

In addition to reducing or eliminating the submersed aquatic vegetation in a wetland, Mute Swans have been observed being aggressive towards other species of waterfowl, potentially preventing their access to food. Although aggression by Mute Swans towards other species is common, the conclusion that this aggression prevents access to food has never been thoroughly tested. One final negative impact of Mute Swans is they may prevent native Trumpeter Swans from reestablishing in their native habitat. Due primarily to commercial over-exploitation, native Trumpeter Swans were extirpated from their native habitat in the Upper Midwest by the early 1900s. A recent effort has been made to restore Trumpeter Swans to their native habitat. The little data available indicate pairs of Trumpeter and Mute Swans are equally dominant (Joe Johnson, Kellogg Bird Sanctuary, unpublished report); whichever pair establishes a breeding territory first is able to defend that territory against the invasion of the other pair. Because Mute Swans don't migrate, they will most likely establish breeding territories first, preventing native Trumpeter Swans from gaining access to quality breeding areas.

Illinois study

Adam Phillips, former graduate student now working for the Iowa DNR, Joshua Stafford, formerly with the Illinois Natural History Survey and now at the Fish and Wildlife Coop Unit at South Dakota State University, and I recently conducted a study to estimate the impact of Mute Swans at Banner Marsh (in Fulton County) and Spring Lake (Tazewell County) for two years.

Because Mute Swans have only recently invaded Illinois relative to some other regions of the U.S., their numbers in this state are relatively low. There are about 250 breeding and wintering in our study area compared with the 20,000 that breed and winter in some regions of the Chesapeake Bay.

To estimate the impact of Mute Swans on submersed aquatic vegetation we fenced out swans with chicken wire at random points in submersed aquatic vegetation at Banner Marsh and Spring Lake for two years.

We then compared the amount of vegetation between the areas the swans were excluded and areas in which swans had access. Similar studies in areas of denser swan popula-

tions on the East Coast have found significantly more vegetation inside the exclosures than outside indicating that swans are overgrazing the vegetation (Allin and Husband 2003; Tatu et al. 2007). We found that although the quantity of leaves did not differ between inside and outside the exclosures, the quantity of roots were significantly lower outside the exclosures.

Plants often store energy and nutrients in their roots to use for future growth. Plants frequently use these stored nutrients to compensate for grazing by growing new leaves to replace those that have been grazed. The difference in biomass of roots was most likely caused by vegetation compensating for grazing by using nutrients in the roots for additional growth.

At the time of our study, it appeared submersed aquatic vegetation was compensating for the high intensity grazing of Mute Swans by using nutrients stored in the roots, but because nutrients in the roots are limited, the compensatory growth can only be maintained for a short period of time. With continued grazing, Mute Swans will likely soon



Mute Swan cygnets in Plainfield, Will County. 6 June 2008. Photo by Brian Tang.