Distribution and natural history of large invasive waterfowl in Texas

Egyptian Goose and Mute Swan

(*Alpochen aegyptiacus*) (*Cygnus olor*)

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Relatively little work has been done with alien birds in the state of Texas (c.f., Brooks 2009).

In June 2008 a citizen-science study was initiated to study six avian species invading the state of Texas.

A standard questionnaire was developed and circulated among multiple bird watchers to provide unbiased data.

The objectives of this study are to elucidate ecology, behavior and reproduction of Egyptian Goose (*Alpochen aegyptiacus*) and Mute Swan (*Cygnus olor*) in the state of Texas based upon reports generated from the citizen-science project.

METHODS

When designing the questionnaire for distribution, care was taken to create non-competitive questions that would elicit honest answers from competitive bird watchers.

The form (Fig. 1) was circulated among several local Ornithologists with a presence in the local bird watching culture to provide comments to insure questions would elicit honest answers.

Once the questionnaire was finalized, it was offered in hard copy at monthly meetings at several local bird watching clubs, annual bird watching festivals, and circulated on Texas bird watching internet List-Servs.

The form was posted at this website: *http://www.hmns.org/files/invasivebirds.doc* and ultimately was well distributed amongst the Texas bird watching community.

(Fig. 1)

Data used herein span June 2008 through July 2011, but data are still being collected for possible future analyses.

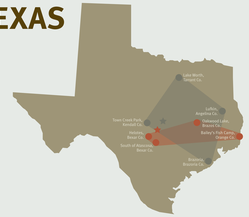
A total of 28 reports from 21 individuals were received for Egyptian Geese, and 16 reports from 9 individuals for Mute Swans.

Some reporters left parts of the questionnaire blank or provided insufficient answers to be included in analyses.

DISTRIBUTION IN TEXAS

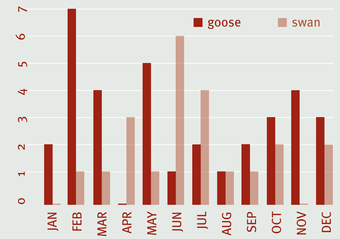
The most reports for both species were generated from the Edward's Plateau region of Central Texas

- Egyptian Goose distribution in Texas from reports generated
- Mute Swan distribution in Texas from reports generated
- ★ Most reports of Egyptian Geese (New Braunfels)
- ★ Most reports of Mute Swan (Austin)



TEMPORAL ASPECTS Year-round residents

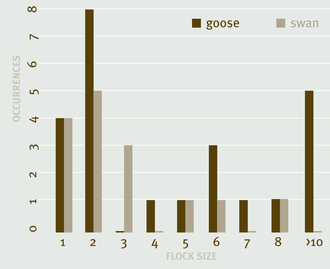
Number of reports received per month for Egyptian Goose and Mute Swan (Fig. 3)



Egyptian Goose	Mute Swan
Earliest populations reported early to mid 1980's	Earliest populations reported in "1980s"
Active 07:00 (January) - 19:00 (mid May, mid July)	Little data on diel cycle (i.e., 10:00 - 15:30)
One report of geese flying to roost site at night, and depart at dawn.	

POPULATION AND NESTING ASPECTS

(Fig. 4) Frequency of flock sizes for Egyptian Goose and Mute Swan. The mode of 2 in both species represents bonded pairs.



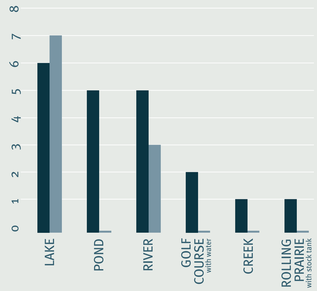
Egyptian Goose	Mute Swan
Mean group size = 6.8 (range = 1-35, N = 24; Fig. 4)	Mean group size = 2.8 (range = 1-8, N = 15; Fig. 4)
Nesting mid March – early May A flock of 7 contained 2 sub-adults (29% of flock) in mid July	Sub-adults observed mid June – mid July
Another flock of 16 contained 4 sub-adults (25% of flock) in August Reproduction (nests, young birds with juv. feathering) was reported in the following counties: Comal (common), Galveston (abundant), Kendall, Montgomery (exploded population), Wilson	Several reproduction events (nests, young birds with juv. feathering) were reported in Travis Co., where annual nests were observed since '98, but others reported breeding since the 1980s
One report detailed nesting in tree cavity as follows: Emerge early in morning from nest hole and fly to lawn to walk around, interact with calls and close body contact, and chase each other, squirrels (fm nest tree) and domestic waterfowl (mallards and muscovies). The pair was bonded—they would spend most of the day very close together whether foraging, preening or sitting on horizontal branches near the nest tree. They had difficulty entering the nest hole (especially the male), often requiring three to five tries to get their footing and fold their wings so that they could enter. They would hit the tree sometimes when entering. Nest in a large Sycamore with a natural hollow at the junction of two main branches ~10 m off ground (Fig. 8). Both parents appeared to spend time in the nest—individually as well as together. Goslings jump from the nest upon hatching (mid to late March). Another most unusual nesting event was described where a parent was observed attending a clutch of 16 eggs while being followed by a brood of six, perhaps a month old in May 2010. Only one of the six goslings was still alive half a year later (Feb. 2011). Multiple failed clutches were observed over the 3 years preceding this incident, especially due to laying in winter.	One report detailed nesting as follows: Nest ~2.5 m in diameter, on shore and ~3 m from water (Fig. 9). Made of long, dead grasses and built on top of short lawn grass. Surrounding vegetation includes long grass, a leafless cypress and some weedy vegetation.

(Fig. 7a) Nest tree used by Egyptian Geese (Fig. 7b) Nest tree used by Egyptian Geese

(Fig. 8) Mute Swan nest

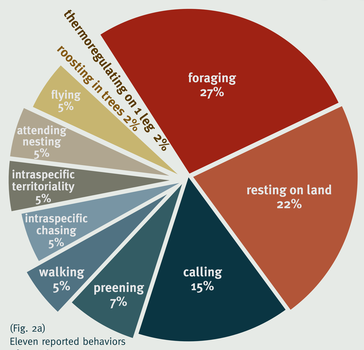
HABITAT Most situations involved a manicured urban component such as a park or golf course.

(Fig. 5) Land versus water association by Egyptian Goose and Mute Swan

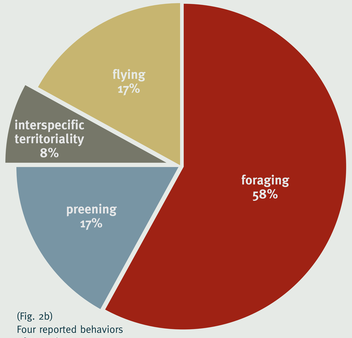


Egyptian Goose	Mute Swan
72% of observations on land, 28% in water	80% of observations in water, 20% of observations on land
Trees often overhanging water - pecan, live oak, bald cypress, sycamore, pine; moss on some trees Substrate components - grass, weedy fields, aquatic algae, large rocks and gravel	Cat tails, dead snags in lakes, cypress, tall grasses

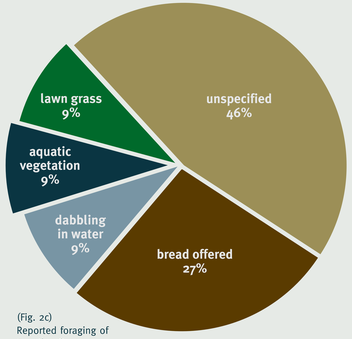
BEHAVIOR Foraging was most frequent behavior reported (Fig. 2)



(Fig. 2a) Eleven reported behaviors of Egyptian Geese



(Fig. 2b) Four reported behaviors of Mute Swan



(Fig. 2c) Reported foraging of Egyptian Geese

ARE THESE SPECIES A THREAT TO OUR ECOSYSTEM?

Are these species outcompeting native species?

Probably not – most reports indicate both of these species share ponds/lakes with a variety of ducks (both wild and domestic), suggesting they are tolerant of smaller waterfowl.

Very few of the reports indicate other species of geese or swans share the same ponds/ lakes with these species, and only one had Egyptian Geese and Mute Swans present on the same lake.

This may actually be beneficial, as the territorial nature of Egyptian Geese and Mute Swans (Oksanen et al. 1979) towards larger waterfowl may deter population explosion in larger species of colonial geese, as seen in many regions of the northeastern US for example (Ankney 1996).

Are these species a threat to the water we use?

While elevated levels of potentially harmful bacteria (Feare et al. 1999) could be attributed from the droppings of large populations of Egyptian Geese and Mute Swans, this has not been measured per-se.

Again, considering the territorial nature of Egyptian Geese and Mute Swans (Oksanen et al. 1979) it is likely that large colonies will never permanently occupy a given region, diminishing the chance for high levels of toxic bacteria.

Acknowledgments

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