

Colonial impacts to wetlands in Lebanon, Connecticut

Robert M. Thorson

Department of Geology and Geophysics and Department of Anthropology, University of Connecticut, Storrs, Connecticut 06269-2045

Andrew G. Harris and Sandra L. Harris*

Department of Geology and Geophysics, University of Connecticut, Storrs, Connecticut 06269-2045

Robert Gradie III

Department of Anthropology, University of Connecticut, Storrs, Connecticut 06269-2176

M. W. Lefor

Department of Geography, University of Connecticut, Storrs, Connecticut 06269-2148

ABSTRACT

The expansion and contraction of the agricultural economy in Lebanon, Connecticut, a seventeenth century New England colonial village, was associated first with conversion of "wilderness" to a pastoral landscape, and later with nearly whole-scale reforestation. Freshwater wetlands throughout the area were strongly impacted by this discrete pulse of landscape disturbance, but the response of each wetland to local and upstream land use was site specific. The individualistic nature of wetland responses can be understood only by treating the drainage basin as a linked physical system that integrates geomorphic processes in a downstream direction.

Our study is based on the historical geography of 61 wetlands within a very small watershed (Susquetonscut Brook; 14 km²), on the stratigraphy of 18 widely distributed sites (as interpreted from conventional geomorphic, lithologic, radiocarbon, and pollen techniques), and on numerical modeling of historic flood discharges. Our results indicate that (1) presettlement wetlands were strongly impacted either directly or indirectly by English land-use practices; (2) the hydrogeologic setting of each wetland was responsible for either mitigating or amplifying these impacts at downstream sites; (3) the pulse of disturbance from the colonial period (1695–1787) continues to govern the modern sediment budget, flood regime, and riparian habitat of wetlands and watercourses throughout the area; (4) wetland impacts from Native American populations were not significant enough to be detected by our study; and (5) although many swamps were drained by the colonists, these wetland losses were more than offset by the amount of wetlands created.

*Present address: U.S. Geological Survey, Water Resources Division, Marlboro, Massachusetts 01752.