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The Movement in the United States to Restoration and Creation of Wetlands

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THE MOVEMENT IN THE UNITED STATES TO RESTORATION AND CREATION OF WETLANDS

ABSTRACT

This article is an effort to encapsulate the American wetlands experience so that non Americans involved with wetlands might see if the experience has anything to offer without the necessity of having to go through the whole experience themselves. The result is to give an overview of how wetlands policy has changed over the years and as many of the factors as possible impelling the changes. The policy shift traced is from one of wetlands drainage to one of wetlands restoration and creation with some detailed discussion of the contexts in which the restoration and creation efforts arise. Because the jury is still out on many of the restoration and creation efforts, the experience may well suggest a generally accepted wish that we had destroyed fewer wetlands in the course of our early history.

I. AN HISTORICAL OVERVIEW OF WETLANDS POLICY IN THE UNITED STATES

The United States of America had its time when it was draining everything in sight to make communities healthful and the country-side suitable for agriculture. The Oregon Supreme Court put it succinctly in 1922:

The interest of the people of this state demands that as far as possible all the swamps, marshes, swales, and wet land that

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1. "A large district in the northwest portion of this state... is so destitute of ravines and natural channels, as to render the appellation of 'black swamp' appropriate and familiar, and the district proverbial—more so probably than it really deserves—for dampness, miasm, and disease." Reeves v. Treasurer, 8 Ohio St. 278, 287-88 (1859); see also Anderson v. Kerns Draining Co., 14 Ind. 199 (1860).
2. State acts went so far as to give a farmer the power of eminent domain to do this. Mo. Rev. Stat. §§ 4489-4499 (1889) ("for agricultural purposes only"). This statute is still on the books in altered form. Mo. Stat. Ann. §§ 244.010 to .130 (1990) ("for sanitary or agricultural purposes").
can be successfully and conveniently drained and reclaimed should be permitted so to be treated . . . .

Congress got into this act by turning over federally owned swamplands to the states as early as 1850 to be drained. Thus to reach a position of pro-wetlands preservation such as announced by former President George Bush in the presidential campaign of 1988 or as prescribed in the legislation of many states, a substantial transition had to take place. In the meantime over 50 percent of the wetlands in the United States had been drained or filled and converted to other uses.

3. Harbison v. City of Hillsboro, 204 P.2d 613, 618 (Or. 1922).
   [To enable the State . . . to construct the necessary levees and drains to reclaim the swamp and overflowed lands therein, the whole of those swamp and overflowed lands, made unfit thereby for cultivation, which shall remain unsold at the passage of this act, shall be, and the same are hereby, granted to said State.]

Id. § 1. Although section 1 read in terms of Arkansas alone, section 4 of the Act extended the Act to "each of the other States of the Union in which such swamp and overflowed lands, known as designated aforesaid, may be situated." See also Act of Mar. 2, 1849, ch. 87, 9 Stat. 352 (1849); Act of Mar. 2, 1855, ch. 147, 10 Stat. 634 (1855); Act of Mar. 3, 1857, ch. 117, 11 Stat. 251 (1857); Act of Mar. 12, 1860, ch. 5, 12 Stat. 3 (1860); Act of July 23, 1866, ch. 219, 14 Stat. 218 (1866); see Gorman, Wetlands? Wetlands? Whatever Happened to Swamps?, Audubon, May-June 1992, at 82.


Congress responded not only with the North American Wetlands Conservation Act noted above, but included the following language in the: There is established, as part of the Corps of Engineers water resources development program, an interim goal of no overall net loss of the Nation's remaining wetlands base, as defined by acreage and function, and a long-term goal to increase the quality and quantity of the Nation's wetlands, as defined by acreage and function.


6. E.g., Illinois: "that there be no overall net loss of the State's existing wetland acres or their functional value due to State supported activities." S.H.A. 20 ILCS 830/1-4 (West 1993) (Ill. compiled statutes).

7. See discussion infra part II(A). Note, however, the definitional problem later in this discussion. See discussion infra part II(C)(1).
Perhaps it was the duck that began the turn-around in attitude in the United States. The United States has always been a nation of hunters from the native buffalo hunters and the colonists putting food on the table to the recreational hunter of today. Regardless of the controversy recreational hunting might cause, it became and remains an important recreational event in the life of many Americans.

In 1913 Congress exercised jurisdiction over migratory birds, declaring them to be within federal protection and authorizing the Department of Agriculture to set hunting limits. In 1916 the United States entered into the Convention Between the United States and Great Britain [for Canada] for the Protection of Migratory Birds, and in 1918 Congress enacted the Migratory Bird Treaty Act to carry out the Convention. In 1929 Congress authorized the acquisition of land to be used for sanctuar-

8. See McHugh, The Time Of The Buffalo (1972).
10. See note 12, infra.
11. Already in 1894, Henry Salt was to describe the growing practice negatively: Modern sport, however, as usually carried on in civilised European countries, has degenerated into what has been well described as 'amateur butchery,' a system under which the slaughter of certain kinds of animals is practiced less as a necessity than as a means of amusement and diversion. . . But the sporting instinct is due to sheer callousness and insensibility; the sportsman, by force of habit, or by force of hereditary influence, cannot understand or sympathize with the sufferings he causes, and being, in the great majority of instances, a man of slow perception, he naturally finds it much easier to follow the hounds than to follow an argument.
Salt, Animals' Rights 53-54 (1894). By the 1980s the interference with hunting had grown to such an extent that many states passed hunter anti-harrassment acts. See, e.g., S.H.A. 720 ILCS 125/1 to /4 (West 1993) (Ill. compiled statutes; enacted in 1983). Dorman v. Satti, 862 F.2d 432 (2d Cir. 1988), holds a similar Connecticut statute enacted in 1985 unconstitutional as violative of freedom of speech.
12. The Report Of The President's Commission: Americans Outdoors (1987) noted that 21 percent of the 2,000 persons in the data base indicated participation in hunting one or more times per year. This figure includes people indicating participation "sometimes," "often," and "very often." Id. at 51. Between 1987 and 1988 the number of licensed hunters in Illinois grew 2.4 percent from 320,682 to 328,369 while nationally the number grew 4 percent from 30,345,714 to 31,478,490. "What the Numbers Show," Outdoor Highlights, Aug. 24, 1989, at 24, col. 1. The Illinois revenue growth in permits, tags, and stamps went from $4,984,38 to $5,547,227. Id. Illinois estimates an additional 80,000 hunters exempt from licensing. Id.
On attitude and philosophy, see U.S. Dep't Of The Interior, Waterfowl Tomorrow 707-715 (J. Linduska Ed. 1964).
ies for migratory birds. Acquisition of land lagged despite an effort by Congress in 1934 to fund acquisition through the sale of migratory-bird hunting stamps. In January of 1937, an organization of private parties, Ducks Unlimited, was formed to attempt to deal with the problem of decreasing habitat. Congress dedicated a previously levied excise tax on hunting equipment to be used for acquiring waterfowl wetlands habitat.

In 1970 Congress established a program to pay farmers to

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In 1958 Congress amended the law to allow the money to be used for "small wetland and pothole areas, interests therein, and rights-of-way to provide access thereto (Waterfowl Production Areas (wpas))." Pub. L. No. 85-585, § 3, 72 Stat. 486, 487 (1958); see Resman, Federal Wetlands Acquisition Program, N.D. Outdoors, Mar. 1977, at 12. The United States as of March 1977 had acquired 1,040 wpas in North Dakota varying from 15 to 5000 acres with 190 acres the average.

Through fiscal year 1989, 23,000 easements on over 1.2 million acres and fee ownership of 564,000 acres of small wetland areas had been acquired. GAO, Wetlands Overview: Federal and State Policies, Legislation, and Programs 23 (1991) [hereinafter GAO].


preserve wetlands habitat for waterfowl. Of course waterfowl besides those being hunted and even other species benefited.

The federal acquisition programs were successful to the point that in one prime waterfowl wetlands habitat state, North Dakota, the government officials became alarmed over loss of agricultural land and reduction in the tax base, and the legislature passed restrictive measures on future acquisitions. However, with many federal agricultural programs continuing to encourage drainage, federal policy still had not tipped in favor of wetlands preservation.

In 1985 Congress enacted the "swampbuster" provisions and the Conservation Reserve Program (CRP). The basic idea of the swampbuster provisions is to make any farmer who grew crops on wetlands ineligible for various federal farm programs. The basic idea of the CRP is to take land out of crop production including cropped wetlands, amendments in 1990 included an environmental easement.


25. As of July 1991, almost 34.5 million acres had been enrolled in CRP of which about 410,000 acres were wetlands. GAO, supra note 17, at 22.
program to protect environmentally sensitive lands which could include wetlands, and a wetlands reserve program.

Like the federal government, states also began to change their attitudes and to counter-balance or remove pro-drainage incentives. This change came with the understanding not only about the loss of waterfowl habitat but about the many other purposes that wetlands serve. Because drainage districts were the principal vehicles for accomplishing larger scale drainage projects, states began requiring consideration of wetland values when future drainage projects are planned. Finally states have enacted statutes encouraging or even mandating wetlands preservation.

One federal program for preserving wetlands now goes beyond just providing excise tax money for waterfowl wetlands habitat acquisition or paying farmers to preserve waterfowl wetlands habitat. This program prohibits "the discharge of dredged or fill material" into waters of the United States without a permit from the United States Army Corps of Engineers.


28. E.g., Illinois lists the following benefits: Reducing flooding through absorbing and storing rainwater and snowmelt; improving water quality through filtering and biological treatment; serving as habitat for many other species (providing water, food, and sanctuary); protecting underground water supplies; serving as recreational areas unrelated to waterfowl; providing open space and aesthetic value; providing research and educational opportunities; and protecting against erosion. S.H.A. 20 ILCS 830/1-2(c) (West 1993) (Ill. compiled statutes); see also Maloney & Plager, Diffused Surface Water: Scourge or Bounty?, 8 Nat. Res. J. 72 (1968).


30. E.g., already by 1955 the Oregon legislature amended its drainage code to provide that in "considering the benefits to be derived from drainage, consideration shall also be given to possible harmful effects upon ground water supplies and protection of wildlife." Or. Rev. Stat. § 536.310(6) (1988). In 1975 environmental criteria for judging drainage projects were to become effective in Minnesota, 1974 Minn. Laws ch. 352, which today read as follows:

Before establishing a drainage project the drainage authority must consider:
(1) private and public benefits and costs . . . ;
(4) flooding characteristics of the property . . . ;
(7) fish and wildlife resources affected . . . ;
(8) shallow ground water availability . . . ; and
(9) the overall environmental impact of all the above criteria.


[In establishing or in constructing the drainage project] the . . . authority having jurisdiction . . . must give proper consideration to conservation of soil, water, forests, wild animals, and related natural resources . . . .

Id. § 103E.015(2).

Included within waters of the United States are wetlands but the scope of the definition of wetlands is unsettled. Regardless of its scope, however, it is clear that the program does not protect wetlands from being drained. Thus it becomes important not only to understand the role that state law plays but to acknowledge the role that other private groups besides Ducks Unlimited play. For example, in Illinois the last remaining cypress swamp area has been protected to a larger degree than before because of the Nature Conservancy and other organizations. These organizations acquired substantial acreage in the area and worked with the United States Fish and Wildlife Service to create a new national wildlife refuge.

32. 33 U.S.C. § 1344(a) (1988). The Corps had this authority from 1899, but the Corps early focus was not on wetlands preservation, rather it was on protecting navigability. Rivers and Harbors Act of 1899, ch. 425, §§ 10, 13, 30 Stat. 1121, 1151, 1152, (1899) ("excavate or fill", § 10; "discharge, or deposit . . . refuse matter", § 13). While the focus on navigability remained, the focus began to broaden with court decisions in 1960, 1966, & 1970, to include environmental considerations. United States v. Republic Steel Corp., 362 U.S. 482 (1960); United States v. Standard Oil Co., 384 U.S. 224 (1966); Zabel v. Tabb, 430 F.2d 199 (5th Cir. 1970), cert. denied 410 U.S. 910 (1971). Congress gave its stamp of approval to the enlarged focus in 1972, but put much of the pollution control power into the United States Environmental Protection Agency (EPA). However, the Corps retained power over the deposit of dredged and fill material, but it was to be shared with the EPA in that the Corps was to follow EPA guidelines in issuing permits, 33 U.S.C. § 1344(b) (1988), and the EPA could overrule a Corps decision to grant a permit, 33 U.S.C. § 1344(c) (1988). See generally Beck & Goplerud, Wetlands Preservation, in 5 Waters and Water Rights 1991 Edition § 61.03(c) (Beck ed., 1991 & Supp. 1993).

33. See discussion infra part § II(C)(1). Clearly this program is not limited to wetlands on farms and ranches, indeed a recent administrative proposal would have removed a considerable portion of the farm wetlands from the scope of the program. Corps Redefines Wetlands to Exclude Farms, U.S. Water News, Nov. 1990, at 1. In United States v. Riverside Bayview Homes, 474 U.S. 121 (1985), the Court upheld the basic program definition but left open the question of Corps jurisdiction over isolated wetlands, that is wetlands not adjacent to an open body of water.

34. The Clean Water Act prohibition is against the discharge of dredged or fill material. See supra text accompanying note 32.


There are, however, state and local government concerns about these efforts not unlike North Dakota's concern with federal programs taking land off the active tax rolls and reducing the resource base for an agricultural economy. Just as there have been roadblocks to the direct acquisition approach, there have been roadblocks to the regulatory approach. The principal of these roadblocks is that a private landowner who is restricted in the use of his or her land may claim that the land has been taken for public use without the payment of just compensation in violation of the United States Constitution. An increasing number of cases have legitimized that claim. This may explain why only one state has taken over administration of the Corps dredge and fill material permit program. It may explain also why a number of states that have announced a no-net-loss-of-wetlands goal, have limited their legislation so far to state government action.

Within the last decade a new phenomenon has been growing, the use of wetlands as a tool for curing specific pollution problems such as disposal of municipal waste water and acid mine drainage. While these efforts might use existing wetlands, they generally involve the creation of new wetlands.

38. See discussion infra part II(B)(4).
40. E.g. Illinois. See supra note 6. To date efforts to broaden that scope have failed. See Bell, Illinois Wetlands: Their Value and Management 58, 60 (1981), for a discussion of the proposed Illinois Wetland Protection Act of 1981 (HB 1882), which would have established a permitting system for depositing or removing dredge and fill material in or from a wetland, constructing in a wetland, and draining a wetland. Two recently introduced bills proposing broader Wetland Protection Acts, H.B. 2554 (1991), and H.B. 2555 (1991), were tabled. 2 Illinois Legis. Synopsis & Digest 1371 (1992-93).
43. See notes 41 & 42, supra. Created and restored wetlands are the topic of Part III.
With the growth in awareness of the important roles of wetlands and the myriad other environmental problems that exist in the United States, there appears to be a growing commitment to more holistic approaches to natural resource issues. Particularly relevant are the watershed protection approach as to wetlands and the larger "ecosystem" approach to environmental and natural resource management and regulation in general.

44. Reports estimate the economic value of existing wetlands at $10 billion for commercial marine harvest, at $300-400 million for fur harvest; and $10 billion for recreation. See Miller, Why the Fuss About Wetlands?, Mo. Conservationist 30 (July 1992).


46. Defined as an approach that:

- promotes a comprehensive, watershed-based approach to water quality management. It is intended to be a vehicle to promote incremental improvements in the way we approach the task of protecting watersheds.
- A central feature of this approach is its targeted geographic focus. All water quality assessment, planning, and control tools are brought to bear on a particular water resource.


This really is a return to watershed focus by the federal government. River basin commissions were established in 1965 to prepare basin plans but were later terminated. Exec. Order No. 12,319, 46 Fed. Reg. 45,591, 42 U.S.C. § 1962b (1988). Furthermore, the Federal Water Pollution Control Act Amendments of 1972 contemplated at least something akin to the watershed approach in the "areawide waste treatment management" focus. 33 U.S.C. § 1288 (1988). However, this focus fell by the wayside until now.

47. Both William K. Reilly, the former Administrator of the EPA, Carol Browner, Reilly's successor, and Bruce Babbitt the new Secretary of the Interior have embraced the concept. See Interior to Take Ecosystem Approach to Species Management, Babbitt Tells Panel, [Current Developments] Env't Rep. (BNA) 2728 (Feb. 19, 1993). The EPA has recognized the interconnectedness of the ecosystem approach and the watershed protection approach as "having common roots, [and being] complementary and potentially mutually supportive. Both look to a ecosystem-based approach to environmental management." EPA, News-Notes, Mar. 1993, at 4. See generally Beck, supra note 46.
II. INABILITY TO PRESERVE REMAINING WETLANDS

Despite the changed attitudes noted in Part I, and the resultant increased effort to protect existing wetlands, it is clear that a substantial quantity of the existing wetlands will be destroyed.

A. The Statistics

A 1990 report indicates that in the contiguous United States, there were approximately 221,129,638 acres of wetlands in the 1780s of which approximately 104,374,314 acres remained in the 1980s, roughly a 53 percent loss. A 1991 updated report indicates that by the mid 1980s the figure was down to approximately 103.3 million acres. In the 1990 Report, seven states showed a 75 percent or over loss: California, Illinois, Indiana, Iowa, Kentucky, Missouri, and Ohio. An additional 15 states showed a 50 percent or more, but less than 75 percent loss: Alabama, Arkansas, Colorado, Connecticut, Delaware, Idaho, Maryland, Michigan, Mississippi, Nevada, New York, Ohio, Pennsylvania, Tennessee, and Texas. Only four states showed a loss under 25 percent: Georgia, Maine, New Hampshire, and West Virginia. However, some states had more wetlands than other states to begin with, particularly coastal states. So percentage of loss does not necessarily reflect the whole story.

Some remaining wetlands-rich states argue that they can still afford to lose wetlands. Consider, for example, the reactions from Alaska and Mississippi to the federal no-net-loss of wetlands program. Both legislatures passed objecting resolutions.


50. See Beck & Goplerud, supra note 32, § 61.01 at 51-52 (Supp. 1993).


52. For the particular importance of one desert privately created wetland, see Casey, Haven in the Desert, Am. Forests, July/Aug. 1992, at 46.

B. The Continuing Pressures

There are numerous continuing pressures that will result in additional wetlands being destroyed. The more significant ones are noted in this discussion.

1. Resource developers

Resource developers will continue to press for wetlands development. The development focus they present may vary from achieving a desirable end product, to that of adding to the tax base, or of creating new jobs.

The Corps receives about 10,000 permit applications per year of which it issues 6,500, denies 500 and sees 3,000 withdrawn. As of 1992, EPA had vetoed only 11 permits granted by the Corps.

2. Contiguous land-owners

Historically where a wetland has covered tracts owned by several persons, the owner of one tract who would like to preserve the wetland, would not have been able to stop the other owners from draining their portions which in turn affected the remaining wetland, probably even


55. See Salt Lake Airport Expansion Prompts Ugly Issue of Wetlands Remediation, U.S. Water News, Feb. 1992, at 14. The story reports that a proposed 1,500 acre created substitute wetland is questioned as to whether it will support as many species, whether there is enough water for it, and whether air traffic safety will allow it to exist.


destroying it. While a single owner, or even a group of owners, may not have as much force today, it is still an important pressure to be contended with.

3. Preserving the community tax base & economy

Citizens in various communities still oppose wetlands preservation when preservation conflicts with a development proposal. Sometimes this opposition is on the basis that the land would be better used by a job-producing enterprise or on the basis that as wetlands the land will either leave the tax rolls or be taxed only at a nominal value. These attitudes, and actions based on them will continue.

4. Avoiding a taking

With recent decisions from the United States Supreme Court and the United States Claims Court going in favor of landowners who have been denied development opportunities in wetlands, a considerable amount of literature evaluating the result has developed. The most


The following cases support the proposition that no riparian right attaches to diffused surface waters until they become a sufficiently defined body of water such as a river or lake: Nunn v. Osborne, 417 P.2d 571 (Okla. 1966); Terry v. Heppner, 239 N.W. 759 (S.D. 1931); Southern Ry. Co. v. Lewis, 51 So. 746 (Ala. 1910). See Lohman v. Comm'r, 282 N.W.2d 573 (Minn. 1979), where the water had passed the stage of being "mere" surface water. State v. Kansas State Board, 149 P.2d 604 (Kan. 1944), supports the theory that the landowner owns all of the diffused surface water just like the landowner owns the clay in the soil. Under either approach, the no-riparian-right approach or the ownership approach, the landowner is free to drain the water away as long as no harm is done to a lower landowner onto whom the water is drained.

60. This could be alleviated, at least partially, through an annual state grant to counties in lieu of taxes like Mo. Rev. Stat. § 254.110 (1986) (where privately owned forest croplands are enrolled and receive a tax break, state makes the grant in lieu of taxes).


recent opinion from the United States Supreme Court was in Lucas v. South Carolina Coastal Council. The apparent holding was that where a tract of land is rendered valueless by government action, the owner will be entitled to just compensation unless the owner had no right under pre-existing law to make the proposed uses of the land. However, the holding cannot be said to be definitive. First, the facts are striking. The plaintiff bought two lots in 1986 for $975,000 with a plan to build a house for sale on one of the lots in order to get the money to build a personal house on the second lot. The 1988 South Carolina Beachfront Management Act would not have allowed any permanent structures on either lot. The trial court found the parcels to be "valueless." Second, the opinion was fractured. Two justices dissented; another justice said the decision was premature; still another justice said the court's view of defenses to the takings claim was too narrow. Thus on precise formulation of the theory, we had a five to four decision; now one of the five has departed the court. On the other hand, in the claims court, the land was not "valueless" in those cases where compensation was awarded.


64. Lucas, 112 S. Ct. 2886.
65. For example nuisance law or the existence of restrictive covenants. Justice Scalia's examples were the application for a permit for a landfill that would cause flooding of someone else's land and the application for a permit for a nuclear plant to be built over an earthquake fault line. Extreme as these examples seem to be, Justice Scalia does appear to rely on the balancing approach to nuisance determination used by the Restatement of Torts. Id. at 2900.

On remand in Lucas, the South Carolina Supreme Court found no common law impediment to the development and, therefore, remanded to the trial court to determine damages for a temporary taking. Lucas, 424 S.E.2d 484 (S.C. 1992).

66. Justices Blackmun and Stevens.
67. Justice Souter.
68. Justice Kennedy, "reasonable expectations' analysis should not be limited to nuisance." Lucas, 112 S. Ct. at 2903.
70. See supra note 63 (U.S. Claims Court cases).
The net impact would appear to make government entities more reluctant to deny permits for development in wetlands, particularly if the remedy is an award of compensation for a taking rather than declaring the denial of the permit null.

C. The Loopholes

1. Unregulated areas

Estimates are that only about 20 percent of the activities destroying wetlands in the United States fall under §404 as it does not regulate drainage, ditching, and channelization for agriculture. States simply do not fill the gap. 74

71. And this appears to be the preferred remedy under federal constitutional law. See First Evangelical Lutheran Church v. County of Los Angeles, 482 U.S. 304 (1987).

72. Save Our Community v. E.P.A., 971 F.2d 1155 (5th Cir. 1992) (must have a "discharge"), rev'd 741 F. Supp. 605 (N.D. Tex. 1990) (holding mere drainage of wetlands to be prohibited without a permit).


States, like the federal government, often apply non-wetland specific statutes to protect wetlands. See, e.g., In Re Killington, Ltd., 616 A.2d 241 (Vt. 1992) (permit denied because development would impair bear habitat which includes wetlands). See also Salvesen, supra at 55-59, for the California discussion pointing out that California relies basically on two non-wetland specific statutes (Calif. Env'tl Quality Act of 1971 & Calif. Coastal Act of 1976).

States that might have construed their statutes as more comprehensive than the federal often have not. Thus although the New Jersey statute is more comprehensive than the federal in covering drainage, N.J. Stat. Ann. § 13:9B-3(2) (West 1991), as well as deposit of dredge and fill, it exempted activities for which the Corps of Engineers had issued an individual permit, N.J. Stat. Ann. § 13:9B-4d (West 1991). In A.R. Criscuolo & Assoc. v. Dep't of Env't, 592 A.2d 313 (N.J. Super. Ct. App. Div. 1991), the court approved extension of the exemption to activities that fell under a Corps of Engineers nationwide permit promulgated before July 1, 1988. However, the court does refer to Criscuolo as having "spent substantial amounts of time, effort and money." Id. at 318. For further restrictive application, see In re Waterfront Development, 608 A.2d 973 (N.J. Super. Ct. App. Div. 1992).
2. The definition of wetlands problem

a. in general

Section 404 of the Clean Water Act, noncomprehensive as it is, has become embroiled in a definitional problem. The superficial issues relate to whether some areas should be classified as wetlands at all and, where there are wetlands, to where the boundary between wetlands and non-wetlands should be drawn. Rarely is there an issue about the “wetter-end” of location. However, the underlying issue is reflected in the on-going policy debate that does not really question what wetlands are but asks, instead, are all wetlands worth saving. The result is further study. This brings us back to asking what are wetland values and which wetlands serve which values.


In making their determinations, the Corps and EPA will adhere to the Corps of Engineers Wetlands Delineation Manual . . . [of January, 1987] until further notice, as well as EPA guidance on isolated waters, and other guidance, interpretations, and regulations issued by EPA to clarify EPA positions on geographic jurisdiction and exemptions.


78. One has been undertaken by the National Academy of Sciences. See NAS Study, supra note 75; White House to Create Wetlands Task Force in Response to Request from Southern Senators, [Current Developments] Env’t Rep. (BNA) 48 (May 14, 1993).

The most interesting comment on the problem is from Professor Leitch at North Dakota State University noting that "scientists baited the public with wetland, and switched to wet land when proposing public policy." U.S. Water News, Dec. 1992, at 12 (emphasis added).

79. See also discussion infra parts II(C)(2)(c), III(E)(3)(b).
b. isolated wetlands

When the United States Supreme Court decided United States v. Riverside Bayview Homes, Inc. it made a point of noting that the wetlands there involved were "adjacent to bodies of open water" and that it was saving for another day the issue of whether the Corps' jurisdiction extended to nonadjacent or isolated wetlands. Leslie Salt Co. v. United States, involved pits that had been used to deposit calcium chloride and shallow basins that had been used for crystallizing salt during salt production. The salt production ceased in 1959 but the pits and basins remained, filling with water during the rainy season. Fish lived in the pits and plant life formed in the crystallizing basins after the property was plowed in 1983. Culverts connected part of the property to Newark Slough about one-fourth mile away. In 1985 Leslie Salt began efforts to drain the land, and the Corps issued a cease and desist order as Leslie Salt did not have a section 404 permit. The District Court held for Leslie Salt finding the Corps without jurisdiction, but the Ninth Circuit reversed. While the Circuit found some of the land as adjacent to the Slough because of the culverts and therefore falling within Riverside Bayview Homes, it found, with one judge dissenting, that the pits and basins qualified as "other waters" because they were used by migratory birds and at least one endangered specie. That to the Circuit was a sufficient commerce clause connection. Although the Seventh Circuit had rejected the use by migratory birds as sufficient, it later vacated the opinion. The issue is still open.

c. classification

The notion behind classification is that the values of a particular wetland will be identified and its status in the scheme of things determined. One can imagine all sorts of permutations, but consider just the simple situation posed by Virginia Albrecht:

Even those that seem equal may differ in value depending on location: for example, two wetlands that each have the

81. Id. at 131 n.8; Johnson, Federal Regulation of Isolated Wetlands, 23 Envtl. L. 1 (1993).
capacity to provide 1,000 acre-feet of flood storage are theoretically equal on flood storage grounds, but if one is inundated once every 10 years and the other only once every 200 years, they may not be equally valuable.\(^8\)

Apparently to her the one that inundates every 10 years is the more valuable. Two comments are in order. Do we know the historic pattern will continue? Having just viewed the 100-year flood on the lower Missouri and middle Mississippi Rivers, would we still concur? How do we determine value?\(^6\) For example, when all EPA regulations and the federal flood insurance program emphasize protecting against the 100-year flood, should we classify value any differently for an area inundated every 10 years and one inundated every 100 years? Or are the expendable ones then those that are between 100 and 200 years?

Suppose we classify with Class I being the most valuable, when all of the Class IV wetlands are gone, do we then allow destruction of the poorest of the Class III wetlands as the least valuable? How long will the least valuable be subject to destruction as there will always be a least valuable under this scheme—when does it stop? The general purpose of classification does seem to be to allow development in areas of "lesser" significance.\(^7\) Or do we let that decision wait for tomorrow?\(^8\)

III. RESTORING FORMER WETLANDS AND CREATING NEW ONES

A. Introduction

As Part II makes clear, existing wetlands will continue to be destroyed for the foreseeable future.\(^9\) Therefore, it becomes not only

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86. See Freske, On Behalf of the Little Ones—Ephemeral Wetlands, Illinois Audubon, Spring 1992, at 8. In determining value: Over the years of the permit’s [Corps Nationwide Permit 26], evidence has mounted that these wetlands [isolated and headwater wetlands] may be of unusual value. For example, many top wetland scientists now believe that a key to controlling water quality is to preserve headwater wetlands because of the large quantities of water that flow and are purified through them.
87. See Swords, supra note 56, at 182-84, 192-205 (discussing federal legislation proposed by members of Congress from Louisiana).
88. Classification is discussed further later in this article, see discussion infra part III(E)(3).
89. State Says Permits Protected 15 Times More Wetlands Acres Than Were Destroyed, [Current Developments] Env’t Rep. (BNA) 2879 (Mar. 5, 1993). In this story Florida indicates that during a 12-month period it permitted the loss of 3,575 acres of wetlands, while issuing
appropriate, but important, to consider to what extent former wetlands can be restored or new ones created. Indeed this possibility is used often as a means to pursue the development discussed in Part II. In return for a permit to destroy existing wetlands, a developer agrees to mitigate the destruction by restoring former wetlands or creating new ones. In addition, wetlands are created specifically to serve one of the purposes wetlands do serve, for example, as a waterfowl habitat or as a pollution control device. Finally, restoring or creating wetlands is imposed as a punishment for illegal destruction of wetlands.

Some of the pressures that work against preservation of existing wetlands will work against restoration of former wetlands and creation of new ones. While pressures from developers by definition will be nonexistent when mitigation is involved, jobs and tax base arguments can be persuasive but supposedly location will be an important consideration and may therefore help defuse those issues. Furthermore, there would be no wrangling over whether the site is a wetland, and the landowners affected would be in agreement.

There is a considerable body of literature on restoration and creation of wetlands. In a major study, the National Academy of Sciences identifies restoration techniques as falling into three broad categories: (1) re-establishing or maintaining wetland hydrology whether by re-establishing river flow, restoring flood regimes, or re-establishing topography; (2) eliminating or controlling contaminant entry; and (3) re-establishing or maintaining appropriate biota. The Academy discusses permits "for the creation, preservation, and improvement of a total of 52,318 acres" of wetlands. The eight year record was reported at 28,134 acres lost and 398,635 acres "created, preserved, or improved." Id.


The Soil and Water Conservation Service in the U.S. Department of Agriculture has a newly revised wetlands chapter (wetland restoration, enhancement and creation) in its Engineering Field Handbook where the Service describes the planning, designing, implementing, maintaining, and monitoring phases. See EPA News-Notes, Nov./Dec. 1992, at 22.


93. Id. at 290-92.
the constraints on achieving restoration goals, including degree of site disturbance, ecological and biological problems, and institutional impediments. It identifies, for example, a lack of knowledge that may lead to an inability to re-establish links in the food chain as a difficult task confronting wetlands restoration. But ultimately the Academy's report calls for restoration of inland and coastal wetlands that will offset further losses and net an overall gain by the year 2010 of 10 million acres of wetlands. In November of 1992, the United States Department of the Interior adopted this goal.

The bottom line questions are can restored or created wetlands survive and what is the cost? A Florida study shows an overall survival rate of 27 percent for created wetlands but with the rate at only 12 percent for freshwater sites. Greater fluctuation in amounts of fresh water than in tidal water was identified as the major cause of the difference in success rate. However, with some evidence of success, it is worthwhile to explore the issues in more detail. Furthermore, some restoration projects will go forward without extensive scientific or economic evaluation. Simple observation suggests values such as the return of waterfowl. Thus the essential point seems to be that certain areas are easier to restore than others and certain functions or values are easier to restore than others. The Academy's description of one basic restoration scenario bears this out. According to the Academy study, a typical restoration of wetland lost to farming might be: (1) stop planting crops and/or keep out animals; (2) break drainage tiles; (3) fill drainage ditches, and (4) remove flood control structures. The result of this process has been to restore thousands of acres of prairie potholes with wetland vegetation reappearing quickly and ducks returning. But, the study cautions, this does not mean necessarily that the historic vegetative

94. Id. at 293-316.
95. Id. at 265-68.
96. Id. at 354.
99. Redmond, supra note 98.
100. Smith, The Kennekuk Marsh Restoration Project, Illinois Audubon, Spring 1992, at 11. Smith describes his intial experience with restoration of wetlands on his farm which led to his doing the Kennekuk project sponsored by several private and governmental organiza-
community has been restored and thus you may not get the same animal
community.\textsuperscript{102}

Assuming that the Florida study figures turned out to be
generally correct, a wetlands banking system proposed by Sokolove and
Huang\textsuperscript{103} might be adapted to overcome this low success rate, but it
would depend on the period for which the created or restored wetland
is banked. That is, we would have to bank the new wetland long enough
to prove that it will survive, assuming we know how long that is. To
what extent are wetlands evolutionary, becoming eventually dry land?

B. As a Mitigation Device to Allow Development in an Existing
Wetland

The term "mitigation" is used to refer to two generally different
concepts: (1) avoiding or minimizing harm to an existing wetland (harm
minimization) and (2) providing a substitute (compensation) for
destruction or impairment of an existing wetland.\textsuperscript{104} The term is used
in the latter context in this article. However, the interplay should be
noted.\textsuperscript{105} In the context of the § 404 program for example, the U.S.
Army Corps of Engineers apparently has not always imposed harm
minimization requirements that would have been "practicable" when
compensation measures have been available.\textsuperscript{106} Thus, at least historically,
the compensation approach has not been used simply as a last resort
when harm minimization would otherwise be inadequate. However, the
recent Memorandum of Agreement between the Corps and the EPA
incorporates the concept of sequencing:

The Corps, except as indicated below, first makes a determina-
tion that potential impacts have been avoided to the maximum
extent practicable; remaining unavoidable impacts will then be
mitigated to the extent appropriate and practicable by requiring
steps to minimize impacts, and, finally, compensate for
aquatic resource values.\textsuperscript{107}

\textsuperscript{102} National Research Council, \textit{supra} note 92, at 285.

\textsuperscript{103} Sokolove & Huang, \textit{Privatization of Wetland Mitigation Banking}, 7 Nat. Resources &
Env't 36 (1992). For discussion on mitigation banking see discussion \textit{infra} part III(B).

\textsuperscript{104} Zallen, The Mitigation Agreement—A Major Development in Wetland Regulation, 7

\textsuperscript{105} See, Salvesen, \textit{supra} note 74, at 69-107 (listing in his discussion of mitigation
strategies: avoidance/minimization; restoration; enhancement; and creation).

\textsuperscript{106} See Zallen, \textit{supra} note 104.

\textsuperscript{107} 55 Fed. Reg. 9210, 9211-12 (1990). Although the agreement provides that mitigation
banking is an acceptable solution in some cases, \textit{id}. at 9212, it specifically provides that:
"Simple purchase or 'preservation' of existing wetlands resources may in only exceptional
circumstances be accepted as compensatory mitigation." \textit{Id}.
While this agreement outlines a three-step sequence of avoidance, harm minimization, and compensation, the EPA's regulations identify five discrete categories:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.
(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
(e) Compensating for the impact by replacing or providing substitute resources or environments.  

Thus in the context of the § 404 program compensatory mitigation now should be a last resort.

Certainly the compensatory form of mitigation has been used to a considerable extent in the United States. To what extent then is the compensatory form of mitigation a viable option? Several questions have to be answered. An overriding question relates to geography, that is, is a created wetland in the northern part of a hypothetical state a satisfactory substitute for a destroyed wetland in the southern part of the state? What values are served by the wetland about to be impaired or destroyed? To what extent can we identify these values? Are these values area specific? Can these values be reproduced by creating substitute wetlands? What level of proof is attainable? Perhaps it is the uncertainty of restoration or creation success that often leads to a compensatory acreage that is greater than the acreage being lost. For example, a recent agreement between EPA and Michigan involves reducing a wetlands landfill site from 90 acres to 64 acres, protecting an additional

109. Cliffs Project Creates Michigan Wetlands, AMC J. 19 (1991) (270 acre wetlands and 300 acre flooding created to replace loss of two small lakes to iron mining project). See also infra note 112; see also infra text accompanying note 113.
111. For the NAS concerns and the Florida study results see supra notes 93-100.
112. See Shelton v. Marsh, 902 F.2d 1201 (6th Cir. 1990) (where 8.5 acres of wetlands were being filled for a shopping mall, the Kentucky Department recommended a mitigation of 2 acres for each acre lost); Wetlands Settlement, National Wetlands Newsl., Mar./Apr. 1993, at 16, (“more than an acre” for each acre lost); Philadelphia Business Park Developers Would Replace Lost Wetlands With New Ones, [Current Developments] Env’t Rep. (BNA) 1872 (Mar. 16, 1990) (6.9 new acres for 3.45 destroyed).
30 acre wetland area, and constructing or restoring two acres of wetlands for each one destroyed.\textsuperscript{113}

Under the Illinois Interagency Wetland Policy Act of 1989\textsuperscript{114} Illinois not only adopted as a goal "that there be no overall net loss of the State's existing wetland acres or their functional value due to State supported activities" but imposed an affirmative duty that "State agencies shall preserve, enhance and create wetlands where necessary in order to increase the quality and quantity of the State's wetland resource base."\textsuperscript{115} The Act pointed out that of an estimated 8.2 million acres of wetlands in the year 1818 less than 9 percent of the original acres remain as wetlands.\textsuperscript{116} The Act did not identify what percentage of that remaining acreage is in private hands and what is in government hands. However, as can be seen from the policy statement, the goal is put in terms of protecting wetlands from "State supported activities".\textsuperscript{117}

Although the Act creates exceptions\textsuperscript{118} to a state agency's duty to "preserve, enhance, and create" wetlands, the covered activity otherwise is broad:

(a) State and State pass-through funded construction activities . . . [;]
(b) State supported land management activities;
(c) State and State supported technical assistance programs; and
(d) Other State activities that result in adverse impacts to wetlands.\textsuperscript{119}

Although some overview responsibility rests with the Illinois Department of Conservation, the Act created an Interagency Wetlands Committee\textsuperscript{120} with several important functions: (1) developing rules and regulations; (2) establishing guidelines for agency plans; (3) developing procedures for identifying and evaluating wetlands; (4) developing a research program; (5) preparing reports;\textsuperscript{121} and (6) developing educational materials.\textsuperscript{122}

\textsuperscript{113} Agreement in Michigan, National Wetlands News., May/June 1993, at 20.
\textsuperscript{114} P.A. 86-157, 1989 Ill. Laws 1505 (codified at S.H.A. 20 ILCS 830/1-1 to 830/4-1 (West 1993) (Ill. compiled statutes)).
\textsuperscript{115} S.H.A. 20 ILCS 830/1-4 (West 1993) (Ill. compiled statutes).
\textsuperscript{116} Id. 830/1-2(a). See also, Illinois Has Lost 70 Percent of Original Wetland Acreage, Outdoor Highlights, Nov. 19, 1990, at 19. This story notes that only five states (California, Ohio, Iowa, Missouri, and Indiana) have worse records.
\textsuperscript{117} There have been efforts in Illinois to cover privately owned wetlands as well. See the discussion in supra note 40.
\textsuperscript{118} See S.H.A. 20 ILCS 830/1-3(a) (West 1993) (Ill. compiled statutes).
\textsuperscript{119} Id. 830/1-3(a)-(d).
\textsuperscript{120} Id. 830/2-1.
\textsuperscript{121} One of the reports to be prepared was "a comprehensive report on the status of the State's wetland resources, including recommendations for additional programs by January 15, 1991." Id. 830/2-1(e)(2). Apparently recent efforts in the Illinois legislature to extend
Although the Illinois policy is now in effect,\textsuperscript{122} it is not clear that the wetland compensation plan is fully operative as no clarifying regulations have been adopted. The Act provides that "when an agency can establish that no other feasible alternative exists and adverse wetland impacts are unavoidable, impacts are to be compensated for through the development and implementation of a Department approved Wetland Compensation Plan."\textsuperscript{124} The Act requires a schedule of increasing compensation ratios based on the amount of adverse impact and the location of the compensation projects.\textsuperscript{125} It is not clear whether the Act relies simply on creating compensation wetlands at the time other wetlands are to be destroyed or instead introduces the concept of mitigation banking into Illinois.\textsuperscript{126} Clarifying regulations, therefore, are necessary.\textsuperscript{127}

Mitigation banking is the restoration or creation\textsuperscript{128} of functioning wetlands "to offset the future loss of wetlands."\textsuperscript{129} These wetlands are then used as mitigation. Historically banking has been used generally only by public agencies to mitigate agency projects.\textsuperscript{130} Sokolove and Huang\textsuperscript{131} prefer a private regional bank but admit that critics question the geography of mitigation wetlands; they note, however, that by definition the new wetlands are not going to be exactly where the old wetlands are. Thus to them only a matter of degree is involved. They tout the regional wetland bank as allowing for greater variety and thus a greater possibility of matching mitigation wetlands to the wetlands being destroyed and as being more economical to develop, maintain, and evaluate. The biggest value of banking would be that an established restored or created wetland would be substituted for the destroyed wetlands, rather than the mere promise to create a new wetland or to restore one. They believe that the profit-motive could create "wetland growing companies."\textsuperscript{132} The danger presented by the exis-

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coverage to privately owned wetlands, see supra note 40, were at least in part in response to this mandate.

\textsuperscript{122} S.H.A. 20 ILCS 830/2-1(a)-(f) (West 1993) (Ill. compiled statutes).

\textsuperscript{123} As of Aug. 12, 1989.

\textsuperscript{124} S.H.A. 20 ILCS 830/3-1 (West 1993) (Ill. compiled statutes).

\textsuperscript{125} Id. 830/3-6.

\textsuperscript{126} Id. 830/3-3 (referred to as Wetland Compensation Account).

\textsuperscript{127} The regulations should be developed by the Department of Conservation in consultation with the Interagency Wetlands Committee. See id. 830/2-1 & 2-2.

\textsuperscript{128} Cf. the Tenneco LaTerre Mitigation Bank (a joint venture among the state and federal governments & Tenneco Oil Co.) which preserves only existing wetlands but improves their quality through maintenance and enhancement. Sokolove & Huang, supra note 103, at 37. The mitigation banking concept is discussed from several perspectives in Nat'l Wetlands Newsl., Jan./Feb. 1992, passim.

\textsuperscript{129} Sokolove & Huang, supra note 103, at 36.


\textsuperscript{131} Sokolove & Huang, supra note 103.

\textsuperscript{132} Sokolove & Huang, supra note 103, at 68.
To fully implement the banking concept, it is necessary to have uniform standards for evaluating the values of the restored or created wetland and its success potential. The to-be-destroyed wetland would then be evaluated and site-specific performance standards would be applied to assess a proposed mitigation wetland. Sokolove and Huang state that such standards should include: (1) acreage; (2) source of and vehicle to maintain hydrology; (3) nature and amount of plantings; and (4) specific maintenance requirements. We clearly do not have them yet, although some quantification devices have been developed. For example, the United States Fish and Wildlife Service has developed a set of Habitat Evaluation Procedures (HEP) which uses a species-specific approach. The EPA has authorized the use of HEP for some purposes. Under a mature banking system, a project that would destroy wetlands would not move forward until there is a satisfactory mitigation wetland in existence.

The Oregon Wetlands Mitigation Bank Act of 1987 deals with many of the problems noted in the foregoing discussion. Bank credits can be used only after it has been determined that all onsite mitigation measures have been found "to be impracticable." Bank credits can be used only within 40 miles of the bank and for freshwater only if within the same "tributary, reach or sub basin." Bank credits can not be used until "actions sufficient to establish hydrological function" and actions to establish other wetland functions have been taken at the bank site. Furthermore, the Director has to determine "that a high probability exists that the wetland functions and values of the mitigation bank site are equal to or greater than the functions and the values of the wetland area to be damaged or destroyed." While the site is banked the Director has to evaluate the functions of the banked wetland annually.

133. Sokolove & Huang, supra note 103, at 68.
137. Id. § 196.620(2).
138. Id. § 196.620(3).
139. Id. § 196.620(4). Similarly, for estuarine areas the mitigation must occur in the same "estuarine ecological system." Id. § 196.620(5).
141. Id. § 196.620(6)(b).
142. Id. § 196.620(6)(c).
and compare current functions with anticipated functions.\textsuperscript{143} The banked sites can be wetland sites "created, restored or enhanced by the division."\textsuperscript{144}

There clearly are some institutional impediments to mitigation. For example, the Clean Water Act can be interpreted to hinder wetland mitigation. Thus in Sacramento Regional County Sanitation District v. Reilly,\textsuperscript{145} the court held that money spent by the Sanitation District for acquiring mitigating wetlands to replace wetlands lost to construction of sewage treatment works was spent neither for "treatment works" nor for "construction" of treatment works and therefore could not be reimbursed from federal funds.\textsuperscript{146}

C. To Serve a Specific Function Such as a Pollution Treatment Device

While the most prevalent functional reason for preserving existing wetlands has been for waterfowl habitat, apparently the most prevalent functional reason for the creation of wetlands other than as compensatory mitigation has been for pollution control.\textsuperscript{147} In effect the created wetlands system is designed as a filtration device whether to cleanse municipal waste water or mine drainage. If these wetlands provide additional benefits such as species habitat, it is viewed as a bonus.\textsuperscript{148}

The United States Bureau of Mines pointed out in 1991 that:

\begin{itemize}
\item[143.] Id. \textsuperscript{\textnormal{\textbullet}} 196.620(10).
\item[144.] Id. \textsuperscript{\textnormal{\textbullet}} 196.000(2).
\item[145.] 905 F.2d 1262 (9th Cir. 1990).
\item[146.] Funding for treatment works is discussed in Beck, supra note 26, \textsection 54.08(c).
\item[147.] A recent inventory by the EPA lists over 150 constructed wetlands in the U.S. for treatment of industrial and municipal wastewater with Louisiana and Mississippi having the most at 15 each. \textit{Leading Edge of Wetland Treatment is in the Deep South}, U.S. Water News, Dec. 1992, at 1. EPA reported 5 to 10 such facilities in Alabama, Arizona, Arkansas, Iowa, Missouri, New Mexico, South Dakota, and Tennessee. \textit{See also Constructed Wetlands on Increase}, U.S. Water News, Sept. 1992, at 7, (noting 70 rural communities in the U.S.). Apparently two kinds of wetlands are being created: (1) freewater surface and (2) subsurface flow. \textit{See, Constructed Wetlands on Increase, supra}. In freewater surface shallow ponds are planted with wetland vegetation. In subsurface flow is similar but with a gravel substrate at the operating depth in which the vegetation is planted.
\item[148.] See Texas Plan Would Recirculate Wetland Into Supply System, U.S. Water News, Dec. 1992, at 5 (5 to 8 year study). This is certainly one of the first to contemplate direct recirculation into a general supply system, the proposal involving 4000 acres of wetlands.
\end{itemize}
Over 400 wetlands, resembling miniature marshes, have been constructed to treat acidic coal mine drainage. These wetlands reduce the need for subsequent chemical treatment of the drainage, and a fifth of these applications eliminate that need. Typically, the savings in the costs for chemical treatment and storage pond maintenance has paid for the wetland construction in less than one year. Chiefly, these wetlands reduce the acidity and iron content of the water. There is usually some slight reduction in manganese content, as well as other benefits.

Gusek identifies several useful mechanisms at work when wetlands are used for mine-related drainage: "[1] filtering of suspended material; [2] metal uptake into live roots and leaves; [3] ammonia-generated neutralization and precipitation; [4] adsorption and exchange with plant, soil and other biological materials; [5] hydroxide precipitation catalyzed by bacteria in aerobic zones; [6] sulfide precipitation catalyzed by bacteria in anaerobic zones." It is absolutely necessary to be sure that these created wetlands do not have negative values such as causing destruction of wildlife.

Apparantly the principal motivating factor for using the wetlands treatment method is that it is perceived as effective and less expensive than any other form of treatment. Wetland treatment of waste water would be an "alternative or innovative technology" under the Clean Water Act, and apparently has been approved as such. However,
EPA recently told Congress that they need more information to evaluate the role of wetlands in waste water treatment. EPA notes that contaminants will concentrate in the area so a principal concern is whether this would cause any harm to wildlife. But the concerns range across the board: "design, construction, operation, and costs."

D. As Punishment for Illegal Destruction of Wetlands

Both federal and state cases order removal of illegal fill in wetlands. A thorough analysis by Mark C. Rouvalis of federal cases was published in 1988. Rouvalis explores, in Part III of his study, the development of restoration guidelines culminating with United States v. Weisman, where the court concluded that it may order restoration if the restoration plan: "1) confers maximum environmental benefits; 2) is achievable as a practical matter; and 3) bears an equitable relationship to the degree and kind of wrong the plan intends to remedy." Rouvalis criticizes this formula as falling short of furthering Clean Water Act goals and then evaluates the three standards. The first standard he finds serves the environmental purposes of the Clean Water Act. It is tested by describing the current conditions and environmental effects of the construction and comparing impact or consequences against the United States Army Corps of Engineers regulations. The second standard he finds has produced less than satisfactory results because it has not been limited to (1) engineering capability of being implemented and (2) "likely to provide the environmental benefits promised", which he finds would complement the first standard. Instead courts add "economic feasibility and cost-effectiveness." The third standard, he concludes, gives the courts the greatest flexibility to undermine Clean Water Act goals and he notes numerous decisions where the courts have denied a

157. Id.
159. Id. at 308-15.
160. 489 F. Supp. 1331 (M.D. Fla.), aff'd mem. 632 F.2d 891 (5th Cir. 1980).
161. Rouvalis, supra note 158, at 313 (citations omitted).
162. Rouvalis, supra note 158, at 315-32.
163. Rouvalis, supra note 158, at 319. For an interpretation that Rouvalis apparently would favor, see State v. Simpson, 423 S.E.2d 759 (N.C. 1992) (interpreting the phrase "to the fullest extent practicable" in the North Carolina rules); see also infra note 173.
164. Rouvalis, supra note 158, at 320.
restoration remedy because of this element. As he points out, enforcement sequencing has taken equity into account already so that only the hard core cases come before a judge. And if "equity" is to be treated in a formal manner, then, he suggests, the agencies and courts should use cooperation by the wrongdoer to eliminate or reduce fines and civil penalties but not the restoration remedy. The idea of a graduated sanction based on the seriousness of the offense is in the swambuster provisions where farming of wetlands leads to loss of federal agricultural benefits. The reduction in benefits can range from a minimum of $750 to a maximum of $10,000. One specific precondition for equitable treatment is that the person is actively restoring the wetland under an agreement with the Secretary to fully restore the characteristics of the converted wetland to its prior wetland state, or such person has previously restored the characteristics of the converted wetland to its prior wetland state as determined by the Secretary.

This is the approach that Rouvalis argues for.

Restoration continues to be imposed by courts whether directly or through approved settlements. In some cases, it may only be to maintain the status quo pending final determination. Some statutes specifically provide that one who drains without a permit "is required to restore the wetland." Other statutes provide for restoration as an optional remedy. The courts generally interpret these statutes

165. Perhaps Leslie Salt Co. v. U.S., 820 F. Supp. 478 (N.D. Cal. 1992), illustrates this approach. There the court finds that the government was entitled "to injunctive relief which restores the property at the points of violation to essentially their pre-existing condition" without any written analysis of criteria for restoration relief. Id. at 484. The Court gave Leslie Salt until August 31st to submit a restoration plan to the Corps (not quite 6 weeks, the order having been issued July 22d). The court noted that it had "wide discretion" as to the amount of civil penalties which would be determined later. Id.

166. See supra text accompanying notes 23-24.

167. 16 U.S.C. § 3822(h)(2) (Supp. II 1990). It is referred to as the good faith exemption.

168. Id. § 3822(h)(1)(A).

169. Company Pays $680,000, Agrees to Restore Wetlands Damaged by Unpermitted Canal Project, [Current Developments] Env't Rep. (BNA) 2080 (Dec. 27, 1991); see also supra note 112.


172. "[M]ay be subject to such terms and conditions . . . [i]ncluding immediate removal of any fill." Cal. Gov't Code § 66638(b) (West 1983). In Mein v. San Francisco Bay Cons. & Dev. Comm'n, 267 Cal. Rptr. 252 (Cal. Ct. App. 1990), the commission had given three options: (1) remove the entire house, deck, & piles; (2) remove 1,553 sq. ft. of Bay coverage (deck or house) and 1,170 sq. ft. of the house; or (3) remove a specified portion of the house
broadly as remedial. And when the specific lands will be filled through a properly obtained permit, the decree may provide that settlement funds are to be used to restore or create other wetlands.

To what extent do the courts consider the likelihood of restoring the same functioning system that was there before? First, in cases like United States v. Malibu Beach, Inc., the request for remedy is fairly immediate after the destructive event and the nature of the wetland is such that the restoration event (removal of fill to allow tidal water to resume flowing into pool) should be successful. Indeed, the judge decreed removal as temporary relief in order to maintain the status quo and thus avoiding the possibility of "irreparable harm." Second, under the first and second criteria noted in the Rouvalis discussion, it is an essential consideration but without any requirement of ultimate certainty as to the effectiveness of the restoration effort. Finally, under a rule like that in North Carolina, consideration would seem to be required as well. However, for the most part in all of these incidences, the focus seems to be on not requiring something to be done that cannot be done and not on excusing a restoration effort totally because it cannot duplicate exactly the pre-existing state.

Under the New Jersey Freshwater Wetlands Act, N.J. Stat. Ann. §§ 13:9B-1 to -30 (West 1991), the commissioner "may issue an order . . . (4) requiring the restoration of the freshwater wetland or transition area which is the site of the violation." Id. § 13:9B-21(b). A court "may include . . . (5) a requirement that the violator restore the site of the violation to the maximum extent practicable and feasible." Id. § 13:9B-21(c).


176. See supra note 173.
E. The Ultimate: An Affirmative Government Program for Wetland Restoration and Creation

In all likelihood there are wetland restoration and creation activities in all 50 states, either as compensatory mitigation for destruction of other wetlands, waterfowl habitat projects, waste water treatment facilities, or as a remedy for wrongful conduct. These, however, are for the most part ad hoc activities. This section deals with federal and state programs for wetland restoration and creation, whether for limited or broad purposes and identifies several considerations that should go into the ideal program.

1. Existing federal programs

Numerous pieces of federal legislation now provide programs, or at least funds, for wetland restoration and creation. However, there is no overall legislative goal or theme although there has been some cooperative federal effort. Historically the federal wetlands focus has been on waterfowl habitat. In turn, this has caused a focus on those states and those areas that contribute significantly to hosting waterfowl. This focus continues in much of the current federal legislation.

Although the North American Wetlands Conservation Act of 1989 seeks to protect existing wetlands, a major thrust of the Act is to be the restoration of former wetlands. In June of 1993, the Missouri Department of Conservation announced the receipt of a 1.4 million dollar grant from the North American Wetlands Conservation Fund and a contribution of $90,000 from Ducks Unlimited to assist with the $4.2 million cost of protecting 470 acres of wetlands and "enhancing" an additional 2,000 acres that had been used for agriculture. However, the Conservation Fund has faced budgetary problems.

177. No effort is being made in this article to catalog all such programs. Other programs, like the Northern Delaware Wetlands Rehabilitation Program, will exist. State Program Aims to Rehabilitate 10,000 Acres of Degraded Urban Wetlands, [Current Developments] Env't Rep. (BNA) 1688 (Oct. 30, 1992) (31 wetland sites along the Christina River and Delaware River); Massachusetts Gets Its First MARSH, U.S. Water News, Dec. 1992, at 28 (according to the Mass. Division of Fisheries & Wildlife, the "first step in restoring shallow and deep freshwater marshes in the state").


179. Mo. Conservationist, June 1993, at 32. For additional Fund awards, see Wetland Acquisition, Nat'l Wetlands Newsl., May/June 1993, at 20 (acquiring 17,331 acres; protecting, restoring or enhancing an additional 70,000 acres in the U.S., Canada, and Mexico).

180. See Committee Cuts Wetland Funds, Wyo. Wildlife, Nov. 1992, at 46 (noting the committee cut the appropriation to 1/2 of the $15,000,000 authorized).
The Coastal Wetlands Planning, Protection and Restoration Act," creates a coastal wetlands restoration cost-sharing program open to all coastal states, although there is a special emphasis given to Louisiana which is to receive 70 percent of the revenues, with 15 percent going to all other coastal states. The remaining 15 percent is to go for wetland restoration under the North American Waterfowl Management Plan.182

As of June, 1992, a specific wetlands restoration program, known as the Wetlands Reserve Program (WRP), went into effect.183 Farmers will be paid up to $1000 per acre of farm land to enter into a permanent wetland easement agreement with the federal government. Although nearly 500,000 acres had been volunteered, only 50,000 acres would be accepted for 1992.184 The goal is to enroll one million acres by the end of 1995.

Several of the programs discussed in Part I also support restoration efforts even though that is not their main focus, particularly in the sense that former wetlands converted into agriculture, when left alone may start to revert to their former condition without further intervention. Thus under both the Water Bank185 and the general Conservation Reserve Program,186 this process appears to be working.

Recent legislation continues to add to the restoration and creation arsenal but also demonstrates well the piece-meal federal approach.187 The Reclamation Projects Authorization and Adjustment Act of 1992188 includes authorization to "preserve, rehabilitate, and enhance wetland areas around the Great Salt Lake"189 and Utah Lake;190 to establish a

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184. Congress appropriated $46 million to cover the 50,000 acres in 1992 which were to be limited to nine states (Cal., Ia., La., Minn., Miss., Mo., N.Y., N.C., & Wis.). 57 Fed. Reg. 23,908 (1992).

185. See supra text accompanying note 20.

186. See supra text accompanying notes 23-27.

187. For one problem aspect of the piece-meal approach, see Holden & McBride, The Duplicative Regulation of Wetlands, 7 Nat. Resources & Env’t 27 (1993) (discussing wetlands regulation under the CWA and the CZMA).


189. Id.
South Dakota Wetland Trust for financing "wetland preservation, enhancement, and restoration";\textsuperscript{191} and sets up a Sonoma, California, wetland demonstration project on 320 acres.\textsuperscript{192} The Water Resources Development Act of 1992\textsuperscript{193} provides for a Louisiana marsh creation study\textsuperscript{194} and for Connecticut coastal salt marsh restoration.\textsuperscript{195}

The International Land Reclamation and Mine Drainage Conference and the Third International Conference on Abatement of Acidic Drainage, to be held in Pittsburgh in April of 1994 will feature a segment on Wetlands on Mined Lands.\textsuperscript{196} While some focus undoubtedly will be on mine operators creating wetlands as mitigation\textsuperscript{197} and as devices to treat polluted water,\textsuperscript{198} usually off the mined land, it is hoped that they will give considerable focus to the creation of wetlands on the mined land as a form of reclamation.

Land mined for coal in the United States today is subject to regulation under the federal Surface Mine Control and Reclamation Act of 1977 (SMCRA).\textsuperscript{199} It is clear that coal-mined land has been reclaimed for wetlands,\textsuperscript{200} but it still needs to be asked whether SMCRA inhibits the creation of wetlands. Under SMCRA land that has been surface mined must be reclaimed,\textsuperscript{201} and the statute states a preference for returning the land to the condition that existed before the mining.\textsuperscript{202} This would suggest reclamation for wetland use only where wetlands existed before

\textsuperscript{190} Id. at 4636-37.

\textsuperscript{191} Id. at 4704.

\textsuperscript{192} Id. at 4739. This project is also in the Water Resources Development Act of 1992, Pub. L. No. 102-580, § 106, 106 Stat. 4797, 4814 (1992) [hereinafter Water Resources Development Act].

\textsuperscript{193} Water Resources Development Act, supra note 192, at 4797.

\textsuperscript{194} Water Resources Development Act, supra note 192, at 4858.


\textsuperscript{196} U.S. Bureau of Mines, Conference Adversising Flyer (1993) (available at P.O. Box 18070, Pittsburgh, PA 15236).

\textsuperscript{197} See discussion supra part § III(B).

\textsuperscript{198} See discussion supra part III(C).


\textsuperscript{201} 30 U.S.C. §§ 1251, 1258 (1988).

mining, or in other words wetlands restoration as contrasted with wetlands creation.

However, SMCRA does allow new uses, which could include wetland development. The statutory language is that to be able to reclaim for a different use it has to be for a "higher or better use" than what existed previously. Where a state has declared an official policy of no net loss of wetlands, wetlands creation should be considered a higher or better use. Because the technology for developing new wetlands that will carry many of the natural wetland values, if not all, apparently exists, the statutory requirement that coal-mined land be reclaimed carries a great opportunity for reclaiming at least some of the land for wetland purposes.

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203. The requirement of reclaiming mined land as wetlands where wetlands existed before mining is found in state noncoal mining legislation. For example, the Florida phosphate mining legislation provides that "the rules, recognizing technological limitations and economic considerations, shall require the return of the natural function of wetlands or a particular habitat or condition to that in existence prior to mining." Fla. Stat. Ann. ch. 378.207(1) (Harrison 1988). The statute is similar as to Fuller's earth clay: wetlands are to "function in manners which are not different from those which existed prior to resource extraction." Id. § 378.703(4). However, for limestone and other resources, wetlands requirements are those set by the Department of Environmental Regulation and the appropriate water management district. Id. §§ 378.503(3), 378.803(1). Wetlands have been defined by the regulatory agency as "the various types of habitats and vegetative communities which exist where the water table is at or above grade for periods of the year and shall include forested wetlands, such as hardwood swamps, cypress swamps, and domes, and nonforested wetlands, such as wet prairies and freshwater marshes." Fla. Admin. Code 16c-16.0021(19) (1994).


205. For example as in Illinois, see supra note 6.

206. If any question would still arise about the propriety of reclamation for wetland uses under the mining reclamation laws in Illinois, the regulatory department can point to its responsibility as a state agency under the Interagency Wetlands Policy Act to "preserve, enhance, and create" wetlands. S.H.A. 225 ILCS 720/3.03 (West 1993) (Ill. compiled statutes). Indeed, the Illinois Department of Mines and Minerals is included on the Illinois Interagency Wetlands Committee which has an important role to play in the administration of the Illinois wetlands policy. S.H.A. 20 ILCS 830/1-1 (West 1993) (Ill. compiled statutes).

207. See supra notes 91-97.
2. The Minnesota Wetland Establishment and Restoration Program

If the Minnesota Board of Water and Soil Resources has designated an area as "a high priority wetland region" and if the local unit of government has identified the area as "a high priority wetland area" in its "comprehensive local water plan," a landowner may apply to the unit of local government to establish or restore a wetland on the landowner's property in the area. If the local unit of government approves the application, it applies to the Board for "cost-share funding." The Board is authorized to provide up to the lesser of $20,000 or 50 percent of the cost "of a wetland establishment or


210. Minnesota defines wetlands as "lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this definition, wetlands must have the following three attributes: (1) have a predominance of hydric soils; (2) are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions; and (3) under normal circumstances support a prevalence of such vegetation." Minn. Stat. Ann. § 103g.005(19) (West Supp. 1993). However, Minnesota excludes "public waters wetlands," id., which are defined as "all types 3, 4, and 5 wetlands, as defined in United States Fish and Wildlife Service Circular No. 39 (1971), not included within the definition of public waters, that are ten or more acres in size in unincorporated areas or 2-1/2 or more acres in incorporated areas." Minn. Stat. Ann. § 103G.005(18) (West Supp. 1993). The Service now lists the Circular No. 39 wetlands in U.S. Fish and Wildlife Service, Classification of Wetlands and Deepwater Habitats of the United States (1992) (reprint from 1979) [hereinafter Classification].


212. Id. § 103F.901(5).

213. Id. §§ 103F.902(1)(2), 103B.3363(3).

214. Id. § 103F.902(1).

215. The approval process involves notice; public hearing; preliminary approval or disapproval; survey of the area with a description of the affects of the proposed wetland on hydrology, property of others, groundwater recharge, flooding, fish and wildlife habitat, water quality, and other characteristics if determined to exist; notice; public hearing; final approval or disapproval. Id. § 103F.902(2)-(6).

216. Id. § 103F.903(1).
restoration project, including engineering costs, establishment or restoration costs, and compensation costs.\textsuperscript{217} If cost-share funding is received, the Board is to acquire a permanent conservation easement\textsuperscript{218} and the landowner is to receive compensation.\textsuperscript{219} The Board is to determine cost-sharing priority based on "the public value" of the proposed wetland and must include the following factors in calculating public value: water quality; flood protection; recreation including fish and wildlife habitat; groundwater recharge; and other public uses.\textsuperscript{220}

3. Considerations for an ideal program\textsuperscript{221}

This section identifies six aspects as a minimum for the rough configuration of an ideal wetlands restoration and creation program. Although the six are presented in somewhat of a chronological order, they are not isolated considerations. They are interrelated and all must be considered from the outset.

a. create a data base

This involves defining wetlands, collecting data, and organizing the data.

(1) defining wetlands. The United States Fish and Wildlife Service’s\textsuperscript{222} definition of wetlands provides that to be classified as wetlands the area must have one of three factors present:

\textsuperscript{217} Id. § 103F.903(2).
\textsuperscript{218} Id. § 103F.903(3). However, the public does not appear to have any right to enter onto the property that is subject to the easement. The "nature of property rights acquired" are defined in Minn. Stat. Ann. § 103f.515(4) (West Supp. 1993). Those "rights" deal essentially with restrictions on the property owners conduct and some affirmative tasks the property owner may have to perform. The only outsider entry specifically provided for is for "repairs, improvements, and inspections" regarding public drainage systems. Id. § 103F.515(4)(c). In Minn. Stat. Ann. § 84c.01(1) (West Supp. 1993), a conservation easement is defined specifically as "a nonpossessory interest."
\textsuperscript{219} Minn. Stat. Ann. § 103F.904(2) (West Supp. 1993). The compensation is set at 70 percent of the township average equalized estimated market value of agricultural property. Id. § 103F.515(6)(3).
\textsuperscript{220} Id. § 103F.903(4).
\textsuperscript{222} See Classification, supra note 210. For a discussion of the various federal manuals defining wetlands, see Searchinger, supra note 221, at 20-21.
at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.223

The Service has this observation about what is not included:

Drained hydric soils that are now incapable of supporting hydrophytes because of a change in water regime are not considered wetlands by our definition. These drained hydric soils furnish a valuable record of historic wetlands, as well as an indication of areas that may be suitable for restoration.224

As one can see from the forgoing only nonsoil wetlands are defined in terms of amount of water. Historically wetlands have been identified either by vegetation or soil or both and not by hydrology.225 There simply is not enough data to identify the wetlands/nonwetlands borderline226 by the amount of water (hydrologic content). Such studies have not been done in the past because the other two factors have been viewed as satisfactory for identification purposes. Such studies will take a long time and cost a lot of money. It is highly questionable that such efforts would be cost-effective. Thus wetlands have been defined, and should continue to be defined, as those lands "wet enough to form hydric soils and/or to support hydrophytic vegetation."227

(2) collecting the data. First locate existing data bases. One text228 can serve as a valuable reference point as it not only identifies many existing data bases but also many agencies that might have such data. When Congress enacted the Emergency Wetlands Resources Act of 1986, it provided that the U.S. Fish and Wildlife Service was to complete wetlands maps by September 30, 1988, for the top priority areas, by September 30, 1998, for the balance of the contiguous United States, and by September 30, 2000, for Alaska and other noncontiguous portions of the United States.229

223. Classification, supra note 210, at 3.
224. Classification, supra note 210, at 3.
226. Obviously there is agreement that certain levels of wetness are wet enough. Tiner lists these at id. at 2.
227. Id. at 2.
Second, two facts must be established for each data base: (1) what definition of wetlands was being used and (2) when was the data collected.

Third, an evaluation of comprehensive needs to be made. Does the definition of wetlands used at the time of gathering the data comport with the current program definition. A currently broader definition suggests some "wetlands" may have been omitted in the earlier inventory. If an element of the program is restoration of former wetlands, then the data base should include their location. Unfortunately as the quotation in § 1, from the U.S. Fish and Wildlife Service, indicates, former wetlands will in all likelihood not be included in existing wetlands data bases unless they were wetlands at the time of the inventory.230

However, a wealth of other government data is available for filling that gap. As of 1979, the United States Fish and Wildlife noted that the United States Soil Conservation Service was preparing a preliminary list of hydric soils for use in the classification system.231 Such a compilation probably would be the primary tool for locating former wetlands. Be conservative; if in doubt, include. Inventories can be refined as further data becomes available. Also as of 1979, the United States Fish and Wildlife Service indicated that it was preparing a list of hydrophytes and other plants that occur in wetlands in the United States.232

When creating new wetlands instead of restoring former wetlands, the use of the data bases obviously has to be different. One is trying to identify the most likely prospects for wetlands creation; however, here the focus probably should be on desired geographic location. Once the desired location has been identified an investigation would be made to discover local conditions and an evaluation made of just how conducive those conditions are to wetlands creation.

(3) organizing the data. Because most wetland functions are watershed related, organize the data by watershed or sub-watershed. While it is true that a large city just over the watershed border may benefit from recreation in the neighboring watershed and that waterfowl do not necessarily appreciate watershed boundary distinctions, these are primarily factors to remember when looking for sources of revenue for projects. As to waterfowl in particular, wetlands have a larger than watershed focus. The nonwatershed impact is recognized most clearly in the North American Wetlands Conservation Act of 1989233 which

230. For example, the current Iowa law simply provides that the department is to inventory "wetlands and marshes of each county" and "make a preliminary designation as to which constitutes protected wetlands." Iowa Code Ann. § 456b.12 (west supp. 1993). After the inventory the Department notifies the landowers and they can file a petition for a hearing or a request for mediation. For a discussion of mediation in wetlands disputes generally, see Cassady & Orenstein, Mediating Wetlands Disputes, Nat'l Wetlands Newsl., July/Aug. 1992, at 6.
231. Classification, supra note 210, at 3 n.2.
232. Classification, supra note 210, at 3 n.1.
provides for projects in Canada and Mexico as well as in the United States. Furthermore, the watershed approach is receiving emphasis again from the federal government.

b. **establish goals**

Goals should be both short and long term and both quantitative and substantive, including the period for achieving the goals. This means a realistic assessment of funding over a period of time, and with limited funding, perhaps a prioritization of projects. The general context could be the amount of historic wetlands and the functions performed by those wetlands. Regardless, the goals should reflect a combination of need and opportunity and, therefore, flexibility is important.

The following sources of funding have been noted earlier in this article: government grants or purchase funds either from dedicated sources or general revenue; penalties assessed on wrongdoers; contributions from private individuals or groups; excise taxes; and license fees (for example, duck stamps). Current legislation may require an emphasis on one particular wetlands value however, such as under the North American Wetlands Conservation Act of 1989. Therefore, a cooperative project approach may be the best.

On the assumption that a public restoration program would not have the funds to do everything at once, prioritization or establishment of criteria for prioritization may be important. Earlier in this article classification of wetlands was criticized as a device designed to allow the destruction of lower classes of wetlands. Is prioritization simply classification by another name? Searchinger puts it that classification is for destroying; prioritization is for saving. While there is some merit in that notion, the United States Fish and Wildlife Service has a classification system that is for the purpose of identifying types of wetlands and the kinds of values they can perform. Thus their classification does not determine how valuable a particular wetland is either in its own right or in comparison with another wetland, and thus at least one form of

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(Supp. II 1990); see also supra notes 178-80 and accompanying text.


235. See supra note 46.

236. See supra text accompanying notes 178-80.

237. See discussion supra part II(C)(1)(c).

238. See supra note 221.

239. Classification, supra note 210, at 4-24. "The classification employs 5 System names, 8 Subsystem names, 11 Class names, 28 Subclass names, and an unspecified number of Dominance Types." Classification, supra note 210, at 26. The Service also identifies other existing wetlands classification systems. Classification, supra note 210, at 27-31.
classification does not necessarily lead to wetland destruction. On the other hand, New York's classification system does just that: "from Class I, which are the most important wetlands, down to Class IV, which provide fewer benefits." The assumed purpose of New York's classification is to give greater to lesser degrees of regulatory protection depending on class. New Jersey classifies freshwater wetlands into (1) "exceptional resource value"; (2) "ordinary value"; and (3) "intermediate resource value" (leftovers). Brunton in reviewing the Ontario wetland evaluation system has no objection to assessing wetlands on the basis of four components as long as the assessment is done over a long enough time period (a so-called growing season would be inadequate) and by competent personnel. These components are: biological; social; hydrological; and special features. But he rejects the next step which assigns numerical values to the components and totals them. He would use the assessment part of the system to (1) learn how the wetland works as an ecological entity, (2) determine its representative nature for the region, and (3) determine whether it has national, provincial, or only local significance. This appears to be a variant on the priority list criteria that Illinois had established by 1981 for acquiring wetlands: (1) the best example of each wetland type in each natural division of the state; (2) its importance to endangered and threatened species; and (3) the willingness of the owner to sell. Here was a recognition of limited resources as well as opportunity and the idea was to get the most bang for the buck so to speak, recognizing that other opportunities might be lost but hoping they would still be around when and if more funds became available. Thus the prioritization of projects suggested here would most closely resemble the Illinois approach for classification.

240. Classification, supra note 210, at 26-27 (discussion of use of the Service's classification system). For three views on classification, see Clarifying Classification, Nat'l Wetlands Newsl., Jan./Feb. 1993, at 4-9. One view: "You can't make sense of the classification issue until you have a management approach in mind." Id. at 4 (Shabman's view). A second view: "classification means a lot of different things." Id. at 7 (Riexinger's view). And, a third view: "a valuation or classification mechanism is the key to imposing market-driven resources into the wetlands regulatory scheme." Id. at 9 (Brown's view). The only sensible thing to make out of these and other discussions of classification is that you have to know first what objective you want to achieve with the classification.


244. Bell, supra note 40, at 62.
c. select the project site and develop a site specific plan

If one chooses a site that has the appropriate hydrology, a good base of organic matter in the soil, a historic seed bank from past plant communities, and the correct landscape context, a wetland can be engineered that is cost-effective and has functional characteristics similar to natural wetlands.\(^{245}\)

The context would be existing and historic wetland sites, and the priority criteria, if any, would be applied.

Current ownership status and use would be important, particularly if the program is going to be based on voluntarism on the part of the landowner. Furthermore, some consideration should be given to the need for and availability of maintenance funds.\(^{246}\)

d. perform the restoration or creation

Although all of the steps cost money, this step is the most expensive. The site specific plan, item (c) above, should deal with items (e) & (f) below. In anticipation, the plan will identify who does the restoration or creation and who monitors the activity.

e. evaluate the result

A qualitative wetland evaluation plan should include: a baseline vegetation survey, annual reporting of post construction monitoring conducted for a minimum of five years, fixed point panoramic photographs, rainfall and water level data, a plan view showing microinvertebrate data, a maintenance plan, and a qualified individual to conduct monitoring. Quantitative evaluation is recommended when the proposed construction technique is unproven, or when success criteria are related to obtaining specific thresholds of plant cover, diversity, and wildlife utilization. Quantitative evaluation should include: surface and groundwater hydrological monitoring, and vegetation analysis.\(^{247}\)

Here the banking concept might work to the extent that one would not treat a restored or created wetland as a wetland until it had been

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246. See Kentula et al., supra note 91 (the authors deal with site selection, assessing the level of attainable functioning, and determining the desired level of functioning).
247. Erwin, Wetland Evaluation For Restoration and Creation, in 2 EPA, Wetland Creation and Restoration: The Status Of The Science 15 (1989); see also id. at 37 app. (a selected bibliography on wetland evaluation).
evaluated for a sufficient period and found to be performing satisfactory
wetlands functions. Because wetlands banking is a device used largely for
mitigation purposes, it does not necessarily result in any net wetlands
acres gained. In an effort to accomplish a net gain of wetlands via
banking, Henderson has suggested a requirement that everyone
owning former wetlands be required to restore five percent of those
wetlands. Those who would be unduly burdened by physical restoration
could acquire a credit voucher through purchase from those who restored
more than five percent. This adopts, at least in part, the private banking
approach suggested by Sokolove and Huang. However, another, and
simpler, way to adapt banking to increasing wetland acreage is to always
require at least double acres in mitigation for each acre destroyed.

f. conduct post-restoration or -creation management

Obviously, at minimum, post-restoration or post-creation
management should keep the area from being destroyed, but that may
not be deemed obvious by all. Thus Minnesota's wetlands protection
program is faulted for not giving protection to created wetlands. The
difference may be that the Minnesota wetlands are privately created
wetlands while those under discussion here are created with at least
some public funds and, therefore, may be treated differently from the
outset. A privately owned wetland may not be as well protected as a
publicly owned one. Some governmental agencies and some private
parties, for example utilities, have the power of eminent domain. How is
a restored or created wetland to be protected from the exercise of that
power? Sabine River Authority v. United States Department of the
Interior provides an interesting case study. The Little Sandy Hunting
and Fishing Club, a private organization, donated a non-development
easement to the United States Fish and Wildlife Service to preserve 3,800
acres of pristine wetlands. The Sabine River Authority which contemplat-
ed building a reservoir in that location at some time in the future brought
suit claiming that the acceptance of the easement was a major federal
action significantly affecting the quality of the environment and that,
therefore, an environmental impact statement should have been prepared.
Their real objection was that the effect of the donation to the Fish and
Wildlife Service was to make the land unavailable for condemnation
through the use of Texas's power of eminent domain. The Service's
environmental assessment had concluded that there would be no
significant impact and thus the Service did not prepare an impact

249. Comment, supra note 208.
statement. The district court dismissed the suit\(^2\) and the circuit affirmed. A significant factor to the circuit court was the absence of any physical change resulting from the action of accepting the easement.\(^3\) That should be true also if the grant of a non-development easement is made after a wetlands creation or restoration project on private land. However, if the federal government is a participant through funding of the project from the start, a different result may occur.

It may also be necessary to enhance and steer the values of the wetland, at least during the evaluation stage. For this purpose, there should be a site specific operation and maintenance plan which identifies the wetland values desired and the agency responsible. Further, necessary elements of flexibility should be built in to allow dealing with unanticipated developments.

An important aspect will be ownership of the wetlands area as this may determine access and physical use. For example, there are federal 10-year, 15-year, 30-year, and permanent agreements or easements,\(^4\) the Minnesota perpetual easement, and fee ownership, such as of a national wildlife refuge. Some wetlands values can be performed as well (or perhaps better) without public access. Waterfowl habitat, water storage, and water purification are all uses that do not necessarily benefit from public use of the area. We may, however, forgo the benefit of citizen suits as a protection device if the public does not have access.

Is it sufficient that the agreement or easement provides for access by government officials for inspection and maintenance?

### IV. CONCLUSION

Having just completed a statement of the minimum contents of an ideal wetlands restoration and creation program it becomes necessary to return to the larger picture of the wetlands resource generally. Any restoration and creation program must be one part, but only a part, of an overall effort to manage the wetlands resource in the United States that includes preservation and enhancement of existing wetlands.

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\(^{252}\) 951 F.2d at 679-80.