CHAPTER NINE

Local and Regional Resource Conservation

Local and regional strategies to manage and protect land are an important tool to promote more rational development and to protect sensitive environmental areas.

Difficult issues include private property owners' concerns about the value and use of their property, and the nature and pace of urban and suburban growth. New development reduces available farmland and forests, increasing our reliance on automobile transportation and continuing the pattern of sprawl that is characteristic of most of the nation's urban areas. Some view urban sprawl as an inefficient and environmentally destructive land-use pattern; others defend it as serving consumers and communities well.

Caught in the middle are local and regional planners, trying to provide some rationality to the growth process and constantly confronted with the challenge of balancing development and environmental protection.

While the majority of the nation's land is remote and relatively unsettled, most of the challenging land use issues involve the relatively small fraction of land where people live. As rural populations shift to urban areas, cities and suburbs must address traffic congestion, development pressures, and diminishing open space.

As more Americans reach retirement age, new patterns of mobility are emerging. For example, some Americans are retiring to smaller communities in scenic areas near national parks. Growth in these communities is putting new pressures on ecosystems.

BACKGROUND

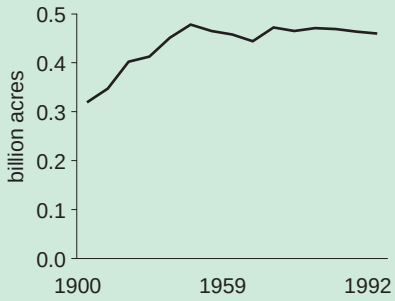
Land Area and Use

The total land area of the contiguous 48 states is approximately 1.9 billion acres. Alaska adds an additional 365 million acres and Hawaii slightly over 4 million, bringing the total to nearly 2.3 billion acres.

Cropland use—which totaled 460 million acres in 1992—increased consistently during the first half of this century; fluctuated from the late 1940s to the late 1970s, largely driven by shifting export demand; and has been declining since the late 1970s (Figure 9.1).

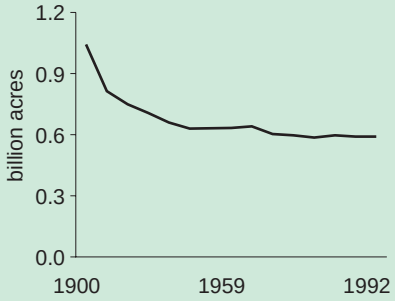
Grassland pasture and range have declined since 1900 and now total about 591 million acres (Figure 9.2). Improved quality of pastures has helped reduce the demand for pastureland, especially following World War II. Additionally, part of the decline in land reflects the dramatic

Figure 9.1 U.S. Cropland, 1900-1992



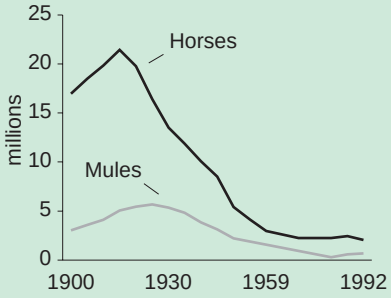
Source: See Part III, Table 49.

Figure 9.2 U.S. Grassland, 1900-1992



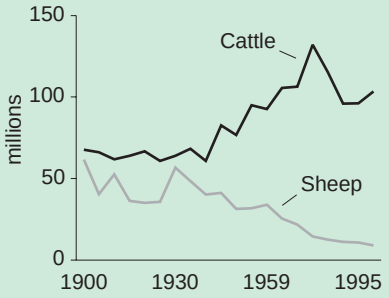
Source: See Part III, Table 49.

Figure 9.3 U.S. Horse and Mule Inventory, 1900-1992



Source: Bureau of the Census, Census of Agriculture.

Figure 9.4 U.S. Cattle and Sheep Inventory, 1900-1995



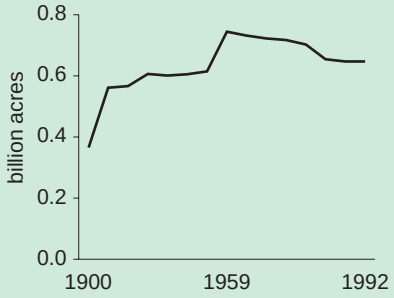
Source: Bureau of the Census, Census of Agriculture.

decrease in the number of draft animals early in the century (Figure 9.3). More recently, domestic animals, which account for most of the demand for grazed forage, also have been declining in number (Figure 9.4). The inventory of all cattle and calves reached a high in the mid-1970s and has declined in each census year since. Sheep numbers reached their peak before 1945 and have been declining since; in 1992, the sheep population was 25 percent of the 1945 total.

Forest-use land totals 648 million acres (excluding land in special uses such as national and state parks). Peaking in mid-century, the amount of forest-use land has generally declined since, albeit with periodic fluctuations (Figure 9.5).

Land devoted to "other" uses totals 564 million acres. Such land has increased since the early part of this century, especially following the inclusion of Alaska. In addition to the large increase in miscellaneous and unclassified land in Alaska, land used for transportation,

Figure 9.5 U.S. Forest-Use Land, 1900-1992



Source: See Part III, Table 49.

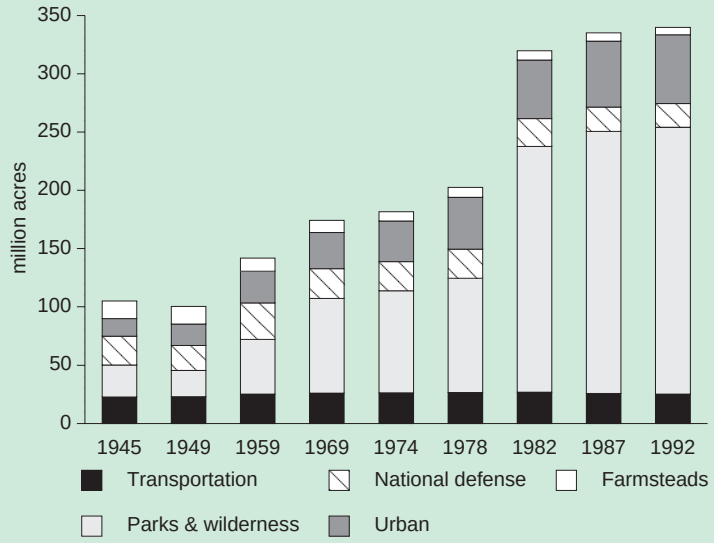
national defense, and urban settlements has increased throughout the United States since 1949 (Figure 9.6).

Land in urban areas totaled 58.8 million acres in 1992, up from 46.8 million acres in 1980. During the 1980s, urban areas absorbed an average of about 860,000 acres per year from other land uses. In the 1970s, by contrast, an average of 1.3 million acres per year were lost to urban areas.

Land Ownership

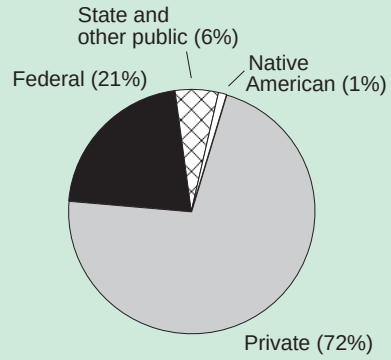
Of the 1.9 billion acres in the lower 48 states and Hawaii, about 72 percent—nearly 1.4 billion acres, or almost three out of every four acres of U.S. land area—is privately owned (Figure 9.7). In the 11 Western states, the percentage of private land ownership is lower than in other states; this is because the federal government has historically owned higher percentages of lands in this area, ranging from 28 percent federal ownership in Montana to 83 percent in Nevada. The federal government also owns a large portion of the land in Alaska. Since 1959,

Figure 9.6 Special Uses of Land, 1945-1992



Source: See Part III, Table 50.

Figure 9.7 Land Ownership in the Lower 48 States, 1992



Source: See Part III, Table 49.

large portions of federal land in Alaska have been released to the state government and to Alaska Native corporations.

About 94 percent of all nonfederal land is rural, consisting mainly of cropland, rangeland, and forestland.

KEY ISSUES

Land-Use Planning

Land-use planning has a long history in the United States. As early as 1926, the U.S. Supreme Court upheld the validity of comprehensive zoning on the basis of states' constitutional authority to protect public health, safety, and welfare. By 1940, virtually all states had adopted zoning laws; most land-use planning has been delegated to local governments.

Land-use planning has many important benefits. It helps ensure that sufficient space is available for a community's essential needs, such as schools and open space. It can minimize the destruction of natural systems and prevent development in high-risk areas that are prone to flooding or other hazards. It can help protect the country's heritage and can enable communities to adapt to changing conditions by monitoring and anticipating trends.

Land-use planning can improve the efficiency of development and help protect sensitive environmental areas by closely linking development to areas with infrastructure and municipal services, to areas with sufficient water and resources to support growth, and to areas that are not hazard-prone.

Since the 1970s, the pace and environmental impact of development have prompted some states to provide localities with a comprehensive framework for managing growth. According to *Land Use in America* (from which much of the ensuing discussion is drawn), more than a dozen states have passed laws that assume at least some level of state review for projects or areas that affect state interests. Most of these laws cover the entire state; a few, such as those in California and North Carolina, affect only coastal areas.

Statewide growth management laws typically establish goals such as reducing congestion and pollution, redeveloping urban areas, preserving pristine lands, conserving farmland, and improving the quality of life. Localities generally must comply with these statewide goals and develop land-use plans with consistency provisions tying state programs to the local plans.

In Oregon, for example, the state growth management plan requires all 241 cities to establish urban growth bound-

aries. Areas outside these boundaries have been rezoned for agriculture and forestry, with 25 million acres now dedicated exclusively to those purposes.

In New Jersey, the state plan designates both areas where density is encouraged and areas where density decreases are needed. Part of the plan is intended to protect the Pine Barrens area in southern New Jersey. As part of the protection effort, the New Jersey Pinelands Commission developed a tradable land credit system. In exchange for restrictive covenants on their properties, landowners in conservation zones could obtain credits they can sell to landowners in growth zones.

Florida is another state struggling to manage a rapidly growing population. Its 1985 Omnibus Growth Management Act includes several provisions aimed at preventing development in high-risk coastal areas, specifying building design in areas prone to hurricane damage, and promoting compact development. The act's "pay-as-you-go" infrastructure requirements, which required infrastructure to be in place before growth could occur, had the unintended effect of driving growth to outlying rural areas. The law has since been revised.

In the 1990s, growth management in certain areas has become more contentious. For example, in Florida groups such as 1,000 Friends of Florida helped secure passage of a law that creates a cause of action for owners of real property whose land is "inordinately" burdened by state environmental or other regulation. The decision as to what constitutes an "inordinate" burden under the bill will be made by state courts, taking into account the landowner's reasonable investment-backed expectations and the availability of alternative uses of the property. The law gives landowners the opportunity to pursue dispute resolution if new laws or regulations encroach on those rights and the owner can prove an inordinate burden. If compensation is awarded, the government in return receives an interest, such as a conservation easement on the property.

There is also strong interest in Florida to protect critical environmental areas and the state's water recharge areas. The Florida Greenways Commission, which was started in 1993, will create a statewide network of greenways linking the state's parks and open spaces. The program particularly focuses on protecting corridors along waterways. For example, the Cross-Florida Greenway will eventually become a 110-mile-long conservation and recreation area along the site of the abandoned cross-Florida Barge Canal.

Similar pressures face the state of California. *Beyond Sprawl*—a 1995 report jointly produced by the Bank of America, Resources Agency of California, Greenbelt Alliance, and Low Income Housing Fund—found that growth is typified by (1) new housing developments encroaching farther into agricultural and environmentally sensitive lands, (2) an increasing dependence on automobiles, and (3) the isolation of central cities and older communities. Current development patterns, the report says, have made the state a less desirable location for businesses and their employees.

The Cost of Sprawl. Many studies have found that typical new developments characterized by large lots and single-family homes increase public costs compared to more compact development with mixed-use urban and town center planning.

For example, a 1989 study by the Urban Land Institute found that providing services to a three-unit per acre development 10 miles from employment and other centers would cost an estimated $8,000 more per house than a 12-unit per acre development located closer to facilities. An American Farmland Trust study of Loudoun County, Virginia, found that net public costs were about three times greater at a density of 1 unit per five acres compared with a density of 4.5 units per acre.

Designing Sustainable Communities. Confronted with the future prospect of growth and development, many communities across the country are using planning, visioning exercises, the development of indicators, and other tools to forge a new balance between growth and stewardship.

The best-known example is in Chattanooga, Tennessee, where a "Visions 2000" initiative in 1984 brought together thousands of residents to talk about the state of the city and their vision of the future. The exercise proved to be a remarkable success, helping launch a turnaround for the city that has emphasized pollution reduction, affordable housing, open space, and the development of "green" manufacturing.

In Seattle, volunteer committees have selected 40 indicators that will serve as a "report card" for the city and for long-term planning. In Cambridge, Massachusetts, criteria for a sustainability profile have been developed; these are intended to measure the city's impact on the environment and minimize undesirable effects.

The new ideas generated by the Chattanooga experience and those of other cities also point to the many opportunities available for reducing the environmental impact of manufacturing. Strategies include the promotion of new environmental technologies, investments in resource efficiency, using the solid waste stream to develop community-based recycling businesses, and supporting eco-industrial parks. These last are an environmentally efficient version of industrial parks. They follow a systems design in which one facility's waste becomes another facility's feedstock, and they ensure that raw materials are recycled or disposed of efficiently and safely.

Dealing with Development Pressures

High growth in areas such as California, Florida, and the Southwest has created challenging issues including a search for balance between development, protected areas and ecologically valuable unprotected areas.

In recent years, there has been significant movement out of major California cities to other areas in the West. In Phoenix, aerial photographs taken three months apart in 1995 found 5,000 new homes around the city. Population in smaller communities such as Boise,

Idaho; Santa Fe, New Mexico; Jackson, Wyoming; Aspen, Colorado; and Park City, Utah; also is increasing rapidly.

The fastest growing counties in Colorado, Montana, and Wyoming are adjacent to Yellowstone and Grand Teton National Parks. Such growth puts real strains on National Park Service managers and on the carrying capacities of these communities and ecosystems. While population and development pressures are increasing, federal resources in many cases are shrinking. This conflict is creating difficult dilemmas for park and refuge managers.

Communities and land managers are trying to find new ways to protect ecosystems. In California, two important examples are the effort to save Mono Lake and to preserve the state's remaining coastal sage scrub habitat.

Mono Lake. In 1990, Mono Lake was rapidly nearing extinction. This ecologically important lake, located in a remote part of the Sierra Nevada Mountains, was succumbing to the combined effects of a seven-year drought and extensive water diversion to Los Angeles.

In 1941, the Los Angeles Department of Water and Power began diverting four of the streams that feed Mono Lake. After almost 50 years of diversions, the lake's shoreline had dropped 42 feet. The impact on the lake was catastrophic as wetlands that bordered the lake disappeared; toxic dust storms arose from the recently exposed banks; and the natural salinity of the water doubled, dramatically reducing populations of tiny brine shrimp and other organisms that were a vital food source for migrating birds. Of the 1 million ducks and geese that once migrated to the lake, fewer than 1 percent returned.

The effort to save the lake was led by the Mono Lake Committee—a citizens' group with more than 17,000 members—the Audubon Society, trout fishermen, and others. Through litigation and cooperation, remarkable progress is being made. In September 1994, the State Water Resources Control Board issued a ruling, mandating that Los Angeles reduce its diversion of water flowing into the lake until the lake reaches a stable level of 6,392 feet, or 25 feet below its prediversion level. Since the ruling, the lake has risen 6 feet.

The committee also is working with the city of Los Angeles and area businesses to "drought-proof" Los Angeles. Government and private organizations have collaborated to develop a plan to reclaim and conserve more than 135,000 acre-feet of water annually—twice the amount needed to protect the lake. State and federal agencies pledged $86 million to build two water reclamation projects. Estimates show that the reclaimed water costs $347 per acre-foot—$64 less than imported water.

The city also pledged to reduce water use by 20 percent. Ultra low-flush toilets were introduced in most homes, and higher water prices discouraged unnecessary use. By 1994, the city had exceeded its goal, and water use was identical to 1975 levels—even with 800,000 more residents.

Coastal Sage Scrub Habitat. California has been struggling for several decades to find imaginative new ways to

balance environmental, economic, and social issues that cross jurisdictional boundaries.

One important experiment is the Natural Communities Conservation Planning (NCCP) program, which is trying to protect the state's remaining coastal sage scrub habitat along the south coast. This habitat is the home of the California gnatcatcher, a threatened species, and numerous other imperiled species (see also Chapter 7, "Ecosystems"). The program is intended to provide more protection for the gnatcatcher and the sage scrub area than was provided by either the federal or state endangered species laws. The program relies on a multistakeholder process that includes environmental groups, private landowners, and business groups in the region. Given specific statutory authority by the state, NCCP is trying to conserve entire habitats and ecosystems that encompass numerous species.

Federal and state laws are an important part of the process. The Interior Department added the gnatcatcher to the federal threatened species list. It also established a special rule that recognizes NCCP's role and allows partners that produce a plan protecting coastal sage scrub to develop up to 5 percent of the habitat and receive authorization for an "incidental take" of the threatened gnatcatcher during the planning process. The effect of the rule is to provide an incentive for private landowner participation in the program.

The California Department of Fish and Game's NCCP Process and Conser-

Gnatcatcher Habitat Encroachment.

Photo Credit: Claire Dobert
U.S. Fish and Wildlife Service

vation Guidelines were designed to complement the Interior Department proposal and provide guidance for the various stakeholders. Together, these two documents provide a blueprint for the development of 10 subregional preserves in Southern California. In addition, the state Fish and Game Department and the U.S. Fish and Wildlife Service signed a memorandum of understanding that eliminates the redundancy of parallel regulatory requirements. The Fish and Wildlife Service also provided a formal assurance that nonfederal landowners with approved multispecies plans will not be subjected to further land-use restrictions or mitigation requirements if additional species are listed or other regulatory action is required.

The next step is to develop plans for preserves. Some 30 projects in San Diego County and 8 in Orange County are in advanced stages of review for consistency with preserve guidelines. In San Diego County, three subregional plans are being considered: the Multi-Species Conservation Program, which covers 580,000 acres in the city of San Diego and southwestern San Diego County; the North County Multiple Habitat Conservation Program, which covers 610,000 acres in 10 of the county's northernmost jurisdictions; and a third plan covering 1 million acres, most of which are owned by the U.S. Forest Service and Bureau of Land Management and by the county park and recreation department. In Orange County, two plans covering about 340,000 acres are under way.

Limited financial resources for needed land acquisition present a difficult challenge for these conservation plans. The Interior Department has provided some federal support through the Endangered Species Act. The state has encouraged the use of tax credits and other incentives for owners to participate in voluntary habitat stewardship. Another cost-saving possibility is to acquire less than fee interests, such as development rights.

FUTURE CHALLENGES

Promising new approaches, such as the NCCP process in California, offer hope that innovative new ways can be found to balance growth and environmental protection. Such approaches can be difficult and complicated, involving many jurisdictions and economic interests. But they recognize the vital importance of balancing development needs with environmental needs including protection of large-scale ecosystems.

As U.S. population continues to grow in this decade and in the next century, the need for creative solutions will persist.

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