Symposium on Wetlands of the Unglaciated Appalachian Region
West Virginia University, Morgantown, W.Va., May 26–28, 1982

Wetland Regulation In Appalachia

Michael Koryak

U.S. Army Corps of Engineers
Pittsburgh District
1000 Liberty Avenue
Pittsburgh, PA 15222

ABSTRACT. Wetlands in the United States have been regulated by national legislation for the last 133 years. In this paper both the historical development and present status of the regulations are reviewed with an Appalachian regional perspective. Public sentiment and the availability of wetland definitions and inventories are presented in the discussion as major factors influencing the evolution and effective administration of the laws.

INTRODUCTION

Wetlands are not particularly abundant within the unglaciated Appalachian region and most tend to be rather small in size. Possibly for these reasons they have not attracted a high degree of scientific attention in the past. Therefore, with a few notable exceptions, the information necessary to effectively administrate them is relatively limited.

Existing national wetland legislative policies were shaped by wetland classification systems and inventories originally developed during the 1950's. These investigations in conjunction with later studies demonstrated the high value of some wetland categories as habitats for waterfowl and many rare plants and animals, commercial shell and fin fish nurseries, ground water recharge areas, flood buffers and other beneficial purposes. The inventories also demonstrated that wetlands in general, and many of the most valuable types in particular were being drained, filled or otherwise adversely altered at an alarming rate. Appalachia was largely ignored when these national wetland classification systems and inventories were being developed and standard wetland type classifications still often appear inadequate for describing wetlands of the region.

A brief review of the evolution of national wetland legislation is presented here. Understanding this evolution will provide some insight into the present status of wetland management in the unglaciated Appalachian area, and also might lead to models for correcting regional regulatory deficiencies.

HISTORICAL DEVELOPMENT AND PRESENT STATUS OF NATIONAL WETLAND LEGISLATION

Until recent decades wetlands were generally perceived by the American public as obstacles to development and menaces to the public welfare. Legislation reflected these attitudes and in the interest of economic progress and public health it directly subsidized or otherwise facilitated wetland destruction.

In this spirit Congress passed the Swamp Land Acts of 1849, 1850 and 1860. These acts transferred ownership of approximately 65 million acres of wetlands to 15 states to reclaim by the construction of levees and drains. Nearly all of this land is now in private ownership (Shaw and Fredine 1956).

Prior to these first major national wetland laws, drainage projects of ambitious scope were undertaken in Delaware, Maryland, New Jersey, Massachusetts, South Carolina and Georgia. As far back as 1763, in fact, George Washington himself conducted a survey of the Dismal Swamp of Virginia and North Carolina for the purpose of reclamation (Horwitz 1978).

In 1835 the era of modern agricultural engineering began as the first factory for making clay tile drainage pipe was opened in Seneca County, New York. By 1880 there were 1,140 such tile factories in the United States and by 1920 there were 65 million acres of American agricultural land engaged in drainage enterprises. Not all, but a substantial portion of these lands drained for agricultural purposes could be considered as wetlands.

The federal government accelerated its role in the booming drainage enterprises during the depression years of the 1930's through emergency public works programs such as the basic technical assistance programs of 1935 (Public Law 74–46) (Horwitz 1978). By 1950 there were approximately 103 million acres of drained land in cultivation (Shaw and Fredine 1956).

Waterfowl hunters were among the first and most effective public interest groups to question these extensive, publicly subsidized drainage programs. They were especially concerned with drainage projects in the pothole region of the northern prairie states and Canadian prairie provinces where most North American ducks breed. Besides the wholesale destruction of duck nesting areas, waterfowl populations were severely reduced in the early 1930's by the phenomenal demise of eelgrass (*Zosteria*) along the Atlantic coast and by the dust bowl drought in the interior. Hunters lamenting the drastic decline in waterfowl numbers organized into groups such as Ducks Unlimited and began to exert substantial political pressure (Bellrose 1976). With the final eradication of malaria in America from its remaining Tennessee strongholds during the 1930's, public health objections to the concept of wetland preservation were largely eliminated and a substantial diverse and politically active wetland clientele continued to emerge in the following decades. Numerous wetlands were subsequently incorporated into the growing national park and wildlife refuge systems.

In spite of these special purpose wetland acquisitions and the emergence of a substantial public interest in and appreciation of wetlands, there was no change in basic national policy towards wetlands in general. Until the 1960's, they were still officially considered as public menaces and wastelands that were of no use until they were filled or drained. A major turning point occurred in 1956 with the publication of U.S. Fish and Wildlife Service Circular 39 entitled "Wetlands of the United States, Their Extent and Their Value to Waterfowl and Other Wildlife" (Shaw and Fredine 1956). The impact and enduring importance of this document cannot be overstated. Stegman (1976) states that this circular has been one of the most common and most influential documents used in the continuous battle to preserve a critically valuable but rapidly diminishing national resource. Over the intervening years, considerable use has been made of Circular 39 by a variety of federal and state agencies, universities and private conservation groups. It has gained acceptance among the federal establishment to the point that it is used as the inventory and classification standard by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the Soil Conservation Service and forms the basis of a wide spectrum of federal and state regulations and policies dealing with wetlands.

For those who may not be familiar with Circular 39, basically it defined twenty different broad wetland categories and then inventoried and rated each in terms of its importance to waterfowl. The inventory demonstrated that 45 million acres of the estimated original 127 million acres of natural wetlands of this country had already been lost by the early 1950's.

Early legislative reaction to the circular included the Wetland Loan Act of 1961 which provides funds to lease and purchase wetlands (Stegman 1976). In 1962 the Congress enacted the Drainage Referral Act (Public Law 87–732) which prohibited the Department of Agriculture from subsidizing landowners in draining potholes in the states of Minnesota, South Dakota and North Dakota without review and approval from the Secretary of the Interior. Since 1963 direct reference to wetland types III, IV and V as described in Circular 39 was inserted in the appropriation bill (Daves 1976). Even so, however, between 1964 and 1968 a total of 125,000 acres of prairie potholes were drained in these three states alone (Bellrose 1976). Some official shift in attitude and concrete legislative precedent however had been established.

During the 1960's the scope of wetland issues increased rapidly beyond a concern for duck habitat. Endangered species, which were eventually to be protected by the Endangered Species Act of 1973 (Public Law 93–205), had an indirect impact because many of these species, including the officially venerated bald eagle, utilize wetland habitats. Dredge and fill activities along coastal marshes in particular emerged as a major wetland issue at this time. Although no single event seems to have initiated this concern, a 1964 symposium on estuaries brought together a diverse group of specialists who had conducted research on estuaries. Numerous study results converged into a consensus and the proceedings of this conference (Lauff 1967) resulted in a very concise and frequently referenced statement on the critical value of and the substantial threats to estuaries and their associated marshes. By way of example, one contributor to the conference (Gunter 1967) estimated that in excess of 97.5% of the total commercial fisheries catch of the Gulf States was made up of species dependent at some point in their life cycle upon estuary environments, and at that time the Gulf Coast fisheries production was about 28% of the United States total. More recently Stegman (1976) stated that up to 90% of all marine finfish and shellfish depend upon coastal marshes and estuaries during some portion of their life cycles.

Findings such as these contributed directly to such definative and currently important wetland laws as Section 404 of the Water Pollution Control Act Amendments of 1972, the Coastal Zone Management Act of 1972, and the broader interpretation of Section 10 of the still powerful River and Harbor Act of 1899. Before presenting a very brief outline of pertinent sections of these laws, it's worthy of noting that past symposiums have been able to influence the direction of wetland administrative policy.

In terms of the present status of national wetland legislation, the oldest and one of the most powerful of the federal laws now used to regulate wetlands is the River and Harbors Act of 1899. Section 10 of this act prohibits the excavation or deposition of material into navigable waters without a permit from the United States Army Corps of Engineers.

Until 1968 the Corps of Engineers restricted the administration of this act to issues directly concerning navigation. This narrow interpretation of regulatory responsibility was not clearly inherent in the law and as early as 1933 the United States Supreme Court declared that Section 10 permits could be denied for activities not in the general public interest. This broad approach was amplified further by the U.S. Fish and Wildlife Coordination Act, as amended by the Act of 12 August 1968. The amendment specified that modification of any body of water under a federal permit requires consultation with the U.S. Fish and Wildlife Service to prevent loss of wildlife resources.

The significance of the 1899 Act was further enhanced by the National Environmental Policy Act of 1969 (Public Law 91–190 or NEPA). Section 102(2)(c) of NEPA requires an environmental impact statement on any significant federal action including the issuance of a permit. The responsible federal official must also consult with and obtain comments from any agency which has jurisdiction or special expertise on the impact involved. The principal effects of Section 102 have been to force coordination between agencies, encourage multidisciplinary planning, give environmental concerns a weight equal to economic, technical and other concerns and to reveal decision making to full public view (McCormick 1978).

Even so, Section 10 permit responsibilities were still restricted to navigable waters and the Corps of Engineers applied a narrow interpretation to the term navigable. A controversy that brewed on this interpretation was rendered moot by the passage of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92–500) or FWPCA. Section 404 of FWPCA directed the Corps of Engineers to regulate the waters of the United States. Since 1977, waters of the United States have been defined to include nearly all surface waters and wetlands except for stock, cooling and settling ponds and other waters specifically excluded. Today, the majority of local wetland permit applications involve Section 404 rather than Section 10 authority.

The Clean Water Act of 1977 (Public Law 95–217) clarified and reinforced Section 404 and established procedures for transferring certain 404 permitting authorities to the states. The law provides that all Section 404 permits are subject to U.S. EPA review and approval.

One final official directive that should be mentioned is Executive Order 11990 (24 May 1977). This order very clearly and forcefully directs all federal agencies to take action to minimize the destruction, loss or degradation of wetlands. This order does not apply to the issuance of federal permits to private parties for actions in wetlands that are not federally owned. It does, however, specifically prohibit the development of any federally funded project in a wetland except when no feasible alternative is available.

THE APPALACHIAN PERSPECTIVE

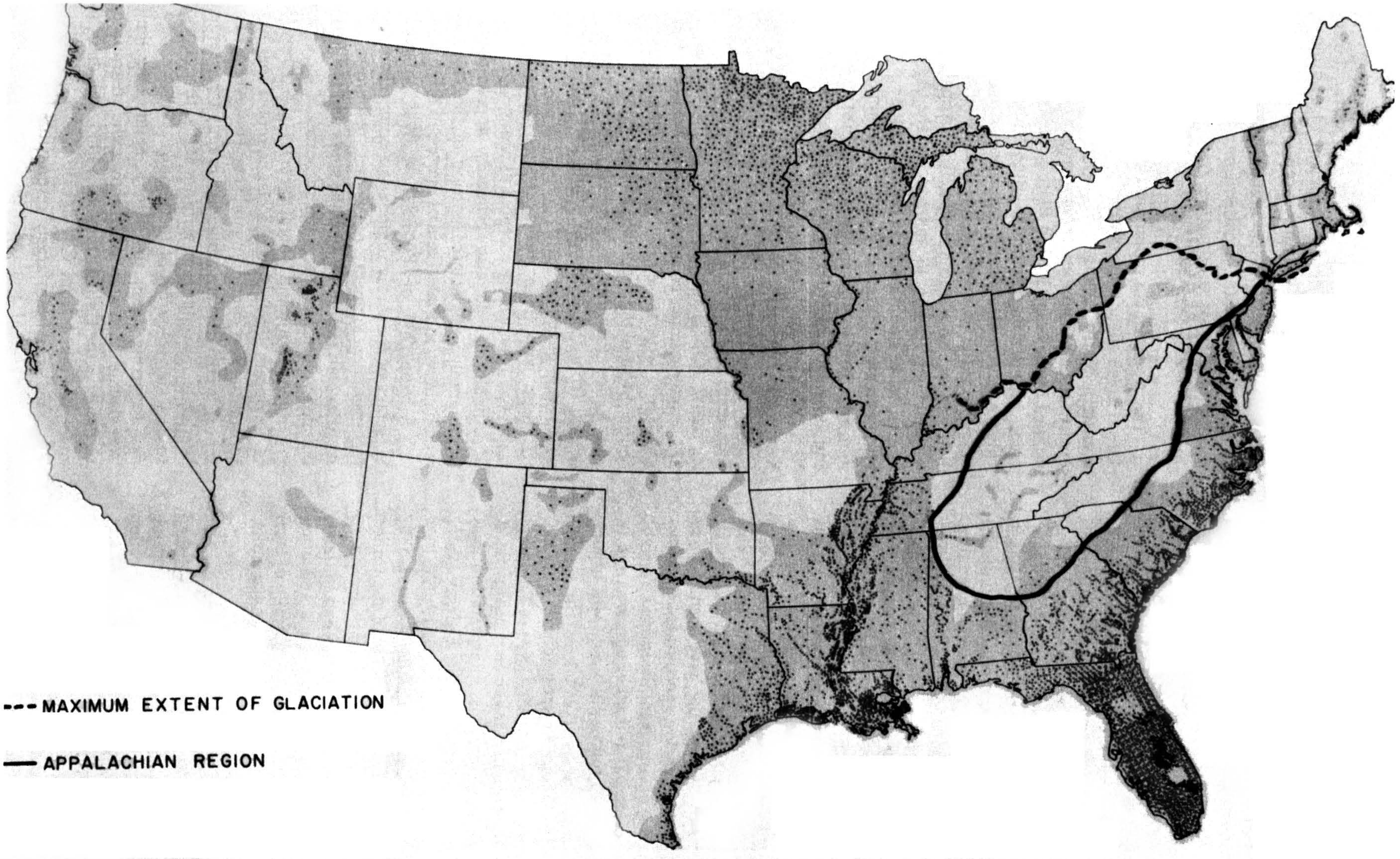
The Appalachian mountain chain and its marginal plateau areas cover approximately 364,000 square miles of eastern North America. Physiographic Appalachia, south of the maximum extent of Pleistocene glaciation, is outlined by the heavy lines in Plate 1. This physiographic region includes the Piedmont, Blue Ridge, Valley and Ridge, and Appalachian Plateaus provinces.

Within the contexts of this discussion it is notable that there is also a legislatively defined Appalachia. The Appalachian Region as defined by the Appalachian Regional Development Act (Public Law 89–4, 9 March 1965) extends through a 185,000 square mile and twelve state area from southern New York to northern Alabama and Georgia; it includes all of West Virginia and parts of New York, Pennsylvania, Ohio, Maryland, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia and Alabama. This area was defined mostly by economic, political and cultural criteria. The limits of legislative Appalachia conform to the boundaries of the 373 conterminous counties it encompasses, but not necessarily with the classic physiographic limits of the region. Most of the Piedmont and a portion of the Ridge and Valley Province in Virginia, for instance, were deleted from the definition, while parts of the interior plains were included.

Even with these inconsistencies legislative Appalachia has been widely accepted as a standard definition of Appalachia. It also generally approximates the physiographic unglaciated portion of the Appalachian region shown in Plate 1 and of interest in this discussion.

Section 206 of Public Law 89–4 directed the Secretary of the Army to prepare a comprehensive plan for the development of water resources in the Appalachian region. By 1969 the study had resulted in 25 detailed volumes on the water resources of the area by a multitude of state and federal agencies (U.S. Army Corps of Engineers 1969). It was a classic report that has had substantial and continuing impacts. However, within the report, wetlands were alluded to in only three sentences. Wetlands, it would seem, were not at that time considered to be water resources of the region.

Referring again to Plate 1, besides the limits of Appalachia this map also shows the distribution of wetlands in the United States as of 1955. This distribution map was taken from Circular 39 which, as previously discussed, has been largely responsible for shaping the present national wetland legislation and guiding the



DISTRIBUTION OF WETLANDS IN THE UNITED STATES (FROM USFWS, CIRCULAR 39, 1955)

EACH DOT REPRESENTS 10,000 ACRES

PLATE 1

implementation of these laws. Each dot on the map represents 10,000 acres of wetlands and the shading shows general areas within which are located all wetlands included in the inventory. One of the reasons for the current dilemma with local wetland regulation is demonstrated by this map. According to this document, as shown on Plate 1, there are essentially no wetlands in Appalachia to regulate. Unglaciated Appalachia therefore comes close to being a blank spot on the map in terms of the programs, research and priorities that have been shaped by past inventories and classifications.

From one perspective, this might be an appropriate status. Freshwater wetlands, in terms of geologic time, are generally ephemeral products of poorly defined, immature drainage patterns. Since unglaciated Appalachia has been eroding for more than 200 million years, there is little that is immature about its drainage. The general outline of the present geography of the region was already established by the late Cretaceous Period and since the early Cenozoic Era, erosion has been the dominant process (Hack 1969). Wetlands therefore are not a prominent feature of this ancient landscape. The state of West Virginia for example, which is the only state that lies entirely within the Appalachian region, also has the distinction of having the least acreage in wetlands of the 48 conterminous states. According to Circular 39, West Virginia contains only 0.005 percent of the national wetland acreage.

Furthermore, many typical Appalachian wetlands tend to fall into Circular 39 classifications with low waterfowl value ratings. Besides lowland riverine wetland systems, important wetland types of this area include highland glades and bogs that are not particularly productive in terms of ducks, shellfish and other items traditionally used to evaluate wetlands.

From another perspective however, the very scarcity of wetlands in the region should amplify the value of the resource and the unique geology and disjunct northern fauna and flora of many might warrant special classification considerations.

Many of the smaller wetlands of the region might fall through cracks in the law without any 404 evaluation. Section 323.4–2 of the Corps 404 permit regulations authorizes, without application, the discharge of dredge or fill materials in streams, including impoundments and adjacent wetlands, located upstream of a point at which the average annual flow is 5 cubic feet per second. This would probably include a majority of highland bogs in unglaciated Appalachia. Section 323.4–4 does however provide discretionary authority to require individual applications for such permits in specified areas.

While the wetland resources of the unglaciated Appalachian region are very limited, the pressures on them are very great. Level land is at a premium in most of the region. Because of the region's rugged terrain, general development, and transportation corridors in particular have always been concentrated along stream courses in what are often narrow valleys. Such development threatens riverine wetland systems. Along the major rivers of the Ohio River drainage, most such wetlands have long since been dredged or filled to facilitate navigation, urban and industrial development, and railroad and highway construction. Recreation development pressures are also locally significant. For example, most of the highland glades of Garrett County, Maryland have a recreational impoundment on them. Surface mining operations can potentially affect even the most isolated wetlands throughout the Appalachian coal fields. One of the most controversial 404 permit applications of the region has been a proposed pumped-storage hydroelectric project that would inundate a large portion of the Canaan Valley wetlands (6,000 acres) in northern West Virginia.

The unique vegetation of the valley (Fortney 1975) emerged as the strongest argument in support of preserving the Canaan Valley wetlands.

CONCLUSION

In summary, although administrative responses have not always been timely, national wetland legislative policy has demonstrated a sensitivity to both public sentiment and available scientific knowledge. Scientific consensus on wetland issues has generally provided legislative direction and regulatory guidelines. In the unglaciated Appalachian region there has until recently been a relative deficiency of organized scientific wetland knowledge and a strong regional wetland consensus has been slow in developing. Hopefully, the Symposium on Wetlands of the Unglaciated Appalachian Region will make significant contributions towards fulfilling these needs.

LITERATURE CITED

Bellrose, Frank C., 1976, Ducks, Geese and Swans of North American. Stackpole Books, Harrisburg, PA.

Cowardin, Lewis M., Carter, Virginia, Golet, Francis C., and LaRoe, Edward T., 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C.

Davis, Ronello M., 1975. Overview of Current Wetland Classifications and Inventories in the United States and Canada. In Sather, Henry J. editor. U.S. Soil Conservation Service Proceedings of the National Wetland Classification and Inventory Workshop. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. pp. 38–52.

Fortney, Ronald H., 1975. The Vegetation of Canaan Valley, West Virginia: A taxonomic and Ecological Study. Dissertation. West Virginia University, Morgantown.

Gunter, Gordon, 1967. Some Relationships of Estuaries to the Fisheries of the Gulf of Mexico. In Lauff, G. H. editor. Estuaries. American Association for the Advancement of Science, Washington, D.C. pp. 621–638.

Hack, John T., 1969. The Area, Its Geology: Cenozoic Development of the Southern Appalachians, In Holt, Perry C. editor. Distributional History of Biota of the Southern Appalachians, Part I. Virginia Polytechnic Institute and State University, Blacksburg, Virginia. pp. 1–17.

Horwitz, Elinor L., 1978. Our Nation's Wetlands. An Interagency Task Force Report coordinated by the Council on Environmental Quality. GPO, Washington, D.C.

Lauff, George H., editor, 1967. Estuaries. American Association for the Advancement of Science, Washington, D.C.

McCormick, Jack, 1978. Ecology and the Regulation of Freshwater Wetlands. In Good et al. editors. Freshwater Wetlands: Ecological Processes and Management Potential. Academic Press, New York, New York.

Shaw, Samuel P., and Fredine C. Gordon, 1956. Wetlands of the United States: Their Extent and Their Value to Waterfowl and Other Wildlife. U.S. Fish and Wildlife Service, Circular 39, U.S. Department of the Interior, Washington, D.C.

Stegman, Jerry L., 1975. Overview of Current Wetland Classifications and Inventories in the United States and Canada: U.S. Fish and Wildlife Service. In Sather, Henry J. editor. Proceedings of the National Wetland Classification and Inventory Workshop. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. pp. 102–120.

U.S. Army Corps of Engineers, 1969. Development of Water Resources in Appalachia. Department of the Army, Office of Appalachian Studies, Corps of Engineers, Cincinnati, Ohio

U.S. Geological Survey and the U.S. Bureau of Mines, 1968. Mineral Resources of the Appalachian Region, GPO, Washington, D.C.