

Wetlands Loss Since the Revolution

Thomas E. Dahl
National Wetlands Inventory
U.S. Fish and Wildlife Service
St. Petersburg, Florida

In 1989, Congress directed the Department of the Interior to compare the estimated total number of wetland acres in the 1780s and in the 1980s in the areas that now comprise each state. Congress also requested an assessment of the estimated percentage of wetlands loss in each state during this 200-year timespan.

The report, released last September by the U.S. Fish and Wildlife Service (FWS), is designed as a one-time effort to document historical wetland losses from colonial times through the 1980s. A second report to Congress, due this fall, is *Status and Trends of Wetlands and Deepwater Habitats in the Conterminous United States*. This report will provide new information based on a statistical analysis of wetlands changes from the 1970s through the 1980s, and will be updated every 10 years.

In the 1780s, the United States as we know it today was composed of states, state-claimed areas, organized and unorganized territories, and foreign lands (Stoll 1970). For these reasons, historical acreage estimates are based only partially on colonial and state historical records. In addition, drainage statistics, land-use records tracing conversion of lands by use categories, and information on the extent of hydric soils, together with historical wetland acreage data, have been used to estimate the original wetland acreage for each state.

As with the historical estimates, data on present wetland acreage must be interpreted with caution. For some states, the wetlands have been mapped for the entire state by the FWS National Wetlands Inventory. However, for those states

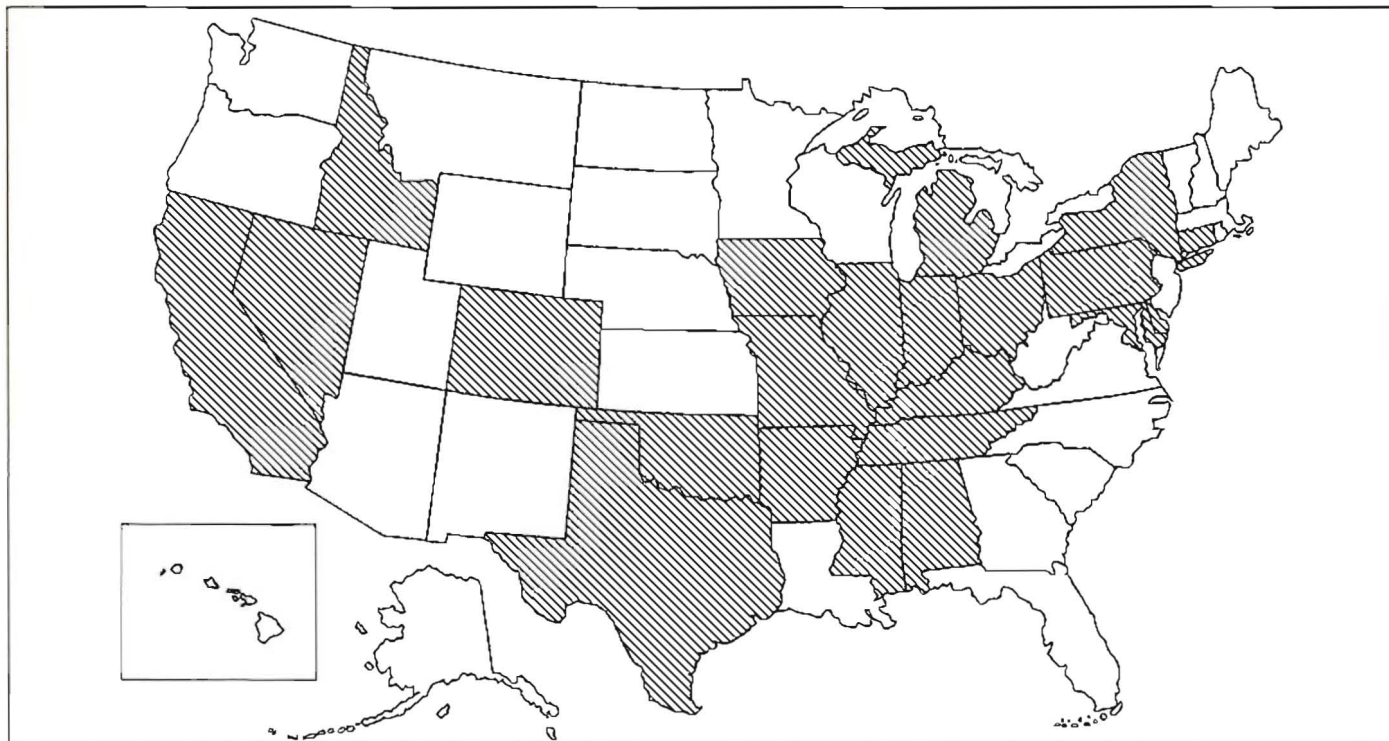
where wetlands are not completely mapped or where acreage summaries are not yet compiled, an accurate accounting of wetland acreage is not always available. In these cases, the FWS used the best national or regional data available to determine statewide totals. Additionally, the status of wetlands in the United States is constantly changing. It is estimated that, on average, over 60 acres of wetlands have been lost every hour in the lower 48 states during this 200-year timespan.

The land area that now makes up the United States originally contained almost 392 million acres of wetlands (221 million acres in the lower 48 states). Historical estimates of wetlands distribution by state indicate that 21 states were bestowed with three million acres or more of wetlands. Considerable changes in wetland distribution and abundance has taken place since the 1780s. In the conterminous United States, only an estimated 104 million acres of wetlands remained through the 1980s, representing a 53-percent loss from the original acreage total. If Alaska and Hawaii are counted, an estimated 274 million wetland acres remain.

In the 1980s, wetlands constituted only 5 percent of the land surface in the lower 48 states, or 12 percent if Alaska and Hawaii are included. Alaska continues to have the vast majority of wetland acres, with an estimated 170 million—approximately 45 percent of that state's total surface area.

Among the lower 48 states, Florida, Louisiana, Minnesota, and Texas have the greatest wetland acreage. Other states that have retained more than three million wetland acres include Alabama, Georgia, Maine, Michigan, Mississippi, North Carolina, South Carolina, and Wisconsin.

Alaska has lost the lowest percentage of its original wetland acreage, with losses estimated at less than 1 percent. Hawaii, New Hampshire, and Rhode Island have lost the fewest wetland acres overall—7,000, 20,000, and 38,000 acres, respectively—but relatively large percentages of their



U.S. Fish and Wildlife Service

States that lost more than 50 percent of their wetland acreage between the 1770s and the 1980s.

original wetland acreage.

Ten states—Arkansas, California, Connecticut, Illinois, Indiana, Iowa, Kentucky, Maryland, Missouri, and Ohio—have lost 70 percent or more of their original wetland acreage. Seven of those states are in the heavily farmed Mississippi/Ohio River valley. Alarming, 22 states have lost 50 percent or more of their original wetland areas (see map). California leads the nation, with an estimated 91 percent wetlands loss since the 1780s, while Florida has lost the most wetland acres of any state—approximately 9.3 million acres—or 46 percent of its 1780s total. Except for Alaska, Hawaii, and New Hampshire, no state has lost less than 20 percent of its original wetland acreage.

Estimates of original wetland acreage and present acreage in the FWS report correlate closely with those of previous researchers and other federal agencies. Roe and Ayres (1954) analyzed land already drained and potential land drainage needed to put the maximum amount of U.S. land possible into agricultural production. They estimated that an area of 215 million acres—or 24 percent of all potential agricultural land in the lower 48 states—would require drainage for optimum crop production.

The publication *Soil Taxonomy* (USDA, Soil Survey Staff, 1975) lists soil acreage estimates for the United States. Because soil characteristics change slowly, even following drainage, adding the number of acres of soils with aquic suborders should approximate the wetland acreage that existed at the time of colonial settlement. Using this method, there were an estimated 211 million wetland acres in the lower 48 states, and an additional 165 million acres in Alaska.

The USDA Economic Research Service has also estimated original wetland acreages for the lower 48 states. Its estimate (unpublished) was based on land in drainage in 1950, plus the maximum of inventoried wetlands based on the FWS wetland trends study (Frayer et al. 1983) or the USDA National Resources Inventory (USDA and Iowa State University 1984), whichever was greater. The estimated total of original wetlands in the lower 48 states using this method was 217 million acres, a figure remarkably close to the FWS estimate released in September.

The final data that are comparable on a national basis were also produced by the USDA Economic Research Service (1987) and detail farm drainage trends in the United States. Because a very high percentage of wetland losses has been due to agricultural conversion (Frayer et al. 1983), these data may be used to approximate the percentage of wetland area lost to agricultural drainage over time. By adding drainage figures to estimated existing wetland acreage, this method indicates that a total of 213 million acres once existed in the conterminous 48 states. It is remarkable that despite the various methodologies used to estimate wetland acreage in the colonial United States, each of these previous studies falls within a few percentage points' difference of the FWS study results. This study, however, arrives at the largest total of original wetland acreage for the conterminous United States and for Alaska.

By all estimates, the national decline in wetlands from the 1780s to the 1980s is dramatic. Losses in particular regions of the country are even more startling. For example, the midwestern farm belt states of Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin account for more than 36 million acres of wetlands lost since the country was first colonized. This amounts to roughly one-third of all wetlands

lost in the history of our nation. Alaska stands alone as the only state in which wetland resources have not been substantially reduced.

Incomplete baseline data on the wetlands in the United States prevent an accurate appraisal of the "health" of these remaining resources. However, population growth and distribution and agricultural development greatly affect land-use patterns that impact wetlands. Despite increased efforts to conserve wetlands through state and federal legislation, hundreds of thousands of acres have been drained annually. Over a 200-year timespan, wetland acreage has diminished to the point where environmental and even socio-economic benefits are now seriously threatened. ■

Copies of Wetland Losses in the United States 1780s to 1980s can be obtained by contacting the National Wetlands Inventory, U.S. Fish and Wildlife Service, 9720 Executive Center Drive, Suite 101, Monroe Building, St. Petersburg, FL 33702.

References

- Frayer, W.E., T.J. Monahan, D.C. Bowden, and F.A. Graybill. 1983. *Status and Trends of Wetlands and Deepwater Habitats in the Conterminous United States, 1950s to 1970s*. Colorado State University, Ft. Collins.
- Roe, H.B. and Q.C. Ayres. 1954. *Engineering for Agricultural Drainage*. McGraw-Hill Book Co., New York.
- Stoll, G.H. 1970. Territorial Growth (Map). Hammond Inc. 1967; rev. by U.S. Geological Survey, National Atlas of the United States of America.
- U.S. Department of Agriculture, Economic Research Service. 1987. *Farm Drainage in the United States: History, Status, and Prospects*. G.A. Pavelis, ed. Miscellaneous Publication No. 1455. Washington, D.C.
- U.S. Department of Agriculture, Soil Survey Staff. 1975. *Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys*. U.S. Dept. of Agriculture, Soil Conservation Service, Washington, D.C.
- U.S. Department of Agriculture and Iowa State University Statistical Laboratory. 1984. *National Resources Inventory—A Guide for Users of 1982 NRI Data Files*. Washington, D.C.

Armchair Advocacy

Armchair Activists are "environmental warriors who wage their battles from the living room La-Z-Boy," says Jeff Lippert, originator of the Thorn Creek Audubon Society chapter in Flossmore, Illinois. For one-half hour each month, Lippert asks members to write letters to the editor of local papers or to legislators on a selected environmental issue—or to wage a phone-calling campaign—to assuage their "social environmental conscience." One of Armchair's first efforts was a letter-writing campaign lobbying Illinois Governor James Thompson to create private-sector no net loss wetlands legislation this year. The governor did issue a directive to the state Department of Conservation to draft no net loss legislation. Currently the Wetlands Protection Bill is in shell form pending hearings between environmentalists, the Home Builders Association, and the Farm Bureau.

Lippert, whose organizing skills come from his experience as a marketing agent, plans to expand the Armchair Activist ranks of Letter of the Month Club and Media Masters members to increase pressure on state and national legislators to support strong environmental legislation on a growing range of issues. The Armchair Activists are sponsored by the Illinois Environmental Council; the Audubon Councils of Illinois, Ohio, and Indiana; and the National Audubon Society.