

# How chickadees thrive in the long, cold Alaska winters

by Todd Eskelin

As winter approaches, we realize that the chores around the house are not quite complete, and there is a mad rush to get things in order before the snow flies. The birds fly south, the berries ripen, the salmon fishers depart, and then it happens—the first snowfall. Just we hardy ones are left to enjoy the beautiful dark winters in Alaska.

Of all the creatures large and small that stay and brave the cold, the most impressive have to be the tiny songbirds that live here year-round. They have no warm house, no heated vehicles and little daylight for feeding. Yet, these fragile birds spend year after year surviving sometimes brutal winters, just to breed again next spring.

I was banding songbirds in Fairbanks one fall, and we caught a boreal chickadee that was already banded. We checked the records and found that Tom Pogson had banded the bird years earlier in Fairbanks. It was a new age record for this species. That chickadee had survived more than seven years from the time when it was first banded.

Living in Fairbanks, it had survived at least three cold snaps where the temperature fluctuated between minus 30 and minus 50 for three weeks at a time. There are many incredible cases like this where it seems unbelievable that birds could survive a single winter, and certainly not three such winters in their short lifespan.

How do they do it? There are several adaptations that allow them to make it through the cold periods. Due to the long dark periods, it is important that birds take in and store as much energy as possible for the long nights. They eat high calorie foods such as birch seeds. Chickadees are primarily insect eaters, so 60 to 70 percent of their daily diet consists of spiders and frozen caterpillars plucked from the underside of spruce boughs.

People often think the birds would not survive if we didn't provide them with a steady diet of tasty sunflower seeds. Actually, one study in Wisconsin found that even during the coldest periods, birdfeeders provided chickadees with no more than 25 percent of their daily energy requirements. Many northern species, such as common redpolls (but not chickadees), store

seeds in special pouches in their esophagus and consume the seeds during the night. Since chickadees are basically insect eaters and don't rely on this method, how do they do it?

A study of chickadees in New York found that they have a unique ability to reduce their body temperature during cold periods from the normal 107.6 to as low as 88. This requires less energy, so on cold nights they burn less fuel. (A similar 20-degree drop in body temperature will kill a human being.)

Heat loss is another important factor for our feathered friends. Many northern wintering birds compensate by having more feathers per square inch than their southern counterparts. Furthermore, birds do not have fleshy appendages like ears, tails and legs that can cause mammals problems in colder environments. Bird ears do not stick out, and they are covered with feathers to help maintain heat.

Bird legs are not fleshy, but consist of connective tissues and bones, so frostbite is not a common problem. Unlike mammals, many birds have veins and arteries adjacent to each other, so that the cooled blood in the veins is actually reheated by the warm blood in the arteries. As a last resort, many birds will shiver, which increases the amount of energy being burned by the muscles and helps produce heat.

When we get snow and cold weather this winter, take a second to watch the chickadees and redpolls coming to the birdfeeder. Ask yourself what your chances of survival would be if you were only given a jacket and some frozen food for the winter. These birds are truly amazing and enduring creatures for surviving Alaska winters.

And the next time you see the neighborhood chickadees sitting in the trees and not moving and looking really cold, don't worry—they are just chilling out!

*Todd Eskelin is a biological technician at the Kenai National Wildlife Refuge. He specializes in birds and has conducted research on songbirds in many areas of the state. For more information about the Refuge, visit the headquarters on Ski Hill Road in Soldotna, call 262-7021 or see the website at <http://www.fws.gov/refuge/kenai/>.*