Regulatory Compliance and Ecological Performance of Mitigation Wetlands in an Agricultural Landscape

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ABSTRACT

The success of wetland mitigation projects nationwide is typically assessed by comparing the total number of wetland mitigation acres attained to the total number of mitigation acres required by Section 404 permits. In the absence of performance measurements on mitigation wetlands, the success of compensatory mitigation in replacing the ecological value of impacted wetlands is increasingly questioned by wetland scientists. This study focuses on evaluating regulatory compliance and ecological performance of mitigation wetlands in Iowa. Regulatory compliance was determined by comparing delineated wetland areas to permitted losses and by evaluating completeness of permit conditions at 24 randomly selected Iowa Department of Transportation wetland mitigation sites. In a separate study, intensive biological inventories were used to evaluate ecological performance at 12 mitigation and 3 reference wetlands. Species richness and abundance data were collected on algae, protozoa, aquatic invertebrates, butterflies, amphibians, reptiles, birds, and mammals at each site. Species richness and diversity at mitigation sites and reference sites were compared to determine whether mitigation wetlands are performing differently than reference wetlands in Iowa. The results are valuable for building and expanding the tools and knowledge necessary to effectively assess and manage the ecological performance of compensatory mitigation wetlands and improve the ecological effectiveness of wetland mitigation.

Key words: agricultural landscape—ecological performance—regulatory compliance—wetland mitigation