

How "Natural" Are Inland Wetlands? An Example from the Trail Wood Audubon Sanctuary in Connecticut, USA

ROBERT M. THORSON*

SANDRA L. HARRIS

Department of Geology & Geophysics

University of Connecticut (U-45)

345 Mansfield Road

Storrs, Connecticut 06269, USA

ABSTRACT / We examined the geology of a small inland wetland in Hampton, Connecticut to determine its postglacial history and to assess the severity of human impact at this remote wooded site. Using stratigraphic evidence, we demonstrate that the present wetland was created when sedi-

ment pollution from a 19th-century railroad filled a preexisting artificial reservoir, and that the prehistoric wetland was a narrow drainage swale along Hampton Brook. This same, severely impacted wetland was interpreted by the Pulitzer Prize-winning naturalist Edwin Way Teale as a beautiful wilderness area of particular interest. These conflicting perceptions indicate that artificial wetlands can be naturally mitigated in less than a century of healing, even in the absence of deliberate management. We also point out that the "wilderness" value of the Teale wetland was in the eye of the beholder and that unseen human impacts may have improved the aesthetic experience.

Beneath much of the controversy involving wetland regulation is the assumption that modern wetlands are ecologically sensitive natural systems that developed over millenia of postglacial time (Johnson 1985). Although this view is generally correct for large mires (Gore 1983, Walker 1970), is it equally true for small inland wetlands in the northeastern United States? Is the national zeal for wetland protection based on the public's appreciation of their biogeologic functions, or is our enthusiasm colored by an erroneous perception of wetland antiquity or naturalness? We especially want to protect our "best" wetlands, but what criteria are used to measure "quality" or "wilderness value?" We constantly hear about the sensitivity of inland wetlands, but over what time scale and at what resolution should "sensitivity" to anthropogenic changes be measured?

The public assumes that such questions have been readily answered by today's scientist-managers and that wetland truths are self-evident. Those of us who read this journal, however, know better. Gone are the euphoric days of the early 1970s when wetlands protection rode the wave of unquestioned public support (Reilly 1979). Unfortunately, we now work in a climate of public opinion clouded by litigation and that increasingly demands maximum value for every management dollar. In order for us, as environmentalists, to protect wetlands in such a climate, we must be prepared to give

the public technical and tactical answers to the questions posed above.

Since initial settlement in the early 17th century, the ecology and landscape of southern New England have been altered radically by agricultural and industrial land-use practices. Geomorphic theory alone would suggest that no part of New England's hydrologic system would have escaped human impact (Toy and Hadley 1987). Moving beyond theory, direct historic records of wetlands modification in Connecticut (Cronon 1983) parallel those in Europe, where "... few wetland ecosystems have escaped disturbance in one form or another." (Tallis 1983, p. 320). Modern studies confirm that historic impacts are common, if not ubiquitous (Barske 1988, Niering 1987), but seldom are these impacts quantified, measured, or evaluated relative to the presettlement character of the wetland (Brugam 1975, being a notable exception). Central questions involving the perceived antiquity, sanctity, and sensitivity of our inland wetlands can only be addressed when we have learned their aggregate life histories and ecologic trajectories.

In this article, we examine the history of a single small wetland in the woodlands of northeastern Connecticut, USA. Our objectives are to show how geological methods may be used to reconstruct the sequence of events, to document the postglacial stratigraphy at this site, and to illustrate how rapidly this wetland revegetated and "recovered" after an apparently unrecognized disturbance. We chose our study site because it was perceived as "natural" and "wild" by a highly regarded naturalist only a century after its inadvertent creation. Our site, hereafter referred to as the Hamp-

KEY WORDS: Wetland history; Human impact; Wilderness; Geology

*Author to whom correspondence should be addressed.