



Significance of Avian Pox for Reintroduction Programs

Avian pox, a disease caused by infection with avipoxvirus, appears as both cutaneous pox and wet pox. Cutaneous pox, the form generally reported in wild birds, is recognized by crusty growths that appear on unfeathered skin on the feet, legs, and around the edges of the eyes and mouth. Large lesions on the face and feet may interfere with a bird's vision and its abilities to fly and to perch. Death is usually because of starvation (through the inability to obtain food), predation, or bacterial infection of pox lesions. Conversely, pox lesions may also regress with little or no ill effect. Wet pox, a less common diphtheritic form, occurs in the mucous membranes of upper digestive and respiratory tracts and usually requires treatment. Avian pox is generally transmitted by direct contact of broken skin between birds, aerosols, mechanical transfer by insects, or contact with contaminated surfaces of branches, feeders, and cages. The virus is resistant to environmental factors and can persist on contaminated surfaces for many months.

Avian Pox Rarely Found in Wild Waterfowl

Avian pox is rarely diagnosed in wild waterfowl, although experimental studies show they can be infected. Avian pox was first confirmed in wild waterfowl in the United States in a free-ranging mute swan (*Cygnus olor*) in New York. It was subsequently reported in one green-winged teal (*Anas carolinensis*) in Alaska, two mallards (*Anas*

platyrhynchos) in Georgia, one Canada goose (*Branta canadensis*) in Ontario, two Canada geese in Tennessee and Georgia, and two common goldeneye (*Bucephala clangula*) in Canada.

Reintroduced Trumpeter Swans Develop Avian Pox

In 1989 and 1991, outbreaks of avian pox occurred in Wisconsin among reintroduced trumpeter swans (*Cygnus buccinator*). Avian pox was confirmed in September 1989 by the National Wildlife Health Research Center (NWHR) in a trumpeter swan at Crex Meadows Wildlife Management Area (WMA) and in another trumpeter swan at Mead WMA in September 1991. Other reintroduced swans at each site were suspected of having avian pox. The swan reintroduction program was initiated in 1989 at the Crex Meadows WMA and was moved to Mead WMA in summer 1991 to expand the release area in Wisconsin.

After the 1989 outbreak of avian pox in the reintroduced trumpeter swans, the NWHR requested that Wisconsin field biologists submit any waterfowl suspected of having pox lesions for laboratory confirmation. Wisconsin biologists stated that pox-like lesions have been seen for years on wild waterfowl during banding operations. Avian pox was confirmed by virus isolation or histology in nine waterfowl collected in Wisconsin between 1989 and 1992; seven were from the two swan reintroduction

sites. Lesions seen in these waterfowl varied in severity. The most debilitating pox infection occurred in a Canada goose that was found weak and unable to fly or walk, presumably because of a large (63 × 45 mm) mass on one leg. The other waterfowl had a variety of small lesions on their bills or feet. The relation between these avian pox isolations in pen-reared swans released to the wild and the pox isolations in wild waterfowl on the same management areas is unknown.

Suggested Evaluation of Reintroduction Programs

Reintroduced animals may be threatened by enzootic diseases or may pose the threat of introducing disease into native populations. The risk

of disease in introduction programs should be considered by evaluating both the animal to be released and other species and populations they are likely to contact. Health monitoring and certification should be a part of each reintroduction program to protect indigenous populations and reintroduced animals.

For further information contact:

Kathryn Converse or Douglas Docherty
National Wildlife Health Research Center
6006 Schroeder Road
Madison, Wisconsin 53711
(608) 271-4640