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# THE HISTORY OF NORTH AMERICAN WATERFOWL SURVEYS

## *50 Years & Still Counting*



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Julie St. Louis/USFWS

The North American Waterfowl Population Program represents a 50-year legacy of standardized cooperative surveys performed by the U. S. Fish and Wildlife Service, the Canadian Wildlife Service, state and provincial biologists, and non-governmental cooperators. The survey program being celebrated in 2005 is believed to be the most extensive, comprehensive, long-term annual wildlife survey effort anywhere.

Each spring, teams of FWS pilot-biologists and observers take to the skies to survey the North American breeding grounds extending from the Canadian Maritimes west to the Pacific, and from the mid-U.S. north to the Arctic Ocean. Flying more than 80,000 miles a year at altitudes of about 150 feet along pre-determined quarter-mile wide transects they count waterfowl and record data on the quantity and quality of wetlands habitat. Survey crews on the ground checking portions of the aerial transects enable researchers to correct the aerial survey information for waterfowl present but not seen by air. Ground crews in Canada, led by CWS, also provide data on pond numbers and other habitat information important to determining

the potential for the landscape to produce waterfowl during each breeding season.

A number of additional surveys provide data on other aspects of the waterfowl population. They include mid-winter surveys extending into Mexico, special surveys for certain species and populations, satellite imagery, hunter participation and harvest surveys, and banding programs. Together the data they supply provide the basic information necessary for the management of North American waterfowl, including the setting of annual hunting seasons.

### The Crisis

By the early 1900s, habitat loss from agriculture and logging, overharvest, recurring drought on the breeding grounds, and public apathy had taken their toll. Paramount was the realization that well-intentioned state regulations were inadequate for preserving and managing a resource that heeded no political boundary in its annual migrations.

### Federal Legal Protections

After nearly a decade of crusading by conservationists, their allies, and an increasingly enlightened public, the Migratory Bird Act of 1913 was signed into law by President William Howard Taft on March 4, 1913. It empowered the Secretary of Agriculture to set the dates for hunting designated migratory game birds, "having due regard to the zones of temperature, breeding habits, and times and line of migratory flight" of such birds. Clearly, information would have to be gathered to fulfill these considerations.



Erwin and Peggy Bauer/USFWS

The MBA was not well received by all: states-rights, market hunters, some sportsmen, and even a few legislators who supported the intent of the Act thought it unconstitutional. To provide an indisputable foundation for such a law, a treaty was drafted by the United States and Canada for the protection of certain migratory birds shared by the two nations. It was signed on August 16, 1916, with Great Britain acting on Canada's behalf. The Migratory Bird Treaty Act, the U.S. enabling legislation, was signed into law on July 3, 1918. The Canadian Migratory Birds Convention Act had been signed on August 27, 1917. The U.S.-Canada migratory bird treaty set the stage for similar agreements with Mexico (1936), Japan (1972), and the former Soviet Union (1976).

The MBTA itself was signed just in time. By the mid-1920s, Dr. Edward W. Nelson, Chief of the U.S. Bureau of Biological Survey, forerunner to FWS, wrote, "The danger to the perpetuation of the stock of wildfowl is so great and so imminent... that there is the most vital need for all conservationists and lovers of wildlife to sink petty differences of opinion as to the details and to unite in constructive work to ensure the future of our migratory game birds." The MBTA gave the two federal governments the responsibility for regulating migratory bird hunting in their respective countries. Both were charged with establishing regulations that afforded ample hunting opportunity and harvest that were not detrimental to bird populations. Thus, one of the first challenges biologists faced was how to effectively assess migratory bird populations that bred in often remote northern areas and wintered in distant southern locales.

### **The First Aerial Surveys**

In 1931, Frederick C. Lincoln envisioned the use of airplanes for conducting waterfowl surveys. He convinced the U.S. Army to take him and a photographer on a test flight over waterfowl wintering on the Potomac River below Washington, DC. Lincoln came away convinced of the value of airplanes and aerial photography in waterfowl survey work.

For the next 20 years, increasingly more aerial surveys of waterfowl on wintering and staging areas were undertaken. These surveys were pieced together by arrangements with the U.S. Coast Guard, Navy, and the Army, occasionally supplemented by chartered aircraft and private pilots.

Understanding the advantages of aircraft for waterfowl purposes, the FWS eventually acquired its own fleet of planes. The first, a new Monocoupe for use in Alaska, was purchased in 1940. Following World War II, the FWS acquired surplus military aircraft, while military-trained pilots, usually with prior wildlife or conservation experience, were hired as pilot-biologists. The types of aircraft used in survey work ranged from single-engine planes mounted with wheels, floats, or skis, to twin-engine amphibians.

During the late 1940s and early '50s, survey pioneers experimented with spring waterfowl counts on the breeding grounds where paired birds dispersed during nesting and rearing of young. Meanwhile, biologists assigned to ground surveys gathered data to be used in adjusting the aerial survey findings. In the spring of 1955, the FWS and its cooperators launched the first coordinated annual waterfowl survey of the North American waterfowl breeding grounds. This survey effort and its results have been instrumental in guiding the North American waterfowl management program for a half-century.

### **The Waterfowl Survey Program Today**

Currently there are 12 FWS pilot-biologists and aircraft stationed within the four waterfowl flyways in the continental United States and five pilot-biologists and four planes located in Alaska. During the waterfowl breeding population surveys each spring, aerial crews are supplemented by ground survey crews in the prairie pothole regions of north-central U.S. and south-central Canada. Ground portions in Canada are coordinated by CWS and provide data on habitat conditions, pond numbers and other factors that help gauge the potential for breeding success each year. An additional staff of waterfowl biologists and statisticians in both countries supports the survey program by analyzing and interpreting the large quantities of data gathered in each survey.

Today, new tools, including Global Positioning System technology, make it possible to record the precise location of every bird seen by the survey teams. Moving map video displays show pilot-biologists where they are and where they are going, and aerial videography helps observers count large flocks of birds.

From the days when survey work focused solely on waterfowl, the program continues to expand to include certain other species of migratory birds such as raptors and shorebirds. Such information lends support to the conservation efforts of U.S. and Canadian agencies and non-governmental organizations.

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