

FEEDING ECOLOGY OF NONBREEDING DUCKS ON STRIP-MINE POND SEDIMENT PONDS IN EAST-CENTRAL TEXAS

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Food habits, characteristics of foraging habitats, and diurnal time-activity budgets were compared among 4 species of nonbreeding ducks using sediment ponds on the Big Brown mine in east-central Texas. Blue-winged teal (Anas discors), gadwalls (A. strepera), American wigeon (A. americana), and ring-necked ducks (Aythya collaris) were studied during fall, winter, and early spring, 1989-1992. Ducks were sampled opportunistically from a subset of the total sediment ponds on the mine.

Examination of esophageal contents indicated that vegetation volume was greatest in gadwall and American wigeon diets. Blue-winged teal and ring-necked ducks consumed greater volumes of invertebrates than did gadwalls and American wigeon. All species consumed similar volumes of seeds and grit.

All species foraged in areas with similar amounts of submergent vegetation; gadwalls and blue-winged teal were found in the shallowest areas ($x = 48.7$ cm and 52.7 cm, respectively) where emergent cover was greatest. Ring-necked ducks fed in the deepest areas ($x = 90.9$ cm) with the greatest percent open water. American wigeon foraged at intermediate depths ($x = 64.3$ cm), in areas with moderate vegetative cover. Invertebrate abundance, density, and biomass were greatest at gadwall and blue-winged teal feeding sites and lowest where ring-necked ducks fed.

Focal-animal behavior samples indicate that gadwalls and American wigeon spent more time in diurnal feeding than did ring-necked ducks. Gadwalls spent more time tipping up than did American wigeon; ring-necked ducks fed almost exclusively by diving. All species allocated similar amounts of time to other behavior.

Overlap indices calculated for diets and foraging habitat characteristics were used in an attempt to measure potential competition. Diet overlap and habitat overlap were higher among dabbling species than between dabblers and ring-necked ducks. However, abundance of potential duck foods and differences in feeding behavior could mediate potential competition. Waterfowl sampled on sediment ponds on the Big Brown mine seem to respond to habitat characteristics such that several species may use similar resources; however, results of this study do not provide conclusive evidence that competition for food and habitat affects the structure of the nonbreeding duck community.

Doctoral Dissertation
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