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Special Species

How Do Birds Fall Asleep? The Answer Might Surprise You

If you only knew the defense tactics birds use to get some sleep, you'd be amazed. Because contrary to popular belief, they don't usually sleep in their nests. And without this special equipment they'd be far more vulnerable to attacks, falls, and more.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- Songbirds, also called perching birds, have flexor tendons in their legs that force their toes to involuntarily clasp on a perch as soon as their ankles bend and their bodyweight presses down
- Only when their legs straighten will the tight clasp be broken, so a sleeping bird cannot physically “fall” from a branch
- Not all birds have this same ability to grasp branches. Some birds, like geese and ducks, have webbed feet, which makes them well-suited for sleeping on the water, away from land predators
- Some birds have also developed the ability to sleep with one eye open, which means one side of their brain falls into deep sleep while the other side remains alert and on the lookout for predators
- If you’d like to help support the birds in your area, consider providing a source of water and food in your backyard. You can also get more in touch with wildlife by taking up bird watching

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More than half of bird species are perching birds (known as passerines or songbirds). This includes about 5,500 species, including wrens, finches, sparrows, orioles, cardinals, starlings, and many others.

Part of what makes perching birds so fascinating is their ability to sing a song unique to their species. Some perching birds are born knowing their song while others actually learn them from their parents.

Equally intriguing, however, is the makeup of a perching bird’s feet. Aside from having the ability to fly, having feet that can grasp onto branches, reeds, grasses and even sheer cliffs and tree trunks is one of their best defenses against predators.

Contrary to popular belief, these birds do not sleep in their nests (which are reserved for laying eggs and raising chicks). Instead, they sleep (or roost) safely tucked away in dense vegetation, including trees and shrubs.

At dusk, a perching bird will choose a spot to roost for the night, often burying its bill and one leg up into its feathers. It will then roost comfortably in that spot until dawn, which makes many people wonder how they’re able to maintain such a pose without falling.

Perching Birds Can't Help but Perch

Perching birds' feet are quite literally made to perch. Each foot has four toes, three that face forward and one that faces backward (technically this is called an "anisodactyl arrangement"). While each toe moves independently, the backward facing toe is extremely strong, helping ensure a strong grip.[1]

Even more importantly, perching birds have flexor tendons in their legs that force their toes to involuntarily clasp on a perch as soon as their ankles bend and their bodyweight presses down, sometimes referred to as a "stay mechanism." Only when their legs straighten will the tight clasp be broken, so a sleeping bird cannot physically "fall" from a branch. Today I Found Out explains it well:[2]

> *"Powered by tendons, the feet of grasping birds (think perching birds and raptors) have a pair of them in the back, flexor digitorum longus and flexor halluciss longus, which are connected to deep flexor muscles in the leg. The digitorum branches and works the three toes in the front, while the hallucis works the back toe, known as the hallux.*
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> *Both stretch over the ankle, and when the bird lands and the ankle bends, this forces both tendons to automatically pull, thus clenching the toes closed. As long as the ankle is bent, the tendons and toes are locked into place. For perching birds, this results in a dependable grip that lasts even when sleeping."*

Where Do Non-Perching Birds Sleep?

Not all birds have this same ability to grasp branches. Some birds, like geese and ducks, have webbed feet, which makes them well-suited for sleeping on the water (away from land-based predators).

Woodpeckers tend to sleep in tree cavities while quail may sleep in low-lying vegetation. Others, like shorebirds, which can't sit in trees or on the water, typically sleep out on open beaches in large flocks for protection.[3]

In addition to being able to sleep high up in trees without falling out, some birds have developed the ability to sleep with one eye open, which is known as unihemispheric slow-wave sleep (USWS). Basically, they allow one side of their brain to fall into deep sleep while the other side remains alert and on the lookout for predators.

Even more intriguing, birds can choose when to use USWS and when to sleep fully — and some may even be half-asleep during flight. As Slate explained:

> *"Birds can turn USWS on and off depending on how safe their roost is: For example, when a large flock of ducks is roosting on an open lake, the birds in the safety of the center of the flock may shut down completely, while the more vulnerable birds at the edge of the flock may enter USWS to stay alert. What's more, scientists suspect that some birds use USWS to sleep while in flight."*

Many Perching Birds Are at Risk

Urban sprawl, industrial development, deforestation and the "intensification of farming" are putting many bird species at risk. What are now "common" birds, such as sparrows and starlings, may one day be gone if current trends continue.[4]

Research by the Audubon revealed that since 1967 the average population of some common songbirds has fallen by 68%, with certain species falling by 80%. And the 20 birds that make up their Common Birds in Decline List lost at least half of their populations in the last 40 years.[5]

Other widespread threats to birds include wind turbines, communications towers (which are involved in an estimated 6 million bird deaths annually[6]) and even domestic cats, making solutions complicated and varied. But one facet that most everyone agrees on is the importance of protecting such a valuable asset to humankind. Science Daily reported:[7]

> *"Richard Inger from the University of Exeter said: 'It is very worrying that the most common species of bird are declining rapidly because it is this group of birds that people benefit from the most.*
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> *It is becoming increasingly clear that interaction with the natural world and wildlife is central to human wellbeing and significant loss of common birds could be quite detrimental to human society.'*
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> *Birds provide multiple benefits to society. They help to control agricultural pests, are important dispersers of seeds, and scavenging species play a key role in the removal of carcasses from the environment.*
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> *In addition, for many people birds are the primary way in which they interact with wildlife, through listening to bird song, enjoying the sight of birds in their local environment, feeding garden birds and through the hobby of bird watching."*

If you'd like to help support the birds in your area, consider providing a source of water and food in your backyard. You can also get more in touch with wildlife by taking up bird watching, which is becoming an increasingly popular hobby in the U.S.

Sources and References

[1] ThoughtCo, January 3, 2019

[2] Today I Found Out, October 27, 2014

[3] Slate, January 23, 2014

[4,5] Audubon Common Birds in Decline

[6] National Geographic, June 21, 2013 (Archived)

[7] Science Daily, November 2, 2014