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Historical Information on Bird Distributions Indicates that Mute Swans Were Introduced to North America

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In a recent issue of Picoides, Alison and Burton (2008) challenged the long-accepted view that the Mute Swans (*Cygnus olor*) in North America are derived from captive birds imported from Europe. Using information from historical accounts; paleontological and archaeological records; and descriptions of current swan distributions, they argue that the Mute Swan was already present when Europeans settled North America, and therefore is a native (not an introduced) species. Unfortunately their paper was not peer-reviewed, so it is particularly important to assess their sources of information and their methods before accepting their conclusions. I will focus on the historical records from early European explorers and settlers that they cited. I will also address the scientific information on swan distributions from the past 300 years that they chose not to consider in their analysis. Others are responding to their paleontological, archaeological and distributional evidence.

The most concrete historical evidence presented by Alison and Burton for the occurrence of Mute Swans in North America at the time of European settlement is the painting of a swan by John White. The painting was completed in the 1500s in Virginia. Alison and Burton argue that this is clearly a Mute Swan because of the curved neck, raised wings and knob on the bill. The shape of the neck is often used as a general field mark for distinguishing both Tundra Swans (*C. columbianus*) and Trumpeter Swans (*C. buccinator*) from Mute Swans, and standard field guide illustrations show the first two species with straight, vertical necks and Mute Swans with sinuously curved necks. This difference in posture is not dependable, however, because Tundra and Trumpeter swans often have curved necks when they are in relaxed positions (Figures 1, 2), while alert Mute Swans may have straight necks. A comparison of photographs in the Birds of North America accounts for Tundra and Mute Swans demonstrate that either species can show a straight-necked or curve-necked profile (Limpert and Earnst 1994; Ciaranca et al. 1997). The knob on the bill in the painting would be diagnostic for Mute Swan, but it is smaller than in either a typical male or female Mute Swan. The

Figure 1. Tundra Swans at Ridgefield National Wildlife Refuge, Washington. Note the curved necks of many of these swans. Photograph by Gerrit Vyn.

Swans have longer, more pointed tails (Ciaranca et al. 1997). The long, thick bill shown in the painting is most similar to that of a Trumpeter Swan, a species that originally occurred on the eastern coast of North America (Mitchell 1994). Mute Swans and Tundra Swans have thinner, shorter bills with a sloping, concave upper surface, and this is probably why this painting is sometimes labelled as a Trumpeter Swan. (Some of John White's other paintings show birds with inaccurate proportions, however. For example, see his painting of the Brown Noddy (*Anous stolidus*) at the British Museum Images website (http://www.bmimages.com/resultsframe.asp?W=4&F=0001&Step=37); both the bill and tail are disproportionately long for a Brown Noddy.) The other reliable characteristic for distinguishing Mute Swan is the orange bill color. The painting shows a black bill like that of a Tundra

Swan or Trumpeter Swan, but this is apparently inconclusive if the authors are correct about the paint becoming darker over time. If the painting originally showed the orange bill with a black base that

Figure 2. Trumpeter Swans (with one Mute Swan on the far right) at LaSalle Park Marina, Burlington, Ontario. Note the curved necks of many of the Trumpeter Swans. Photograph by Ken Abraham.

characterizes the Mute Swan, however, then one might expect to see two dark tones (the original black and the darkened orange). The entire bill appears to be uniformly dark black. Overall, the swan depicted in the painting appears to mix characteristics of different species of swans, so it cannot be conclusively identified as a particular species.

This detailed comparison of the White painting with swan photographs is probably not very relevant, however. I suspect that the iconic image of a curved necked swan with raised wings would be so strongly engrained in the mind of any 16th century Englishman that he would draw swans with these characteristics after seeing them from a distance. Because the swan was a symbol of royalty and aristocracy in England and was a common element in heraldry in both England and continental Europe, swan iconography was highly standardized, and the curved neck, raised wings and knobbed bill were part of this image.

The earliest European visitors and settlers perceived their surrounding through a European lens. For example, my efforts to deduce the types of birds that were common in New England at the time of English settlement from early accounts such as “New Englands Prospect” by William Wood (1634) ended when I found only vague descriptions of “linnets” and “partridges” (European birds that are not found in North America) or general descriptions of “swans” and “eagles” with no indication of the particular species. Only the most distinctive birds, such as hummingbirds and turkeys, can be precisely identified in these accounts. John White is well known for his painting exceptionally accurate illustrations of indigenous people (Hulton and Quin 1964), but even he would have been influenced by European expectations and assumptions.

The other historical information presented by Alison and Burton consists of vague travelers’ accounts of unidentified species of swans. Nothing in these accounts suggests that Mute Swans were involved. The more parsimonious explanation is that Tundra or Trumpeter Swans were observed. These species were known to occur in North America, and their historical distribution has been carefully documented with museum specimens as well as from archaeological sites (Lumsden 1984). Their distribution and seasonal occurrence differed from current distributions before the extensive

destruction of wetlands in central North America and the near extinction from which the Trumpeter Swan is now recovering, so differences from current distributional or migration patterns in historical records do not constitute a strong case that these observations represented a third species of swan.

While emphasizing inconclusive observations of unidentified swans, Alison and Burton ignore the large amount of precise evidence about bird distributions in the 18th and 19th centuries. Why weren't Mute Swans collected or painted by experienced and widely traveled early naturalists such as Mark Catesby, Alexander Wilson and John James Audubon? Specimens, not notes based on visual observations, were the only accepted source of information on bird distributions until the 1940s, when field guides and better optics made visual identification reliable. In the 1800s dozens of naturalists and professional collectors traveled to every region of North America collecting both common and rare birds. Common birds were collected from each region to determine whether there were regionally distinctive populations (subspecies). By the 19th century, the professionals were joined by hundreds of amateur ornithologists, virtually all of whom used shotguns to collect specimens. The hundreds of thousands of study skins prepared by professional and amateur ornithologists were preserved in natural history museums. North American museums have preserved four to five million bird specimens (Peterson et al. 2005), a large proportion of which were collected in North America. Every state and province has at least one such collection, and until recently the distributions of bird species were mapped primarily by using information from these collections. For example, the detailed descriptions of distribution of waterfowl in Bent (1923 - 1925) are based primarily on museum specimens. Even small and elusive songbirds that live deep within swamps, such as Bachman's Warbler (*Vermivora bachmanii*) and Swainson's Warbler (*Limnothlypis swainsonii*), are represented in museum collections. It is difficult to conceive of how a large, conspicuous species such as the Mute Swan would not end up in some of these collections if there had been a North American population. If they had been rare, they would have been more highly sought after. (There are dozens of Ivory-billed Woodpecker specimens in collections, for example.) If there were one or two specimens in collections, this might indicate that Mute Swans were occasional winter vagrants from Eurasia, like Eurasian Wigeons (*Anas penelope*) or Tufted Ducks (*Aythya fuligula*), but as far as I know there is not even a single specimen from before the period of known introductions of Mute Swans in the 1800s. A breeding population of Mute Swans certainly would have yielded numerous specimens in a number of museums. Why did Mute Swans disappear from the record for 200 to 300 years? Were they extirpated in the 1600s only to be reintroduced in the early 1900s? Why would they go extinct in North America at a time when only a narrow coastal band of eastern North America was settled by Europeans?

Alison and Burton also ignore the carefully documented evidence for the first records and subsequent spread of Mute Swans in the late 1800s and early 1900s. The references to the historical spread of Mute Swans are summarized in Appendix 1 of Ciaranca et al. (1997). Feral birds were first recorded close to known captive populations of Mute Swans, and they slowly spread out from several regions where they originally escaped from captivity. The historical evidence indicates that they spread from places like the Boston Public Garden and large private estates in Long Island, not from some hidden refuge in the wilderness where a native population had remained undetected for more than 200 years.

In the process of gathering vague accounts of swans in North America and ignoring the precise and easily verified record of bird distributions based on museum collections, Alison and Burton provide a misleading description of the available historical information. Other than a painting of a swan that has a mix of characteristics of different swan species and may have been heavily influenced by the standard European iconography of swans, they provide no new information about the historical record of Mute Swans in North America. They certainly do not demonstrate conclusively that Mute Swans were found in North America at the time Europeans first settled the region.

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Birds and Climate Report

Reprinted from Bird Studies Canada E-newsletter February 20, 2009

The National Audubon Society has released a new report on the winter distribution and movements of birds in North America on February 10, 2009. According to report co-author and Audubon Director of Bird Conservation Greg Butcher, 58% of the 305 widespread bird species that winter on the continent have shifted significantly north since 1966. The newest analysis reveals that bird movements are evidence of a short-term response to climate change.

Bird Studies Canada is partnered with Audubon through BirdLife International. The Birds and Climate Change report is based on information collected through the Christmas Bird Count. As the coordinator of Christmas Bird Counts in Canada, Bird Studies Canada and our volunteers provided critical data for this research. Citizen science programs are an extremely important tool for monitoring, and collecting data for analysis and to guide conservation action.

Report details and other resources are available on the Audubon website at: http://www.audubon.org/news/pressroom/bacc/index.html.