

DUCKS  
GET  
SICK,  
TOO!



# DUCKS GET SICK, TOO!

by

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When it comes to getting sick, wild waterfowl—which include ducks, geese, and swans—are a lot like people. We are all vulnerable to a wide variety of diseases.

Some diseases that affect waterfowl, such as avian botulism, have been recognized for many decades as a major cause of death. Others, such as duck plague, are relative newcomers to the known roster of waterfowl diseases.

Unfortunately, the number of waterfowl diseases as well as disease-breeding conditions are on the increase. As human development has expanded and encroached on wetlands, more and more waterfowl have been forced into less and less habitat. The resulting crowding can promote the spread of infectious diseases from one bird to another as well as increase the risk of diseases caused by toxicants and other noninfectious agents.

Although millions of waterfowl die of disease each year, it is often difficult to “see” the disease process occurring. Sick and dying birds usually seek cover to hide, and predators and scavengers eventually devour most of them. When disease becomes epidemic (a disease epidemic in animals is called an epizootic<sup>3</sup>) and sick and dead birds become too numerous for predators and scavengers to eliminate, the disease process becomes far more noticeable.

The diseases described in this booklet are among the most common causes of death in wild waterfowl, and include examples of those caused by bacteria, viruses, parasites, fungi, and toxic substances.

<sup>3</sup> pronounced “eh-pee-zoh-ah-tic”

DcSosa NWR Photo



Predators and scavengers such as this immature bald eagle quickly devour sick and dead waterfowl.

Milton Friend



Large-scale die-offs from wildlife diseases occur often throughout the United States each year.

## Avian Cholera ·

Ducks, geese, coots, swans, and many other species of wild birds die from this disease each year as they come into contact with *Pasteurella multocida*, the bacterium that causes avian cholera (also called "fowl cholera"). Birds become infected by contact with other birds that are sick, or by eating or drinking food and water contaminated with *P. multocida*.

Before 1944, avian cholera was unknown in wild North American birds, although it had long been a problem in domestic poultry. Since then, it has occurred throughout the United States and in Canada since the 1970s. Sometimes tens of thousands of birds die in a single incident. Die-offs from avian cholera generally occur in the winter and early spring. Losses of waterfowl as the birds approach the breeding season are especially serious since the population will already have been reduced during the preceding hunting season.

Avian cholera is an extremely lethal disease, frequently killing birds within one day of infection.



Avian cholera and avian botulism are two major diseases that now occur throughout the United States, killing many wild waterfowl.

## Avian Botulism ·

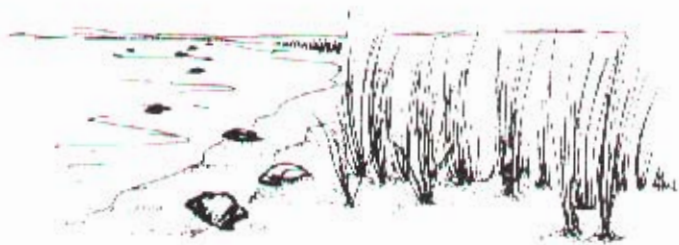
Known also as western duck sickness, limberneck, and alkali poisoning, avian botulism was reported to have killed more than a million waterfowl in the Great Salt Lake Basin in one summer around the turn of the century.

Avian botulism results when birds ingest the toxin produced by the bacterium, *Clostridium botulinum*. This organism can exist for many years in wetlands and free toxin can persist for several months in the environment under favorable conditions. The toxin-producing bacteria thrive during the hot summer months in fish or animal carcasses.

Avian botulism causes paralysis. Affected birds lose the use of their wings first, then the use of their legs followed by paralysis of neck muscles so that they cannot hold their heads erect. Frequently, death is caused by drowning as the bird's head droops into the water, or by respiratory failure as the chest muscles become paralyzed.

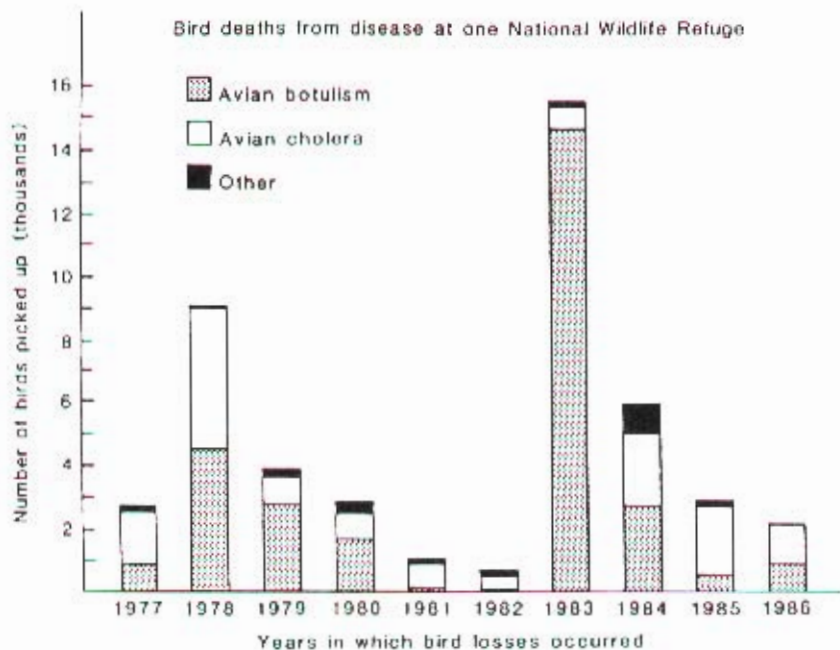
Although it was originally called western duck sickness because early cases were first noticed in the western United States, it is now known that avian botulism occurs throughout the United States with particularly heavy losses in Montana, North and South Dakota, California, and Utah. Hundreds of thousands of birds often succumb to this disease in a single summer.

Seven distinct types of botulinum toxin have been identified, and are designated by the letters A through G. Waterfowl are most often affected by type C toxin, although types A and E have also been reported to cause botulism in some species of birds.





Thousands of dead waterfowl are often found during outbreaks of such diseases as avian botulism.



Often several different waterfowl diseases occur on a single area being used by waterfowl. The graph shows actual waterfowl losses from diseases during 10 years at one National Wildlife Refuge in western United States.

## *Duck Plague*

Duck plague is a viral disease of waterfowl that is contagious and often fatal. Also called duck virus enteritis or DVE, this disease first occurred in the United States in 1967. Despite the widespread geographic distribution and relatively frequent occurrence of this disease in captive waterfowl, it has affected wild waterfowl only infrequently. However, its devastating potential for wild waterfowl was realized at Lake Andes, South Dakota, in January 1973 when duck plague killed about 40,000 of 100,000 wintering mallards, earning it a place in the ranks of major disease concerns.

## *Parasites*

Waterfowl, like all birds, harbor a wide variety of parasites. Flatworms, roundworms, and tapeworms are commonly found in the organs of ducks, geese, and swans. There are also many species of blood parasites, and parasites that live on the outside of the body (ectoparasites).

Protozoa are microscopic, one-celled organisms that can also parasitize waterfowl. Sarcocystis (commonly called "rice breast disease") is a protozoan infection often seen by hunters when they skin a shot duck. This condition is caused by the protozoa embedding in the duck's muscles in cysts that resemble grains of rice. These small, gritty-feeling cysts do not cause illness in the bird unless there is a heavy infestation.

Although most waterfowl parasites do not kill birds outright, some do cause illness and death. Coccidiosis is another, more lethal disease of waterfowl caused by protozoa. This disease occurs in certain areas of the country, with hundreds of birds dying in single incidents. Other parasites, such as leeches, may weaken host birds, thereby making them more susceptible to diseases or predation.



## *Fungal Diseases*

Fungi include molds, mildews, rusts, mushrooms, and yeasts. Some of these can create health problems for waterfowl.

Aspergillosis is a disease caused by a mold. It occurs when the bird inhales the fungus spores which—like seeds—take root in the lungs. There they grow and spread to other organs and can eventually kill the bird. The causative fungus grows best in decomposing organic matter (such as old feed) in a dark, warm, moist environment. Wild waterfowl can contract aspergillosis after feeding on waste silage, discarded feed, or unharvested grain that has been left to decompose on the ground and becomes contaminated with the fungi.

Fungi can cause disease problems for waterfowl in another way, too. Some types of fungi produce poisons called mycotoxins. Although the fungus itself is not necessarily harmful, under certain temperature and moisture conditions and growing on certain host plants, the fungus may produce a poison (mycotoxin) that can kill birds feeding on these plants or grains.

## *Lead Poisoning*

One of the most serious diseases of waterfowl is not caused by a naturally-occurring organism, but by lead introduced by man into the birds' environment.

Lead exposure can occur in a variety of ways for different animal species. For waterfowl, lead poisoning is most often caused when they swallow lead shot while foraging for food. One or two lead pellets is enough to kill a duck, goose or swan if it is not passed out in the feces. Death comes slowly; on average, it takes about 3 weeks from the time the bird swallows the lead pellet to when it dies. During this time—as the pellet slowly erodes and more and more lead is absorbed into the bird's system—the bird becomes emaciated, loses its ability to fly, becomes progressively weaker, and finally no longer can escape from predators or man.

In 1986, the U.S. Department of the Interior issued an environmental impact statement titled "Use of

Lead Shot for Hunting Migratory Birds in the United States." This report presents scientific evidence that over one million waterfowl each year had been dying of lead poisoning after ingesting lead shot. The report is the basis for Federal regulations which now require that, by 1991, all waterfowl hunters in the United States use nontoxic shot only. Many states have already passed legislation requiring the use of nontoxic instead of lead shot to hunt waterfowl. Before nontoxic shot was used, an estimated 2,500 tons of lead shot pellets were deposited each waterfowl hunting season throughout North America.

## Diagnosis ·

Prompt and accurate identification of a disease problem is basic to effective wildlife disease control. Wildlife managers may seek help in diagnosing disease problems from any of a number of specialized laboratories. Some of these laboratories are affiliated with universities, others with State Fish and Game Departments, and yet others are facilities of the U.S. Department of the Interior's Fish and Wildlife Service.

## Management ·

The famous naturalist, Aldo Leopold, known as the father of game management, pointed out that while many people believe that "You cannot doctor sick birds," you *can* "doctor" the environment. In other words, waterfowl habitat can—under certain circumstances—be modified and manipulated to reduce the occurrence and spread of waterfowl diseases.

When diseased carcasses are removed from natural habitat and properly disposed of, the spread of disease to healthy birds is minimized or prevented.

By manipulating water levels of wetlands and using scare devices, wildlife managers can induce healthy birds to move away from disease "hotspots." Water level control can also be used to minimize conditions conducive to the development of avian botulism.

Insect control programs can also substantially

reduce the threat of certain diseases such as avian pox which is spread most often by mosquitoes and sometimes by flies.

Plowing under unharvested grain and peanuts that are likely to become moldy renders these foods unavailable to waterfowl and other birds, thereby eliminating a source of fungi and mycotoxins.

Ron Windigstad



Water levels in wetlands can be manipulated to create conditions that are less favorable to the development of certain waterfowl diseases, such as avian botulism.

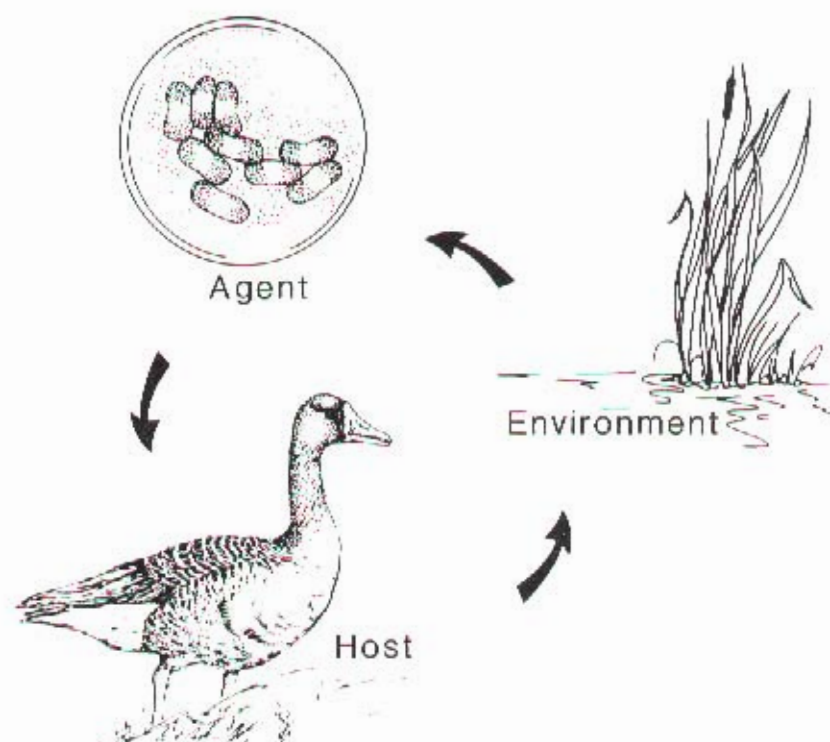
Ron Windigstad



Carcasses are incinerated to destroy disease-causing organisms and to reduce risk of additional disease spread.

## Research ·

All wildlife disease outbreaks consist of three main parts: (1) A susceptible animal population, (2) a disease agent, and (3) the environmental conditions that facilitate disease transmission. A major goal of research is to understand the relationships between these factors, including learning more about the part the environment plays in perpetuating wildlife diseases. Wildlife disease research is conducted by scientists from universities and from State Fish and Game Departments as well as from the U.S. Fish and Wildlife Service.



Research into wildlife disease continues in the attempt to find the weak link in the disease cycle so that waterfowl losses from disease can be better controlled or perhaps even prevented.



Field personnel wear protective clothing and take special precautions to reduce contact with disease-causing agents when investigating and "cleaning up" a die-off.

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**IF YOU SHOULD SEE SICK OR DEAD WATERFOWL, do not attempt to personally intervene. Do contact appropriate personnel—Refuge Managers if you find the animals on Federal property such as a Wildlife Refuge, State Fish and Game personnel if you find dead animals on state property, or contact your local office of the Fish and Wildlife Service, U.S. Department of the Interior. Wild waterfowl found sick or dead should not be consumed, and all waterfowl should be thoroughly cooked.**

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