



PROGRAM ACTIVITY REPORT (PAR)

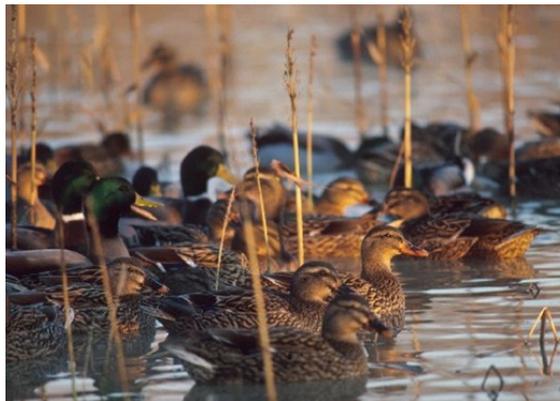
AVIAN INFLUENZA VIRUS IN WILD BIRDS

The NWDP has been collaborating with four National Animal Health Laboratory Network (NAHLN) laboratories since 2009 to isolate and sequence matrix positive avian influenza virus (AIV) samples. The samples were collected as part of the Early Detection System for Highly Pathogenic H5N1 Avian Influenza in Wild Migratory Birds, which was conducted from 2006 to 2011.

The goal of this project is to learn more about the disease ecology of low-pathogenic avian influenza viruses (LPAI) which circulate continuously in wild waterfowl. There is broad agreement that a better understanding of LPAI ecology will improve future surveillance programs and increase our ability to respond if a highly pathogenic virus, or a notifiable LPAI virus, appears in wild birds in the United States.

Samples for the project were selected from the Wild Bird Tissue Archive managed by the NWDP. The archive houses over 280,000 swab samples collected by Wildlife Services and state and tribal

wildlife agencies. These samples were screened at NAHLN laboratories between 2006 and 2011, and about 12% were found to be matrix positive, revealing that they carried some form of AIV. Only a handful of these were found to be H5 or H7 viruses, and none were the highly pathogenic forms.



The project was conducted in 2 phases. In the first phase, the four laboratories used only mallard (*Anas platyrhynchos*) samples, since this species is the most abundant and widespread carrier of LPAI. Over 1,200 samples were inoculated into chicken eggs to grow the virus. Samples isolated in this way were then sequenced to establish the HA/NA subtype. In the second phase of the project, nearly 1,200 samples from 15 other species were tested using the same techniques. The laboratory work is

almost finished and NWDP staff are working with the four NAHLN laboratories to analyze the data and prepare manuscripts. This dataset is unique because we are able to analyze samples from across the entire U.S. and identify patterns at a very broad scale. Thanks to the cooperation of the field biologists and the NWDP staff in Fort Collins, CO, we have detailed records of the date, location, species, age and sex of all birds sampled. Combining this information with the laboratory subtyping results should yield information that will enable much more targeted surveillance in the future.

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The original artwork on this page was created by the National Wildlife Disease Program's Erika Kampe and Sarah Goff