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THE PIED-BILLED GREBE

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The pied-billed grebe is a common inhabitant of Iowa's remaining prairie ponds and marshes. Pied-bills are small, aquatic birds weighing between 300 and 500 grams. They are strong swimmers, but relatively weak fliers. Just to become airborne they must run 20-25 meters across the water's surface.



Pied-billed Grebe.

Though similar in habits to waterfowl, the pied-bill is not a duck. Grebes (*Order Podicipediformes*) are an ancient group of birds differing behaviorally and morphologically from the evolutionarily younger waterfowl (*Order Anseriformes*). In contrast to the vertically flattened (spatulate) bill of waterfowl, grebes have a laterally compressed bill, an adaptation for capturing fish and aquatic invertebrates.

Grebes, like waterfowl, are highly adapted for locomotion in the aquatic environment. The legs are positioned far back on the body to provide greater thrust for swimming and diving. The legs are, in fact, so far back that most grebes are incapable of standing or walking on land. A further adaptation for swimming is flaps or lobes of skin on the toes which provide greater surface area for pushing against the water in the same way as do the webbed feet of ducks. Underwater swimming is accomplished primarily with the feet, but the wings may be used when greater speed is required.

Migrating at night, pied-bills return to Iowa in early April from their wintering areas in the southern United States and Mexico. Courtship begins almost immediately upon arrival and the pairs, once formed, begin searching for nesting sites. Nests are built among the emergent vegetation, usually cattails or bulrushes, in 20-100 cm of water. The floating nests are roughly circular platforms made of the previous year's vegetation. Nest materials are often wet, in marked contrast to the nests of other aquatic birds.



Floating grebe's nest.

Pied-billed grebes defend an area around the nest from others of their species. The slightly larger male does most of the territory defense, though females commonly take part in major disputes. Fighting between pairs along territory boundaries is not common, but intruders are quickly repulsed. Chases take place both on the surface and under the water. After a trespasser has been successfully evicted, the territorial pair may call to one another, gradually synchronizing their calls into a brief duet. Such duets also occur when the pair meets after an absence, and may serve to maintain the pair bond.

Egg laying begins in early May. One egg is laid per day until a completed clutch of 4-7 eggs is produced. The eggs are a very pale, whitish blue or green when laid. But as incubation proceeds, they become stained by the wet, partially decayed nest material, to a tan or brown color. The male and female alternate brooding the eggs during the 23-day incubation period. When alarmed at the nest, or when leaving the nest to feed, the eggs are covered with vegetation to make them less conspicuous to predators such as crows, mink or raccoons.

The eggs hatch over a period of several days. Newly-hatched chicks are fully feathered and capable of swimming and diving soon after the plumage is dry. The young are brooded at the nest site for several days after hatching, and are fed by their parents for several weeks. Aquatic insects make up the bulk of the diet of the young grebes. When very young, the chicks are often carried on their parents' backs while the adults are swimming to feeding sites or if a predator appears.

Adult pied-billed grebes feed primarily on aquatic invertebrates and, if available, small fish. Feeding is not limited to the territory. Neighboring pairs may forage together at common feeding areas some distance from their nesting territories. In northwest Iowa, crayfish, snails, and aquatic insects such as dragonfly nymphs and waterbugs comprise most of the diet. When foraging, pied-bills swim slowly. They stare intently into the water and then dive in pursuit of their prey. They may also swim considerable distances (50 m or more) underwater searching for or pursuing prey organisms. Food items are usually brought to the surface to be ingested. Fish bones are dissolved by hydrochloric acid in the stomach of grebes, but the exoskeletons of crayfish and some aquatic insects are not digestible. This material is formed into a pellet in the gut and regurgitated periodically in much the same way as owls regurgitate the bones of mice or rabbits.

On cool, sunny days pied-bills may be seen resting quietly on the water, their backs turned toward the sun and their feathers fluffed out. These birds are sunning themselves, using the warmth of the sun to help maintain their body temperatures within the range that minimizes metabolic energy costs. Because of their small body size (large surface to volume ratio) pied-bills lose body heat rapidly, especially through their legs, to the much cooler water. Dark skin and feathers on the back help absorb the sun's rays.

Drainage of wetlands across the entire mid-continent region has reduced the critical breeding habitat of pied-billed grebes and many other marsh nesting birds. In Iowa, intensive land use for agriculture has resulted in a severe reduction of prairie marshes, ponds and shallow lakes. Pied-billed grebes, though locally common in Iowa, especially in the most recently glaciated north-central and northwestern areas of the state, are much less abundant than in pre-settlement times. Protection of remaining wetland resources is essential to the continued existence of the pied-billed grebe in Iowa.

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