

2024 Yellowstone Biennial Research Conference: Yellowstone Bird Symposium

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Yellowstone's Iconic Bird: The Trumpeter Swan

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Background and objectives: Trumpeter swans (*Cygnus buccinator*) are the most recognized and longest monitored bird in Yellowstone National Park (YNP). Anecdotal observations date back to 1870 and population monitoring began in 1931. A continent-wide, human-induced population decline made YNP one of the last strongholds for swans in North America. The population was stable during the 1930s through 1950s, generally numbering between 30-80 individuals, but after this period a long-term, slow decline began bottoming out at a low of 4 birds in 2010. The decline and low numbers alarmed National Park Service (NPS) managers which resulted in organizing a swan workshop in 2011 of North American experts to determine a cause and course of action. Neither objective was achieved. The lack of consensus likely occurred because several hypotheses were advanced, none mutually exclusive, suggesting a multi-causal decline. The hypotheses discussed with various levels of support were: 1) habitat reduction due to climate change, 2) less immigration from Red Rock Lakes National Wildlife Refuge, 3) increased predation, 4) human disturbance, and 5) genetic depression. Human disturbance had strong support due to increased visitation and backcountry use as well as fish stocking and increases in recreational angling. Climate change and predation also had support but collinearity in data analysis prohibited strong inferences. Given the lack of consensus and potential for extirpation, NPS managers took action.

Methods: Population surveys began in 1931 as ground counts but transitioned to one annual aerial survey each year in late September. Nest platforms were installed at two territories and 64 cygnets were reintroduced between 2013 and 2023. A working group with annual meetings was formed to enhance interagency communication and cooperation.

Results/Conclusions: The September 2023 count was 26 adults and 3 cygnets. Released birds, nest site closures to the public, and nest platforms likely caused a population increase. Besides management action, interagency cooperation, cross boundary coordination, and communication facilitated population management and increase because YNP was prioritized as a cygnet release site by the Swan Working Group. Public-private partnerships also played a key role. The long-

term prognosis for the greater Yellowstone swan population is unknown due to inconclusive results on the impacts of climate change and predation. Short-term actions such as protection of nesting areas and further augmentation of the population are key while continued research should continue in order to inform management action. Given Yellowstone's place in the history and conservation of trumpeter swans in North America, recent research and management attention was timely and likely prevented extirpation of this iconic bird.