

## **MS Thesis Defense**

**Candidate:** Lauren Wilson

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**Title:** Genetic distinction of the tundra (*Cygnus columbianus columbianus*) and trumpeter (*Cygnus buccinator*) swans by multi-locus microsatellite regions

### **Committee:**

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## **ABSTRACT**

This thesis describes a molecular method of differentiating two closely related swan species (Trumpeter and Tundra) and their hybrids. The Trumpeter and Tundra Swans are migratory waterfowl which breed in areas of Alaska during summer. They are known to be completely reproductively compatible in captivity, but have been historically allopatric during breeding season due to differing habitat preferences. Changing temperatures have affected the sub-arctic vegetative composition, and the breeding ranges of the two birds now overlap in some areas. The need for identifying these species and their hybrids exists because there is evidence that hybridization is occurring in the wild due to changes in vegetation in the breeding habitat of these species.

We used next-generation sequencing technology to identify and describe seven new polymorphic microsatellite loci. In combination with two previously described markers, these new markers were used to differentiate the Trumpeter Swan, Tundra Swan, and their captive hybrids. We then tested this method on unknown wild samples to detect any evidence of genetic introgression from interbreeding.