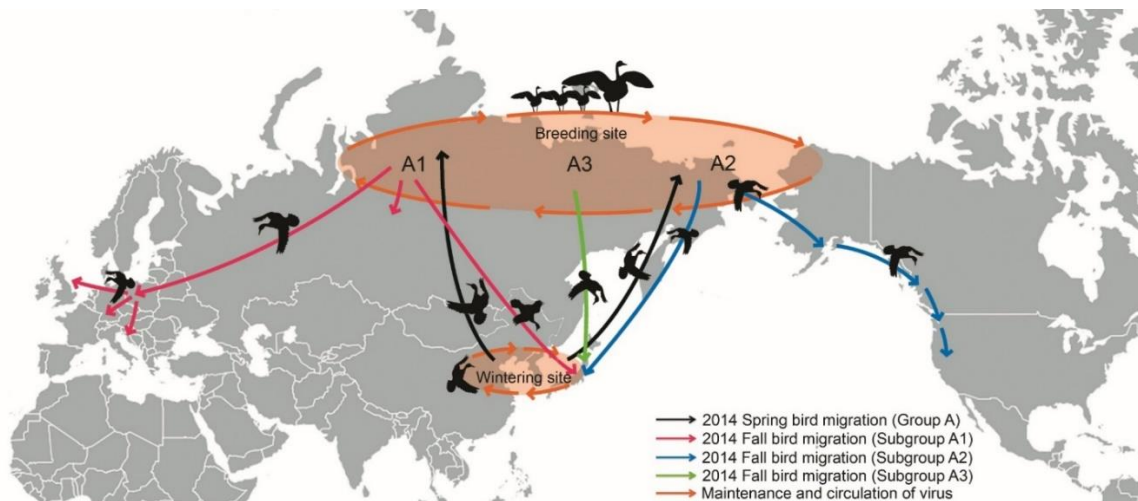


Background of the 2015 H5N2 Avian Influenza Outbreak

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Highly pathogenic avian influenza has made a significant impact on the US poultry industry since the discovery of an outbreak in the US back in December 2014. The state of Georgia was (and has remained) unaffected, but preparations have been put in place in case of a potential return of the virus. The avian influenza (AI) virus is like any other influenza virus in that it is an orthomyxovirus with two key identifiable proteins sticking out from the virus' membrane: hemagglutinin (identified by a number from 1-16) and neuraminidase (identified by a 1-9). This is why we can classify any specific influenza virus with the letters H and N: H5N1, H7N2, H5N8, etc. Also, any specific virus can have a low or a high pathogenicity (LP or HP) based on how severely it affects the animal that's been infected. Also, just like human-specific influenza viruses, avian flu viruses are highly likely to mutate to adapt to their environment, which can make vaccination difficult.

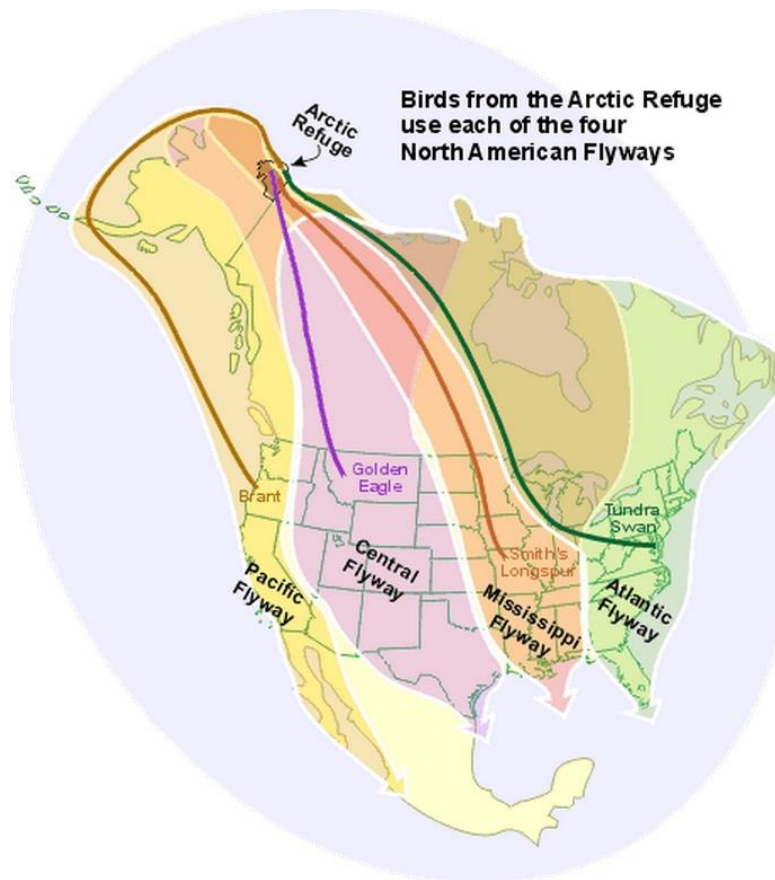
Though it is not always the case with every AI virus, the 2015 H5N2 virus appeared to be the result of a mixing within migratory birds in Siberia and Western Alaska. It is possible for the virus to mutate in such breeding sites among birds for whom the AI virus is not highly pathogenic. These migratory birds can end-up being carriers for the virus, allowing it to travel vast distances. So when the wild birds move South during the cooler months, the virus was able to spread to other areas (see Figure below), where it becomes capable of affecting commercial, backyard, and recreational flocks.



Lee et al. (2015). J. Virol. 89:6521-6524.

In looking at which birds were affected by the highly pathogenic (HP) H5N8 and H5N2 influenza viruses that came south from this “mixing” in 2015, almost 75% were commercial turkeys while close to 10% were backyard or non-commercial birds (with the rest being our commercial egg-producing flocks). The close association that our backyard/free-range type poultry can have with wild, migratory birds represents a potential point of contact with the influenza virus and our larger-scale, commercial operations. And once the virus reaches commercial farms, the economic impact can become quite high. For example, because of the HP avian flu virus, the state of Minnesota experienced an estimated economic impact of \$650 million, which encompasses 2,500 jobs and an estimated \$170 million in lost wages to those workers. The economic impact in Iowa was upwards of \$1.5 billion total. Those losses have also resulted in an increase in the price consumers nationwide pay for their eggs and turkey.

Furthermore, the risk of transmission of avian influenza to humans (termed “zoonoses”) is extremely rare and none of the HPAI viruses that have impacted poultry in the US have caused human disease. The concern over a possible return of HPAI results from the fact that wild migratory birds will return south for the winter, traveling along their typical “flyways” from places in the north where there is the chance that they have been in contact with the virus. The common flyways that migratory birds travel are illustrated below (from the US Fish and Wildlife Service). The State of Georgia sits along the eastern-most, Atlantic Flyway.



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The poultry industry is the largest sector of the Georgia economy, and Georgia is the leading producer of poultry meat and hatching eggs in the US. Georgia's poultry industry contributes an estimated \$25 billion annually and supports over 100,000 jobs in the state. Though the Georgia poultry industry has a high risk for potential loss, there are biosecurity practices that limit our commercial birds from being exposed to the wild, migratory birds. There is no acceptable or practical treatment once birds have contracted HP avian influenza. Eradication is the best strategy. The current State Response Plan is to quarantine and euthanize infected flocks within 24 hours of confirmation that they are infected with virus, combined with the continual vigilance against other flocks becoming infected. So, to protect the health of poultry and other birds in our state, we need:

- enhanced biosecurity measures to prevent the virus from contacting poultry (or prevent the virus from leaving infected flocks of birds).
- heightened surveillance and diagnostics to quickly identify infected flocks.
- euthanize birds before the virus further harms them and before it can be spread to others.

If you have concerns that your birds may have contracted avian influenza, please contact the Georgia Poultry Lab Network Avian Influenza Hotline at (770)-766-6850.