

## Pied-billed Grebe, *Podilymbus podiceps*

**Status:**

*State:* Endangered

*Federal:* Not listed

### Identification

The pied-billed grebe is a small, brown, duck-like diving bird with a stocky body, thin neck, and relatively large head. The undertail coverts are white and the tail feathers are short and brown, making the grebe appear stubby and tail-less. The legs and lobed toes, which are situated far back on the body, are gray. The bill is thick and stout, enabling the grebe to crack open hard shells of mollusks and crustaceans. In



Photo by Dave Menke, courtesy US FWS

breeding plumage, the ivory-colored bill is encircled with a black ring and the throat is black. In non-breeding plumage, the throat is white and the bill is unmarked. The iris is dark reddish-brown and the eye is encircled by a thin white eye ring. Although males are slightly larger than females, the sexes are alike in appearance.

Young pied-billed grebes are downy and vividly marked with brown and white stripes on the head, neck, and body and rufous (reddish-brown) patches on the back of the head and behind the eye. The young have grayish-green legs and dark brown eyes. Juveniles resemble adults but may retain some brown and white streaking on the head and neck until October.

As denizens of aquatic habitats, pied-billed grebes spend nearly all their time on water. Leaping forward during headfirst dives, the grebe has been nicknamed “hell diver.” If threatened, a grebe may quickly dive or sink slowly into the water, emerging with only its head visible. The brown plumage of pied-billed grebes camouflages them among marsh vegetation.

Pied-billed grebes are well adapted for swimming underwater. Grebes are able to waterproof their feathers by preening them with secretions from the oil gland located at the base of the tail. Their eyes possess cone-dense retinas, an adaptation for locating prey underwater. Relatively solid bones and the ability to compress their feathers, releasing trapped air to reduce buoyancy, enables grebes to remain underwater longer. Their short, narrow wings aid in maneuverability when swimming and the location of the legs far back on the body facilitates underwater propulsion. Although the location of their legs makes them strong swimmers, it also renders grebes awkward on land. Before taking off in flight, grebes run along the water to gain speed.

The call of the pied-billed grebe, which is given primarily during the breeding season, is a ko-ko-cow-cow-cow-cowp-cowp, reminiscent of a yellow-billed cuckoo (*Coccyzus americanus*). Pied-billed grebes are extremely secretive during the breeding season and are much more likely to be heard than seen.

## Habitat

Pied-billed grebes nest in freshwater marshes associated with ponds, bogs, lakes, reservoirs, or slow-moving rivers. Breeding sites typically contain fairly deep open water at depths of 0.25 to 2.0 m (0.8 to 6.6 ft.) interspersed with submerged or floating aquatic vegetation and dense emergent vegetation. Vegetative species found at breeding sites include cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), arrow arum (*Peltandra virginica*), and phragmites (*Phragmites australis*). Marshes created by impoundments or through the industrious actions of beavers (*Castor canadensis*) may serve as nesting locales. Infrequently, pied-billed grebes nest in coastal estuaries that receive minimal tidal fluctuations.

Pied-billed grebes occupy a greater diversity of habitats during the nonbreeding season. Inland freshwater ponds, impoundments, lakes, rivers, brackish marshes, estuaries, inlets, and coastal bays may be inhabited. When freshwater freezes over, pied-billed grebes can be found in brackish marshes or tidal creeks.

## Status and Conservation

During the 1800s, the pied-billed grebe was a fairly common breeding species within suitable habitat in New Jersey. Market hunters harvested grebes as food and for their feathers, which were used to make earmuffs and hats. Consequently, by the late 1800s and early 1900s, grebe populations were greatly reduced. By 1940, there were only 12 known nesting sites in northern New Jersey. The large amount of land preserved and managed for waterfowl from the 1940s to the 1960s facilitated an increase in grebe populations. Despite the protection of wildlife refuges, many marshes continued to be drained and filled, resulting in a decline of nesting grebes in New Jersey since the 1970s.

Due to population declines resulting from habitat loss, the pied-billed grebe was listed as a threatened breeding species in New Jersey in 1979. Despite the grebe's protected status, its habitat continued to be destroyed and degraded, resulting in a further reduction in the number of breeding pied-billed grebes. In 1981, there were only two known breeding sites in the state: Kearny Marsh, which contained 16 pairs, and Pedricktown, which held one pair. Due to its dire status in the state, the pied-billed grebe was reclassified as an endangered species in 1984. The New Jersey Natural Heritage Program considers the pied-billed grebe to be "demonstrably secure globally," yet "critically imperiled in New Jersey" (Office of Natural Lands Management 1992). Due to declines in New Jersey, the pied-billed grebe was included on the National Audubon Society's Blue List of Imperiled Species as a local problem species in 1982. Concern for the pied-billed grebe is evident in other northeastern states, including New Hampshire, Massachusetts, and Connecticut, where it is listed as endangered.

### Limiting Factors and Threats

Habitat degradation and destruction resulting from the draining, dredging, filling, pollution, and siltation of wetlands are the greatest threats facing the pied-billed grebe population in New Jersey. The breeding habitat of these grebes--palustrine emergent wetlands, inland wetlands such as marshes and swamps without flowing water and less than 0.5 percent ocean-derived salinity--is one of the most threatened wetland types in the

United States (Tiner 1984). Changes in hydrology may render breeding sites unsuitable or may destroy nests through flooding. Contamination from roadway runoff, pesticides, and herbicides threaten pied-billed grebes and the aquatic organisms upon which they feed. Carbamates, agricultural pesticides that can be lethal to pied-billed grebes, may leach from farmlands into aquatic environments. Grebes are susceptible to oil toxicosis and may die if impacted by an oil spill.

Pied-billed grebes are sensitive to human disturbance, particularly during incubation. Intruders can cause the adults to spend a prolonged duration away from the nest, leaving the eggs vulnerable to weather and predators. Boating activity near nest sites can disturb breeding grebes and destroy nests through increased wave action.