

1991

Refuge Management: Committed to the Future

Anthony D. Leger
U.S. Fish and Wildlife Service

Follow this and additional works at: https://digitalcommons.odu.edu/backbay1990_management

Repository Citation

Leger, Anthony D., "Refuge Management: Committed to the Future" (1991). *IV. Management*. 3.
https://digitalcommons.odu.edu/backbay1990_management/3

This Conference Paper is brought to you for free and open access by the Proceedings of the Back Bay Ecological Symposium 1990 at ODU Digital Commons. It has been accepted for inclusion in IV. Management by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.

Refuge Management: Committed to the Future

Anthony D. Leger

Refuge Manager, Back Bay NWR
U.S. Fish and Wildlife Service
P.O. Box 6286, Virginia Beach, Virginia 23456

Abstract: The Back Bay National Wildlife Refuge was established on June 6, 1938, "... as a refuge and breeding ground for migratory birds and other wildlife." During its first 30 years, the Refuge was managed similar to other areas of the National Wildlife Refuge System. Dikes were constructed, facilities were built, and wildlife management programs were initiated. In the late 1960's, the emphasis of the area changed, as increasing numbers of beach oriented visitors, primarily using 4 wheel drive vehicles, began using the area. By 1971 public use reached 348,000 visits per year. Throughout the 1970's and early 1980's Refuge Management focused primarily on administration of a Motor Vehicle Access Permit Program that was designed to control this use and preserve wildlife habitat. By the mid-1980's the vehicle access situation was brought under control, and the Refuge began to turn its attention to more traditional management activities. From 1986 - 1990 major strides were made in the areas of environmental education, impoundment rehabilitation, fire management, land acquisition, and cooperation with other agencies and private groups. As the 1990's begin, the Refuge is committed to providing leadership in habitat protection, progressive land management, environmental education, restoration of the Back Bay watershed, and establishing and continuing partnerships between the public and private sectors.

History

The Back Bay National Wildlife Refuge (Refuge) is a unit of the National Wildlife Refuge System (System). The System, a collection of over 90 million acres of lands and waters managed specifically for wildlife, began in 1903 with the establishment of the Pelican Island Refuge. Today, there are over 450 National Wildlife Refuges, with at least one in every state. These Refuges are administered by the U.S. Fish and Wildlife Service (Service), an agency of the Department of the Interior.

After the passage of the Duck Stamp Act in the early 1930's, many of the earliest units of the System were established. On June 6, 1938 Back Bay Refuge came into existence, when the Service purchased 4,589 acres of the barrier spit and islands near the center of the Back Bay ecosystem. Shortly thereafter, approximately 4,600 acres of the bay were closed to the taking of migratory birds by Presidential Proclamation, effectively creating over 9,000 acres of wintering, resting and feeding area for migratory birds.

Since Refuge establishment, management activities have been geared towards providing habitat for migratory birds - specifically waterfowl. Early management focused on development of freshwater marshes on the barrier spit, to compliment the brackish marsh and Submerged Aquatic Vegetation (SAV) in Back Bay. The main techniques for freshwater marsh development included construction of "ring dikes" in the 1950's and, later, the construction of the East, West and cross-dikes. Through these construction activi-

ties, approximately 650 acres of primarily unvegetated wash flats were converted to freshwater impoundments by 1970. These areas were then managed for snow geese and other waterfowl, primarily through agricultural practices such as: plowing, discing, seeding and burning. Water level manipulation was also used to enhance the attractiveness of the area to waterfowl.

With the increase in personal leisure time in the years following World War II, public use of the Refuge began to increase. The primary focus of this use was the Refuge beach and dunes. Visitors in four-wheel-drive vehicles came in ever-increasing numbers, resulting in an estimated 348,000 visits by 1971. The Service recognized the damage caused by off-road-vehicle activity and, on February 28, 1973, published the first of many annual rulemakings which limited beach and vehicular use. These proposed limits resulted in major controversy and a lawsuit against the Service. The overall effects on Refuge management activities were significant expenditures of staff time and dollars on controlling public use and a de-emphasis of traditional wildlife management activities. In fact, by the mid-1970's over 50% of the annual Refuge staff effort was expended in controlling access and administration of the Motor Vehicle Access Permit Program (MVAPP).

These efforts began to pay off and, by the mid-1980's, as the vehicle access situation was brought under control, the Refuge staff began to emphasize more traditional Refuge management

activities. Today only an estimated 15% of Refuge staff effort is directed toward the necessary administration of the MVAPP.

New Direction

In the fall of 1986 this renewed emphasis on habitat management was illustrated by the implementation of the first ever deer hunt on Back Bay NWR. This hunt was sorely needed to reduce an overpopulated deer herd and to minimize the negative impacts that whitetails were having on Refuge habitats. At about the same time, the Refuge staff began to take a closer look at the habitat management program. Over the years the necessary pre-occupation with the MVAPP, coupled with staff retirements and transfers, had eliminated the institutional knowledge that Refuge staff needed to productively manage habitat - especially impounded wetlands. The decline of the Bay in the early 1980's, historically low waterfowl population numbers, lack of public support and understanding of environmental issues, and new emphasis in the Service to improve management of refuges, motivated Refuge personnel to action. This action focused on three main areas; 1) habitat management, 2) protection and enhancement of the Back Bay watershed and, 3) environmental education and wildlife-oriented public use.

1. Habitat Management

With the realization that Refuge habitats were undermanaged, Refuge staff set out to "rediscover" past management practices. The water management activities of the late 1970's - early 1980's were critically examined and new direction was initiated. An experiment in the winter of 1986 and spring of 1987 in the refuge's "A" Pool, demonstrated that desirable wetland plants could be encouraged through increases in summer water levels and winter discing of black needle-rush (*Juncus roemerianus*). Through the use of these two techniques alone, an explosion of water hyssop (*Bacopa* spp.), saltmarsh bullrush (*Scirpus robustus*) and American threesquare (*Scirpus americanus*) was observed. Since a more stable water supply was needed to expand this management throughout the existing impoundments, a water supply channel was excavated into Back Bay. The channel (1,400 feet long x 25 feet wide x 6 feet deep) now supplies a steady source of water to the 12,000 gal/min permanent pumping station on the Refuge.

Concurrent with changes in the water management regime, Refuge personnel increased mechanical manipulations and improved wildlife inventory procedures. Mowing, discing, and burning operations increased. Ground and aerial surveys were expanded. Visits by Service wetland management experts confirmed that the management changes were producing better habitat. By

the winters of 1987-1988 and 1988-1989, increased waterfowl use of the impoundments was evident. In the 1988-1989 wintering period, a peak of 35,000 greater snow geese (*Chen caerulescens*) was observed on the Refuge - the highest recorded number in nearly 20 years. Many of these birds were observed in discing or burned marshes. In the 1987-1988 wintering period, several thousand American black ducks (*Anas rubripes*) and mallards (*A. platyrhynchos*) were observed feeding on acorns (among other foods), in the marginal marshes east of the east dike, areas that had been recently flooded in attempts to attract more waterfowl.

In the years from 1986-1989, Refuge staff demonstrated that the impoundments could be enhanced for use by wintering waterfowl. At the same time however, it became evident that the aging dikes and water control structures were inadequate to ensure the long term productivity of the area. Therefore, planning was initiated to rehabilitate the entire system. Engineering analysis and physical data gathering was the first step. Plans were drawn up and finalized. Permits were applied for and an environmental analysis of the proposal was prepared and submitted for public comment. By late 1989, plans were finalized and permits were received.

In early 1990, Ducks Unlimited, Inc. (DU) under the auspices of their MARSH program and in the spirit of the North American Waterfowl Management Plan, agreed to support the Impoundment Rehabilitation Project. DU committed \$187,500 over two years towards the \$500,000 project. The Service will commit over \$300,000 before the project is completed.

The project will increase Refuge management capabilities on existing wetland areas, create 300 acres of new and improved marsh habitat and increase water management flexibility throughout the impoundment system. Major components of the project include: raising and re-sloping eight miles of existing dikes, installing 13 new water control structures, constructing 6,000 feet of new dikes, creating two storage pools totalling 53 acres, and excavating eight miles of water transport ditches.

Surplus water will be made available to the adjacent Barbours Hill Wildlife Management Area for the enhancement of 137 acres of waterfowl habitat. Benefits of the project will extend not only to migratory birds but also to freshwater fish, amphibians, aquatic mammals, invertebrates and reptiles. Improved conditions for wildlife will also improve observation and educational opportunities for Refuge visitors. The project supports the goals of the North American Waterfowl Management Plan, an international strategy for the recovery of declining waterfowl populations.

2. Protection and Enhancement of the Back Bay Watershed

It is no secret that the once-renowned waterfowl populations and bass fishery of Back Bay, Virginia have declined dramatically in recent years. Lands surrounding Back Bay are increasingly threatened by potential and on-going land development. These low-lying lands serve as an important filter for pollutant and sediment-laden runoff from adjacent areas. The boundary of the Back Bay National Wildlife Refuge was expanded in 1989 to include an additional 6,340 acres of brackish marsh, forested swamp, and "critical edge" upland habitat, important to a variety of wildlife species and for its natural filtering effect. Within the U.S. Fish and Wildlife Service's policy of working with willing sellers, the Refuge hopes to acquire and manage the land to improve its value to wildlife and reduce the amount of sediment and pollutants flowing into Back Bay. The approved Refuge acquisition project supports the goals of the North American Waterfowl Management Plan. However, Refuge acquisition alone will not be enough to solve the current problems of the Back Bay resource or the potential problems that may be brought on by rampant residential development. Recovery is ultimately dependent on the cooperation and assistance of State and local governments, private organizations and individual citizens.

As a major land owner in the Back Bay watershed and a steward for its natural resources, Service concerns regarding the decline in the natural resources and water quality in the bay have resulted in a proposed new initiative to address water quality issues. The Back Bay Initiative, as envisioned, is a multi-year effort to address water quality problems and provide possible remedies. The overall objectives are to: 1) review water quality, land use, and biological data pertaining to Back Bay and northern Currituck Sound for the purpose of evaluating historic and present day water quality trends, land use patterns, and ecosystem impacts; 2) establish and coordinate a communications network with Federal, State, and local government agencies and private conservation groups and citizens to encourage efforts to protect and enhance water quality in Back Bay; 3) establish and coordinate a scientific workgroup to evaluate water quality issues in Back Bay and subsequently determine what is necessary to begin efforts to improve water quality; 4) conduct scientific studies to investigate the impacts from contaminants such as pesticides, herbicides, nutrients, and sediments to natural resources in the bay. A request for funding for this effort during 1991 is currently pending.

Active participation from various agencies and the general public is critical to the overall effort to identify and resolve water quality problems in

the watershed. The improvement of water quality on a watershed scale can only be successful through the commitment and coordination of resources of the many agencies that have the expertise, funding, and/or regulatory authority to affect changes. The Service is poised to enter this partnership, and is willing to commit the necessary resources to protect and enhance this important resource.

3. Environmental Education and Wildlife-Oriented Public Use

Protecting and enhancing habitat today will not necessarily ensure its wise use in the future. To do that, the citizens of tomorrow must appreciate and understand the values of these areas to the plants and animals which inhabit them and accept the responsibilities of stewardship with which they will be entrusted. This is where a comprehensive program of environmental education and the provision for wildlife-oriented public use of Refuge resources enters the picture.

By 1987, the Refuge had completed the long transition from indiscriminate use of resources by the public to nearly exclusive wildlife-oriented use. Former non-wildlife-oriented uses such as off-road vehicling, swimming, surfing, sunbathing, kite flying, etc. have been replaced by birdwatching, nature observation, hiking, biking and shell collecting. These primarily, non-consumptive, uses are much less damaging to Refuge resources and are less complex and time-consuming to administer.

Environmental Educational opportunities at Back Bay began to expand dramatically in 1985. The Service is committed to providing environmental education opportunities for students. Local, regional and national educators are invited to investigate and utilize the resources of Back Bay National Wildlife Refuge with their colleagues and students. Teacher workshops at the Refuge provide orientation to Refuge lands, outdoor classroom sites, trails, interpretive facilities and equipment, and potential field activities. Refuge staff members are available to assist with: preliminary planning, group scheduling, library research, workshop registration, trip logistics and on-site group orientation.

Most classroom sites, associated trails/boardwalks, and Visitor Contact Station facilities are wheelchair accessible. Refuge habitats available for investigation include ocean, beach, pond, dune, bay, shrubland, maritime forest and marsh. During 1989, 3,700 students utilized the Refuge as an outdoor classroom. Many other individuals visited just to enjoy the resources of the area. These visitors and students gain a lasting impression of the beauty and significance of area resources. Many of them then take these images and experiences home with them and later support needed protection and management practices at the Refuge and in other areas.

Summary

Over the past 20 years, the Back Bay National Wildlife Refuge has undergone a major transition. During this period, emphasis has evolved from a major effort to control an adverse and damaging public use pattern (ORV's), to the more traditional role of habitat management. This transition illustrates the commitment of the Service to the protection and enhancement of important wildlife resources. Renewed habitat management efforts and cooperation with private sector partners are an example of the approach that will be required to ensure the preservation and restoration of the entire Back Bay watershed. The Service's commitment to Environmental Education, together with the programs of the State, City and other educators can result in an informed public willing to make the needed decisions that will ensure habitat protection and healthy wildlife populations in the future. The Service is committed to this future. We stand ready to forge new partnerships to see that Back Bay does not go the way of the Lynnhaven River and is a resource for all to appreciate and enjoy for many years to come.

Literature Cited

- Gilmore, R.E., et al. 1970. 1969 Annual Narrative Report, Back Bay National Wildlife Refuge. Unpublished.
- Gilmore, R.E., et al. 1971. 1970 Annual Narrative Report, Back Bay National Wildlife Refuge. Unpublished.
- Griffith, R.E., et al. 1973. Special Regulations; Public Access, Use, and Recreation; Back Bay National Wildlife Refuge, VA. Federal Register. 38FR5339.
- Healey, J. and A. Leger. 1989. Final Environmental Assessment, Proposal to Expand the Boundary of the Back Bay National Wildlife Refuge, Virginia Beach, Virginia. U.S. Fish and Wildlife Service, Newton Corner, MA.
- Holland, D.F., et al. 1973. 1972 Annual Narrative Report, Back Bay National Wildlife Refuge. Unpublished.
- Lambertson, R.E. and J. Healey. 1990. Land Protection Plan, Back Bay National Wildlife Refuge, Virginia Beach, Virginia. U.S. Fish and Wildlife Service, Newton Corner, MA.
- Leger, A.D., et al. 1990. 1989 Annual Narrative Report, Back Bay National Wildlife Refuge. Unpublished.
- Leger, A.D., E. Moses, and P. Martinkovic. 1987. Special Regulations; Public Access, Use and Recreation; Back Bay National Wildlife Refuge, VA. Federal Register. 52FR35710.

Pacific, R.D., et al. 1972. 1971 Annual Narrative Report, Back Bay National Wildlife Refuge. Unpublished.

Phillips, J.R., and A. Leger. 1989. Final Environmental Assessment on Impoundment Rehabilitation on Back Bay National Wildlife Refuge. U.S. Fish and Wildlife Service, Virginia Beach, VA.

Stilwell, D.A. and L.S. George. 1990. U.S. Fish and Wildlife Service, Back Bay Initiative: Goals and Objectives. Unpublished.