

PRESERVATION OF WETLANDS AS A PREFERRED OPTION FOR IMPACT MITIGATION

James F. Renner

AUTHOR: Golder Associates Inc., 3730 Chamblee Tucker Road, Atlanta, Georgia 30341.

REFERENCE: *Proceedings of the 1995 Georgia Water Resources Conference*, held April 11 and 12, 1995, at The University of Georgia, Kathryn J. Hatcher, Editor, Carl Vinson Institute of Government, The University of Georgia, Athens, Georgia.

ABSTRACT

Current Section 404 regulatory policy focuses on wetland restoration and creation as the primary means of compensating for unavoidable wetland impacts. However, most wetland restoration and creation projects are inefficient; restoration efforts are often expensive, confined to small parcels, not coordinated with regional conservation plans, and of questionable functional value. In contrast, preserving existing wetlands is a cost-effective means of maintaining and enhancing a wide variety of aquatic ecosystem functions, and can be more easily directed within the framework of a statewide resource protection plan. Therefore, wetland preservation meets the goal of the Clean Water Act to restore and maintain the integrity of the nation's waters, and the Section 404 permitting program should favor impact mitigation plans that emphasize wetland preservation over restoration or creation.

INTRODUCTION

The 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency and the Corps of Engineers regarding implementation of Section 404(b)(1) guidelines requires that efforts to mitigate impacts to wetlands proceed in a sequence of avoidance and minimization of impacts, and then compensation for resources that are unavoidably impacted. Compensatory mitigation focuses on replacement of impacted wetlands by restoring former wetland or creating new wetland, and the MOA states that "simple purchase or 'preservation' of existing wetlands resources may in only exceptional circumstances be accepted as compensatory mitigation." The rationale for this statement is the Section 404 programmatic goal of no net loss of wetlands. However, wetland preservation meets the overall goal of the Clean Water Act to restore and maintain the chemical, physical, and biological integrity of waters of the United States. Considering the uncertainty of success in restoring wetland functions, preservation of existing wetlands may be the most effective and cost efficient means of maintaining and enhancing the widest range of aquatic ecosystem functions. Therefore, evaluation of impact mitigation proposals during the Section

404 permit review process should favor plans that emphasize wetland preservation.

DISADVANTAGES OF WETLAND RESTORATION

Wetland restoration projects are not working despite large expenditures of money (Kusler, 1993). Although current policy for compensatory mitigation of wetland impacts focuses on wetland restoration, this has proven to be an inefficient and ineffective way to restore or even maintain the integrity of the nation's waters. The failure of wetland restoration is often related to the expense, but several philosophical questions are also important:

- The typical project budget is limited. Therefore, data gathering efforts may be inadequate for preparing a long-term restoration design. Also, soil preparation and the diversity, quantity, and quality of introduced plant material often fall victim to cost-cutting efforts.
- Requiring high replacement ratios in order to offset the uncertainty of successful wetland restoration has limited benefit, because the typical permittee will attempt to reduce costs by expending less money per replacement unit. In other words, as uncertainty over successful restoration increases, the effort expended to reduce uncertainty may decrease.
- There are hidden environmental costs of altering an existing habitat with functions and values in its present state in the hopes of improving wetland functional values (Kruczynski, 1990). For example, it would not usually make sense to propose excavating upland portions of a hardwood forested floodplain simply to increase the amount of bottomland swamp.
- While it is possible to restore or create certain physical wetland functions (e.g. floodwater detention or erosion protection), many complex physico-chemical and biological processes can only be restored with great difficulty, expense, luck, or time, or cannot be restored at all (the bog turtle cannot be introduced to wetlands in north Georgia if bog turtles are extinct). Many wetland features can only be expected to develop if there is a good deal of interconnection with existing wetlands and an adequate buffer zone to protect the areas from nearby activities.

- The issue of wetland restoration versus creation, enhancement, or preservation is often semantic. For example, ditched pine plantation in southeast Georgia has been proposed by the Georgia Department of Transportation for wetland restoration. In fact, many of these sites are still jurisdictional wetland, despite extensive ditching. The argument could be made that filling the ditches and allowing the original canopy components to return is true restoration, but it might also be asserted that filling the ditches is merely enhancement of an existing wetland. In either case, the functional goals achieved by filling the ditches are difficult to describe, and not much more is accomplished than preservation of a tract of disturbed wetland with the hope that it becomes something else.
- In the Piedmont, restoration efforts often focus on restoring a wetland hydrologic regime to drained agricultural land on the floodplains of larger streams. In many cases, these environments are not "native" to the area, but were created by poor agricultural practices within the last 200 years (Barrows et al., 1917).

ADVANTAGES OF WETLAND PRESERVATION

Wetlands are vital ecosystem components that perform functions directly beneficial to man (Hammer and Bastian, 1989). In Georgia, natural area preservation and river corridor protection are critically necessary to plan for and accommodate future growth and to preserve environmental quality (Odum and Turner, 1987). Therefore wetland preservation should be a top priority for resource protection efforts. The impact mitigation requirements of the Section 404 permitting program offer an exceptional opportunity to immediately implement a wetland preservation program, and wetland preservation offers several benefits that cannot be matched by wetland restoration or creation:

- Numerous local and regional conservation goals can be met simultaneously. If a coherent strategy for wetland preservation is developed, Clean Water Act permitting requirements can directly aid regional conservation efforts (such as river corridor protection), be easily incorporated into wetland banking systems, and spur land use planning efforts.
- Preserved wetlands are often larger than constructed wetlands and connected to other important features, so land use planning and management efforts can more readily treat wetlands as ecosystem components rather than as individual isolated parcels.
- Critical resources can be protected (e.g. endangered species habitat or strategically located flood storage areas).
- Large tracts of existing wetland often can be purchased for less money than it costs to construct a very small wetland. For example, costs for minor earth-moving,

finish grading, soil preparation, revegetation, and erosion control can easily approach \$25,000 per acre, excluding land acquisition costs. On the other hand, bottomland hardwood swamp and river corridor in rural Georgia can be purchased for less than \$2000 per acre.

- Preserving high quality wetlands is necessary to improve the success of future wetland restoration efforts because restoration of wetland functions often requires translocation of physical, chemical, and biological components from existing wetlands over time.
- Land trusts and other conservation organizations may be interested in assuming responsibility for long-term monitoring and management of preserved wetlands, and these organizations normally can pay better attention to monitoring than a permittee. Conservation organizations are less interested in restored wetlands because the wetlands do not normally offer any immediate resource value consistent with the group's conservation goals (except in special cases, such as constructed waterfowl habitat).

REGULATORY POLICY DISCUSSION

Despite these advantages of preserving wetlands versus restoring wetlands, two arguments are usually made against allowing wetland preservation to satisfy impact mitigation requirements. The most common argument is that the Section 404 permitting program already protects wetlands so preserving existing wetlands has little impact mitigation value. This argument is invalid. If wetlands were universally protected, there would be no need for impact mitigation. In fact, Section 404 requires the Corps of Engineers to issue permits for projects that are not contrary to the public good. In a few years there will be 10 million people in Georgia, and it is not reasonable to believe that the Corps will stop issuing permits as development pressure increases. In addition, many logging and agricultural practices that may adversely affect certain wetland functions are exempt from Section 404 regulation. Finally, many Nationwide Permits have been issued to the general public that authorize certain activities without regard for the functional value of the wetland to be impacted.

The second argument stems from the programmatic goal of no net loss of wetlands. It is true that merely preserving existing wetland results in a net loss of wetland, but as stated above, net loss of either functions or acreage is inevitable with restoration as well, since total duplication of a naturally occurring wetland is impossible (Kusler and Kentula, 1990). Wetland restoration may effectively restore certain wetland functions (that can also easily be accomplished by "hard" engineering methods), but the multitude of interactions between water, soil, plants, animals, and microbes is only developed over time and in communication with other natural environments. This inadequacy is often exacerbated

by the fact that without preservation of surrounding buffer areas many created or restored wetlands are adversely impacted by adjacent land uses and may never perform all of the functions of an existing wetland system. Preservation of existing high quality ecosystem components is therefore a necessity if the integrity of the nation's waters is to be maintained and restoration efforts are to succeed over time.

The MOA states that the appropriate level of mitigation should be based on values and functions of the impacted aquatic resources. The MOA also states that permit decisions may be made that do not fully meet the goal of no net loss because mitigation measures are not feasible, not practicable or would accomplish only inconsequential reductions in impacts. There are many situations where the functional value of impacted wetlands is low, and the functional value of restored wetlands is uncertain. In such cases, great effort and money may be expended to achieve only an "inconsequential reduction in impacts." For example, a recent permit application by the Department of Transportation to widen U.S. 341 in Glynn County requested authorization to fill 100 plus acres of wetland consisting exclusively of wetlands immediately adjacent to the existing roadway. Would the integrity of the nation's waters have been maintained by insisting that the DOT modify the hydrology of 200 acres of ditched pine plantation, or were the impacts of the project adequately offset by purchase and preservation of 1300 acres of Altamaha River swamp?

With regard to impact mitigation sequencing required by Section 404(b)(1) guidelines, impact minimization measures are preferred over compensatory mitigation. It can be argued that preserving existing wetland should be preferred over restoration or creation because preservation is actually a means of minimizing impacts rather than replacing resources. By preserving wetland, the severity of loss of a given wetland is minimized because there is a guarantee that other wetlands will be present in the future to perform certain functions. For example, the adverse impacts of a fill activity along Big Sandy Creek in Wilkinson County may be minor because there are extensive tracts of mature bottomland hardwood swamp along much of the creek. However, a small fill on the floodplain of Big Creek in north Fulton County deserves close scrutiny because much of the floodplain (and watershed) has already been modified by development. In this light, wetland preservation is also the only effective way to mitigate cumulative impacts.

CONCLUSION

While efforts to restore or create wetlands have some merit, they usually do not meet the Section 404 programmatic goal of no net loss of wetland functions and values. Therefore, they do not meet the overall Clean Water Act goals of either restoring or even maintaining the chemical, physical, and biological integrity of the nation's waters. On the other hand,

preservation of wetlands is a critical element in maintaining water quality, and preservation of high quality wetlands is necessary to insure the success of future restoration efforts. Wetland preservation is an ecologically sound and efficient means of protecting the integrity of the nation's waters. Section 404(b)(1) impact mitigation sequencing guidelines should require that preservation, in combination with limited on-site wetland replacement, be viewed more favorably than wetland restoration by itself, regardless of the ratios at which the replacement is proposed to occur.

LITERATURE CITED

- Barrows, H.H., J.V. Phillips, and J.E. Brantley, 1917. *Agricultural Drainage in Georgia*. Georgia Geological Survey Bulletin No. 32.
- Hammer, D.A. and R.K. Bastian, 1989. Wetlands Ecosystems: Natural Water Purifiers? in *Constructed Wetlands for Wastewater Treatment*. D.A. Hammer, ed. pp. 5-19.
- Kruczynski, W.L., 1990. Mitigation and the Section 404 Program: A Perspective. in *Wetland Creation and Restoration The Status of the Science*. J.A. Kusler and M.E. Kentula, ed. pp. 549-554.
- Kusler, J.A., 1993. Advance Planning of Wetlands: Wetlands and Watershed (Water Resources) Management A Background Paper. in *Background Report Wetlands and Watershed (Water Resources) Management Addressing the Tough Issues*. J.A. Kusler, ed. Association of State Wetland Managers Symposium April 29-30, 1993. pp. 1-20.
- Kusler, J.A. and M.E. Kentula, 1990. Executive Summary. in *Wetland Creation and Restoration The Status of the Science*. J.A. Kusler and M.E. Kentula, ed. pp. xvii-xxv.
- Odum, E.P. and M.G. Turner, 1987. *The Georgia Landscape: A Changing Resource*. Final Report of the Kellogg Physical Resources Task Force. University of Georgia. Institute of Ecology.