of riparian vegetation, and increased stream temperatures, all of which lead to long-term adverse effects on water quality. In addition, forestland conversion results in direct loss of carbon storage and wildlife habitat, including the habitats of migratory birds and many threatened or endangered species, and adverse effects on aquatic habitats and fish, particularly cold-water fish such as trout, salmon, and other anadromous species. Conversion and fragmentation of forestland also decreases the outdoor recreation opportunities available to our growing, increasingly urbanized population.

Once forests are fragmented or parcel size is reduced, the remaining forested tracts may become too small to support ongoing investment in forest management. Furthermore, permanent conversion of forestlands to other land uses ultimately reduces our nation's self-sufficiency in the production of forest products, thereby increasing our dependence on imports of wood and paper products from other countries (Bosworth 2003). Conversion of forested land also reduces the ability of the United States to sequester carbon and mitigate the adverse effects of climate change.

## **Background**

### ***Trends in forest land area:***

After two centuries of decline, the area of US forestland stabilized about 1920 and today is about two-thirds what it was in 1600 (USDA/Forest Service 2008a). Through much of the 20th century, forest land lost to agricultural land conversion and urban expansion was offset by natural regeneration of marginal or abandoned agricultural land and by government-sponsored reforestation and afforestation programs, particularly the Soil Bank, Forestry Incentive, and Conservation Reserve programs (Alig et al, 2003; Wear and Greis, 2002). It should be noted that, although the total area of forestland has been relatively stable, the forests being lost to alternative land uses often have much higher values, both ecologically and economically, than the marginal agricultural lands that are moving into forest.

Nationwide forest inventory data now show that the nation's forestland area has decreased slightly since the 1960s. In the past, much forestland that was converted to agriculture later reverted back to forests. In contrast, today forest lands are now being permanently converted to residential, commercial, and other non-forest land uses. The South has experienced an aggregate net loss of forest land of almost 14 million acres since 1963, a result of both urban expansion and some conversion of forests to agricultural land. On the Pacific coast, the reduction in forestland acreage since the 1960s represents 4.4 million acres (USDA/Forest Service 2008a).

Development pressures affect small private landowners, many of whom are increasingly under financial pressure to sell their parcels for development. Fourteen percent of family forest owners are considering selling or transferring some or all of their land in the next five years (Butler 2007). One recent study projects that by the year 2050 the area of forestland in the United States will decrease by 23 million acres from the 1997 level (Alig et al. 2003).

The acreage of industrial plantations has increased dramatically in the past few decades as intensively managed plantations become more profitable than forestry operations in natural forests. Since the mid-1990s, integrated forest product companies (industrial landowners) have sold most of their land and these large-scale timberland ownerships have been restructured into Timber Management Organizations (TIMOs) or Real Estate Investment Trusts (REITs), which are primarily managers and holders of timberlands for institutional investors. This shift occurred, in part, due changes in the US tax code. These changes have led to the widespread sale of productive timberland, including subdivision of land into small parcels for development, increasing forest fragmentation across the United States (Binkley 2007).<sup>1</sup>

### ***Ecological Effects of Loss of Forest Land:***

#### **Watersheds and water quality**

It is well documented that forested watersheds provide high quality water (Black 2004). Loss of protective forest cover due to changes in land use can result in more rapid runoff following storm events, higher peak stream flows, increased soil erosion, reduced groundwater infiltration, stream channel instability, and increased sedimentation. Such adverse changes in watershed hydrologic conditions also degrade water quality for human uses and aquatic and fisheries habitats (Verry 2004, Ice et al. 2004+).

#### **Wildlife habitat**

Forests provide essential habitat for numerous species of birds and mammals, including many threatened or endangered species. Permanent loss of forest cover results in a reduction in available habitat and in habitat fragmentation, creating conditions unsuitable for bird and mammal species that require large, contiguous forested landscapes (Fahrig 1999). Wildlife and bird species displaced by a loss of forestland often cannot successfully relocate to other forests, as other suitable habitat is typically already occupied by the same species. Forest fragmentation also often results in proliferation of invasive plant species. Increased recreation access to remaining forest patches can lead to an increase in poaching, affecting the populations of resident species.

### ***The role of forests in mitigating global climate change:***

Forests play an important role in mitigating the effects of climate change. Through photosynthesis trees absorb carbon dioxide from the atmosphere and store carbon in their

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<sup>1</sup> The TIMOs and REITs often have contractual obligations to supply timber to the mills of the former industrial timberland owners, but those contractual obligations usually have term limits and also are not attached to the land title (so the land, in many cases, can be subdivided and sold to new owners without contractual timber supply obligations).

boles, branches, leaves, and roots, as well as forest soils. A substantial amount of carbon also remains stored in harvested forest products, including furniture and building materials (Skog 2008). In the United States, forest ecosystems and forest products represent a significant carbon dioxide sink, offsetting approximately 12 percent of US greenhouse gas emissions from industrial, commercial, and transportation sources (Birdsey et al. 2006). Forests can have an important effect in the mitigation of global climate change (SAF 2009).

### ***Socio-economic effects of loss of forest land:***

#### ***Fragmentation/Parcelization***

Fragmentation is the subdivision of large, contiguous forest areas into smaller, disconnected tracts through land use conversion. Parcelization is the subdivision of a large contiguous tract owned by a single owner into tracts owned by multiple owners. Both fragmentation and parcelization increase the number of individual owners and the cost and complexity of forest management. Private landowners with larger holdings typically have timber production as at least one objective, if not as the primary objective. About 73% of family forest owners with holdings of more than 405 hectares (1,000 acres) have commercially harvested trees from their land. As parcel size diminishes, so does the likelihood of commercial harvest. In the one to nine acre size class only 16 percent of owners have commercially harvested trees (Butler 2007).

#### ***Expanding wildland-urban interface***

The fragmentation of forestland results in the expansion of the wildland-urban interface and an increased risk of catastrophic wildfires, often accompanied by loss of human life and extensive property damage. Expansion of the wildland-urban interface substantially increases the complexity of fire control, particularly in the fire-prone ecosystems of the Western states (SAF 2004).

#### ***Reduced self-sufficiency in forest products***

The US is a currently a net importer of forest products. The ratio of wood imports to domestic harvest in roundwood equivalents has increased from 14 percent in 1965 to 38 percent in 2005 (or 5.8 billion cubic feet, 164 million cubic meters) (Howard 2007). Unless offset by an increase in plantations or improvements in forest productivity, increasing forest conversion will result in increased imports of forest products, contributing to the nation's unfavorable balance of trade.

#### ***Reduced forest products manufacturing and employment***

In 2006, the US solid wood industry employed about 536,000 people; the pulp and paper industry another 414,000. This amounted to 1.1 percent of all U.S. jobs and 7.1 percent of manufacturing jobs (USDA/Forest Service 2008b, p.92). Permanent loss of forestland to other land uses could result in a long-term reduction in sustainable timber harvests, whether at a local, state, or regional level, with reduced availability of raw materials needed by producers of wood and paper products and with a resulting loss of manufacturing capacity and employment in these industries.

### *Reduced outdoor recreation opportunities*

Throughout the 20<sup>th</sup> century, demand grew for many traditional types of outdoor recreation, including hunting, fishing, camping, and hiking. Participation in outdoor recreation has continued to grow since the 1980s, with particularly strong growth evident in bird watching, hiking, and backpacking (USDA-FS 2007). As the size of forest parcels decreases, private landowners may be less likely to allow recreation and hunting on their land. As forestland is converted to development, citizens must travel greater distances to relax in a forested landscape. Often they must choose alternative forms of recreation.

### *Connection to nature*

Citizens living in suburban communities and smaller towns, where farm and forestlands were a normal feature of the nearby landscape, are now surrounded by new subdivisions and shopping malls, removing the natural environment from their daily lives. As additional forestland is permanently converted to non-forest land uses, fewer citizens will be able to enjoy physical and spiritual renewal from nearby forested landscapes.

### ***Factors and tools that can help maintain forests as forests***

The following elements and policy tools are important to reduce the loss of forests:

1. Maintaining a domestically and globally competitive forest industry that enhances the economic incentives to maintain forests as forests.
2. A tax code that recognizes the long-term nature of investments in forest management and does not encourage parcelization.
3. Local land use regulations that recognize the ecological and economic values of maintaining productive forestland, as well as the rights of forest landowners.
4. Encouraging voluntary public and private acquisition of conservation easements that provide for maintaining forests as forests.
5. Public and private programs designed to compensate landowners for the ecosystem services of forests (e.g., Conservation Reserve Program, carbon credits, etc.)
6. Public and landowner outreach and education on the multiple benefits of forests.

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