CHAPTER 31

Conclusions

James G. Dickson'
US Forest Service
Southern Research Station, Nacogdoches, TX

In this chapter I recapture some of the salient points of the book, and offer some recommendations. Most of the material is taken from individual chapters of the book and readers are referred to appropriate chapters for more detailed information.

PEOPLE

Since arriving in the South over 10,000 years ago, humans have had profound effects on the land and its wildlife. In recent years these impacts on southern ecosystems have increased as a direct result of the human population; and its growth and influence on natural resources. About 100 million people now live in the South. In the last 25 years, the human population of South Carolina. Georgia, and Florida has about doubled. This burgeoning human population has tremendous demands on and profound effects on the land. People need places to live, and food and fiber; but also want wilderness and wildlife.

The very nature of the people is changing too. What once was a rural population is now an urban and suburban population. More than two-thirds of the people reside in metropolitan areas in each of the 13 southeast-

'Current Address: School of Forestry. Louisiana Tech University. Ruston. LA

In the South today the human population is burgeoning and predominantly urban (T. Ho/brook).

ern States, except Kentucky, Mississippi, and Arkansas (U.S. Dep. Commerce 1995). Over the last several decades, populations in some rural counties have even dropped. Southerners who once were closely tied to the land and its capability, find themselves out of touch with the land. Although this trend probably will continue, many people still have a heritage and ties to the land. Hunting still is important to many who live in the South as well as to the region's economy. For example, about one-third of the nation's duck hunters and almost half of the total number of ducks harvested comes from the South. Although fewer people hunt today, the opportunity to hunt still is important. In addition, a wide array of southerners are interested in wildlife, and enjoy related activities such as wildlife viewing (See Chapter 30, Wildlife Recreation).

Also, our technological advances have increased our capacity to affect southern forest systems. The axe. fire brand. and plow are virtually gone. Now, large-scale changes to the landscape are being wrought by machines that dig coal, construct shopping malls, and dam rivers to form reservoirs. Also, there has been misuse of some chemicals, such as pesticides. And the long-term effects of some effluents remain largely unknown.

LAND

The southern landscape always has been in a state of flux; changing in response to both natural and anthropogenic forces. Forests have dominated the South for thousands of years, although they have undergone profound changes. During the glacial period southern forests underwent drastic changes in response to climatic shifts. Historically and recently, wind storms, insects, and diseases have played a significant role in shaping these forests. And humans have substantially changed the landscape. For example, the once vast cypress

forests were cut to provide decay-resistant wood for houses, boats, and other products. The once extensive bottomlands of the Mississippi Valley were cleared and replaced by row crops. The forests of the South today have been molded by a wide variety of forces for a very long time.

Data from the last half century have shown that the total area of forestland in the South has remained relatively constant. Although some land that was cleared is being restored to forest, the future forest land base probably will decrease with the increased demands of a growing human population. Also, even with the increases in young pine plantations, southern forests have aged somewhat in the last 50 years. However, with increasing utilization of young hardwoods and pines, aging of southern forests is not expected to continue, except on public land.

Currently, there are some programs such as the Conservation Reserve and Wetland Reserve which support the restoration of bottomland to forest. Also, there is some effort, particularly on Federal land, to restore longleaf pine and other mature upland ecosystems.

Several exotic and other pests may threaten natural systems and native species of the South. Some historic and current examples illustrate. The American chestnut once was a dominant tree of the Appalachian Mountains, but was eliminated by the chestnut blight. The health of today's oak forests is diminished by the gypsy moth. The balsam wooly adelgid threatens the Fraser fir forests high in the Blue Ridge Mountains. Dogwoods, which are important aesthetically as well as for wildlife food, are threatened by dogwood anthracnose. Chinese tallow tree is invading and dominating prairie and bottomland ecosystems. The imported fire ant certainly negatively affects some species of native fauna, such as the northern bobwhite (Mueller et al. 1999). And wild hogs compete with native species for hard mast during years of shortage, and may adversely affect sensitive ecosystems by their rootings and wallows.

WILDLIFE AND WILDLIFE HABITAT

There are hundreds of species of southern wildlife, and no general statement can describe their status or role in southern ecosystems. In a broad sense, wildlife communities are associated with and have changed in response to habitat changes, and sometimes other factors. Migratory species depend on and are influenced by breeding and wintering habitat often disjunct and quite different from their southern habitat. Some neotropical migratory birds that have suffered recent population declines probably are negatively affected by loss of forested wintering habitat in the tropics. Also, wintering duck populations in the South are greatly affected by breeding habitat conditions in the northern prairie pothole region, which may vary year to year depending on land use, precipitation, and other factors.

The importance of habitat to vertebrate communities is illustrated by the wildlife habitat relationships of mature bottomland hardwoods. Southern bottoms are important wintering waterfowl habitat. Acorns are an important winter food; and oak detritus and invertebrates are nutritionally important for prebreeding wood ducks and mallards. Also, southern bottomlands support high densities of wintering birds that breed further north (Dickson 1978); as well as provide important breeding habitat for a wide variety of birds, including several species of concern, such as the prothonotary warbler, Swainson's warbler, and swallow-tailed kite.

Some recent changes in wildlife populations appear to be associated with the aging of southern forests and the loss of early-successional habitat due to clean farming and improved pasture. Rabbits, ruffed grouse, northern bobwhites, prairie warblers, Bachman's sparrows and other species associated with herbaceous habitat have declined in recent years. Bobwhites and quail hunting have declined since the 1940s. Bird dogs, once a common southern sight, are rarely seen now. The whistle of the bobwhite has been replaced by the gobble of the wild turkey.

With settlement and the exploitation of natural resources, a few species, such as the passenger pigeon and the Carolina parakeet, have become extinct. Other

In recent decades, species associated with early-successional habitat generally have declined. For example, the whistle of the northern bobwhite has been replaced by the gobble of the wild turkey (J. Dickson).

The wild turkey-What an amazing wildlife success story, the return of America's bird throughout the South, and the rest of forested North America *(D. Baumann).*

species, however, have benefitted from our efforts to restore and manage them. Populations of several game species, such as white-tailed deer, black bear, wild turkey, and wood duck were drastically reduced, and extirpated from vast areas. But they have been restored and now thrive in appropriate habitat throughout the region. Deer are found in every county in the South. Black bear range continues to expand, and populations increase where there are large blocks of suitable habitat. The number of bears in the South has increased six-fold over the last 30 years.

Also in recent years. there have been successes with some nongame species of concern. Restrictions on pesticides, active management, and also probably reservoirs and their fish populations have benefitted osprey and bald eagles. In mature pine habitat. red-cockaded woodpeckers are benefitting from habitat management and specific measures such as artificial cavity inserts and translocations. River otter now play where they have been absent for a long time. And in marsh systems alligators are faring well again. Many of these species have proven far more resilient and adaptable than once thought.

People/wildlife interactions are common now and are likely to increase as the human population and suburbia expand. In the South today, beaver dams and flooding are widespread, deer are eating yard plants, bears are feeding at garbage dumps and bird feeders, and alligators are showing up in swimming pools. It seems ironic that state agencies that were restoring key species such as deer a few decades ago, now are working to resolve people/wildlife conflicts with some of these same species. Resolving conflicts can be particularly difficult because of the emotional and widely divergent views held by the public regarding the control of nuisance wildlife.

Species that are expected to fare well in the future are those that are widely adapted to human- altered con-

It seem ironic that wildlife managers, who a few decades ago were restoring species, now are resolving people-wildlife conflicts *(USDA Wildlife Services).*

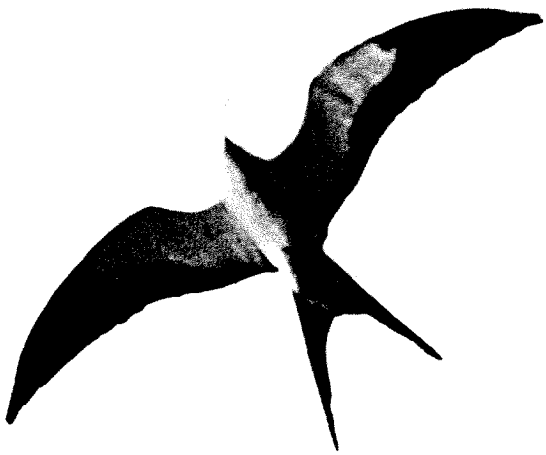
ditions, such as the ubiquitous coyote, raccoon, rock dove, and mockingbird. On the other hand, there is concern for species that have limited distribution, such as forest interior species, may have population viability problems, or be otherwise imperiled, such as the swallow-tailed kite and Swainson's warbler. Also, there is concern for the probable declines of some species of vertebrate groups, such as bats, amphibians, and reptiles, for which our information is sparse.

THE FUTURE

For the future, particular efforts will be necessary to restore natural systems that have been decimated and to protect and manage sensitive systems that are threatened. Managers need to address and emphasize ecosystem integrity rather than individual species. However, specific management measures may be necessary to create or maintain desired conditions. or to control forest diseases, and insect and vertebrate pests.

We need more complete information to manage southern wildlife effectively. We know little about the status or trends of many species, or even the life history of some. Long-term monitoring and research will foster understanding of ecosystems' function, and better management of forest communities and species.

The beaver and its activities often are at odds with man's land use objectives.



There is concern for some species that are limited in distribution or are otherwise imperiled, such as this swallow-tailed kite (Temple-/n/and Corp.).

State and Federal wildlife agencies deal with fragmented and polarized users. To be successful in the future these agencies will have to receive public support from a broader constituency. It is easy for people to associate with individual animals. But generating excitement for wildlife populations or habitat is not so easy. Wildlife agencies must generate enthusiastic support of the public interested in the nonconsumptive aspects of wildlife and develop from them a sound financial and political base.

Although obvious challenges lie ahead in our efforts to maintain forest systems and their wildlife communities, all is not gloomy. Although most southerners no longer live in rural areas, many still are interested in wildlife. We have reforested much of the South. We have had some successes in managing wildlife where we have identified and addressed problems. We have restored primary game and some imperiled nongame species. And our southern forest systems and wildlife communities remain very resilient.