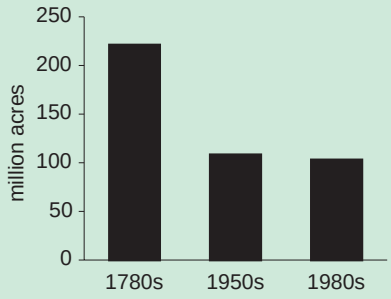
CHAPTER FIFTEEN

Wetlands

When the Declaration of Independence was signed in 1776, there were an estimated 221 million acres of wetlands in what is now the contiguous 48 states. By the late 1980s, slightly more than 104 million acres of that original wetlands area were left (Figure 15.1), and 10 states had lost over 70 percent of their original wetlands acreage (Figure 15.2). Although the rate of wetlands losses has slowed, wetlands continue to be lost in the 1990s.

Historically, wetlands were regarded as swampy lands that bred diseases, restricted overland travel, and impeded the production of food and fiber. Most settlers, commercial interests, and governments agreed that wetlands should be eliminated and the land reclaimed for other purposes.

Figure 15.1 U.S. Wetlands Area, 1780s-1980s



Source: See Part III, Tables 46 and 47.
Note: Data exclude wetlands in Alaska and Hawaii.

In the 18th century, wetlands drainage was widespread in the South. Parts of the Great Dismal Swamp in Virginia and North Carolina were surveyed in 1763 so that land could be reclaimed for water transportation routes. In Washington County, North Carolina, large-scale drainage began as early as 1788 with the construction of a canal and a system of ditches; today, only about one third of the county's original wetlands acreage remains.

In 1849, 1850, and 1860, Congress granted 65 million acres of swamp and overflow lands to 13 states for reclamation, setting a clear policy favoring wetlands drainage and reclamation for development that pervaded policy and land use trends for the next century. In the 1930s, the U.S. government in essence provided free engineering services to farmers to drain wetlands. By the 1940s, the government was sharing the cost of drainage projects. Methods such as tile and open-ditch drainage were considered conservation practices under the Agriculture Conservation Program.

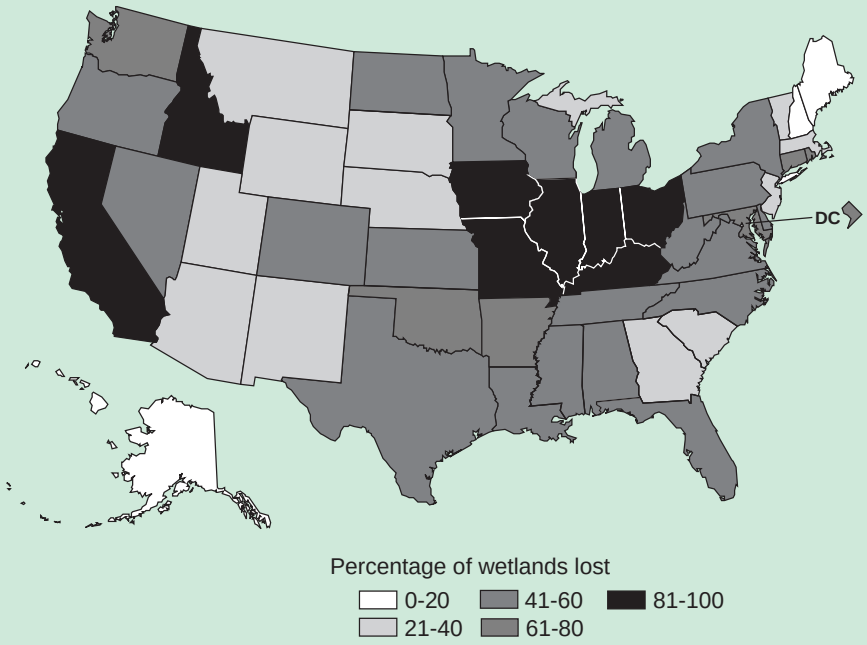
By the mid-1970s, the direction of environmental policy began to change. The principal driving force behind this change

was a rapidly growing appreciation of the value of wetlands. Since passage of the Migratory Bird Hunting Stamp Act in 1934, there was some acknowledgment of the value of wetlands as duck habitat. For example, one half to two thirds of America's wild ducks hatch in the marshes of the prairie pothole region in the Dakotas, Minnesota, and Iowa. Drastic reductions in prairie pothole habitat had direct implications for duck populations. And it was known that ducks and other migratory birds depend on wetlands for specific habitat and nutritional needs during migration.

Since the 1970s, we have come to appreciate wetlands for values much broader than bird habitat. For example:

- Wetlands in the United States support about 5,000 plant species, 190 amphibian species, and one third of all bird species. In addition, they provide habitat for nearly one half of the fish, one third of the birds, one fourth of the plants, and one sixth of the mammals on the threatened and endangered species list.
- Coastal wetlands play a valuable role in the protection of shorelines and an important role in the life cycles of fish and shellfish. In 1994, the dockside value of fish landed in the United States was $3.8 billion. The fish processing and sales industry generates nearly $38 billion per year and employs hundreds of thousands of people. An estimated 71 percent of

Figure 15.2 Wetland Losses by State, 1780s to 1980s



Source: See Part III, Table 47.

Mallard Ducks. One of the great variety of wild ducks which depend on northern wetlands habitats.

Photo Credit: Gene Whitaker
U.S. Fish and Wildlife Service

this value is derived from fish species that depend directly or indirectly on coastal wetlands during their life cycles. Louisiana's marshes and coastal waters alone produce an annual commercial fish and shellfish harvest of 1.1 billion pounds, which was valued at $291 million in 1995.

- Wetlands help improve water quality by removing excess nutrients, sediments, and pesticides from surface waters.

- Many wetlands slow the overland flow of water and thus reduce flooding and soil erosion downstream. Wetlands are reservoirs for rainwater and runoff. They recharge groundwater supplies and extend streamflow during periods of drought or low rainfall.

RECENT TRENDS IN WETLANDS LOSSES

Until the mid-1980s, conversions to cropland accounted for most wetlands losses. In the 1954–74 period, 87 percent of the 690,000 acres lost annually were converted to cropland (see Part III, Table 48). In the 1974–84 period, estimated annual losses dropped to an average of 423,000 acres, with agriculture still accounting for over half of the total.

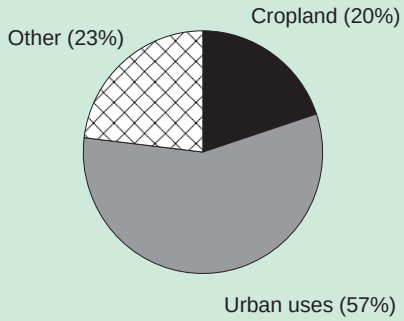
The picture changed dramatically in the 1982–92 period, with total gross losses on nonfederal lands dropping to an estimated 156,100 acres per year (Figure 15.3) and losses due to agriculture dropping to just 20 percent (30,900 acres). Urban development accounted for nearly 57 percent of the total losses (88,600 acres), and transition to deepwater habitat about 13

Natural water purification system: Bottomland hardwood wetlands in South Carolina.

Photo Credit: Craig Rieben
U.S. Fish and Wildlife Service

percent. For every 60 acres of wetlands converted to cropland annually from 1954 to 1974, only 3 acres were being converted annually from 1982 to 1992.

Figure 15.3 U.S. Wetlands Converted to Other Uses, 1982-1992

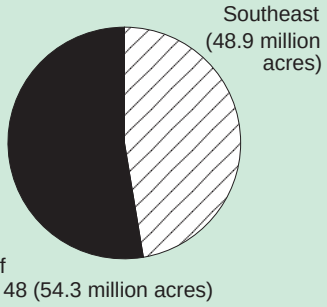


Source: See Part III, Tables 48.
Note: Data refer to annual losses of 156,100 acres of nonfederal wetlands; excludes Alaska.

Of the 1.56 million acres lost over the 1982–92 period, about 1.4 million acres became uplands and about 200,000 acres became deepwater habitat. During the same period, about 769,000 acres of deepwater or upland habitat became wetlands. Thus, though gross losses were estimated at 156,100 acres annually, the net loss of wetlands averaged 70,000 to 90,000 acres annually.

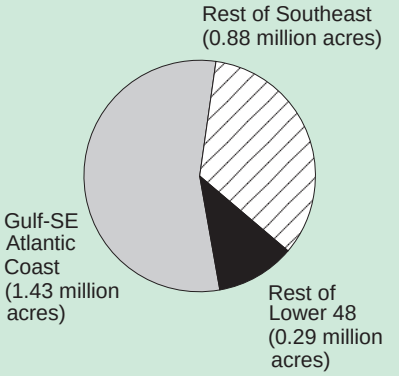
Among regions, there are a variety of different threats to wetlands. In the Southeast, which has more wetlands area (Figure 15.4) and has lost more wetlands acres (Figure 15.5) than any other region, remaining wetlands are declining in quality because of nutrient loading, altered hydrology, and urban encroachment. According to the Fish and Wildlife Service's *Status and Trends* reports, there have been significant losses and declin-

Figure 15.4 U.S. Wetlands Coverage, Mid-1980s



Source: Hefner et al., *Southeast Wetlands: Status and Trends, Mid-1970s to Mid-1980s* (FWS, Atlanta, GA, 1994).

Figure 15.5 U.S. Wetlands Losses, Mid-1970s to Mid-1980s



Source: Hefner et al., *Southeast Wetlands: Status and Trends, Mid-1970s to Mid-1980s* (FWS, Atlanta, GA, 1994).

ing quality in the South Central region in areas such as playas or seasonal depression wetlands and in Gulf Coast estuaries, which are threatened by saltwater intrusion from canal construction, geologic subsidence, and development pressures along the coastal regions. In the Northern Plains, nearly half of the original wetlands in the prairie pothole region have been drained; of those remaining, many are cropped when the weather permits. (See also Part III, Table 47.)

TRENDS IN WETLANDS PROTECTION

The changes in wetlands status represent a number of complex factors playing out on our nation's landscape. Changes in demographics, movement of population to the coasts, both human-induced and natural ecological succession, and shifts in land use patterns are all part of the picture. Another factor was the uncertain economic climate for agriculture in the 1980s, which saw a decline in the profitability of converting wetlands for agricultural production, although profitability has increased in subsequent years and will continue to do so as commodity prices rise. In addition, there is now much greater public interest and support for wetlands protection and restoration.

The key factor driving the dramatic change in wetlands losses, however, has been the enactment of laws and implementation of federal, state, and local programs that protect and restore wetlands.

Federal Programs

Clean Water Act. The 1972 Clean Water Act, in recognition of the importance of wetlands in maintaining water quality, established the federal government's role in wetlands protection. Section 404 of the act provides the govern-

Oil well spillover into wetland. Greater public interest, enactment of Federal law and implementation of Federal, State and Local programs protect against loss of valuable wetlands.

Photo Credit:
U.S. Fish and Wildlife Service

ment's main tool for that task. It regulates the discharge of dredged or fill material into waters of the United States, including most wetlands.

The permitting process for these activities is managed by the Corps of Engineers. An individual permit is required to discharge dredged or fill material, unless the activity is exempt or authorized under a general permit. For example, many normal farming, forestry, and ranching activities that involve discharges of dredged or fill material into U.S. waters are exempted from section 404. General permits are issued to authorize specific activities that have minimal environmental impacts, such as bank stabilization, minor road crossings, and certain wetlands restoration activities.

Because over half of the wetlands in the conterminous United States are found on private land and wetlands are the only ecosystem type to be comprehensively regulated by the federal government, section 404 has been the subject of some controversy. One aspect of the debate has been the matter of wetlands delineation. The Corps uses a delineation manual that it released in 1987 and which is generally considered to be in need of revision. Attempted revisions have met with disapproval for being either too inclusive in delineating wetlands or too exclusive. Delineation of wetlands is likely to be a central issue in future congressional debates on the Clean Water Act. Opposition to section 404 has focused on concerns over the

financial impacts of federal regulation of private lands.

Following passage of the Clean Water Act, President Carter issued Executive Order 11990 in 1978, which modified government involvement in activities that could lead to the destruction of wetlands.

Swampbuster Provisions. Passage of the "swampbuster" provision in the 1985 Farm Bill was a major development in wetlands protection. Under the original provision, farmers who converted wetlands to cropland after December 23, 1985, jeopardized their eligibility for certain federal farm subsidy programs. The trigger for swampbuster violations was the planting of an annual crop on a newly converted wetland.

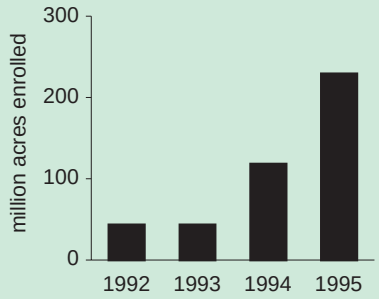
The 1990 swampbuster amendment changed the trigger for violation to include those activities that drain, fill, level, or otherwise alter wetlands to make possible the production of an agricultural commodity. The 1990 law allows producers to convert frequently cropped wetlands, but only if they mitigate the loss by restoring a converted wetland with equivalent wetlands functions.

The 1996 swampbuster amendments provide additional flexibility for mitigation of wetlands conversions, allowing the functions and values of converted wetlands to be mitigated by restoration, creation, or enhancement. The new amendments strive for balance between the protection of the functions and values of wetlands and the promotion of a more viable agricultural community. The current program allows farmers to manipulate wetlands in order to make farming operations more efficient and at the same time protects and enhances wetlands val-

Restoring Wetlands.

Photo Credit:
U.S. Fish and Wildlife Service

Figure 15.6 U.S. Wetlands Reserve Program, 1992-1995



Source: Natural Resources Conservation Service, unpublished, USDA, Washington, DC, 1996.
Note: Data are cumulative year-end totals.

ues. For example, in southeastern Missouri six farmers worked with federal and county officials to create a 38-acre wetland in exchange for converting several small, degraded wetlands in their fields to cropland. The 38-acre site includes open water, emergent marsh, and well-developed stands of bottomland hardwoods. It was purchased by the Butler County Soil and Water Conservation District and serves as a "mitigation bank," that is, a wetlands area that has been restored, created, or enhanced to compensate for conversions of other wetlands.

Wetlands Reserve Program. The 1990 Farm Bill established the Wetlands Reserve Program, which allows farmers to voluntarily sell easements to the government for wetlands restoration purposes as an alternative to agricultural production. The program was originally designed to provide permanent and 30-year voluntary restoration easements on cropland. The act set an enrollment limit of just under 1 million acres over 5 years.

The program started as a pilot program in 8 states in 1992 and was expanded to 20 states in 1994, before becoming a nationwide program in 1995. As of 1995, almost 230,000 acres of restorable wetlands and adjacent existing wetlands had been enrolled in the program (Figure 15.6). It is expected that just over 96,000 acres will be added to the enrollment in 1996.

In response to the devastating floods in the Midwest, an emergency supplemental appropriation (PL-103-75, signed August 13, 1993) authorized the Emergency Wetlands Reserve Program, which offered landowners an alternative to agriculture on their floodprone lands. In 1994 and 1995, over 86,000 acres were enrolled in this program, and an additional 5,800 acres are expected in 1996.

The 1996 Farm Bill changed the Wetlands Reserve Program by requiring that, effective October 1, 1996, one third of the acres be enrolled through use of permanent easements, one third through 30-year easements, and one third through restoration cost-share agreements (with no easements), to the extent practicable. Restoration cost-share agreements provide financial and technical assistance for restoration practices without a land payment. The 1996 bill set the enrollment limit at 975,000 acres. Landowner interest in both programs has greatly exceeded the available funds.

Partnership Programs

Aside from the programs mentioned above, the federal government is actively

supporting partnerships with other government agencies, tribes, and private organizations to help landowners restore and conserve wetlands. Partners for Wildlife, which is managed by the Fish and Wildlife Service, is a stewardship program for the restoration and protection of wetlands and other wildlife habitat on privately owned lands. The Forest Service's Forest Stewardship Program provides landowners with cost-share and technical assistance for riparian and wetlands protection and improvement.

There are many examples of creative new wetlands protection and restoration partnerships, including the following:

- In North Dakota, a coalition of state and federal agencies has been cooperating in the development and implementation of the North Dakota State Water Bank Program. To date, about 175 acres of wetlands have been restored, and more than 1,000 additional acres of wetlands are being protected. Nearly 2,500 additional acres of uplands were placed in the program to provide wildlife habitat and wetlands protection.

- Lake Lafayette, a 2,000-acre forested wetlands complex adjacent to Steele Bayou in northern Mississippi, has been partially drained, and most of the historical floodwaters have been diverted by major flood-control projects. The Lake Lafayette Wetland Restoration Project plans to build 5 miles of levees and install 21 water control structures to allow the area to

Riverine wetland. Intermittently flooded streambed.

Photo Credit:
U.S. Fish and Wildlife Service

flood up to 3 feet deep during the winter, thus approximating historical flood flows. The project's partners include two federal agencies, the local soil and water conservation district, six landowners, the Mississippi Partners for Wildlife Program, and the Mississippi River Levee Board.

- The National Wetlands Conservation Alliance is a partnership of government and nongovernmental organizations that funnels assistance directly to landowners. More than 2.5 million landowners are reached annually through publications, workshops, and demonstration projects.

RECENT DEVELOPMENTS

In response to growing debate over conflicts between protection of private property rights and protection of wetlands values, the Clinton Administration released a plan on August 24, 1993, entitled *Protecting America's Wetlands: A Fair, Flexible, and Effective Approach*. The plan seeks to address legitimate landowner concerns through actions that increase flexibility and fairness in implementing wetlands regulations.

In the 3 years since it was developed, a number of proposals from the plan have been implemented, including streamlining the wetlands permitting program, responding to the concerns of farmers and small landowners, improving cooperation with private landowners to protect and restore wetlands, and increasing the role of state, local, and tribal governments in wetlands protection.

Key actions under the plan are as follows:

- The Agriculture Department's Natural Resources Conservation Service is now the lead federal agency responsible for identifying wetlands on agricultural lands under both the Clean Water Act and the Farm Bill. This action reduces duplication and increases consistency across the two programs.

- The Army Corps of Engineers is establishing an administrative appeals process so that landowners can seek recourse on permitting decisions without costly and time-consuming court battles.

- The Corps and EPA agreed to final regulations ensuring that approximately 53 million acres of previously converted wetlands will not be subject to wetlands regulation.

- The Natural Resources Conservation Service, Corps, EPA, and Fish and Wildlife Service have agreed to use a common definition of wetlands and will use the same procedures to identify wetlands. In addition, the agencies have issued new guidelines for establishing mitigation banks to offset unavoidable wetlands losses.

FUTURE CHALLENGES

Prior administrations supported a policy of "no net loss" of wetlands. President Clinton has endorsed the goal of no net loss but has gone further and also called for a long-term increase in the quality

and quantity of the nation's wetlands. Although we have probably not yet achieved the no-net-loss goal, progress is being made. Achieving no net loss and moving into a net gain in wetlands may be possible if restoration programs such as the Wetlands Reserve Program are fully funded and there is no reduction in the protection of wetlands provided by existing programs.

Notwithstanding the controversy over private property rights, public support for wetlands protection remains strong. The Gallup Organization in 1995 surveyed a nationally representative sample of 1,250 people, asking if they thought laws and regulations protecting agricultural wetlands had gone too far, have not gone far enough, or were about right. Of those surveyed, 42 percent said the laws have "not gone far enough," 38 percent said they were "about right," 15 percent said they had "gone too far," and 5 percent said they "didn't know."

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