Avian Pox

College of Veterinary Medicine

BASICS

Avian pox is an infection of birds caused by various strains of avipoxviruses. Avian pox occurs worldwide, except in the Arctic and Antarctica, and is most common in warmer areas.

Over 200 **SPECIES** of wild birds, especially songbirds (finches) and upland game birds (mourning doves, bobwhite quail, wild turkeys), have been reported with avian pox. Raptors occasionally become infected, and the disease is rare in wild waterfowl. Domestic poultry are also affected.

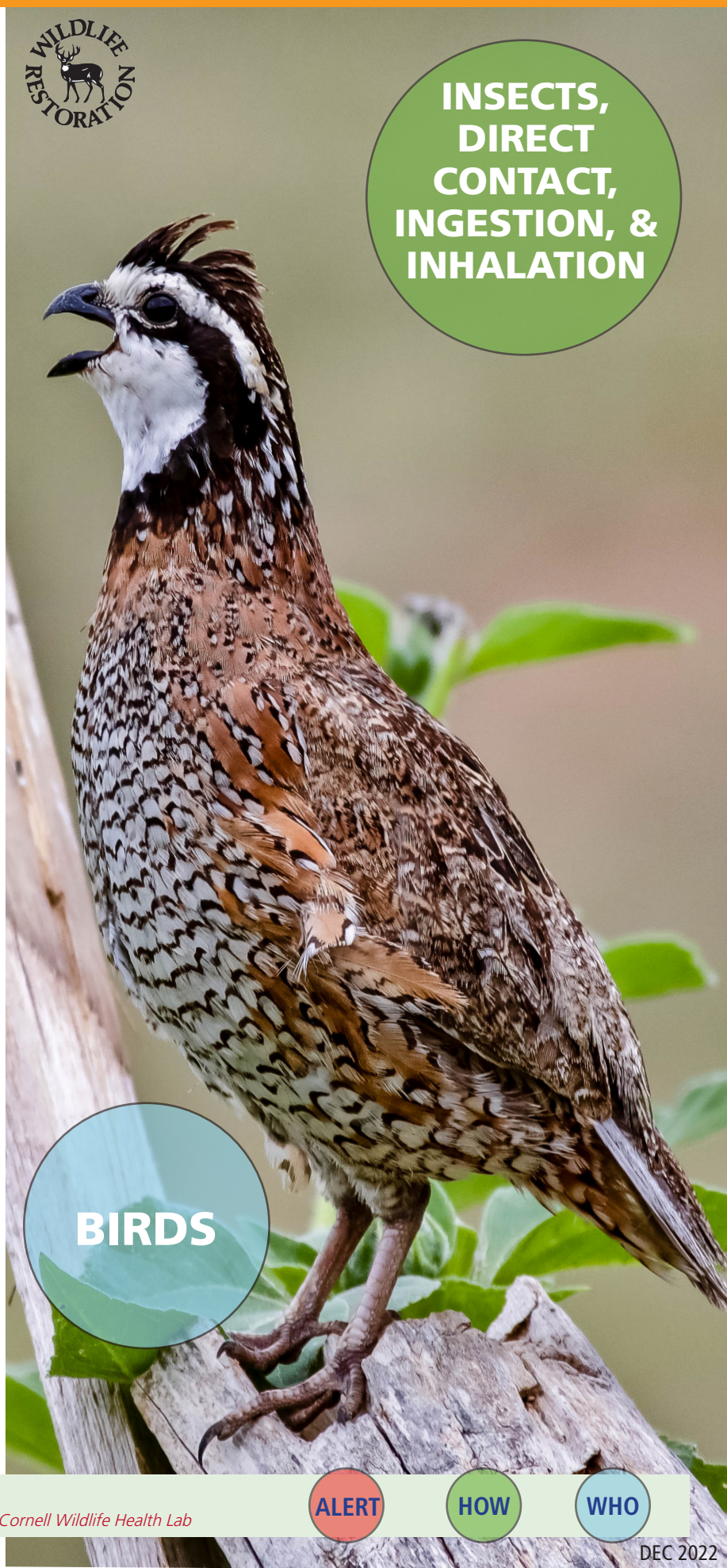
There are two forms of avian pox with varied **CLINICAL SIGNS.** The dry or cutaneous form results in slowly developing wart-like growths on the featherless parts of the bird—on the feet and legs, at the base of the beak, and around the eyes. The wet or diphtheritic form of avian pox affects the mucous membranes of the upper gastrointestinal (mouth, pharynx) and respiratory (trachea) tracts.

Mosquitoes, acting as mechanical vectors, are the primary transmitters of avian poxvirus. After feeding on an infected bird, a mosquito carries the virus on its mouthparts and passes it to another bird at its next feeding. Close contact between infected and uninfected birds can lead to virus **TRANSMISSION** through skin abrasions. Birds can also become infected indirectly through contact, ingestion, or inhalation from contaminated feeders, feed or water, and dust.

Preliminary **DIAGNOSIS** of avian pox can be made based on the characteristic wart-like lesions. Virus isolation, PCR testing, or microscopic examination of tissues is needed to confirm the infection.

TREATMENT of infected birds consists of supportive care and prevention of secondary infections.

Avian pox is a highly transmissible disease. **CONTROL** of outbreaks associated with birdfeeders involves removal of feeders and birdbaths to reduce congregating, followed by disinfection.



DETAILS

Avipoxviruses are large, enveloped, double-stranded DNA viruses that infect and replicate within epithelial cells. At least ten virus strains are recognized and are named for the species of origin, e.g., canary pox, fowl pox, and pigeon pox. While most strains of avipoxviruses are species-specific, others can infect multiple species. Limited interactions among bird species due to ecological niches may also play a role in apparent host specificity.

Like other poxviruses, avipoxviruses are highly resistant to drying and can survive outside hosts for months to years depending on the temperature and humidity.

Avian pox infections have been reported in numerous bird species. Outbreaks are frequently seen in wild turkeys and in songbirds, especially finches, that congregate at feeders. Young birds are more severely affected than adults.

Outbreaks of avian pox are common in captive situations, such as aviaries, rehabilitation centers, and domestic poultry facilities, in which birds are housed closely together.

TRANSMISSION of avipoxviruses are influenced by the density of birds and biting insects. Transmission is highest when mosquitoes are abundant, so elimination of standing water that act as breeding sites is helpful.

Avian pox is most common in warmer, humid areas with cases related to seasonal mosquito cycles. Mosquitoes can harbor the virus for more than a month and infect birds via biting.

The virus can infect birds through breaks in the skin or mucous membranes directly from contact with an infected bird or indirectly through contact with contaminated surfaces, such as feeders and perches. Birds in confined spaces are at higher risk of infection through inhalation.

CLINICAL SIGNS Avipoxviruses invade cells of the skin and surfaces of the upper gastrointestinal and respiratory tracts resulting in proliferation. In the dry form of avian pox, wart-like growths appear on featherless areas of the body. In the wet form of the disease, plaques appear on the mucous membranes of the mouth, pharynx, trachea, and esophagus. Both forms of the disease can occur concurrently in the same bird.

Clinical signs in infected birds depend on the number, size, and location of growths. Mild cases are typically self-limiting with growths regressing or sloughing off in weeks to months. If growths become abraded, secondary infections with bacteria or fungi may occur.

Birds with severe infections can have large growths that interfere with vision, feeding, and breathing, resulting in weakness, labored breathing, increased susceptibility to predation, emaciation, and death.

DIAGNOSIS Preliminary diagnosis of avian pox can be made based on the characteristic wart-like lesions. Virus isolation, PCR testing, or microscopic examination of tissues is needed to confirm the infection.

TREATMENT Most mild cases of avian pox resolve on their own with minimal scarring. Supportive care, including prevention of secondary infections, can be given to infected, captive birds.

PRECAUTIONS AND PREVENTION Avian pox is a **highly transmissible disease** and is influenced by the density of birds and biting insects. Reduction of mosquito numbers can be achieved by elimination of standing water that act as breeding sites. Discouraging congregations of birds by removing birdfeeders and birdbaths is important in controlling outbreaks. Feeders and baths can be disinfected with 10% bleach solution.

For captive birds, isolation of infected birds and disinfection of cages are important. Vaccines for domestic poultry are available.

Avipoxviruses do not infect humans.