

Development of a Risk Factor Surveillance System for Conservation of Endangered Bird Species and Studies on the Risk for their Population Reduction Due to Avian Influenza Virus Infection and a Countermeasure Against the Risk

Principal Investigator: Shin-ichi Hayama

Institution: Nippon Veterinary and Life Science University, Musashino City, Tokyo,
JAPAN

Tel: +81-422-31-4151 / Fax: +81-422-34-6201

E-mail: hayama@nvlv.ac.jp

[Abstract]

Key Words: HPAI, Lead contamination, Surveillance, Zoos and aquariums, Wild birds, Wildlife, Rare birds, Avian influenza, Infectious diseases

Rare bird species are threatened with extinction because of the spread of the highly pathogenic avian influenza (HPAI) virus and exposure to low levels of lead. Therefore, this theme aimed to develop a comprehensive risk assessment methodology for infectious diseases and environmental pollution in endangered birds and propose a method for its social implementation to promote conservation measures. The development of such a methodology might be useful in implementing avian influenza monitoring in East Asia, including Japan, promoting rapid countermeasures, and strengthening lead bullet regulations outside Hokkaido based on the risk assessment of lead contamination.

This theme focused on HPAI and developed a comprehensive risk assessment methodology accounting for low-level lead exposure that can cause immunosuppression. First, we investigated domestic and international wildlife disease surveillance, control measures for rare captive birds, analysis of HPAI outbreaks, and actual surveillance conditions in Japan. Next, we examined the problems and areas of improvement to date related to the wildlife disease countermeasures, including HPAI surveillance and control measures. Furthermore, we proposed a highly effective risk assessment method and an implementation plan at a model site, which was developed with reference to domestic and international examples, as a risk assessment method to be implemented in society. Subsequently, active surveillance of HPAI and lead contamination in wintering areas of waterfowl and the risk assessment workshops for administrative veterinarians were conducted to verify their effectiveness. Finally, we proposed a comprehensive risk assessment method that could be socially implemented in Japan and summarized the overall results of this project research.

[References]

- 1) S. MORIGUCHI, R. HOSODA, N. USHINE, T. KATO and S. HAYAMA: Prev. Vet. Med, 187, 2, 105234 (2021) (IF:2.67) Surveillance system for avian influenza in wild birds and implications of its improvement with insights into the highly pathogenic avian influenza outbreaks in Japan.
- 2) N. USHINE, S.M.M. NAKAYAMA, M. ISHIZUKA, T. SATO, Y. KURAHASHI, E. WAKAYAMA, N. SUGIURA, S. HAYAMA: J. Vet. Med. Sci, 82, 8, 1124-1129 (2020) (IF:1.267) Relationship between blood test values and blood lead (Pb) levels in Black-headed gull (*Chroicocephalus ridibundus*: Laridae).
- 3) N. USHINE, O. KURATA, Y. TANAKA, T. SATO, Y. KURAHASHI, S. HAYAMA: J. Vet. Med. Sci, 82, 11, 1619-1626 (2020) (IF:1.267) The effects of migration on the immunity of Black-headed gulls (*Chroicocephalus ridibundus*: Laridae).