

GREEN HERON - BUTORIDES VIRESCENS

Taxonomy: Kingdom: Animalia Phylum: Chordata Class: Aves Order: Pelecaniformes Family: Ardeidae Genus: Butorides
Species: *B. virescens*

Habitat:

Biomes: Green Herons are common breeders in coastal and inland wetlands. They nest along swamps, marshes, lakes, ponds, impoundments, and other wet habitats with trees and shrubs to provide secluded nest sites. They may even nest in dry woods and orchards as long as there is water nearby for foraging. Green Herons spend the winter in southern coastal areas of their range, and in marine and freshwater habitat throughout Mexico and Central America. In tropical areas they are common in mangrove swamps.

Distribution:

In US: Green herons have a wide range in North America, but are generally found near wetlands. They occur as far north as southern Canada and as far south as northern South America. They are found throughout the eastern United States as far west as North Dakota and the Great Plains states, although some sedentary populations occur on the west coast. During the breeding season they are found primarily in the eastern United States, with some populations in the Pacific Northwest as well. Non-breeding individuals are found in Mexico and Central America, Texas, southern New Mexico and Arizona, and the Caribbean islands. Small vagrant populations winter in Hawaii and the United Kingdom. Some populations migrate and others are sedentary populations. Sedentary populations occur along the east and west coasts of the United States and Central America. Most populations in North America, however, are migratory. After breeding they disperse southwards, in mid-September. Spring migration occurs from March to April, an earlier arrival than most other herons.

In Other Countries: South America, Sub-Saharan Africa, Madagascar, Indian Ocean Islands, India, China, Japan, Southeast Asia, New Guinea, Australia, Pacific Ocean.

Holistic Description: From a distance, the Green Heron is a dark, stocky bird hunched on slender yellow legs at the water's edge, often hidden behind a tangle of leaves. Seen up close, it is a striking bird with a velvet-green back, rich chestnut body, and a dark cap often raised into a short crest. These small herons crouch patiently to surprise fish with a snatch of their daggerlike bill. They sometimes lure in fish using small items such as twigs or insects as bait.

Species Richness: 4 SUBSPECIES

Population Dynamic: CHECK THREATS

Evolution and Systematics:

Evolution: Closely related *Butorides validipes* from early Pleistocene of Florida. But *B. virescens* also from Pleistocene of Florida and California. Also from Native American kitchen middens about 500 yr old in California. Not clear that *B. virescens* has been distinguished or is separable from *B. striatus* in paleontological material. Amadon speculated that *B. virescens* may have reached North America from Asia, whereas *B. striatus* may have reached South America from Africa. But given related Pleistocene fossils and dispersal ability of these herons, historic distribution and dispersion patterns remain unclear.

Systematics: Oberholser recognized 18 subspecies, mostly island forms. Most of these, including patens in area of *B. virescens* - *B. striatus* overlap in Panama, no longer recognized. Four subspecies currently accepted.

Number of Species: 4 SUBSPECIES

Number of Genera: 4 SUBSPECIES

Physical Characteristics:

Size and Length: Length: 16.1-18.1 in (41-46 cm) Weight: 8.5 oz (240 g)

Wingspan: 25.2-26.8 in (64-68 cm)

Coloration: From a distance Green Herons look all dark. In better light they are deep green on the back with a rich chestnut breast and neck. The wings are dark gray. Juveniles are browner, with pale streaking on the neck and spots on the wings.

General Body Features: Compared with most herons, Green Herons are short and stocky, with relatively short legs and thick necks that are often drawn up against their bodies. They have broad, rounded wings and a long, daggerlike bill. They sometimes raise their crown feathers into a short crest.

Special Features of the Body: Green herons stand motionless in crouched positions with their necks retracted for long periods of time. They wait patiently, ready to lunge forward and capture any prey that may approach. Periodically the herons will alternate this with slow walking while maintaining their crouched posture.

Special Features of the Head and Sensory Organs: The Green heron's long and heavy bill helps it to catch and control large prey. They also have very acute vision, which helps them capture prey with a very low miss rate.

Dentition: BEAK/LAMELLAE/GIZZARD

Special Features of the Limbs and Digits: Green herons have long legs for wading in shallow waters. Some bird experts believe that the bright yellow and orange color of their legs help the herons to attract fish.

Any Special Internal Anatomy: NONE

Sexual Dimorphisms: Female adults tend to be smaller than males, and have duller and lighter plumage, particularly in the breeding season.

Differences Between Juvenile Stage and Adult: Juveniles are duller, with the head sides, neck and underparts streaked brown and white, tan-splotted back and wing coverts, and greenish-yellow legs and bill. Hatchlings are covered in down feathers, light grey above, and white on the belly.

Behavior:

Diurnal, Nocturnal, or Crepuscular: Feeds at any time; during day, crepuscular, also at night.

Activity: Each breeding season, Green Herons pair up with one mate apiece, performing courtship displays that include stretching their necks, snapping their bills, flying with exaggerated flaps, and calling loudly. They often nest solitarily, although they may join colonies with other Green Herons or with other species. They defend breeding areas from each other and from birds like crows and grackles that prey on their nests. Other predators include snakes and raccoons. Both the male and female brood and feed the chicks, which may stay with their parents for more than a month after leaving the nest, as they learn to forage. Green Herons protect their feeding areas by driving away other species, such as American Coots, that approach too closely.

Locomotion: Slow and deliberate when foraging; head and neck retracted or extended, sometimes tarsus practically on ground. Walks slowly or quickly over branches and roots, hopping from 1 to another. When walking, often erects and depresses crest and flips tail up and down. On ground, will often walk to shrub and jump to top before flying. Slow, steady wingbeat at 2.8 beats/s, or 3.8/s after being flushed. Resembles a tail-less crow; crows, when climbing, have similar wingbeat (2.7 beats/s). Normally flies with head retracted and legs extended beyond body, but often makes short flights with head and neck extended. Will swim after diving for prey. Web between middle and outer toes likely aids in swimming. One half-grown bird when placed in water swam gracefully 20 m, sitting erect "like a little swan".

Communication and Perception: Green Herons give a harsh, explosive skeow call that, once learned, is a distinctive sound of wetlands. They give it while perched, when flying, or when disturbed by an approaching predator. When disturbed at the nest they use a series of raspy clucks, kuk-kuk-kuk-kuk. They also give grating screams.

Home Range: CHECK TERRITORIALITY

Degree of Sociality: May nest in colonies with conspecifics or other colonial birds, generally somewhat apart from other species. Green Herons, although typically solitary foragers, foraged in New Jersey salt-marsh habitat with wide variety of waders, waterfowl, shorebirds, gulls, terns, raptors, and passerines.

Level of Aggression: On feeding grounds, will defend a food resource. A bird baiting fish with bread several times drove away American Coots (*Fulica americana*) with "threatening strokes of his long bill". During fights birds peck at each other's heads, flail with wings, stab from horizontal stance. Supplanting attacks, where attacking bird replaces other bird from perch, common during early nesting season. May attack and drive crows (*Corvus* spp.) away from eggs and nest, and usually intimidates grackles (*Quiscalus* spp.).

Migration: Resident to medium-distance migrant. Green Herons migrate north in late winter and early spring, usually at night and in large flocks. They head back south in late August through October. Eastern breeders migrate via Florida, the Gulf Coast, and the Caribbean, while western breeders head through Mexico. Those breeding in the interior of North America may take either an eastern or a western route. Florida and other southern states also appear to have resident populations. Green Herons tend to wander regionally right after breeding and before migrating, probably in pursuit of food.

Predators:

Predators: Snakes, Common Grackles, Fish Crows, Boat-Tailed Grackle, Raccoons, Broad-winged Hawk.

Anti-Predator Defenses: May respond to presence of predator by assuming "Bittern Stance" with bill held vertical. Can see with binocular vision across base of bill from this position. May be cryptic adaptation for reed-bed environment. During Bittern Stance, neck stretched upward, feathers sleeked, legs straight, eyes bulged, body motionless, except head may turn to follow predator. Reacts to warning calls of many birds, including at least 10 Ardeidae species, crows, blackbirds, and grackles, and assumes alert posture, Bittern Stance, or flies. After pair formation, aggressive toward all passerines, especially crows and grackles. Considered intermediate in sociality between solitary breeding *Botaurus* bitterns and highly colonial herons, e.g., *Nycticorax*.

Diet and Nutrition:

Adult Diet: Green Herons eat mainly small fish such as minnows, sunfish, catfish, pickerel, carp, perch, gobies, shad, silverside, eels, and goldfish. They also feeds on insects, spiders, crustaceans, snails, amphibians, reptiles, and rodents. They

hunt by standing still at the water's edge, in vegetation, or by walking slowly in shallow water. When a fish approaches, the heron lunges and darts its head, grasping (or sometimes spearing) the fish with its heavy bill. Occasionally Green Herons hunt in deeper water by plunging on prey from above. They hunt at all times of the day and night in the shallows of swamps, creeks, marshes, ditches, ponds, and mangroves. They usually forage among thick vegetation in water that is less than 4 inches deep, avoiding the deeper and more open areas frequented by longer-legged herons.

Juvenile Diet: Prey captured with darting stroke of head and neck, often with body lunge. When striking from horizontal, bird darts head and neck forward and down. Prey generally grasped with bill but may be speared

Special Adaptations for Getting Prey: Green herons are one of the few species of bird known to use tools. In particular, they commonly use bread crusts, insects, or other items as bait. The bait is dropped onto the surface of a body of water in order to lure fish. When a fish takes the bait, the green heron will then grab and eat the fish. When green herons catch large frogs, they will drown them before swallowing them whole.

Reproduction:

Mode of Reproduction: Monogamous

Mating System: All evidence, including high dispersion of nest sites, indicates seasonal monogamy. Given high degree of extra-pair mating in other colonial wading birds, information from marked birds or from biochemical studies would be desirable.

Mating Season: February-June

Courtship: Begins with Flying Around displays, which resemble normal flight but are oriented to breeding sites, and with skow advertising calls from song posts. Pursuit Flight and Circle Flight displays accompanied by skowing. Crooked Neck Flight displays with partially retraced kinked neck; these displays have hostile component. Flap Flight Display is highest intensity of flight displays, where male lurches through air with exaggerated flapping producing whom-whoom-whoom sound, neck crooked, legs dangling, skow ing, crest, neck, and scapular feathers erect, sometimes giving roo-roo calls before landing. Soft parts change color in breeding condition, with bills glossy black, lores blue-black, legs bright red-orange. Display flights interspersed with nonaerial displays such as Snap Display where male on perch points body, head, and extended neck below horizontal until bill tip at or below level of feet, crest and neck feathers slightly erect, and snaps mandibles together producing click . Variant includes bowing and bobbing movements. In Stretch display, male points bill straight up, stretches neck, and bends neck backward until head almost touches back, during which interscapular plumes are erect and fanned; then sways neck and head from side to side; crest, breast, and flank feathers sleeked, eyes bulge, and iris may change from yellow to deep orange; emits aaro-aaro sound. Male performs Stretch before female is permitted to enter nest. Female performs Stretch after male, but female Stretch less intense. Stretch is employed during nest construction and nest relief. After female first enters nest, male's skow ing and flight and Snap displays cease.

Territoriality: Defends feeding territories from conspecifics. In breeding season, song posts used to advertise territory, with most intense displays from old nest. These song posts mark courtship territories. In colonies and nesting aggregations, area defended around nest shrinks during nesting until, in some cases, only nest and immediately surrounding area are defended. Probably defends larger territories when nesting solitarily, but data needed.

Mating: Only on territory, usually on nest platform, and mostly during nest-building stage. First copulation usually on same day as pair formation. Before first copulation, birds engage in mutual bill-snapping and feather nibbling, but those behaviors reduced thereafter. Engage in Twig Passing and Stretch displays, some mutual, during copulation period. Typically, female in nest gives Stretch with back to male, who then mounts squatting female; both flap wings to maintain balance. Copulation lasts about 10 s (5-12); several hours between copulations. Copulations cease after last egg laid.

Nesting: The male selects a secluded site within his territory, usually in a large fork of a tree or bush, with overhanging branches to conceal the nest. Green Herons use many plant species as nest sites pines, oaks, willows, box elder, cedar, honey locust, hickory, sassafras, and mangroves. The nest is usually on or over the water, but may be up to a half-mile away. It may be anywhere from ground level to 30 feet off the ground (occasionally higher). The male begins building the nest before pairing up to breed, but afterward passes off most of the construction to his mate. As the male gathers long, thin sticks, the female shapes them into a nest 8-12 inches across, with a shallow depression averaging less than 2 inches deep. The nest varies from solid to flimsy, and has no lining. Green Herons sometimes renovate old nests, or build in old nests of Black-crowned Night-Herons or Snowy Egrets. Occasionally they take sticks from nearby old nests and refashion them into new nests. They keep adding sticks throughout the breeding season.

Egg-Laying: Clutch Size: 3-5 eggs Number of Broods: 1-2 broods Egg Length: 1.3-1.7 in (3.4-4.3 cm) Egg Width: 1.1-1.4 in (2.7-3.5 cm) Incubation Period: 19-21 days Nestling Period: 16-17 days Egg Description: Pale green to bluish.

Hatching and Incubation/Gestation: Mostly helpless, but with open eyes. Covered with grayish brown down on top and white down beneath. Semialtricial, with limited movement but eyes open. Average weight of 62 hatchlings before first meal 16.0 g.

At hatching, natal down wet and clinging but dry and fluffy in several hours. Down grayish brown forming crest on head, whiter on belly, less developed on wings.

Development: Weight of 1 chick: 11.5 g (hatching), 16.5 (day 2), 88.8 (day 7), 132.2 (day 14), 173.2 (day 21). Reach minimal adult mass of 160 g in about 2 wk.

Parental Care: Both adults brood chicks. Meyerriecks reported that adults brood almost constantly during week 1, after that spend progressively less time until brooding ceases by end of week 3. On hot days adult may shade young, standing with wings spread, especially at exposed nests. Adults utter cuck cuck calls as they approach to brood or feed chicks. Food delivered to chicks by both parents. Chicks give food-begging call, low-pitched tik-tik-tik-tik, from first day. First fed at age 1 d. Usually fed soon after nest relief. First few days, well-digested food regurgitated directly into chick's mouth or onto nest platform. At age 1 wk, chicks grasp parent's bill crosswise and take food directly. By 2-3 wk, both parents may feed chicks at same time.

Lifespan: Up to 4-7 years old.

Conservation:

Official Federal Status: Least Concern

Special Statuses in Individual States: NONE

Threats: Green Herons are still common, but their population suffered a gradual decline of over 1.5% per year from 1966 to 2014, resulting in a cumulative decline of 68%, according to the North American Breeding Bird Survey. The North American Waterbird Conservation Plan rates Green Heron as a Species of Low Concern, and rates it a 12 out of 20 on the Continental Concern Score. Green Heron is not listed on the 2014 State of the Birds Report. Declines have been recorded across most of the heron's range, with only California populations showing an increase in that time. Green Herons can be found throughout the year across the U.S. (with the exception of several mid-western states), Central and northern South America. A small percentage breeds in the southwest of Canada. In the past, people hunted Green Herons for food and controlled their numbers near fish hatcheries, where the herons were perceived as a threat to the fish. Today, their biggest threat is probably habitat loss through the draining or development of wetlands, although no one knows the extent of this impact because these herons are solitary and widely dispersed.

Conservation Efforts: ^^^^^^

Extra Facts:

1. The Green Heron is part of a complex of small herons that sometimes are considered one species. When lumped, they are called Green-backed Heron. When split, they are the Green Heron, the widespread Striated Heron, and the Galapagos Heron.
2. The Green Heron is one of the world's few tool-using bird species. It often creates fishing lures with bread crusts, insects, and feathers, dropping them on the surface of the water to entice small fish.
3. Green Herons usually hunt by wading in shallow water, but occasionally they dive for deep-water prey and need to swim back to shore—probably with help from the webs between their middle and outer toes. One juvenile heron was seen swimming gracefully for more than 60 feet, sitting upright “like a little swan,” according to one observer.
4. Like many herons, the Green Heron tends to wander outside of its breeding range after the nesting season is over. Most of the wanderers stay nearby as they search for good feeding habitat, but some travel long distances. Individuals have turned up as far away as England and France.
5. The oldest Green Heron on record was at least 7 years, 11 months old when it was found in Mexico in 1979. It had been banded in Oklahoma in 1971.

Notable Species:

1. *Butorides virescens anthonyi* (Mearns, 1895) - Breeds in the United States west of the Rocky Mountains, south to northern Baja California Peninsula, Mexico. Some resident, most migrate to western Mexico in winter.
2. *Butorides virescens bahamensis* (Brewster, 1888) - Bahamas. Resident.
3. *Butorides virescens frazari* (Brewster, 1888) - Southern Baja California Peninsula, Mexico. Resident.
4. *Butorides virescens virescens* (Linnaeus, 1758) - Breeds from southeastern Canada to central and southern US east of the Rocky Mountains. Winters from southernmost US to northern South America.