

## **AVIAN POX IN BRITISH COLUMBIA WILDLIFE HEALTH FACT SHEET**

Avian pox is the common name for a mild to severe, slow-developing disease of birds caused by a large virus belonging to the avipoxviruses, a subgroup of poxviruses. This group contains several similar strains of virus that vary in their host specificity (what species they will infect). Some have the ability to infect several groups or species of birds whereas others are species-specific (will only infect a single species). Mosquitoes are a common means of transmitting this disease. Contact with virus-contaminated surfaces can also result in pox infections when virus enters the body through abraded skin.

Avian pox affects a great variety of bird species; however, published reports of this disease in free-living migratory birds are limited. Only a few cases have been reported in wild waterfowl. Cases have been diagnosed in bald eagles and isolated cases in other species of wild raptors. Large numbers of colonial nesting birds (albatross, tropicbirds) and many passerine species such as finches, mourning doves and forest birds in Hawaii have also been reported to be affected.

The disease occurs worldwide. In BC, reports are sporadic with primarily passerines and raptors affected and usually at times of years and locations where the birds are at high density. Little is known about the prevalence of avian pox in wild bird populations. A few studies have indicated that poxvirus can persist at low infection rates in a population for several years. This probably accounts for the multiple reports of poxvirus infection in some species. Environmental factors such as temperature, humidity, moisture and protective cover all play a role in the distribution of this disease. These factors affect virus survival out side of the bird host in addition to the availability of such vectors as flies and mosquitoes to feed on bird hosts.

Although poxvirus infections in wild birds occur during all seasons of the year, disease outbreaks have been associated with the emergence of vector populations, environmental conditions and the habits of the species affected. Supporting evidence from limited studies showed that the lowest disease prevalence rates for California quail in Oregon were in the dry summer months compared to the highest during fall and winter months. In Florida, reports of avian pox in wild turkeys occurred in late summer and early fall, corresponding to the mosquito season. It has been noted that immature birds are usually the most frequently and severely infected with poxvirus. Bird feeding stations maintained in winter have been the prime source of several poxvirus outbreaks in the US from contact transmission of the virus through close association of many bird species.

Birds showing wart like nodules on one or more of the featherless areas of the body, including feet, legs, base of the beak and eye margin should be considered suspect cases of avian pox. The birds may appear weak and emaciated if the lesions are extensive enough to interfere with feeding. Some birds may show signs of laboured breathing if air passages are partially blocked from lesions. Even though the course of this disease is long, birds with extensive lesions are known to completely recover if nutritional intake is maintained and secondary infections are avoided.

Avian pox can occur in two disease forms. The most common form consists of warty nodules that develop on the exposed surfaces of the bird. This form is usually self-limiting with lesion regression (healing) and minor scarring occurring. However, these nodules can become enlarged and clustered causing sight and breathing impairment and difficulty in feeding. Secondary infections are common if the large lesions are abraded and may contribute to mortality. The less common form (known as the diphtheritic form) affects the mucous membranes of the upper digestive and respiratory tracts and has been reported infrequently.

Diagnosis can usually be made from the appearance of the lesions. To be sure, laboratory analysis will confirm the infection by microscopic examination and virus isolation. Remove the affected area, chill and ship fresh to the laboratory after consultation with the pathologist or veterinarian.

The fundamental principle for controlling poxvirus is to interrupt its transmission. Difficulties in control are related to the type of transmission taking place, the mobility of the infected birds and the size of the affected area. The more confined a population at risk, the more effective the control procedures will be. Vector control (primarily

mosquitoes) in and around the disease area should be considered first. Identifying and eliminating vector breeding and resting sites as well as control of adult mosquito populations are most desirable. Removing heavily infected animals is also helpful since it reduces the source of virus and reduces the opportunity for contact transmission. Because poxvirus is resistant to drying, disease transmission by contaminated dust, food, perches, cages and clothing can pose a continuing source of virus. It is recommended to decontaminate these items with a 5% bleach solution. Vaccines are used for the poultry industry, but their safety and efficacy in wild birds is unknown and the logistics of this control method is impractical in wild situations.

There is no evidence that these viruses can infect humans.

From: Field Guide to Wildlife Diseases: General Field Procedure and Disease of Migratory Birds, US Department of the Interior, Fish and Wildlife Service, Resource Publication 167, 1987, pp. 135-141.