

PIED-BILLED GREBE - PODILYMBUS PODICEPS

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Podicipediformes Family: Podicipedidae Genus: Podilymbus Species: P. podiceps

Habitat:

Biomes: Pied-billed Grebes live on bodies of flat or sluggish, fresh to slightly brackish water, at altitudes from sea level to about 8,000 feet. They forage in open water but construct their floating nests using materials and anchors of aquatic vegetation and/or dense stands of emergent vegetation—plants that root underwater with leaves and stems that extend into air. Habitat types include freshwater wetlands, wet fields, bays, sloughs, marshes, lakes, slow-moving rivers, and even sewage ponds. Pied-billed Grebes can nest in moderately to heavily populated areas. They occupy similar habitats during migration and winter.

Distribution:

In US: They are most commonly found throughout North America, Central America and South America year round. During the summer breeding season, they are most prevalent in central, northern and northeastern Canada. If they live in an area where the water freezes in the winter they will migrate. Migrating birds generally meet with year-round birds in September and October. They migrate at night. Most migratory birds leave in March or April. They make occasional appearances in Europe and Hawaii. In the United Kingdom, pied-billed grebe visits have numbered 37 sightings as of 2007, appearing generally in October to January. One bird in England bred with a little grebe, producing hybrid young. It is the only grebe on record to have visited the Galapagos Islands.

In Other Countries: Hawaiian Archipelago and Europe

Holistic Description: Part bird, part submarine, the Pied-billed Grebe is common across much of North America. These small brown birds have unusually thick bills that turn silver and black in summer. These expert divers inhabit sluggish rivers, freshwater marshes, lakes, and estuaries. They use their chunky bills to kill and eat large crustaceans along with a great variety of fish, amphibians, insects, and other invertebrates. Rarely seen in flight and often hidden amid vegetation, Pied-billed Grebes announce their presence with loud, far-reaching calls.

Species Richness: 3 SUBSPECIES

Population Dynamic: NONE

Evolution and Systematics:

Evolution: Fossils dating from early Pleistocene through sub-Recent middens reported from 29 localities from southern part of present range in U.S., and from Puerto Rico, central Mexico, and Brazil.

Systematics: Three subspecies recognized. (1) Podilymbus podiceps podiceps (Linnaeus, 1758): Throughout North America south to Panama and possibly the Bahamas. (2) P. p. antillarum Bangs, 1913: Resident and widespread in Greater and Lesser Antilles; differs from nominate form primarily in its (on average) 4.5-mm shorter wing (arc), but interisland variation has not been studied. (3) P. p. antarcticus (Lesson, 1842): Resident from Panama through South America, except tropical forest zones, to approximately 43°S; averages slightly larger in all measurements, and somewhat grayer and darker, than P. p. podiceps

Number of Species: 3 SUBSPECIES

Number of Genera: 3 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 11.8-15.0 in (30-38 cm) Weight: 8.9-20.0 oz (253-568 g)

Wingspan: 17.7-24.4 in (45-62 cm)

Coloration: These are brown birds, slightly darker above and more tawny-brown on the underparts. During spring and summer, the crown and nape are dark and the throat is black. While breeding, the bill is whitish with a black band ("pied"), but otherwise is yellow-brown. Juveniles have striped faces.

General Body Features: Small, chunky waterbird with a block head, short, thick bill, and almost no tail. Breeding birds have a vertical black stripe on the bill.

Special Features of the Body: The brown plumage or feather covering is one of the most basic adaptations of these birds, allowing them to camouflage themselves among marsh vegetation.

Special Features of the Head and Sensory Organs: The cone-dense retinas of their eyes mark for yet another interesting adaptation of these water birds. It allows them to locate prey underwater.

Dentition: Lamellae and Gizzard

Special Features of the Limbs and Digits: CHECK LOCOMOTION

Any Special Internal Anatomy: Pied billed grebes have a special oil gland often situated at the base of their tail. These birds preen their feathers with the secretion from the gland, thereby turning their feathers waterproof.

Sexual Dimorphisms: Sexes alike in plumage throughout year, but males larger overall, and often distinguished from females in the field by their larger, heavier bills (see Appendix 1) and greater amounts of white edging of black throat area.

Differences Between Juvenile Stage and Adult: Juvenile plumage is like Definitive Basic plumage on body, but some dark brown and white markings on side of head are retained until late winter. Bill dull orange-red and lacking black ring, usually with black marking along lower mandibular tomia.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Diurnal

Activity: Pied-billed Grebes forage in water among aquatic plants and beneath mats of floating vegetation. They usually dive for food, but occasionally pluck insects from foliage, the water's surface, or the air. They sometimes feed near moving herons and egrets. Pied-billed Grebes escape danger by "crash-diving"—plunging with head and tail raised above the belly, making a splash. They can also dive head first, or simply sink quietly out of view, leaving no trace. Parents dive with young clamped under their wings; occasionally a chick accidentally pops out. These grebes often avoid danger by submerging, crocodile-style, with just the eyes and nostrils above the surface. During breeding season, adult Pied-billed Grebes (especially males) chase and attack members of their own species as well as other waterbirds, often attacking from underwater. Courting adults raise their breasts partially out of the water, jerk their heads toward each other and perform pirouettes. In another courtship ceremony, one adult races along just beneath the surface, creating ripples that trace its underwater path. Pied-billed Grebes need a long running-flapping start to take off from water.

Locomotion: Like other grebes awkward on land because of posterior placement of feet. Runs with head drawn back, barely out in front of body. When chased, lifts wings slightly; ultimately flaps in attempt to take off. Like other grebes, needs long running start, flapping wings, before becoming airborne from water. Reluctant to take flight, preferring escape by diving. Water trapped in coiled barbs of contour feathers presumably increases specific gravity when bird is under water and, like structure of skin of cetaceans, may reduce turbulent flow when bird pursues prey under water (RWS). On surface, alternates strokes of feet. Underwater, either uses alternate strokes during slow searching or both feet simultaneously. Normally uses only feet underwater. During panic—under extreme conditions, in swift currents, or while making quick turns during intense foraging—may open and occasionally flap wings. Feet placed far back; considerable ability to rotate tibiotarsus allows grebes to move feet above, below, or level with body underwater. Hence can steer on propulsive strokes. Grebe feet show special adaptations for propulsion; 90° rotation of foot between power and recovery strokes is different from any other family of living birds. Toes are connected by webs to base of second joint; distal ends have asymmetrical lobes. Function of smaller inner lobes and larger outer lobes is similar to that of inner and outer vanes of primaries, facilitating automatic rotation and thus reducing drag on return stroke.

Communication and Perception: Pied-billed Grebes have an extremely variable vocal repertoire. Among the most commonly heard sounds are a long, loud, rhythmic series of bleating whoops, coos, and gulping kuk-kuk-kuk notes; also a rippling, chuckling chatter.

Home Range: Territories encompass platform, surrounding area with vegetation to anchor platform, and usually open water for foraging and escape. Territory used for some foraging; home range extensively used for foraging and self-maintenance.

Degree of Sociality: More social outside breeding season than when breeding, although resident birds may defend territory year-round; 200 individuals were observed in feeding flock on pond in nw. Iowa in Aug when young were fully feathered in same location where species breeds.

Level of Aggression: Aggressive encounters between Pied-billed Grebes occur throughout year among resident birds, most frequently during breeding season. Adults may chase conspecifics or other grebes (e.g., Horned Grebe) away from area without platform during winter. Occasionally birds in full Definitive Alternate plumage defend territory in Dec and Jan. No report of birds in full Definitive Basic plumage defending a territory. Birds in all plumages are chased.

Migration: Resident to short-distance migrant. Individuals in northern North America and the Great Plains, where bodies of water freeze, migrate south as far as northern Central America. Populations in the southern U.S. and Mexico do not migrate. Migrants tend to move at night, landing on the nearest body of water at dawn.

Predators:

Predators: Bald Eagle, Peregrine Falcon, Glaucous-winged Gull, Great Horned Owl, American Coot, Water Moccasin, American Alligator, Snapping Turtle, Norway Rat, Raccoons, Mink.

Anti-Predator Defenses: Pied-billed Grebe's habit of diving and surfacing with only eyes and nostrils protruding, often among vegetation, is well documented. Active distraction behavior by adult in reaction to humans approaching nests includes crash-diving (see Locomotion, above), feigning injury, vocalizing, and luring researcher away. In crash-dive, threatened bird

may kick water in direction of approaching Peregrine Falcon or human. May assume escape posture (see Agonistic behavior, above) to escape detection by predator. Adults may carry young away on their back. One report of chicks taking adult's tail in bill; adult dived and came up some distance away with young still clinging to its tail. One grebe parent lunged up at Glaucous-winged Gull flying off with grebe chick, but did not make contact; gull dropped chick, which survived.

Diet and Nutrition:

Adult Diet: Pied-billed Grebes eat mostly crustaceans (particularly crayfish) and small fish, which they capture and crush with their stout bills and strong jaws. Overall, these opportunistic feeders consume a great variety of prey items, large and small, depending on what's available. Collecting most of their food underwater during foraging dives, they eat crabs, shrimp, snails, mussels, beetles, dragonfly nymphs, and aquatic insects and their larvae. In some parts of their range, Pied-billed Grebes go after leeches, frogs and tadpoles. Among this grebe's most common fish prey are carp, minnows, catfish, sculpins, killifish, sticklebacks, gizzard shad, and sunfishes. Pied-billed Grebes in the fishless wetlands of Manitoba kill and eat tiger salamanders.

Juvenile Diet: Collects most food underwater during foraging dives. Forages in open water, among rooted aquatic plants, among emergent vegetation close to shore, and beneath mats of floating vegetation. Prey probably detected at close range. Occasionally picks flying insects off water surface, emergent vegetation, or platform, or may lunge after flying insect, catching it with bill.

Special Adaptations for Getting Prey: NONE

Reproduction:

Mode of Reproduction: Monogamous

Mating System: Monogamous, at least seasonally and perhaps through several seasons, but no study on individually marked birds has been carried out.

Mating Season: Mid-Feb to Mid-May

Courtship: Birds approach each other and assume upright posture (Figure 5D and E), stretch neck up, holding head horizontally and slightly back, black throat area distended, breast partially raised out of water; no rapid water-treading. Birds face each other; may give Greeting Call, then give single or repeated Head Jerks towards partner; head briskly turned toward partner, slowly returned to face forward, and jerked towards partner again at about 1/s, with short, mechanical-sounding Tshick-Tshick sound.

Territoriality: Highly territorial against other Pied-billed Grebes and other grebe species. Territories are established by single males or pairs. Single male may build platform and maintain it ≤ 3 wk. Single female may visit several territories. Sometimes pair builds nest in same spot where male previously built a platform. Singles may start defending territories up to 2 mo later than pairs that return together

Mating: NONE

Nesting: Pied-billed Grebes typically situate their nests among tall emergent vegetation; sometimes they nest among lower-growing plants. Both male and female may take part in selecting the site, favoring locations with water deeper than about 9 inches, which allows for escape, feeding, and nest platform construction. Like other grebes, the Pied-billed Grebe creates an open bowl nest on a platform of floating vegetation. The crude circular platform may be placed atop a lily leaf or built up from buoyant material, such as the stems of bulrushes and water lilies. Other added material may include Eurasian water-milfoil, sago pondweed, stonewort, cattails, and small sticks. Both sexes build the nest, and can construct a platform that will support an egg in as little as 1 day. Construction normally starts 3 to 5 days before egg-laying and continues during and after laying. The birds collect soft, flexible, fresh or partly decomposed plant material from beneath the water and clip off stiffer material near the surface. The nest bowl is 4–5 inches in diameter and about an inch deep, and may be expanded during egg-laying period to accommodate additional eggs.

Egg-Laying: Clutch Size: 2-10 eggs Number of Broods: 1-2 broods Egg Length: 1.5-2.0 in (3.8-5 cm) Egg Width: 1.1-1.3 in (2.7-3.2 cm) Incubation Period: 23-27 days Egg Description: Bluish white to greenish white, rarely turquoise, and unmarked.

Hatching and Incubation/Gestation: Downy and active, the chicks leave the nest soon after hatching and climb onto the adult's back where they are brooded during their first week of life.

Development: Chicks semi precocial and nidifugous. Behaviorally more like altricial species; will drown if too long in water. Can leave nest soon after hatching; chicks are carried on adult's back and brooded extensively during first week after hatching. Chicks move from nest bowl to adult's back <1 h after hatching, while still wet or after drying. Climb onto back of adult beside or over adult's tail. In the wild, chicks appear dry and fluffy after 1 h of brooding; in captivity, complete drying of feather sheaths takes ≤ 6 h.

Parental Care: Brooding, by either adult, begins immediately after hatching. Young are brooded on back under adult's wings on platform or water; brooding ceases after 3 wk. Parent forms pocket for chick by holding wings tightly to its body,

spreading secondaries, and lifting scapulars. Within 2 h after hatching, or as soon as chick climbs on adult's back. Continues until young is independent, 28–68 d after hatching. On first day, adult sometimes dabs feathers and insects in water before offering them to chicks. Both adults feed young. Food rarely passed between adults before feeding or taken by other adult after chick drops it. During brooding stage, one adult broods while the other forages and feeds young. Adult holds food in bill and moves bill toward chick's bill, and chick snatches the food from adult's bill.

Lifespan: Pied billed grebes have a lifespan of approximately 10 – 12 years.

Conservation:

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: Pied-billed Grebes are widespread and fairly common in most of the U.S. and southern Canada, and overall, populations were stable between 1966 and 2014, according to the North American Breeding Bird Survey. However, the North American Waterbird Conservation Plan rates the continental population a 12 out of 20 on the Continental Concern Score, and lists it as a Species of High Concern. Pied-billed Grebe is not on the 2014 State of the Birds Watch List. You should not have too much trouble finding these birds, particularly in summer on larger ponds and smaller lakes with ample emergent vegetation, such as cattails and bulrushes. Particularly watch the edges of emergent vegetation and look for roughly circular masses of floating, dead vegetation that might be Pied-billed Grebe nests. In winter, look for the species on larger water bodies where it often aggregates into small flocks. The distinctive very small body and comparatively large, blocky head is a good shape to look for. These birds spend a lot of time diving, so make several scans of a body of water before moving on.

Conservation Efforts: ^^^^

Extra Facts:

1. The Latin genus name for “grebe” means “feet at the buttocks”—an apt descriptor for these birds, whose feet are indeed located near their rear ends. This body plan, a common feature of many diving birds, helps grebes propel themselves through water. Lobed (not webbed) toes further assist with swimming. Pied-billed Grebes pay for their aquatic prowess on land, where they walk awkwardly.
2. Pied-billed Grebe chicks typically leave the nest the first day after hatching and spend much of their first week riding around on a parent’s back. They usually spend most of their first 3 weeks on or near the nest platform.
3. Pied-billed Grebes are fairly poor fliers and typically stay on the water—although rare individuals have managed to fly as far as the Hawaiian Islands, Europe, the Azores, and the Canary Islands.
4. Pied-billed Grebes can trap water in their feathers, giving them great control over their buoyancy. They can sink deeply or stay just at or below the surface, exposing as much or as little of the body as they wish. The water-trapping ability may also aid in the pursuit of prey by reducing drag in turbulent water.
5. Like other grebes, the Pied-billed Grebe eats large quantities of its own feathers. Feathers may at times fill up more than half of a grebe’s stomach, and they are sometimes fed to newly hatched chicks. The ingested plumage appears to form a sieve-like plug that prevents hard, potentially harmful prey parts from passing into the intestine, and it helps form indigestible items into pellets which they can regurgitate.
6. When in danger, Pied-billed Grebes sometimes make a dramatic “crash-dive” to get away. A crash-diving grebe pushes its body down with its wings thrust outward. Its tail and head disappears last, while the bird kicks water several feet into the air.
7. The longest-lived Pied-billed Grebe on record was at least 4 years, 7 months old and lived in California.

Notable Species:

1. P. p. podiceps, (Linnaeus, 1758), North America to Panama & Cuba.
2. P. p. antillarum, (Bangs, 1913), Greater & Lesser Antilles.
3. P. p. antarcticus, (Lesson, 1842), South America to central Chile & Argentina.