



Wet & Wild May: Belted Kingfisher

Remember that happy camper song that began with the delightful phrase: [kookaburra](#) sits in the old gum tree? Well, that merry, merry bird of the Australian bush belongs to an extended family of birds called the kingfishers. There are about 120 species of kingfishers that live all over the world except for the polar regions. The kingfisher species that we see at Duke Farms is the [belted kingfisher](#) (*Megaceryle alcyon*). None of these birds actually laugh, but the wild rattling call of this New Jersey native will stop you in your tracks whenever you [hear](#) it. And you often hear it before you ever see the bird.



Female belted kingfisher eating her favorite meal. Note the rusty patch along her sides and "belt".

Like the name implies, the belted kingfisher lives near water with, you guessed it, lots of fish. The belted kingfisher is a year-round resident along rivers, streams, lakes, and estuaries throughout most of the United States. Every once in a while, you can spot a kingfisher far from water as they travel from one fishing hole to another. These birds perch on branches or telephone wires overhanging water and make reconnaissance flights along water corridors scanning for prey.

Fishing for a Living

Kingfishers that hunt in water spend an awful lot of time preening feathers. Because they spend so much time in water they coat their feathers with oil from a gland at the base of the tail called the *uropygial* gland. They also have extremely sharp vision in water with two kinds of photoreceptors in each eye. One is used to find prey while the bird is above the water. The second is called the fovea and is used to focus on fish while the bird is underwater. They are capable of compensating for the refraction of water and are able to judge depth under water accurately. They also have nictitating membranes that cover the eyes like goggles to protect their eyes when they hit the water.

This [diving](#) bird uses its dagger like bill to catch fish, frogs, crayfish, crustaceans, mollusks, insects, reptiles, and anything else it can catch. When it spots prey near the surface, it dive bombs off its perch, folds its wings to make itself into the shape of a streamlined arrow and plunges into the water. Sometimes it flies off its perch and hovers over the water before swooping in. Sometimes it spearfishes with its beak but more often snags a meal with open beak. In either case once it has a fish it then returns to its perch and stuns the prey by smacking it against the branch or perch before swallowing it headfirst. Without claws to tear apart its prey, stunning the fish helps to immobilize it so it can swallow the food whole. And using their beak to maneuver the fish so that it is headfirst before swallowing makes it easier to swallow. As nestlings, belted kingfishers digest the bones they swallow, but by the time they leave the nest they begin regurgitating pellets of fish skeletons and invertebrate shells.

Belted kingfishers are top heavy birds with a blocky head and short little legs. They give the impression that if not careful they will topple forward off their perches and face plant in the water. One of the most distinguishing features of both the male and female is their shaggy blue-gray crest on the top and back of the head. While both sexes are a powdery blue-gray this is one species



where the female is actually more colorful than the male. Both sexes have white underbellies and V-shaped blue-gray neck-bibs, but the female also has a broad [rust colored band](#) or “belt” across her midsection. Their beaks are thick, pointed and straight and their tails are banded gray and white.

Breeding and Nesting

Belted kingfishers are solitary birds until the breeding season and form new pairs every year. Males establish territories along shorelines, and they court the females by bringing them gifts of food. Both defend their territory by attacking and driving intruders away. If threatened, the birds may scream, ruffle their crests, spread their wings, and raise the patch of white feathers next to each eye. They fly back and forth along the water course and call with their frantic rattle to scare off all trespassers.



The male belted kingfisher is gray and white, one of the few birds less colorful than the female.

Belted kingfishers don't nest in trees but excavate burrows in the bare banks of rivers and streams instead. Kingfishers will sometimes nest among bank swallows along the same stream bank. Rough-winged swallows may attempt to nest in kingfisher burrows, but never with success. Kingfishers will fly in and out and scold continuously to drive the swallows away. If there are no suitable streambanks available, they will settle for a ditch, landfill, or sand pit far from water.

Kingfishers scout for a nest bank together during courtship. When they find a possible nest location, the male probes the bank with his bill and flies back and forth to the female seeking her approval. She sounds very opinionated as she calls to him continuously from a nearby perch. When they agree on a location, the male and the female both take turns digging out a burrow, but males spend about twice as much time digging their mates. Although kingfishers have short legs and small feet, they have a specialized long, flat toe and sharp, pointed claws that they use like shovels. It normally takes the birds anywhere from a week to 3 weeks to finish the job. They make a tunnel 3 to 6 feet long and slope it upward so that rainwater won't collect and flood the nest. The burrow ends in a chamber about a foot in diameter and 6 inches from floor to ceiling. The birds do not line the burrow with feathers or grass, but over the course of a season a layer of undigested fish bones, fish scales, and other detritus builds up in the burrow.



Kingfisher chicks viewing their world from their nest burrow. Photo credit: QDC News 2013

The female lays 5 to 8 eggs on the bare earth floor and both the male and female incubate them for



a little more than 3 weeks. The chicks are born naked and helpless with their eyes closed and stay in the nest for 3 to 8 weeks. In the beginning both parents feed them partially digested fish, later whole fish. These birds teach their young to fish by dropping dead prey into the water for the young to retrieve. When they fledge the parents only feed them for a short time before they are on their own. Eventually the pair will drive the offspring away from the territory and may raise another brood in one season. It's a curious fact that as nestlings, belted kingfishers have stomachs that are so acidic they can digest bones, fish scales, and crustacean shells. But by the time they fledge, their stomachs change, and they no longer digest the hard stuff. Once they leave the nest, they regurgitate pellets much like owls do.

The belted kingfisher is a thrill to see at Duke Farms. Look for them at the bridge by the South Gate just as you enter the park and by the waterfall on Duke's Brook. Of course, with 9 lakes and the Raritan River at their beck and call, the kingfisher can be spotted just about anywhere on the property. Keep your eyes and especially your ears open as you explore the park. Remember you often hear them before they come into view!

Activity: Test your Kingfisher Knowledge

Kingfishers really are masters at detecting and catching fish. Watch these two videos; one of the belted kingfisher and of the more colorful species found in Europe, the common kingfisher. Although they are two different species, all kingfishers that live in water have similar behaviors and hunting techniques. Pay close attention to what is happening in the videos and read the article again for additional information. Then test your knowledge.



Female kingfisher catches a big

- [Belted kingfisher video](#)
- [Common kingfisher video](#)

Q. What does the kingfisher eat?

A. Fish and aquatic organisms like frogs, crustaceans, mollusks, and insects.

Q. Why does the kingfisher spend so much time preening feathers?

A. To coat itself with oil to repel water and protect them.

Q. Where does the kingfisher get the oil from?

A. From a gland at the base of the tail, called the uropygial gland.

Q. What do they do when they catch a fish? Why do they do this?

A. Fly back to a perch and smack the fish on a hard surface to stun it and immobilize it.



Q. When they catch a fish, do they eat it whole or tear it into pieces?

A. They swallow it whole!

Q. After they catch a fish and stun it, they maneuver the fish with their dagger shaped beak. Do they turn the fish headfirst or tail first in their mouths? Why?

A. Headfirst - it makes it easier to slide down the throat as they swallow it whole.

Q. Does the adult tear the fish into small pieces to feed it to its young or feed it to them whole?

A. When the chicks are young, they're fed partially digested fish. Later, they feed them whole fish.

Q. When diving for fish, does the bird hit the water with its mouth open or closed?

A. Open, so it is ready to snag its prey without wasting a second.

Q. Kingfishers usually dive bomb into water to go after prey. In the belted kingfisher video, we see the bird flapping its wings in the air but not moving forward before it dives in. What is it doing?

A. Hovering to make sure it sees its prey clearly before striking.

Q. In the belted kingfisher video, is it a male or female that we see hunting? How can you tell?

A. Female. She has the rusty "belt" of feathers around her belly. The male only has gray and white.

Additional Resources

[All About Birds; Belted Kingfisher](#)

[Close up of male Belted kingfisher](#)

[Why females have a rusty belt](#)

[Life of the Belted Kingfisher](#)

[Read about the kingfisher family](#)

**All photos (except noted for the kingfisher chicks in their burrow) are courtesy of Macaulay Library, Cornell Laboratory of Ornithology, Ithaca NY.*