

CURRENT STATUS AND RECENT TRENDS IN WETLANDS OF CENTRAL CONNECTICUT



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Current Status and Recent Trends
in Wetlands of
Central Connecticut

by

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INTRODUCTION

The Federal government regulates various activities in wetlands under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act as amended in 1977. The U.S. Army Corps of Engineers (Corps) is responsible for issuing permits for dredge and fill activities under Section 10 and for fill activities under Section 404 which is jointly administered with the U.S. Environmental Protection Agency. The U.S. Fish and Wildlife Service (Service) provides comments on the environmental impacts of proposed wetland alteration activities in accordance with the Fish and Wildlife Coordination Act of 1934 as amended. In addition, the Service is conducting an ongoing inventory of the Nation's wetlands that includes preparation of wetland maps and the study of national wetland trends.

In 1988, the U.S. Environmental Protection Agency (Region I) contracted with the Service to conduct a wetland trends analysis study for central Connecticut. The EPA wanted to know how wetlands were changing within a 13-quadrant area since the Section 404 program came into full effect. Consequently, a study was designed to document wetland changes between 1980 and 1985/86. Wetland losses recorded by this study represent either permitted wetland alterations or unauthorized (illegal) activities.

STUDY AREA

The study area covers approximately 780 square miles in central Connecticut (Figure 1). It encompasses about two-thirds of Hartford County, and smaller portions of New Haven (22 percent), Tolland (13 percent) and Middlesex (16 percent) Counties. This area is specifically defined by the following large-scale (1:24,000) U.S. Geological Survey topographic maps: Avon, Branford, Broad Brook, Glastonbury, Hartford North, Hartford South, Manchester, Meriden, Middletown, New Britain, Rockville, Wallingford, and Windsor Locks.

METHODS

Wetland trends analysis involves comparing aerial photography from at least two time periods. For the present study, aerial photos from 1980 and from 1985/86 were examined to determine the extent of wetland changes (losses, gains or changes in wetland type) that occurred during that time period.

The 1980 photography was the 1:80,000-scale black and white panchromatic aerial photography used to prepare the original National Wetlands Inventory (NWI) maps. The 1985/86 photography was 1:58,000-scale color infrared aerial photography acquired by the National High-Altitude Photography Program (NHAP).

Wetlands and deepwater habitats were interpreted stereoscopically on the 1985/86 photography in accordance with standard NWI procedures. Wetlands and deepwater habitats were classified according to the Service's official wetland classification system (Cowardin, *et al.* 1979). Field work was conducted to correlate photo signature with various wetland types on the ground. Wetland

overlays showing wetland location, configuration, and type were prepared for aerial photographs covering the study area. This effort resulted in a 1:58,000 overlay for each work photo. This overlay was then reduced to a scale of 1:80,000 for use with the 1980 photography.

The 1980 photography, with the 1985/86 wetland overlay on it, was then viewed stereoscopically to identify changes in wetlands, such as new ponds, major changes in the vegetative composition of wetlands, and losses of wetlands. These changes were marked on the overlay. As changes were detected, the 1985/86 photography was re-examined to determine the cause of the change.

After completing annotation on the photo overlays, the overlays were photographically enlarged to 1:24,000 scale for area measurement. Acreage of each polygon on the overlay was measured by an electronic planimeter. Wetland acreage data were tabulated for the project area.

RESULTS

Current Status of Wetlands and Deepwater Habitats

In 1985/86, the study area contained 28,177 acres of wetlands. About six percent of the area was wetland. Deepwater habitats totaled 10,409 acres.

Vegetated wetlands (25,753 acres) predominated, representing about 91 percent of the region's wetlands. Palustrine forested wetlands were the most abundant wetland type (Table 1). They comprised 16,434 acres or 64 percent of the region's vegetated wetlands. Palustrine emergent wetlands, scrub-shrub wetlands, and mixed emergent/shrub wetlands accounted for 27 percent of the study area's vegetated wetlands. Since the study area included Branford and East Haven, some coastal wetlands were present. Estuarine emergent wetlands represented only three percent of the study area's vegetated wetlands.

Nonvegetated wetlands occupied 2,424 acres or about nine percent of the study area's wetlands. Most (2,201 acres or 91 percent) of these wetlands were freshwater ponds.

Most of the deepwater habitats in the study area were either lacustrine (4,888 acres) or riverine (4,607 acres). Estuarine waters totaled 914 acres.

Recent Wetland Trends

Losses in vegetated wetlands between 1980 and 1985/86 are outlined in Table 2. A total of 117 acres of vegetated wetlands were converted to nonwetland, while 28 acres were made into ponds. Palustrine emergent wetlands and forested wetlands experienced the greatest losses, with 59 acres and 53 acres lost, respectively. Thirty-two acres of palustrine scrub-shrub wetlands were destroyed, while only one acre of estuarine emergent wetland was filled for a house lot.

Table 3 summarizes the causes of vegetated wetland conversion to upland. Commercial development and highway/road construction were the most significant factors, combining for 35 percent of the conversions. Recreational facilities (e.g., golf courses), housing construction, and ditching also had substantial

adverse impacts.

Acreage of ponds decreased by a net of 24 acres between 1980 and 1985/86 (Table 4). Succession to vegetated wetlands, mining activities and undetermined causes were the leading factors of the 132-acre loss in ponds, while excavation of vegetated wetlands, construction of detention basins, highway-created impoundments, mining activities, and undetermined causes were mostly responsible for new pond creation. Sedimentation of ponds, presumably, caused 60 acres of ponds to become vegetated wetlands (i.e., 53 acres of emergent wetlands and 7 acres of scrub-shrub wetlands). The values of these newly established wetlands is undetermined, yet our current scientific knowledge suggests that they are not equivalent to the functions performed by natural wetlands (Larson and Neill 1987).

SUMMARY

In 1985/86, the central Connecticut study area possessed 28,177 acres of wetlands. About six percent of the land surface is occupied by wetland. Palustrine forested wetlands was the predominant wetland type.

Between 1980 and 1985/86, 145 acres of vegetated wetlands were destroyed. Pond construction, commercial, highway/road construction, recreational development (e.g., golf courses), home construction, and drainage by open ditches were the primary causes of wetland loss. Pond acreage, overall, declined by 24 acres during the study period.

ACKNOWLEDGEMENTS

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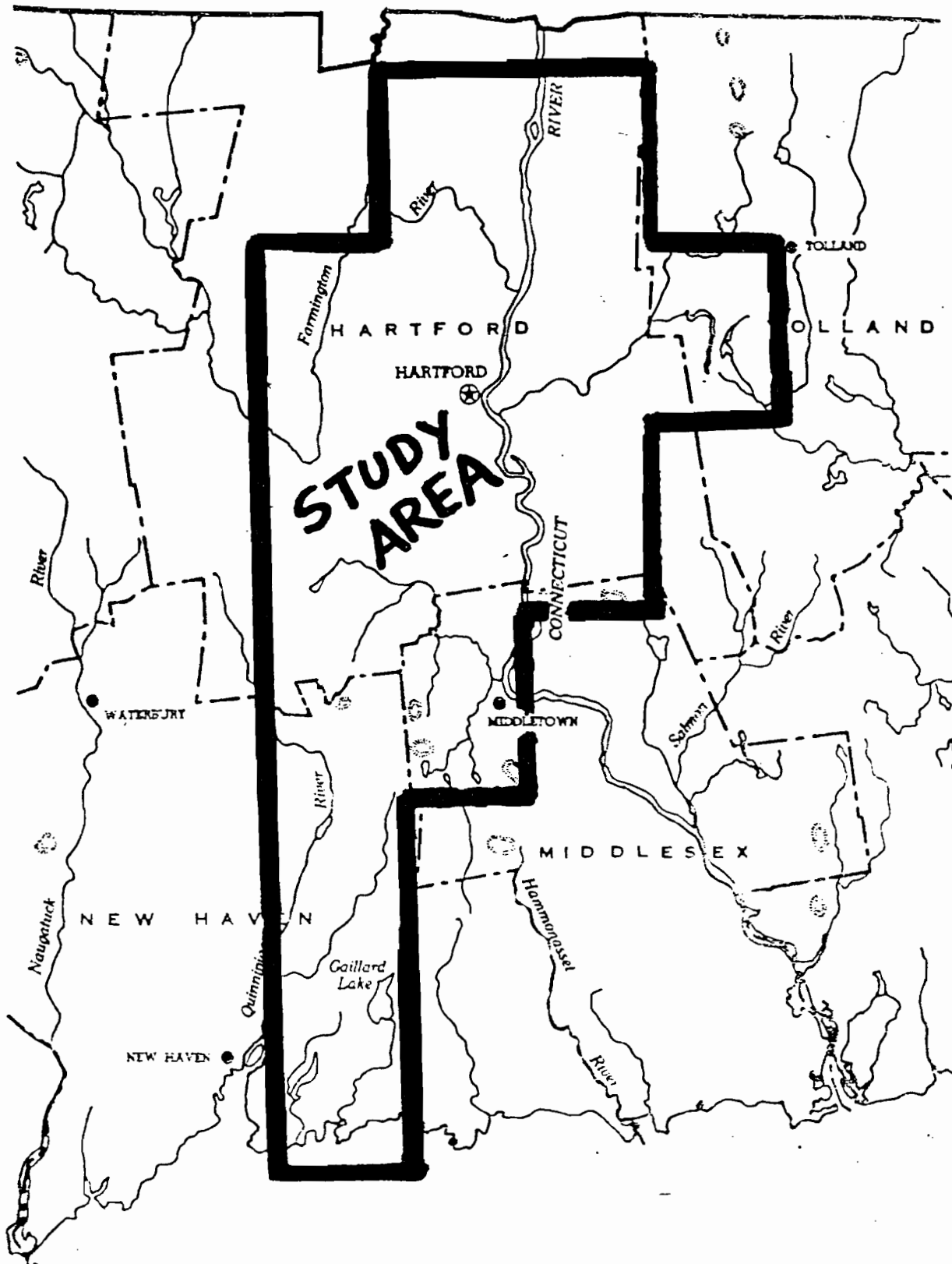


Figure 1. Approximate limits of the study area in central Connecticut.

Table 1. Extent of wetlands in the study area in 1985/86.

| <u>Wetland Type</u> | <u>Acreage</u> |
|--------------------------------------------------|----------------|
| ESTUARINE INTERTIDAL WETLANDS | |
| Unconsolidated Shores (Flats, Beaches, and Bars) | 113 |
| Emergent Wetlands | 843 |
| Rocky Shores | 26 |
| <u>Aquatic Beds</u> | <u>12</u> |
| Subtotal | 994 |
| PALUSTRINE WETLANDS | |
| Aquatic Beds | 23 |
| Emergent Wetlands | 2,789 |
| Mixed Emergent/Shrub Wetlands | 2,099 |
| Scrub-shrub Wetlands | 2,140 |
| Deciduous Forested Wetlands | 16,026 |
| Evergreen Forested Wetlands | 67 |
| Mixed Deciduous/Evergreen Forested Wetlands | 341 |
| Dead Forested Wetlands/Open Water | 59 |
| Mixed Forested/Shrub Wetlands | 1,201 |
| Mixed Forested/Emergent Wetlands | 153 |
| <u>Unconsolidated Bottoms (Ponds)</u> | <u>2,201</u> |
| Subtotal | 27,099 |
| RIVERINE WETLANDS | 52 |
| LACUSTRINE WETLANDS | 32 |
| <hr/> | |
| ALL WETLANDS (GRAND TOTAL) | 28,177 |

Table 2. Losses of vegetated wetlands in central Connecticut between 1980 and 1985/86.

| <u>Wetland Type</u> | <u>Cause of Loss</u> | <u>Acres Lost</u> |
|--------------------------------------|------------------------------------|-------------------|
| Palustrine Emergent Wetland | Pond Construction | 15 |
| | Highways/Roads | 11 |
| | Drainage by Ditching | 10 |
| | Housing | 7 |
| | Unknown | 6 |
| | Drainage by Opening Condemned Dams | 5 |
| | Mining | 4 |
| | <u>Agriculture</u> | <u>1</u> |
| | Subtotal | 59 |
| Palustrine Forested Wetland | Recreational Facilities | 11 |
| | Pond Construction | 11 |
| | Commercial Development | 9 |
| | Housing | 7 |
| | Highways/Roads | 7 |
| | Unknown | 4 |
| | <u>Other</u> | <u>4</u> |
| | Subtotal | 53 |
| Palustrine Scrub-shrub Wetland | Commercial Development | 12 |
| | Recreational Facilities | 5 |
| | Drainage by Opening Condemned Dams | 3 |
| | Drainage by Ditching | 3 |
| | Mining | 3 |
| | Highways | 2 |
| | Pond Construction | 2 |
| | <u>Industrial Development</u> | <u>2</u> |
| | Subtotal | 32 |
| Estuarine Emergent Wetland | Housing | 1 |
| <hr/> | | |
| GRAND TOTAL - ALL VEGETATED WETLANDS | | 145 |

Table 3. Causes of vegetated wetland conversion to upland (nonwetland) between 1980 and 1985/86.

| <u>Cause of Loss</u> | <u>Acres</u> | <u>Percent of Loss</u> |
|-------------------------------|--------------|------------------------|
| Commercial Development | 21 | 17.9 |
| Highways/Roads | 20 | 17.1 |
| Recreational Facilities | 16 | 13.7 |
| Housing | 15 | 12.8 |
| Drainage by Ditching | 13 | 11.1 |
| Unknown Cause | 10 | 8.6 |
| Mining | 9 | 7.7 |
| Draining by Deactivating Dams | 8 | 6.8 |
| Other Causes | <u>5</u> | <u>4.3</u> |
| | 117 | 100.0 |

Table 4. Changes in ponds between 1980 and 1985/86.

| <u>Change</u> | <u>Cause of Change</u> | <u>Acres Involved</u> |
|---------------|----------------------------------|-----------------------|
| Loss | Succession to Vegetated Wetlands | 60 |
| | Mining | 24 |
| | Undetermined Causes | 24 |
| | Drainage by Deactivating Dams | 8 |
| | Housing | 5 |
| | Agriculture | 3 |
| | Highways/Roads | 2 |
| | <u>Other Causes</u> | <u>6</u> |
| | Total Pond Loss | 132 |
| Gain | Excavation of Vegetated Wetlands | 28 |
| | Undetermined Causes | 19 |
| | Detention Basins | 16 |
| | Highway Impoundments | 14 |
| | Mining Ponds | 13 |
| | Farm Ponds | 9 |
| | Recreational Ponds | 7 |
| | <u>Other Ponds</u> | <u>2</u> |
| | Total Pond Gain | 108 |

