What Exactly Is a Bird Anyway?

BIRD Sleuth

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Pine Grosbeak

Everyone knows what a bird is … right? We see birds every day, we can find them everywhere, and we rarely confuse a bird with a fish, mammal, or reptile. It's true that birds are different from many other animals, but what exactly makes a bird a bird?

To understand what makes birds unique, consider first the important characteristics that birds have in common with other animals.

- Birds are **vertebrates**—which means they have a backbone, just like fish, amphibians, reptiles, and mammals.
- Like mammals, birds are "warm-blooded," or **endothermic**, meaning they can produce heat and regulate their own body temperature.
- Birds have a **four-chambered heart** similar to all mammals as well as some reptiles (like crocodiles and alligators).
- Like many other vertebrates, birds are **oviparous**—they reproduce by laying eggs that hatch outside the parent's body. But only reptiles, one small group of mammals, and birds produce eggs with a hard shell that allows the embryo to survive out of water.
- While birds share the **ability to fly** with other animals such as bats and many insects, the way that birds fly is unique.

Despite these important similarities between birds and other animals, what are some of the special characteristics that set birds apart from all other animals?

- Only birds possess **feathers**, perhaps the most obvious feature of birds.
- Only birds have **beaks**, which are toothless and covered with a horny sheath.
- Only birds have **light, air-filled bones**.
- Only birds have **wings** of reduced and fused forelimb bones.

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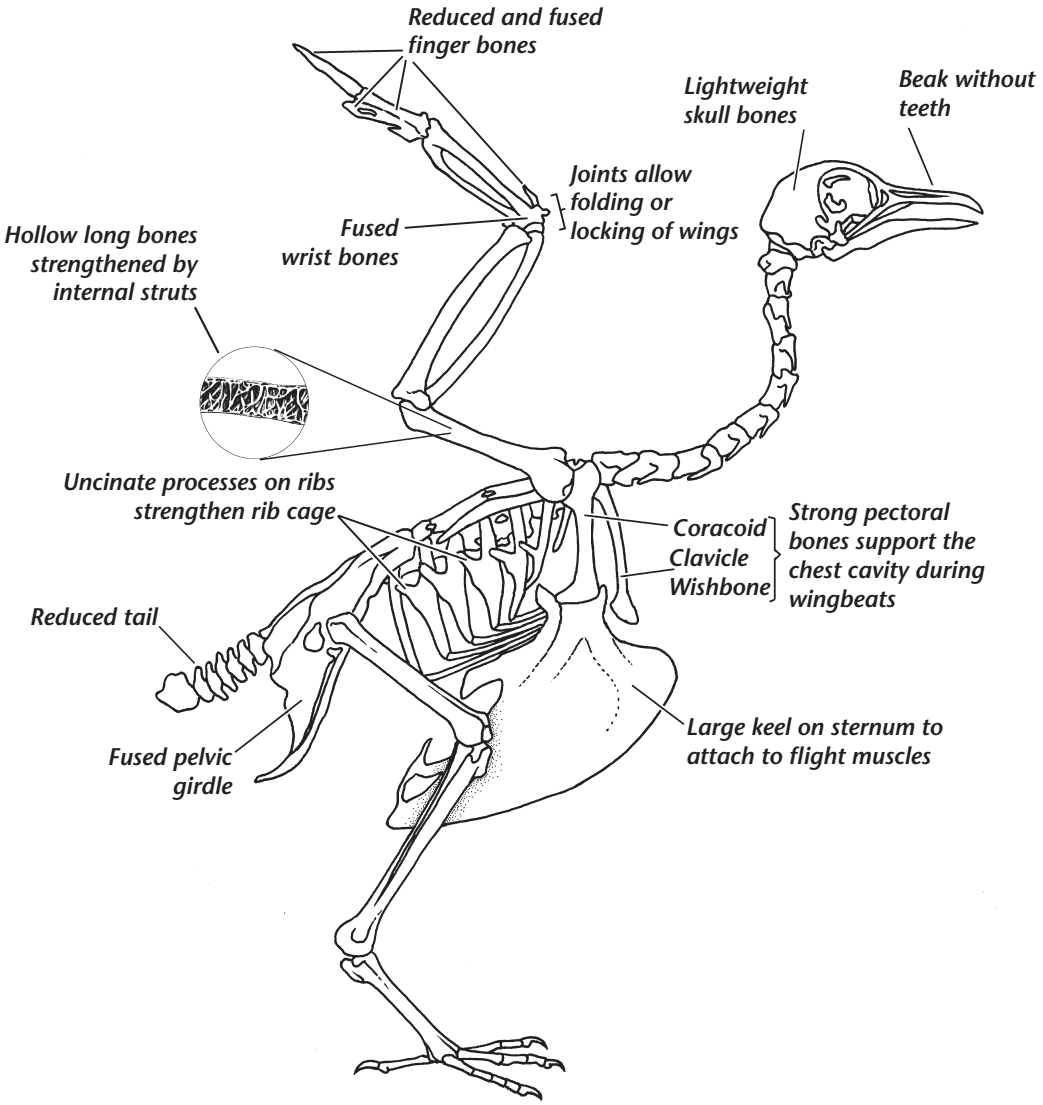

A bird skeleton and its adaptations for flight

The skeleton of a bird is strong but lightweight so the bird can fly. Notice that some bones are fused and reduced, and many bones are hollow. How does this skeleton compare to a human skeleton?

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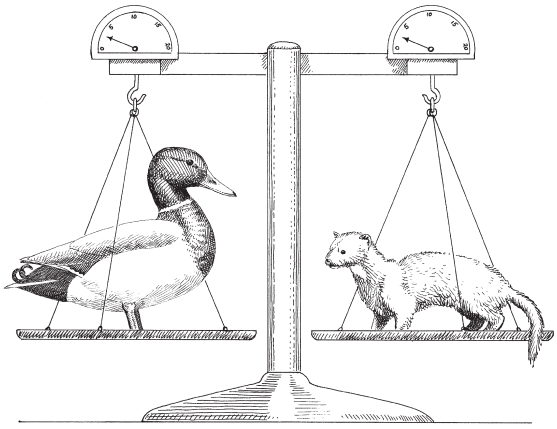
Differences Between Birds and Mammals

Body Part or Function	Birds	Mammals
Bones	light, air-filled bones	heavy, marrow-filled bones
Upper jaw	moveable	non-moveable
Sternum (wishbone)	large and all one piece	small and segmented
Bones	fused in both wings and legs	separate in both arms and legs
Breast muscles	massive (for flight)	small
Sense of smell	weak in most species	good in most species
External ear	none	large external ear
Voice	syrinx	vocal cords or larynx
Teeth	none	usually present
Stomach	two-part stomach in most species (one for grinding)	one-part stomach (no grinding portion)
Bladder	none	yes
Lay eggs	all do	almost none do

For more information see ***The Sibley Guide to Bird Life and Behavior***. 2001. Edited by Chris Elphick, John B. Dunning, Jr. and David Allen Sibley. National Audubon Society.



Even though a Mallard weighs about the same as a mink, it is much bigger because it has lightweight, air-filled bones.