



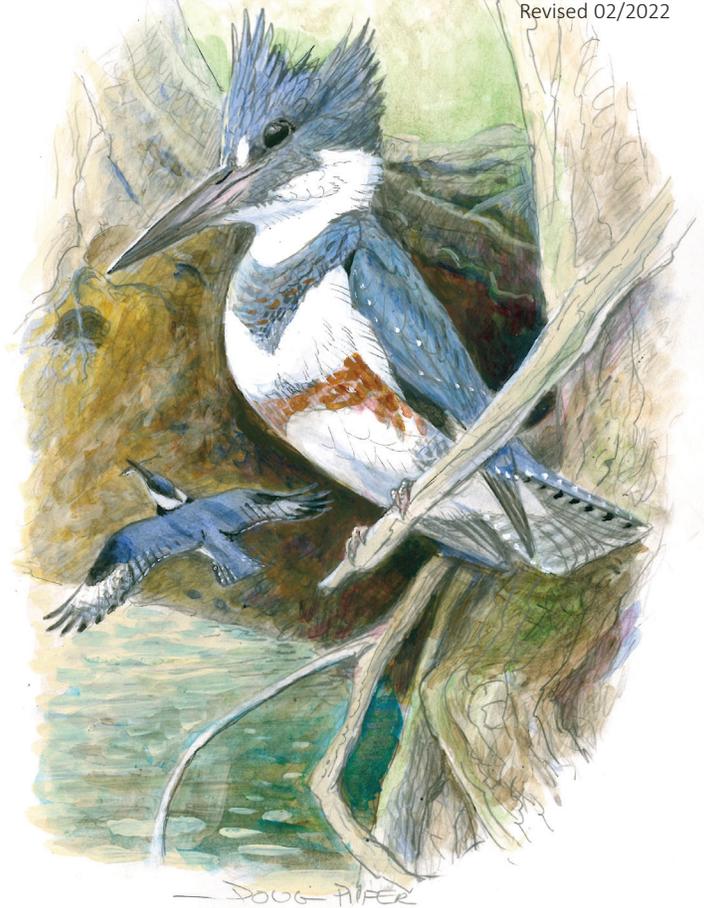
## Belted Kingfisher

Boaters who paddle down streams are sometimes startled by a kingfisher. The bird takes off from its perch, sounding an alarm call that rattles down the creek's corridor. It flashes downstream, two or three strokes of its blue-gray wings, then a short glide, then more wing-pumping, sometimes skimming so low that its wingtips seem to brush the water's surface. When the bird reaches the end of its territory, it quietly loops around. The belted kingfisher, *Megaceryle alcyon*, belongs to Family Alcedinidae. Of the three kingfisher species occurring in North America, only the belted kingfisher lives north of southern Texas. Six species of kingfishers live in North and South America, and a total of 93 inhabit the globe. There are many more kinds of kingfishers in Asia, Africa, and Australia than the Americas. Australia's laughing kookaburra is a well-known member of the family. In North America, the belted kingfisher breeds from Alaska to Labrador and south to Florida, Texas, and California. Some belted kingfishers winter in the lower 48 states particularly in the South and where water remains available in northern regions. Other belted kingfisher migrate further south through Mexico, Central America, the Caribbean Islands, and northern South America.

### Biology

A kingfisher has a stocky body and a large head with a ragged-looking double-pointed crest. The beak is sturdy and sharply pointed, the tail is short, and the feet appear to be absurdly small. Adults are 11 to 14 inches in length and weigh 5 to 6 ounces. The white neck ring and breast stand out against the blue-gray body plumage. The female has a belt of rusty feathers adorning her sides and breast, which the male lacks.

Kingfishers live along the banks of streams, rivers, and lakes, where they catch fish near the surface or in shallow water. They mainly take fish that are 4 or 5 inches long or shorter. Kingfishers hunt from perches—branches, utility wires, pilings, and bridge-supports—or hover above the water while scanning for prey. A kingfisher dives into the water with its eyes closed and uses its bill to grab its prey. After catching a fish, the bird flies back to its perch, stuns the fish by whacking it against the perch, and swallows it headfirst. Kingfishers take whatever types of fish inhabit a given waterway, from bullheads to sticklebacks to trout. When heavy rains make stream waters cloudy, kingfishers may turn to crayfish.



They also eat mollusks, insects, reptiles, amphibians, and the occasional small bird or mammal. After feeding, adult kingfishers regurgitate a small pellet composed of indigestible matter such as bones and fish scales. These expelled pellets may accumulate below a fishing or roosting perch.

People often hear these alert birds before seeing them. The rattle call is given freely, both as an alarm signal and during territorial disputes. Mated pairs use a softer version of the same call to communicate with each other. Kingfishers become active just before sunrise, when they forage and patrol their territories. They do most of their feeding between 7 a.m. and 10 a.m. and are less active during midday. At night they roost in trees. Kingfishers are solitary except when breeding. Both males and females defend individual territories, calling stridently and flying at and attacking intruding kingfishers. A territory may include 1,000 yards of stream or lake bank.

In spring, migrating kingfishers return to Pennsylvania as early as the first two weeks of March with a peak usually occurring from the first to third week of April (others may have stayed



through the winter, if streams did not freeze over). The male establishes and defends a breeding territory. Once a female is attracted and the two pair up, she also defends the territory. During courtship, the male feeds the female. After mating, the male, followed by the female, may soar and then dip close to the surface of the water. Most breeding activity occurs from early May to early June.

Kingfishers nest in burrows that they dig into steep earthen banks above streams, in road cuts, and in sand and gravel pits. Often the burrows are a few feet below the top of the bank, where topsoil gives way to sandier subsoil. Burrows are usually near or along the water, but occasionally they are a mile or farther away. Both birds excavate the burrow, a task that may take three days to two weeks. The tunnel is 3 to 4 inches in diameter, slopes upward, extends a yard or two into the bank, and ends in an unlined chamber 8 to 12 inches across and 6 to 7 inches high. Before entering, an adult will land on a convenient perch, give the rattle call, and fly straight into the burrow opening. To tell whether a burrow is in use, look for twin grooves on the outer lip made by the kingfishers' feet.

On the dirt floor of the nest chamber the female lays five to eight white eggs. Both sexes incubate the clutch, with the

female incubating at night. The eggs hatch after about 24 days. The young are altricial; they have pink flesh, and their eyes are shut. The female broods them continuously for three to four days after hatching. The adults regurgitate fish to the young. As the hatchlings grow and strengthen, the adults begin bringing them whole fish as frequently as once every 20 minutes. After defecating, the young use their bills to peck or scratch at the nest chamber's walls, so that dirt covers their waste. When the young reach two weeks old, they crawl from the nest chamber into the burrow. They leave the nest four weeks after hatching; the parents hold fish in their bills, sit on a nearby perch, and coax the young into flying from the entry. The adults feed the fledglings for about three weeks as the young learn how to take crayfish, aquatic insects, and fish. Parents may teach their offspring to dive by dropping insects into the water beneath the fledgling's perch.

Skunks, minks, raccoons, and black rat snakes kill some young in the nest. After they fledge, juveniles are vulnerable to hawks. Kingfishers escape from predators by diving into the water. Individuals breed during their first year after hatching. In the northern parts of its range, belted kingfisher raise one brood per year. After the mating season, pairs break up and individuals settle on and defend smaller territories. Autumn migration is not clearly defined as many belted kingfisher remain in Pennsylvania into mid-December. Most birds in the Northeast are partial migrants, able to survive winter temperatures if streams stay unfrozen so that the birds can find fish. When migrating, kingfishers tend to follow rivers, lake shores, and coastlines.

## Habitat

Kingfishers inhabit streams, rivers, ponds, lakes, and estuaries. Individual territories often center on stream riffles, which are good fishing spots. Kingfishers prefer open running water that is not turbid. On lakes they use sheltered coves and shallow bays. For nesting they require earthen banks where burrows can be excavated. During breeding, kingfishers are sensitive to disturbance by humans and may desert an area if bothered too frequently. In winter they resort to rocky coastlines, swamps, brackish lagoons, oxbows, bayous, and shores of rivers and reservoirs.

## Population

Pennsylvania is veined with streams, and kingfishers are widely distributed across the state. Breeding Bird Atlas projects found kingfishers to be absent from places such as southern Clearfield County and the surrounding areas, where acid mine drainage has polluted long sections of waterways. Good quality riparian habitat is very important to the belted kingfisher. It also requires steep dirt banks for nesting. Flooding and erosion of embankments destroy valuable nest sites. Biologists believe that breeding densities reflect the availability of suitable nesting sites.