



Avian Botulism

Background

Avian botulism is caused by a naturally occurring toxin produced by the bacterium, *Clostridium botulinum*. There are several types of toxin produced by strains of this bacterium. Type C toxin is most often the cause of botulism in waterfowl and type E may occur in some species of waterfowl and is frequent in certain other aquatic birds.

Type C toxin is concentrated in aquatic invertebrates that feed by filtering sediments out of the water. When ingested, aquatic invertebrates provide a concentrated package of the toxin. Bird-to-bird transmission can also occur, when maggots feed on dead birds can concentrate the toxin and can be eaten by other birds.

Botulinum bacteria live in the soil and require warm temperatures, a protein source and an anaerobic (no oxygen) environment in order to activate and produce toxin. Important environmental factors that contribute to initiation of avian botulism outbreaks in wetlands include water depth, water level fluctuations, and water quality; the presence of vertebrate and invertebrate carcasses; rotting vegetation; and high ambient temperatures. The primary months for type C avian botulism outbreaks are July through September.

Botulism toxin binds to nerve endings and interferes with muscle function. The botulinum toxin causes respiratory failure, though birds often drown before this occurs due to muscle paralysis. Signs of paralysis include weakness, lethargy, inability to walk or fly, inability to hold head up (also called “limberneck”) due to paralysis of the neck muscles, and paralysis of the inner eyelid. For waterfowl, the inability to hold their head up can lead to drowning.

Management

Botulism can be managed effectively if mortalities are detected/reported early. When detected, carcasses should be picked up and disposed of as soon as possible. Water bodies can be managed through draining or flooding to alter the environmental conditions sufficiently to stop the production of Type C botulism. Lastly, hazing can move other birds away from areas where the toxin has been detected, or where there have been other bird mortalities.

Reporting

To report dead wildlife, please call the Wildlife Disease Hotline at 877-972-8426. Wildlife health personnel will respond Monday through Friday during normal business hours. You can leave a message if it is before or after business hours. Fresh samples are required for testing. A recently dead small animal or bird may be collected by wearing gloves, double bagged, and frozen. If you have a wildlife related emergency, please call our 24 hour dispatch center at (623) 236-7201. If the animal you are calling about has been shot and you are reporting possible illegal activity, call Operation Game Thief 800-352-0700.

azgfd.gov | 602.942.3000

5000 W. CAREFREE HIGHWAY, PHOENIX AZ 85086

GOVERNOR: DOUGLAS A. DUCEY COMMISSIONERS: CHAIRMAN KURT R. DAVIS, PHOENIX | LELAND S. "BILL" BRAKE, ELGIN
JAMES E. GOUGHNOUR, PAYSON | TODD G. GEILER, PRESCOTT | ERIC S. SPARKS, TUCSON DIRECTOR: TY E. GRAY DEPUTY DIRECTOR: TOM P. FINLEY