

# Southeastern Cooperative Wildlife Disease Study Vol. 18 No. 4 Exotic Newcastle Disease Outbreak

Exotic Newcastle disease (END) was confirmed in backyard poultry flocks in southern California on October 1, 2002. In response, the California Department of Food and Agriculture and the USDA's Animal and Plant Health Inspection Service (APHIS) activated emergency response systems and began an eradication campaign. The outbreak appeared to be contained in backyard flocks in California, but on December 18, 2002, sick birds were found at a commercial egg layer facility in California and on January 16, 2003 in a backyard flock in Las Vegas, Nevada. As of January 20, 2003, there were 1,287 positive and contact premises in California and two in Nevada. By this date, approximately 1,085,196 birds had been depopulated on 981 premises in California, with 314 premises waiting to be depopulated. All 97 birds on two Nevada premises had been depopulated. The infected premises in California include four commercial flocks. Counties with positive flocks in California are Los Angeles, Riverside, San Bernardino, San Diego, and Ventura. The Governor of California has declared a State of Emergency and the California State Veterinarian has quarantined an area of southern California. The quarantine regulates movement of poultry and poultry products and includes chickens, doves, ducks, geese, grouse, guinea fowl, partridges, peacocks, pheasants, pigeons, quail, ratites, swans, and turkeys. Clark County and parts of Nye County in Nevada also are now quarantined, but there are no commercial poultry flocks in Nevada. In addition, APHIS has imposed federal quarantines that regulate movement of all species of birds and poultry products from the affected areas, and the USDA has declared an Extraordinary Emergency in California and Nevada in order to provide additional resources and authorizations to the eradication campaign.

Newcastle disease (ND) viruses belong to the family Paramyxoviridae. Nine avian paramyxoviruses have been identified and ND virus is the prototype virus for type 1 avian paramyxoviruses. Newcastle disease viruses occur as three pathotypes: lentogenic, mesogenic, and velogenic which reflect increasing degrees of virulence. The virus involved in the current outbreak is highly pathogenic, e.g. velogenic, and is foreign to the United States.

Clinical END is most severe in chickens, peacocks, guinea fowl, pheasants, quail, and pigeons, while severity in psittacines and passerines is variable. Mortality in unvaccinated commercial chickens infected by END virus can approach 100%, and mortality in vaccinated chickens may be 10-20%. Transmission among commercial poultry is via contact with infected birds, fecal material, or aerosol over a short distance, or indirectly via contact with contaminated people, vehicles, and equipment.

The last major outbreak of END virus in commercial poultry in the United States occurred in southern California during 1971-1973. A total of 1,341 infected poultry flocks were identified and about 12 million birds destroyed at a cost of \$56 million. Wild bird surveillance was conducted by the Southeastern Cooperative Wildlife Disease Study and APHIS during this outbreak to determine if wild birds were a source of spread. In all, 9,446 wild birds representing 71 species were sampled. Of these, four (0.04%) were infected. These four included one crow that was observed eating cracked eggs at an infected premises, and three house sparrows caught in poultry houses with infected poultry or in recently depopulated poultry houses. Imported pet birds were found to be the source of the END virus in this previous outbreak.

Other ND viruses are found worldwide, and at least 236 species of wild birds have been found infected. In addition, a ND virus caused mortality in double-crested cormorants in a series of outbreaks in Canada and the United States during the 1990s. The impacts these viruses have on wild bird populations are not known.

The presence of END in southern California poultry is a serious threat to the commercial poultry industry of California and the United States. Impacts range from the loss of infected flocks in southern California to loss of domestic and international trade for California and the United States. Currently, many countries including Canada, China, and Mexico have banned import of all poultry and poultry products from California, while the European Union has banned import of all live poultry, ratites, and farmed or wild game birds and fresh meat and hatching eggs from these birds from the entire United States.