



# Newcastle Disease in Wild Bird Populations

## Description

Newcastle disease is of great concern throughout much of the world's agricultural community. The severity of disease caused by different strains of this very contagious virus differs with the type of virus. Illness, reduced egg production, and death may occur when domestic poultry are infected with highly pathogenic strains, causing severe economic losses.

Most birds, including wild species, are considered susceptible to Newcastle disease. Newcastle disease virus has been isolated in more than 236 species from 27 of the 50 orders of birds. Studies have shown that bird species differ in their susceptibility to the same strain of virus.

Few reports exist of clinical disease or deaths caused by Newcastle disease virus in wild birds. Newcastle disease was first confirmed as a cause of widespread mortality in wild birds in 1990 when a large die-off occurred in portions of Canada. Estimated mortality exceeded 10,000 birds, primarily double-crested cormorants, but several wild bird species were involved including white pelicans, ring-billed gulls and California gulls.

In 1992, approximately 20,000 double-crested cormorants died of Newcastle disease in areas of Michigan, Minnesota, North Dakota, South Dakota, Nebraska and Canada. During this outbreak, 26,000 domestic turkeys in North Dakota were destroyed after the United States Department of Agriculture (USDA) diagnosed Newcastle disease in the flock. Both cormorants and turkeys were affected with the same virus strain, suggesting that the disease had spread from affected cormorants to the turkeys. This outbreak was the first known Newcastle-related die-off of wild birds in the United States.

## History in California

The last major outbreak of Exotic Newcastle Disease (END) in commercial poultry occurred in southern California during 1971-1973. During this outbreak, 9,446 wild birds representing 71 species were sampled. Of these sampled birds, four (0.04%) were infected with END. These four included one crow

observed eating eggs at an infected poultry house, and three house sparrows captured in infected poultry houses. These results suggested that wild birds did not play a measurable role in the 1971-73 END outbreak.

The first documented outbreak of Newcastle disease in wild birds in California occurred in 1997. It affected a nesting colony of double-crested cormorants at the Salton Sea in Southern California. The virus caused complete nesting failure of the colony, and at least 1,600 double-crested cormorants died. The virus was determined to be the "mesogenic" strain, which is less dangerous to poultry than END.

## Research

Newcastle disease in wild birds has been increasingly studied following these large losses of double-crested cormorants. The possibility of wild birds transmitting Newcastle disease virus to domestic poultry is also being investigated. However, more research is needed to determine if wild birds pose a significant risk in the spread of the Newcastle disease virus to domestic poultry.

## Signs in Wild Birds

Sick, juvenile double-crested cormorants exhibited lack of muscular coordination, twisting of the head and neck, tremors, partial paralysis, including weakness of the legs and wings, and clenched toes. Experimental infection of adult mallard ducks with a highly pathogenic strain of Newcastle disease virus resulted in similar signs.

## Biosecurity

Poultry growers should limit or avoid contact between wild birds and domestic poultry. Regardless of whether or not poultry or wild birds are involved in the transmission of the Newcastle disease virus, it is important to be aware of the variety of ways that Newcastle disease virus can be moved from one premises to another. All reasonable steps should be taken to prevent disease introduction and minimize its spread.

**Report sick wild birds with signs of Newcastle disease to the CDFA or USDA**

**For more information on END, call 1-800-491-1899**