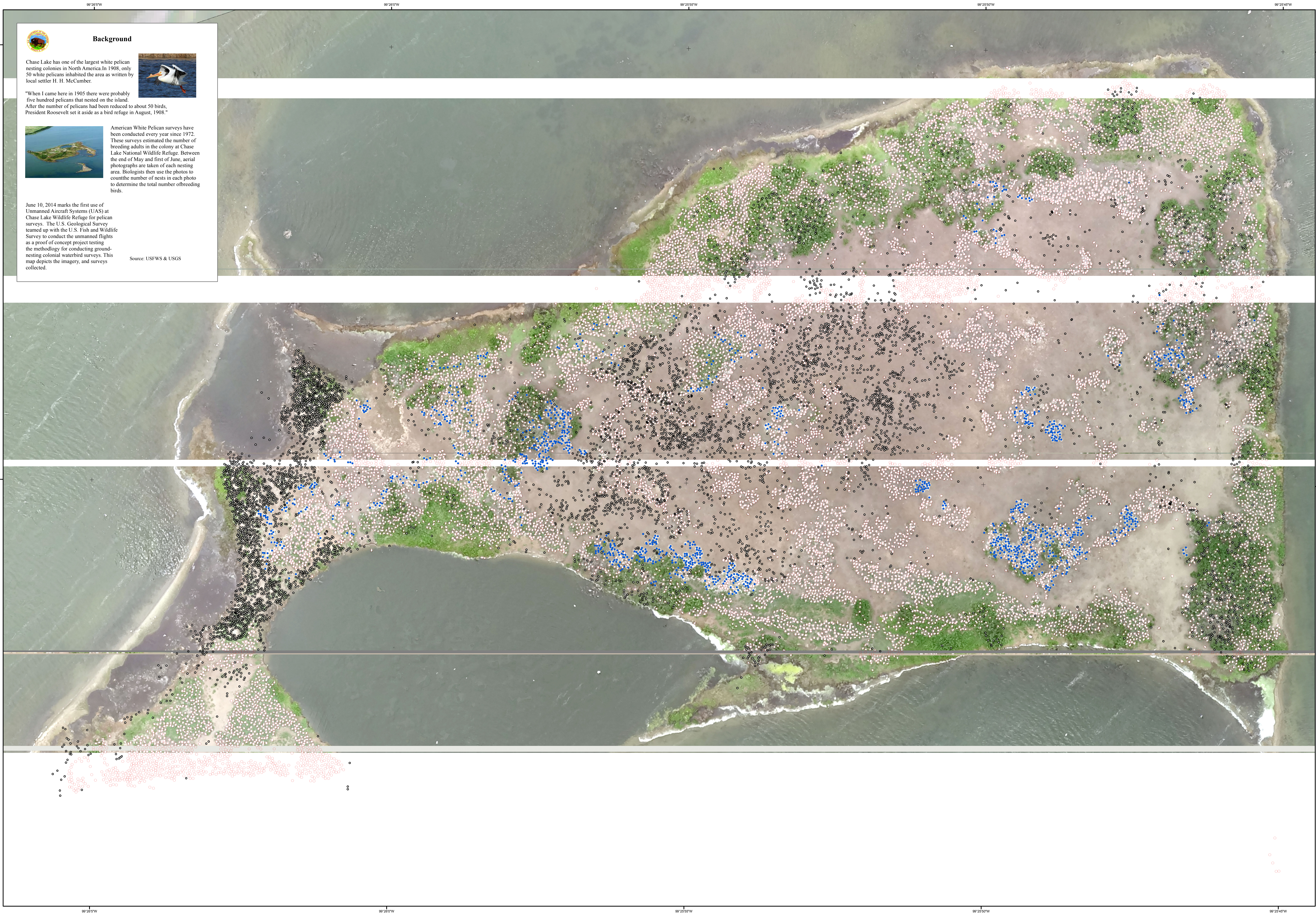


Chase Lake National Wildlife Refuge Pelican Survey, North Dakota

June 10, 2014



Background

Chase Lake has one of the largest white pelican nesting colonies in North America. In 1908, only 50 white pelicans inhabited the area as written by local settler H. H. McCumber.



"When I came here in 1905 there were probably five hundred pelicans that nested on the island. After the number of pelicans had been reduced to about 50 birds, President Roosevelt set it aside as a bird refuge in August, 1908."



American White Pelican surveys have been conducted every year since 1972. These surveys estimated the number of breeding adults in the colony at Chase Lake National Wildlife Refuge. Between the end of May and first of June, aerial photographs are taken of each nesting area. Biologists then use the photos to count the number of nests in each photo to determine the total number of breeding birds.

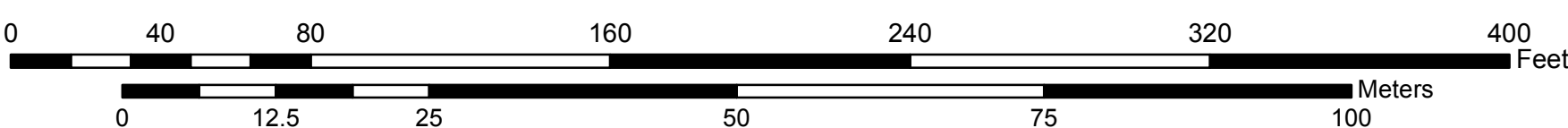
June 10, 2014 marks the first use of Unmanned Aircraft Systems (UAS) at Chase Lake Wildlife Refuge for pelican surveys. The U.S. Geological Survey teamed up with the U.S. Fish and Wildlife Survey to conduct the unmanned flights as a proof of concept project testing the methodology for conducting ground-nesting colonial waterbird surveys. This map depicts the imagery, and surveys collected.

Source: USFWS & USGS

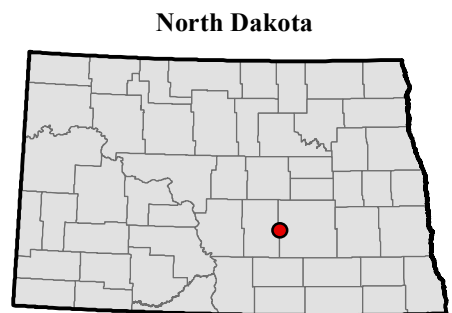
The Raven small unmanned aerial vehicle (sUAV) is a hand-launched reconnaissance and surveillance tool. The system transmits live airborne video images, compass headings and location information to a ground control unit (GCU) and remote video terminal (RVT). The Raven aircraft is hand launched without the need of special equipment or landing area required. The system employs a self-stabilizing aircraft configuration with stability augmentation avionics and provides ease of control and steady video imagery.

RQ-11A Raven UAS

The Raven's optics package includes an electro-optical (EO) color camera nose payload (side, forward, and nadir orientation) and two infrared (IR) thermal nose payloads (a side look payload or a forward lookpayload). The Raven system is typically operated by a two person team consisting of a pilot and mission controller.



Map created by the USGS Geosciences Environmental Change Science Center on June 24, 2014



Legend

- Gulls, Egrets, and Other
- Cormorant Nests
- American White Pelicans

Imagery collected by the RQ-11A UAS Raven on June 10, 2014.