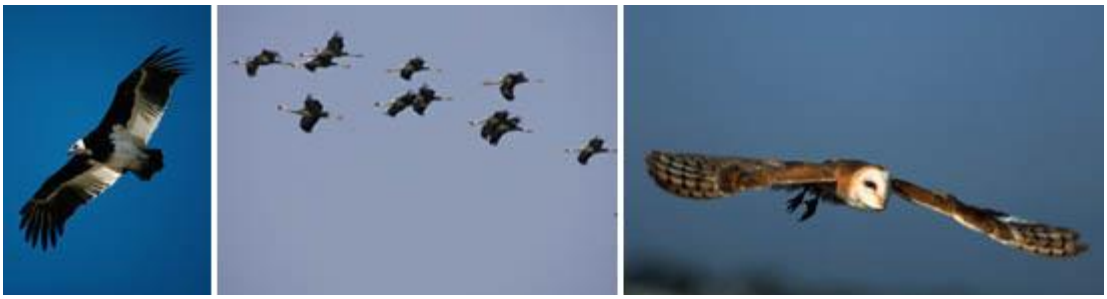

**How Do Birds Use their Feathers?** **https://askabiologist.asu.edu/content/23-functions-feathers**

Feathers make birds unique animals. How they are used by birds can be unique too. If you think to yourself, you can probably come up with maybe a half dozen to a dozen ways feathers are used by birds. To be sure, you will have missed a few feather functions. Let's go through 23 ways birds can use their feathers.



**Flying**

Flight feathers are very strong and stiff feathers that are found on the wings of birds.

**Help Keep Warm**

Downy feathers as well as semiplume feathers are able to trap pockets of air close to the bird's body to help keep it warm. How much body heat they keep can be adjusted by arranging their feathers to trap more or less air. If you see birds fluffing their feathers in the cold, that is their way of adding extra air to trap body heat and stay warmer.

**Control Body Temperature**

To keep body temperature steady, birds can either expose their heads and feet to the air or water to cool down, or tuck them into their feathers to help keep warm.

**Protect From Wind, Moisture, and Sun**

The strong and ridged contour feathers shield birds from wind. The tough material they are made from, beta-keratin, is water and wear resistant. Darker-colored feathers might also provide protection from the sun. Feathers also work to

keep water out, keeping birds dry in the rain. The interlocking feather barbs and a special coating that is either oily or waxy create a shield that water runs off of.

**Swimming and Diving**

Some birds use their half-spread out wings in a flying motion to swim in water. Penguins have developed their wings into stiff, flat flippers that make penguins great swimmers.

**Floating**

Using the trapped air in downy feathers, water birds like ducks can float on water as well as add protection from cold water.

**Snowshoeing**

One of the more unusual feather uses is snowshoeing. Grouse, chicken-like birds that live in snow-covered areas, have feather-covered feet in the winter that increase the size of the foot just like snowshoes. This keeps the birds from sinking into the snow.

**Tobogganing**

Why walk if you can slide, or in the case of penguins, toboggan. The Antarctic birds flop down on the smooth feathers of their bellies and use their flipper-like wings together with their feet to move themselves, toboggan-like, across snow and ice.

**Bracing**

When not flying, many birds use their tail feathers as supports when on the ground or climbing the sides of trees such as is seen with woodpeckers.

**Feeling**

Feathers do not have nerves, but they do stimulate nerves that surround where the feather attaches to the bird. Birds can adjust the position of their feathers and posture depending on the stimulation of those nerves.

**Hearing**

Some predators, especially owls, have their face feathers arranged like two dishes (facial discs) to collect and channel sounds into their ears so they can more accurately locate prey in the dark (parabolic reflector).


**Making Sounds**

We think of bird sounds either as songs or calls, but using their feathers, some birds are able to make many different sounds like humming, drumming, and whistling.

**Muffling Sounds**

Birds that hunt at night like owls are able to use their wings to muffle their own sounds as they approach their prey. You can think of them as an early stealth fighter plane.

**Foraging (Looking for Food)**

Some birds, like herons that hunt for fish in the water of lakes and streams, will sometimes use their feathers to form an umbrella over their heads. This might make it easier for them to see fish in the water.

**Helping to Keep a Steady Supply of Food**

Hummingbirds help to pollinate flowers when foraging for sweet nectar when the feathers around their heads pick up pollen from a flower. As they continue looking for more nectar, the pollen is then transferred to other flowers.

**Eating**

Special long feathers called rictal bristles are found around the mouths of some insect-eating birds. These may either act like a funnel to catch the insect in the air, or they may protect the eyes while catching an insect. Other birds use feathers on the side of their mouths to select fruits.



**Keeping Clean**

Some birds, like herons, have small feathers called powder down that they crush with their beak and feet to rub into the normal feathers and keep them conditioned. This powder down may also help control feather parasites like mites.

**Aiding Digestion**

Some fish-eating birds also eat their own feathers to line their digestive area. This helps to protect the bird from sharp fish bones.

**Constructing Nests**

Many birds (especially water birds) line their nests with bird feathers. This helps to keep their eggs warm and also provides a soft padding. Some birds like parakeets actually use the feathers located on their bottom and lower back to move grass and leaves to their nest.



**Transporting Water**

When raising eggs and baby chicks, many adult birds will soak the feathers on their belly before returning to the nest. They can then use the water to keep the eggs from drying out and to give their chicks a drink. Some birds that live in the desert (like the sandgrouse) have special belly feathers that are very good at holding water. This adaptation lets them nest further away from water holes, to avoid the higher numbers of predators found in areas near water holes.

**Escaping From Predators**

When birds are attacked or frightened they can drop some of their tail feathers. This is called fright molt. This sometimes helps the bird get away, leaving the attacker with only a mouth or foot full of feathers.

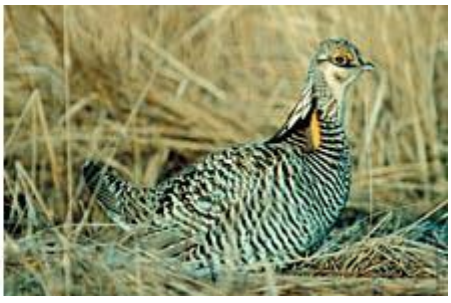
**Sending Visual Signals**

Feather colors and patterns are used to send signals to mates and rivals. This is likely the largest and most used function of feathers.

**Camouflage**

Sometimes bright colors are not good. To keep from being seen by predators, many birds have feathers that look like dead leaves or other parts of the surroundings they live in so that predators cannot see them. Some predators also like to blend in so that their prey may come closer, making the prey easier to catch.





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**References:** Stettenheim, Peter. What Feathers Do. Birder's World. June 2006: 25-34.