



Earth Gauge

A National Environmental Education Foundation Program

## Winter Wildlife Adaptations

Animals have amazing ways of coping with winter weather changes – from migrating to new locations to lowering their own body temperatures. Read on for interesting information about just a few winter wildlife adaptations, and tips for your own backyard.



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### CHILLY CHIRPERS<sup>1</sup>

Northern U.S. residents are likely to see black-capped chickadees in their backyards throughout the winter months. These small birds have a black “cap” on their head and white cheeks. Amazingly, chickadees make it through harsh winter weather by going into “regulated hypothermia” – they can lower their body temperature 12 to 15 degrees below their normal daytime temperature to conserve energy during freezing nights.

**In Your Backyard:** When outside temperatures dip below ten degrees, scientists have found that chickadees benefit from supplemental foods. As a matter of fact, the survival rate of chickadees that had access to supplemental sunflower seed at feeders during harsh winters was almost double the survival rate of those birds depending only on wild foods! Add a feeder with sunflower seeds to your yard to give chickadees and other winter birds a boost.

### ICY INSECTS<sup>2,3</sup>

During winter, some insects stay active, while others go into a dormant state called “diapause.” Insects that go dormant can survive a broader range of temperatures – some as low as -94 degrees Fahrenheit! How do they do it?

- *Freeze-susceptible* insects have antifreeze substances in their bodies that protect them from extreme cold. One of the most common substances is ethylene glycol, the same compound found in antifreeze used in vehicles.
- In *freeze-tolerant* insects, fluids surrounding living cells actually freeze, protecting the insect from cold temperatures by forcing water out of living cells, which lowers their freezing point.



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Many factors affect insect survival over the winter – smaller insects, such as ants, can survive lower temperatures than larger insects, such as grasshoppers. Dehydration can help some insects, such as houseflies, survive lower temperatures, and an empty gut can also help some insects survive. In some species, certain life-stages (such as an egg) can survive lower temperatures more successfully than others (such as an adult). The length and intensity of cold spells also helps to determine insect survival.

**In Your Backyard:** Seasonal patterns can help with predictions about spring pest populations. A mild winter might result in earlier arrival of green peach aphids, which can attack vegetables in your garden; a harsh winter can kill some grasshopper species.

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## FREEZIN' FROGS<sup>4</sup>

Many frogs survive the winter by burrowing into mud and debris at the bottom of ponds; bullfrogs and green frogs may sit in mud and debris, but not actually bury themselves. Wintering frogs can look like they are dead underwater – appearing mushy and the color of rotting leaves – but they actually breathe through their skin, very slowly. Terrestrial frogs (frogs that live on land) ride out the winter by hibernating between cracks in rocks, in logs, or under leaf litter.



**In Your Backyard:** If you have a pond in your yard, give resident frogs a hand by leaving some leaves and debris at the bottom of the pond. Also, make sure the water doesn't completely freeze over – much like fish, frogs can die from lack of oxygen if a pond completely freezes. Pond owners can keep a hole in the ice by using a deicer, aerator, or waterfall. Terrestrial frogs will benefit from piles of rocks, fallen logs, or leaves left in your yard.



## MEANDERING MARINE MAMMALS<sup>5,6,7</sup>

We often think about how land animals survive the winter, but what about marine animals? Manatees – despite their hefty appearance – have only about an inch of fat to insulate them from cold water temperatures, meaning that they can die of hypothermia when water temperatures dip below 68 degrees Fahrenheit. During the summer, manatees can be found from the Texas coast to the Carolinas, but they head to Florida's Gulf Coast for the winter. Crystal River National Wildlife Refuge (about 75 miles north of St. Petersburg, FL) is a choice wintering spot, providing warm water that is fed by springs and plenty of food. The Crystal River area provides habitat for about 25 percent of the U.S. manatee population, which is endangered.

On the other side of the country, Gray Whales migrate from their feeding grounds in the Bering Sea and Arctic Ocean to wintering grounds off the Baja California coast in December and January, passing along the Pacific coast. At this time of year, it's estimated that up to half of migrating females are pregnant; many others will become pregnant shortly. The whales spend a few months in their calving grounds, then head north again in March.

**In Your Backyard:** Marine mammals are threatened by water pollution, which can harm the animals directly or degrade the habitats they depend on. You can help protect water quality by properly disposing of all household hazardous wastes – paints, antifreeze, motor oil, and other chemicals – by taking them to a collection facility for recycling or safe disposal. Never dump any chemicals outdoors or in a storm drain, where they can be transported directly to local rivers, streams, and eventually the ocean during the next rain. Visit [www.cleanup.org](http://www.cleanup.org) or call 1-800-CLEANUP to find a collection site in your community.

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### Sources

<sup>1</sup>Harrison, George H. "Backyard Birding: How Chickadees Weather Winter." National Wildlife Magazine, Dec/Jan 2008. Vol 46(1). [www.nwf.org/nationalwildlife/article.cfm?issueID=119&articleID=1546](http://www.nwf.org/nationalwildlife/article.cfm?issueID=119&articleID=1546)

<sup>2</sup>Ennis, B. "Winter Survival Strategies of Insects." Colorado State University Cooperative Extension Service, Horticulture. [www.coopext.colostate.edu/4dmg/Pests/winter.htm](http://www.coopext.colostate.edu/4dmg/Pests/winter.htm).

<sup>3</sup>University of Florida Institute of Food and Agricultural Studies and Florida Department of Agriculture and Consumer Services. "Featured Creatures: Green Peach Aphid." [creatures.ifas.ufl.edu/veg/aphid/green\\_peach\\_aphid.htm](http://creatures.ifas.ufl.edu/veg/aphid/green_peach_aphid.htm)

<sup>4</sup>National Wildlife Federation's FrogWatch USA Program: Helping Frogs and Toads to Overwinter. [www.nwf.org/frogwatchusa/](http://www.nwf.org/frogwatchusa/).

<sup>5</sup>Stewart, Doug. "Where to See Animals on the Move." National Wildlife Magazine, Oct/Nov 2005. Vol 42(6). [www.nwf.org/nationalwildlife/printerFriendly.cfm?issueID=70&articleID=988](http://www.nwf.org/nationalwildlife/printerFriendly.cfm?issueID=70&articleID=988)

<sup>6</sup>U.S. Fish and Wildlife Service. Crystal River National Wildlife Refuge. [www.fws.gov/crystalriver/](http://www.fws.gov/crystalriver/)

<sup>7</sup>U.S. Fish and Wildlife Service, Northwest Florida Field Office. "Manatee Recovery Facts." [www.fws.gov/northflorida/Manatee/manatee-gen-facts.htm](http://www.fws.gov/northflorida/Manatee/manatee-gen-facts.htm)