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Black Ducks and Their Chesapeake Bay Habitats: Proceedings of a Symposium

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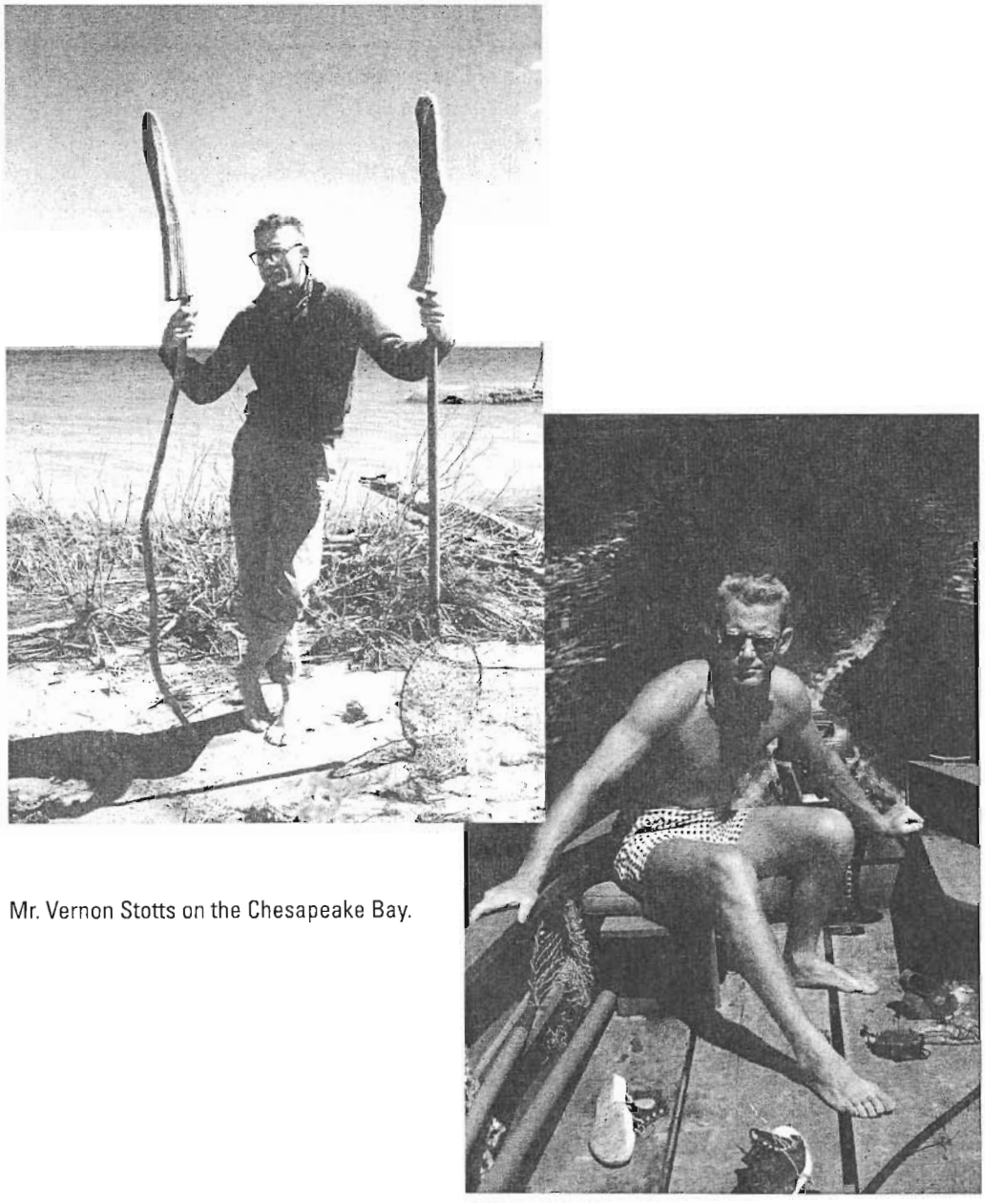

Mr. Vernon Stotts on the Chesapeake Bay.

Cover photos: black duck habitat at Savanna Lake, Dorchester County, Maryland (R.E. Stewart, Sr., U.S. Fish and Wildlife Service); Jerry Longcore checking a black duck nest at U.S. Geological Survey, Patuxent Wildlife Research Center; and two male black ducks (Matthew Perry, U.S. Geological Survey, Patuxent Wildlife Research Center).

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Preface

This symposium, "Black Ducks and Their Chesapeake Bay Habitats," held on October 4, 2000, was primarily sponsored and hosted by the Wildfowl Trust of North America located at Horsehead Wetlands Center in Grasonville, Md. Other sponsors included the U.S. Geological Survey's (USGS) Patuxent Wildlife Research Center (Laurel, Md.), Chesapeake College (Wye Mills, Md.), and the Biological Resources Division of the U.S. Geological Survey (Reston, Va.).

It was the first of many planned symposia to discuss an important waterfowl species of Chesapeake Bay and the habitat on which the species is dependent. The black duck, also referred to here as the American black duck (*Anas rubripes*), was a logical species in which to begin the symposia series. As a breeding and wintering Bay duck, it has traditionally epitomized the value of the Chesapeake Bay as well as the problems facing these habitats.

The goal of the symposium was to bring together some of the best experts on the subject and to share this information with a broad spectrum of individuals interested in black ducks and their Bay habitats. It was anticipated that the symposium would result in a better understanding of black duck biology and Chesapeake Bay habitats that would allow managers and conservationists to effectively plan for the future of the American black duck.

Invited papers dealing with black ducks were presented during the day at Chesapeake College, and posters dealing with other waterfowl and habitats of Chesapeake Bay were displayed at an evening reception at the Horsehead Wetlands Center. The subjects of the posters indirectly relate to the welfare of black duck populations and their habitats. Edward Delaney, executive director of the Wildfowl Trust of North America, welcomed the participants of the symposium with a short discussion of the historic reputation of the black duck. Gerald Winegrad, vice president of the American Bird Conservancy, acted as moderator of the symposium and introduced all the speakers. Vernon Stotts, retired biologist and the person to whom this symposium is dedicated, gave an introduction and provided a historic movie of Chesapeake Bay black ducks. All technical aspects of the symposium were the responsibility of myself and my staff at the USGS Patuxent Wildlife Research Center. It was our goal to present a balanced assessment of the status of the black duck that would include all aspects of the species and its habitat in a friendly, open, and professional environment.

Numerous persons expended many hours to make the event successful. Virginia Vroblesky was the person most responsible for all logistical planning for the event. Elaine Wilson was the key contact at Chesapeake College. Volunteers and staff who assisted in advance planning and on the day of the symposium included Dave Houchins, Donna Houchins, Michelle Lawrence, Edward Lohnes, Margaret Maher, Clinton Pinder, Kathy Siegfried, Liz Smith, Chris Snow, and Coreen Weilminster. The assistance of these individuals and others was greatly appreciated.

Numerous persons assisted on the publication of the proceedings including Tammy Charron, Marcia Holmes, Lynda Garrett, Edward Lohnes, and Beth Vairin.

Matthew C. Perry
USGS Patuxent Wildlife Research Center

Symposium Dedication

This symposium is dedicated to Vernon D. Stotts, a retired biologist who has studied various aspects of black ducks in Chesapeake Bay since 1953. His work was conducted as senior waterfowl biologist for the Maryland Department of Natural Resources and after retirement as a contractor of the Annapolis Field Office of the U.S. Fish and Wildlife Service. Mr. Stotts studied the black duck for his master of science degree thesis and has written several important articles about this species. His son, Daniel B. Stotts, has continued the tradition as a waterfowl biologist for the U.S. Fish and Wildlife Service and the U.S. Geological Survey's Patuxent Wildlife Research Center.

Mr. Stotts' contributions to the wildlife profession were clearly stated in the March 29, 1982, Special Recognition Service Award presented to him by Theodore Bookout, president of The Wildlife Society, "for pioneering work in the waterfowl management in the Chesapeake Bay area":

> Few biologists have contributed more to the conservation and management of regional waterfowl populations than Vernon D. Stotts. When the Atlantic Waterfowl Technical Section was formed in 1960, Vern Stotts was elected its first Chairman. His accomplishments in the Chesapeake Bay area include pioneering work in aerial waterfowl population surveys, innovative waterfowl capture methods, quantification of rooted aquatic vegetation and waterfowl abundance, early work on control of exotic vegetation, and comprehensive studies of lead poisoning of waterfowl. Additionally, he was principally responsible for the implementation of Maryland's Open Marsh Management program employing biological methods for mosquito control and marsh management. The Wildlife Society is pleased to recognize the accomplishments and contributions of Vernon D. Stotts through the presentation of its Special Recognition Service Award.

Mr. Stotts was born in Alberta, Minnesota, on November 4, 1927. He served in the U.S. Air Force from February 1946 to January 1949 as a draftsman. He then attended college and received his bachelor of science degree in 1953 from the University of Minnesota, St. Paul. He was a waterfowl technician from 1953 to 1954 with the Maryland Game and Inland Fish Commission. During this time, he studied the breeding biology of the black duck in the Kent Island area of Maryland. This research was used as partial requirements for his master of science degree in plant and animal science, which he received in 1955 from the University of Illinois, Champaign.

Mr. Stotts became waterfowl program manager in 1955 and served in this role until 1981. During this period the Maryland Game and Inland Fish Commission became the Maryland Wildlife Administration. During his long career with the state of Maryland and its portion of the Chesapeake Bay, Mr. Stotts became known as a preeminent waterfowl biologist. He published numerous scientific papers in professional journals and in conference proceedings.

After his retirement in 1981, he became a private consultant and conducted many projects for the Federal and State governments. He conducted numerous banding projects in Labrador and Alberta, Canada, as well as waterfowl surveys closer to home in the Chesapeake Bay. He was a major contributing author of the Canada Goose Management Plan for the Atlantic Flyway as well as local management plans for little known sites such as Days Cove, which is Maryland Department of Natural Resources property on the Gunpowder River. One of his more memorable contracts conducted for the U.S. Fish and Wildlife Service was the survey of breeding black ducks in the Eastern Bay region of Chesapeake Bay. This survey was a modern-day duplication of his previous research in the 1950s. Unfortunately, the disappearance of many of the black duck nesting islands and the much reduced number of black ducks in this region made the survey results disappointing to waterfowl managers and researchers. Mr. Stotts continues

his active role with waterfowl and Bay activities but also enjoys retirement life in his Queenstown home with Shirley, his wife of 40 years.

In spite of all his professional accomplishments, anyone who has spent any time with Mr. Stotts is readily impressed with his warm and sincere personality that makes working with him a pleasure. Those who have had the privilege to follow him across one of the Bay's salt marshes have cherished memories of working beside one of the best biologists the wildlife profession has ever produced. For his accomplishments with waterfowl, especially black ducks, and his unbridled enthusiasm and positive attitude about our irreplaceable natural resources, we dedicate this symposium, "Black Ducks and Their Chesapeake Bay Habitats" to Vernon D. Stotts.

Mr. Vernon Stotts on the Chesapeake Bay.

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Abstract

The symposium "Black Ducks and Their Chesapeake Bay Habitats," held October 4, 2000, provided a forum for scientists to share research about the American black duck (*Anas rubripes*), an important breeding and wintering waterfowl species dependent upon the Chesapeake Bay habitats. American black ducks have declined significantly in the last 50 years and continue to be a species of management concern. The symposium, sponsored by the Wildfowl Trust of North America and the U.S. Geological Survey, highlighted papers and posters on a range of topics, from the traditional concerns of hunting, habitat, and hybridization to the more recent concerns of human disturbance and neophobia. Other presentations provided a historical perspective of black duck management. The direction that black duck conservation initiatives could and/or should take in the future was also discussed. As populations of humans in the Chesapeake Bay region continue to increase, we can expect that these subjects will receive increased discussion in the future.

Welcome

"In fact I know of no Duck more implacably wild."—Herbert K. Job, 1936

Historically, black ducks have had quite a reputation. They are one of the Chesapeake's own native ducks, both breeding and wintering in her waters. Arthur Cleveland Bent wrote in 1923:

> The black duck, by which name it is universally known among gunners, is decidedly the duck of the Eastern States, where it far outnumbers all other species of fresh water ducks. The West has many other species to divide the honors with the mallard, but in the East the black duck stands practically alone. Whereas, this is only one of the many birds which interest ornithologists and bird protectionists, it is the bird of all others which interests the wildfowl gunners of the Eastern States; it is the most important object of their pursuit, the most desirable as a game bird, one of the shyest, most sagacious, and most wary of ducks and the one on which their best efforts are centered. The black duck has shown marked success in the struggle for existence; it is so sagacious, so wary, and so alert that it is one of the best equipped species to survive, even in a thickly settled region where it is constantly beset by hunters, but where, fortunately for its welfare, numerous safe refuges have been established.

According to this reputation, the black duck should have been voted the most likely to succeed. In fact, in 1973, the two longest living ducks on record were both black ducks. Wary, agile, alert, and with healthy, strong populations, the black duck seemed destined to remain the premier duck of the east coast.

However, reputation and reality may be very different. Today's citizens of the Chesapeake Bay region may never have encountered a black duck or recognize the name. It is no longer the duck of the Bay. Population numbers have fallen dramatically since the 1950s. Black ducks were the first species to merit their own Joint Venture under the North American Waterfowl and Management Plan (see page 4), which was not an honor. They also failed to reach the population goals set for the year 2000.

The purpose of this symposium is to bring together some of the finest experts on black duck biology and habitat needs, and to share this knowledge. We hope the symposium proves to be both stimulating and challenging, enabling each of us to undertake further research or habitat restoration efforts. Our ultimate goal is to enable this magnificent bird to regain its reputation. Thank you for the part you are already playing in these efforts.

Edward Delaney
Wildfowl Trust of North America

Biographical Sketch: Edward L. Delaney, is the executive director of the Wildfowl Trust of North America (WTNA).

He has more than 25 years experience as an administrator and educator. He received his Ph.D. in Administrative and Organizational Studies and a master's degree in Human Relations and Social Policy from New York University. Before coming to the WTNA he was a senior fellow and professor at George Mason University in Fairfax, Virginia, and served as president of the Association for Institutional Research, an international society of researchers and planners. He now serves as a board member for the Environmental Fund for Maryland and the Kent Narrows Development Foundation. He is also a member of the Association of Nature Centers Administrators and the Citizens Advisory Committee for the master plan update of Queen Anne's County.

Gerald Winegrad, vice president of the American Bird Conservancy, acted as moderator for the symposium and introduced all the speakers presenting papers.

Biographical Sketch: Gerald Winegrad served in the Maryland Legislature for over 16 years, first as a member of the House of Delegates and then as a State Senator. As chairman of the Senate Environment Subcommittee for 8 years, he wrote, sponsored, or managed nearly all environmental legislation passing the Senate. Winegrad was called the "environmental conscience" of the Senate by the Washington Post, and regional writer Tom Horton wrote that "he is a person who more than any other set Maryland's environmental agenda over the past 16 years." Winegrad is currently vice president of the American Bird Conservancy in Washington, D.C. and a leader in national efforts to conserve avian species.

Presentations

The American Black Duck: a Species of International Concern

Jerome R. Serie, U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Laurel, MD 20708 USA, Jerry_Serie@fws.gov

Abstract: Numbers of American black ducks (*Anas rubripes*) declined substantially in the late 1950s and early 1960s and have not recovered to objective levels. Today, in spite of 50 years of dedicated research and management efforts, the black duck remains a species of management concern. I trace this history of concern for black ducks and highlight the major conservation initiatives. I suggest that it is time for a new approach that is specifically designed to reduce uncertainty among factors regulating black duck numbers. As we focus on the black duck in Chesapeake Bay and ponder its future, I stress the need to strengthen conservation partnerships and to gain more direct management control with more rigorous experimentation on smaller spatial scales to increase numbers of black ducks.

The American black duck's preeminence among our native waterfowl is widely recognized, as it is for the esteemed canvasback (*Aythya valisineria*). This mystique among sportsmen, naturalists, and avian ecologists for the black duck's sporting quality, wildness, and unique adaptiveness is richly preserved in our popular and scientific literature and in the minds of all those who esthetically value its character and treasure its haunts. Extensively studied over the years, scientists have documented the black duck's behavior and biology, and know well its specialized niche and place in the ecology of eastern North America. Early records show that black ducks were once the principal game duck in the hunter's bag in the Atlantic Flyway and eastern Canada, similar to the status of the mallard (*Anas platyrhynchos*) among hunters in the Mississippi Flyway. And today, although still highly revered, the black duck's stature is greatly diminished from its former levels and is no longer prominent in the hunter's bag. Thus, from a conservation perspective, the factors governing black duck numbers remain an enigma and continue to present us with a myriad of management challenges.

Today, as we focus on the black duck in Chesapeake Bay, I would like to trace the history of our concerns for this species, both nationally and internationally, and highlight the conservation initiatives in eastern North America that largely stem from this concern. My hope is that, as we chronicle the past history of black duck management and research and ponder its future, we promote renewed interests, develop objectives to reduce management uncertainty, and rededicate our efforts towards resolving the black duck population dilemma.

The first organized efforts to do something for the all-important black duck were set up and financed by Ducks Unlimited (DU) in the mid-1940s. Just as they had launched their ambitious habitat initiatives in prairie Canada in the late 1930s, DU dedicated a research station to investigate the breeding biology of black ducks near Fredericton, New Brunswick, in 1945 and hired Bruce Wright as its director. In 1954, Wright published a definitive book on his research on the breeding ecology of black ducks called "High Tide and an East Wind" (Wright, 1954). In 1946, DU formed a Black Duck Committee, later changed to the Joint Black Duck Committee, to recommend and coordinate DU's black duck program. This committee was comprised of several State game departments, the U.S. Fish and Wildlife Service (USFWS), DU, and certain private organizations. Later, its role was expanded to encourage the development of numerous waterfowl banding, population surveys, and habitat projects. In 1952, the Joint Black Duck Committee was incorporated into the newly established Atlantic Waterfowl Council (also known as Atlantic Flyway Council). The need for information to improve the management of black ducks provided early motivation for the formation of the Atlantic Flyway Council, which was subsequently established to promote waterfowl management in the Atlantic Flyway.

The Atlantic Flyway Council created a Black Duck Committee in 1967 to give added emphasis to the needs of

this species. As its first task, it organized the first Black Duck Symposium, which was held in Chestertown, Maryland, March 5, 1968. Many eastern waterfowl biologists of the time were alarmed by the dramatic downward trend in black duck numbers in the years following the 1950s. Thus, the purpose of that symposium was to bring together most of the known information on black ducks and to give focus to the future needs of the species. The proceedings provide an insightful review and touch on all such pertinent topics as the current status, population dynamics, habitat and breeding ecology, management possibilities, and role of hunting regulations (Barske, 1968). One thing all the participants did agree on was that black duck populations were too low and that something needed to be done. Based on indirect population estimates using banding and harvest data, they projected that the breeding population had declined from roughly 1.5 million birds during the 1950s to about 870,000 during the 1960s, which is a change of about 42% (Addy and Martinson, 1968). The midwinter counts also declined by 30% between these periods. Some debate continues to this day, however, about whether the peak numbers recorded in the 1950s were reliable estimates or overinflated counts. But, we do know that black duck numbers in the midwinter count continued to decline following the 1960s by about 2% annually (Serie, 1990).

The first black duck symposium accomplished its goal of reviewing all the available information and generating productive discussions among biologists about ways to increase the population to the levels of the 1950s. Most of the speakers in attendance felt that hunting regulations needed to be more severely restricted and recommended that the Atlantic Flyway maintain a one black duck daily-bag limit and begin negotiations with Canada to develop a unified harvest management program (Addy and Martinson, 1968). By doing so, participants anticipated a 10% annual recovery and believed that at this rate, the black duck population would be back to the 1950s levels in about 5 years.

In 1982, the Atlantic Flyway Council approved a comprehensive Black Duck Management Plan (Spencer, 1982). The purpose of this plan was to provide guidelines for the cooperative management of black ducks through the year 2000. The goal was to stop the decline and increase the black duck population to such levels that would provide for sustained resource use at or above 1981 levels. A series of strategies were presented to initiate habitat programs, increase productivity, improve monitoring and assessment, and reduce mortality. The long-term objective was to increase the wintering population to 450,000 birds, as measured by the midwinter survey. Although harvest management was viewed as the simplest means of reducing mortality, it was also recognized as the most difficult from a socio-political standpoint. Not everyone could agree that harvest reduction was the appropriate management action in all areas. States and provinces in the Northeast, for example, had not experienced the same declines as elsewhere and hence viewed these measures as too extreme.

The development of Environment Assessments (EA) in 1976, and again in 1983, specifically focused on harvest reduction. Each was designed to restrict daily bag limits and further reduce season lengths. Finally, in 1983, the USFWS asked states to reduce their harvests by 25% from a base level established during the period 1977-81. Since bag limits were one bird daily, most states in the Atlantic Flyway reduced the number of days black ducks could be taken within their regular duck hunting season in order to meet their objective. This strategy has resulted in a 50% reduction in the harvest of black ducks in the Atlantic Flyway from the 1977-81 base level.

The role of hunting mortality in the decline of the black duck has been very controversial and hotly debated for many years, both professionally and privately. Phillips (1923) commented on the marked increase of the black duck following the stoppage of spring shooting in New England in 1908. Further, this emphasis on reducing the kill to arrest the decline and/or increase numbers has been a recurring theme expressed from the late 1960s up to the present time, covering 4 decades of black duck harvest management (Rusch and others, 1989). However, after several attempts to fully evaluate the effects of overharvest, the influence of hunting on black duck populations remains equivocal. Nevertheless, hunting is an important source of annual mortality for the black duck and one that managers have some measure of control over by their ability to set hunting regulations. Although hunting regulations may reduce the annual kill of black ducks, it has been difficult to show a corresponding increase in survival rates (Francis and others, 1998), which may simply be due to changes in nonhunting mortality factors. The nagging question usually comes down to whether harvest restrictions have gone far enough and whether banded sample sizes or numbers of recoveries are adequate to detect these changes. Nevertheless, harvest rates have been reduced as a result of more restrictive hunting regulations beginning in 1984, which may have contributed to the stabilization of the midwinter survey trends in the Atlantic Flyway (fig. 1).

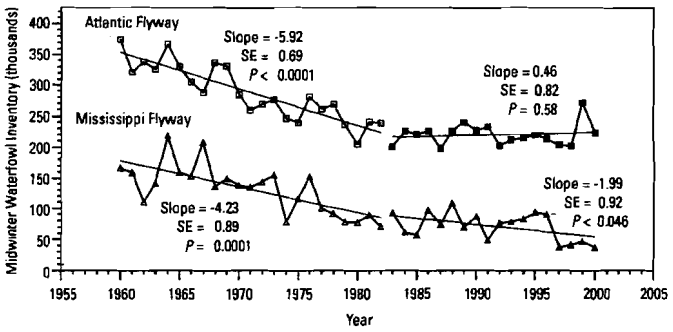

Fig. 1. Midwinter Waterfowl Inventory (MWI) population trends for black ducks in the Atlantic and Mississippi Flyways, 1960-2000.