East Meets West: An Analysis of Avian Influenza in Alaska Interior

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During the summer months, Alaska is an international crossroad for millions of migratory birds from around the world. To investigate the possibility of various avian influenza viruses carried by migratory birds from different regions, 200 fecal samples from wild migratory birds from Creamer's Field, Fairbanks, AK were collected and examined for existence of avian influenza virus. Previous research done by others in Southwest Alaska predicts a probability of discovering avian influenza virus in Alaska waterfowls. In this project, nucleic acid was extracted from thirty-five fecal samples and then purified, following a standard protocol, to get RNA. The RNA was then reverse-transcribed into cDNA and analyzed with real time quantitative PCR (qPCR), targeting the H5-HA region of influenza virus genome. Three out of thirty-five samples were positive for the qPCR assay, suggesting that avian influenza H5-HA was found in the samples. The results of this experiment support the assertion that avian flu viruses exist in Alaskan waterfowl. It is highly possible that migratory birds in Alaska carry different avian influenza viruses from different regions of the world. I believe that the location and date of which I collected the samples had a large effect on the number of positives results. In the near future, I plan to do a sequencing analysis for all the PCR-positive samples in order to determine the possible origin of new influenza virus genotypes.

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