

## Species Profile...

### Bird Tails

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Bird tails are complex structures that give us clues about bird flight and bird behavior. Knowing the variety of tail patterns helps us identify birds. So let's talk bird tails.

A bird's tail consists of a tailbone, a set of flight feathers, and a layer of covering feathers at the base of the tail. The tailbone is a group of six fused vertebrae called the pygostyle, which supports the tail feathers. Rump muscles control both the pygostyle and the tail feathers.

What we normally see as a bird tail is actually the flight feathers of the tail. Scientifically, we refer to the tail's flight feathers as the rectrices (one feather is a retrix.) To keep things simple, I'll call the rectrices tail feathers.

Tail feathers are arranged in overlapping pairs. Beginning with the outer pair of tail feathers, each succeeding pair of tail feathers overlaps on top of the other. They open and close like the hand-held folding fan my grandmother used in church.

In the folded tail, the central pair of tail feathers lay on top, but even this pair may overlap and appear as one feather. The pattern of overlapping tail feathers makes the outer webs of tail feathers visible from the topside and the inner webs visible from the bottom side.

We number the tail feathers by counting outward both right and left from the central most pair of tail feathers. For instance, both the right central tail feather is number one and the left central feather is number one. We count outward to the outer right and left tail feather respectively. For example, the outer right and left tail feather of most songbirds is number six, meaning that songbirds typically have six pairs of tail feathers.

Hummingbirds have five pairs of tail feathers, ring-necked pheasants have nine pairs, and American white pelicans have 12 pairs. The gangly grove-billed ani in south Texas only has four pairs of tail feathers.

The tail serves a number of aerodynamic functions. It provides lift for a major portion of the bird's body because the wings are positioned slightly forward of the bird's center of gravity. It acts as a rudder to help steer the direction of a bird's flight, and it also helps the bird land, take off, and change altitude.

Watch a red-tailed hawk in flight. Notice how a slight twisting of the tail helps the hawk change directions, or how a fanning of the tail helps it soar. Observe how the hawk folds its tail into a narrow shaft to facilitate swift movement as it swoops down on a mouse.

Bird tails also provide support and balance. Woodpeckers use their stiff tail to brace themselves against a tree trunk. Brown



thrashers use their long tails for balance as they skulk through the lower branches of bushes and shrubs.

Birds with unusually long tails are adept at making quick turns in flight. The long, keel-shaped tail of the boat-tailed grackle enables the bird to dart right, left, up, and down as it flits around the cattails of the marsh. The long, forked-tail of the scissor-tailed flycatcher enables the bird to fly acrobatically with quick twists and turns over open fields to capture insects on the wing.

There are a variety of tail patterns in birds, from the small tail of a Carolina wren to the big tail of a wild turkey. Many aquatic birds like the pied-billed grebe have such a short tail that it's barely noticeable. Whatever the case, the size, shape, and pattern of the tail may be a clue to the identification of a bird.

Here are a few simple questions to answer when you look at a bird's tail. How long is the tail in relation to the bird's body? Is it longer, shorter, or about the same length as the body? What does the tip of the tail look like? Is it squared off, rounded, notched, pointed, or forked? Are there any patterns on the tail such as horizontal bands, distinctive light or dark colored edging on the outer tail feathers, or light colored spots on the tips of the tail?

As a rule, backyard songbirds have tail tips that are squared off, rounded, or notched. Both the tiny Carolina wren and the bulky blue jay have rounded tail tips. A pine warbler has a squared off tail. An American goldfinch has a slightly notched tail.

Notice that the blue jay has white spots on the tips of its tail feathers, and the pine warbler has white webbing down the length of the outer tail feathers. A northern mockingbird has dark central tail feathers and white outer tail feathers.

Look for contrasting color patterns on the tail coverts located at the base of the tail both above and below. For instance, the gray catbird has rust-colored tail coverts on the underside base of an otherwise gray tail. The loggerhead shrike often has white tail coverts above and below the base of a blackish tail that is edged with white outer tail feathers.

Many birds move their tails in a particular fashion while perched or foraging. An eastern phoebe flicks its tail up and down while perched, which is one of the ways to distinguish it from the similar eastern wood-pewee. The Carolina wren cocks its tail nearly straight up and often over its back.

Several male birds use their tail to display themselves during mating season or to give a warning signal. Think of a wild turkey tom with his imposing fan of iridescent tail feathers. Either he's trying to impress a female or warn the flock of a predator.

A few birds get their common names from the characteristics of their tails. Examples are long-tailed jaeger, red-tailed hawk, boat-tailed grackle, scissor-tailed flycatcher, band-tailed pigeon, and broad-tailed hummingbird.

Next time you look at a bird, study the tail. You'll find there's more to bird tails than I've told.

Gary Clark and Kathy Adams Clark - NPN 134  
[www.kathyadamsclark.com](http://www.kathyadamsclark.com)

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Gary Clark is a writer and professor. Kathy Adams Clark is a professional nature photographer who teaches photography and is on the Board of NANPA. They make their home in The Woodlands, Texas. Visit their web site at [www.kathyadamsclark.com](http://www.kathyadamsclark.com).

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