Seeing the Houses through the Trees: *The Wildland-Urban Interface in the South*

by Annie Hermansen-Báez

Forests literally cover the southern landscape. My first impression of the southern landscape came from a descent into the Gainesville, FL, airport back in 1995. "Where are the houses?" I wondered. There were so many trees that I only caught a glimpse of rooftops scattered here and there. Growing up on the central coast of California, the concept of living in a forest within city limits seemed foreign. I was familiar with cities that had houses with trees scattered here and there, not an entire city within a forest!

Not surprisingly, forests cover more than 60 percent of most Southern States. These areas where homes and forests or other natural areas intermingle are often referred to as the wildland-urban interface (WUI). In these WUI areas, there are a host of issues and challenges for natural resource professionals, policymakers, and homeowners alike.

The Changing Wildland-Urban Interface

The wildland-urban interface makes up a large part of the South. A team of scientists from the Forest Service and the University of Wisconsin, Madison discovered this when they mapped the WUI using 2000 U.S. census data, landcover maps, and a definition of the WUI based on fire risk assessments. They found that while overall, just 9 percent of the land area of the continental United States is classified as WUI, States in the South ranged from 5 up to 41 percent, with an average of 21 percent classified as WUI. "In the South we have much more intermixing of land uses and a higher degree of parcelization and fragmentation of forests than other regions of the country," says **Ed Macie**, team leader for the **SRS Southern Center for Wildland-Urban Interface Research and Information**.

The wildland-urban interface will continue to grow as the South's population grows: population increased by 14 percent between 1990 and 2000, and is expected to increase another 24 percent between 2000 and 2020. According to the 2000 U.S. census, of the 100 fastest growing counties between 2003 and 2004, 60 were located in the South.

The demographics of the South are also changing. Hispanic, African American, and other minority populations are growing rapidly and by 2020, are projected to make up close to 40 percent of the South's population. The population is also aging. According to the 2000 census, the number of people aged 65 and over will more than double between 2000 and 2030. Different ethnic, cultural, and age groups have different preferences for how natural resources are managed and what kinds of recreational opportunities are provided. "A lot of research shows that blacks and Hispanics prefer more developed recreation sites and recreational opportunities involving larger groups—extended family and friends—compared to whites," says **Cassandra Johnson**, SRS social scientist.

Undoubtedly the South is undergoing tremendous change—land use and demographic shifts—with no end in sight. These changes are having and will continue to have dramatic effects on the sustainability of forests and other natural areas. Forecasts show the southern region losing 12 million forest acres (8 percent) to developed uses between 1992 and 2020, with an additional 19 million forest acres forecast to be converted between 2020 and 2040.

This loss of forest area and the fragmentation of remaining forests are the most obvious effects of urbanization and other human activities on forests. We are indirectly affecting forests through activities such as introducing nonnative invasive species, polluting the air, reducing biodiversity, and increasing soil erosion. "Both direct and indirect effects on forests reduce our ability to use the forest for ecosystem goods and services such as purifying water, providing recreational opportunities, and aesthetics," says **Wayne Zipperer**, SRS research ecologist.

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Land use policy and planning decisions have an immense influence on natural resource issues in the WUI. Lack of vision and little or no planning and regional coordination for comprehensive growth management are major factors contributing to interface problems across the South. Current land use policies are difficult to implement across Federal, State, and local jurisdictions, which often overlap. As a result, various levels of government make land use decisions independently of and often in conflict with each other. Additionally, in many Southern States the local governments have limited authority to plan and control development. Zoning and land use plans are often not enforced and waivers are routinely granted. "We need to understand more about how land use policy affects natural resources and the role of natural resources in mitigating the unintended consequences of urbanization," says Macie. "This understanding will enable local policymakers to make decisions that will support nature's role in providing clear air and water, and in creating more livable environments."

With Benefits Come Challenges and Risks

Hurricanes are another major risk affecting the South. Most notably, Hurricane Katrina hit the Gulf Coast in 2005 with maximum sustained winds up to 125 miles per hour, becoming the costliest and one of the deadliest natural disasters in U.S. history. Besides causing great risk to humans and property, hurricanes can have devastating affects on forests in urban and urbanizing areas. Urban forest losses from hurricanes ranged from 11 to 38 percent between 1992 and 2004. Although falling trees are thought to be a big safety concern for residents in areas affected by hurricanes, only about 10 percent of the damage to homes comes from fallen trees; trees, especially those in clusters, may actually shelter homes from the wind if they are healthy and wind resistant. Large amounts of downed woody debris from hurricanes can pose a fire risk. We still have much to learn about the effects of hurricanes and other natural disturbances on natural resources and the ecological services they provide, as well as the value of lost ecological services.

Managing for wildlife is also far more complex in the interface than in rural areas. Many of us enjoy viewing wildlife and go to great lengths to attract wildlife near our homes. Until, that is, they munch on those flowers we just planted in our backyard or dig up the newly planted tomato plants in those planters on our deck. Managing wildlife in these interface areas brings many challenges and opportunities. Resolving nuisance wildlife conflicts, providing opportunities for both hunting and viewing of wildlife, and conserving, managing, and restoring wildlife habitat in the face of mounting development pressures are but a few.

Recreation planners face the challenge of providing high-quality experiences while sustaining the quality of natural resources on an ever-shrinking land base. They must also be able to communicate with the wide range of recreation users who have different cultural backgrounds and value systems from what has been

Although a large part of the South is still forested, much of this forest land is now fragmented by development. *(photo by Rodney Kindlund, USDA Forest Service)*

the norm. As forest recreation demand increases, there is more potential for conflict between different recreation user groups using the same areas. All-terrain vehicle riders, for example, are likely to clash with hikers over how backcountry areas should be used.

Urbanization is the most pressing land use issue affecting water quality and quantity. The growing population of the South is demanding ever-larger water supplies. With this growing demand comes the challenge of assuring fair allocation of water supplies for both human populations and for wildlife and aquatic species habitat. Nonpoint-source pollution is also a major concern; sources are widely dispersed across the landscape and are difficult to pinpoint or regulate.

A New Way of Doing Business

In the South, over 90 percent of forested land is held by nonindustrial private land owners. The majority of these owners (94 percent) own less than 100 acres. Many are new owners who bring with them diverse perceptions of forestlands and how they should be managed. We can no longer assume that forest landowners see timber as the primary reason for owning forests; owners of small forests tend to emphasize amenity, identity, lifestyle, and ecological reasons for forest ownership. "Income from forest products is important, but way down the list," says **Bruce Hull**, professor at Virginia Polytechnic Institute and State University and SRS collaborator. "Interface landowners depend on forest products for less than 5 percent of their income."

Additionally many of these landowners are politically connected and represent a powerful force affecting funding and institutional policies. As natural resource professionals, we need to adapt to this changing clientele. "Many new opportunities exist for forestry and foresters," says Hull, "but we need to think differently because our clients and our economy are now different."

To do this, we need to apply new skills and tools. Techniques for managing forests on smaller scales and for multiple objectives are important in the fragmented interface. Many threats to forest health, such as southern pine beetle infestations, can only be properly controlled with coordinated management among multiple owners. Information about how to protect trees during construction and land development and how to work as a team with the various professions involved is also important for foresters working in areas undergoing land use change.

Foresters can no longer expect to just work alone in the woods. The ability to communicate effectively is an increasingly important part of a natural resource professionals' job. The ability to translate forestry and other natural resource information into terms the public is familiar with is important for building understanding and acceptance of natural resource practices and environmental processes. "People working in the interface need people skills: patience, problem solving, listening, and a process of doing business that is transparent and empowering," says **Martha Monroe**, professor at the University of Florida and SRS collaborator.

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Human Influences on Forest Ecosystems: The Southern Wildland-Urban Interface Assessment

In 1998, Florida wildfires demonstrated the complexities of natural resource management in the wildland-urban interface (WUI). Shortly after these fires, the Chief of the Forest Service conducted a review of the South and identified the WUI as one of the main challenges for the Forest Service.

In response, the Southern Research Station and the Forest Service's Southern Region, in cooperation with the Southern Group of State Foresters, conducted an assessment to identify and better understand factors driving social and ecological changes within the WUI, as well as the consequences of such changes. The resulting assessment, *Human Influences on Forest Ecosystems: The Southern Wildland-Urban Interface Assessment,* was completed in 2002. The purpose of the assessment was to provide the foundation for establishing an interdisciplinary program of research and technology transfer within the Forest Service.

The assessment can be ordered from the InterfaceSouth Web site at: www.interfacesouth.org/products/publications.html?results=10.

Growing population in the South means that wildland-urban interface issues will only grow more pressing. *(photo by Larry Korhnak, University of Florida)*

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Land will continue to be developed, so we must be aware of the changes brought about by urbanization and understand the diverse issues, challenges, and opportunities in the changing environment of the wildland-urban interface. In the South, the area of the country where population is growing most rapidly, trying to understand—let alone manage—the future of forests can seem overwhelming. The good news is that people across the South—from agencies, nonprofits, industry, individual volunteers—are coming up with ways to overcome interface challenges with unique solutions.

In the following pages, we will look at what SRS researchers and their collaborators are doing to predict and reduce the risks of wildfire, help resource managers chart where the smoke from prescribed burning goes and where arsonists are likely to strike, determine the relationship between land use policies and forest canopy, and understand the effects of urbanization and natural disturbances such as hurricanes on natural resources. You will also learn about training and outreach programs that are helping natural resource professionals and others to be better prepared to work in the interface.

On a recent flight out of Gainesville, I peered out of the window at the forests interspersed with homes and businesses and thought to myself, "THERE are the houses!"