

Winter Strategies for Wildlife

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In northern latitudes, wild animals have different strategies for survival. They may migrate to avoid cold temperatures or hibernate. Others stay active during the winter and may have stored up fat or stores of food. Here's what happens to some of our most common wildlife species.

Bird Migration

Many birds avoid cold weather by migrating long distances. Migration typically occurs during the fall, but, some species start moving south in July. Others wait until the onset of cold temperatures of winter forces them to leave or until food becomes unavailable.

Most birds are active during the day, so it's interesting many bird species migrate at night. Night migrants include most of the smaller birds, like sparrows, orioles, vireos and thrushes. It has been suggested they migrate to avoid predators, but the real reason probably has to do with feeding behavior. These birds cannot feed at night. To replace energy required for the long flight, these birds stop to feed and rest during the day. This may explain why people with bird feeders see unexpected birds for a day or two and then they disappear.

Hibernation

Hibernation is one way animals survive winter by "sleeping." They do this because there isn't enough food during the winter. This sleep isn't what we humans experience. During hibernation, an animal's body temperature drops very low so it almost matches the temperature outside. The animal's heartbeat and breathing slow down too, which slows down metabolism and reduce energy needs.

Animals prepare for hibernation by eating more food than usual in the

summer and fall. Their body fat will be used as energy as they sleep. Most animals hibernate in secluded nests, dens or burrows which helps them avoid predators. Some animals that hibernate include:

Thirteen-lined Ground Squirrels. Like most other ground squirrels, Nebraska's 13-lined ground squirrel is a true hibernator. The animals begin hibernation in September or early October and emerge between late March and early May. They are able to lower their heart and metabolic rates and reducing their body temperatures to just above freezing. Medical scientists are currently studying this amazing animal. The results may help scientists learn how to keep vital human organs viable longer for use in organ transplants.

Woodchucks (also called Ground Hogs or Marmosets). Woodchucks also hibernate. Hibernation generally starts in late fall, near the end of October or early November, and continues until late February and March.

Raccoons. Raccoons do not truly hibernate, but "hole up" in dens and become inactive during severe winter weather. Several raccoons may use the same dens during winter storms. Depending on the weather, raccoons may be inactive for several weeks or even months. Raccoons may lose up to half their fall body weight during winter.

Snakes and turtles. The body temperature of cold-blooded animals like snakes and turtles is the same as the surrounding environment. They must hibernate to avoid freezing temperatures. (The accurate term for reptile hibernation is brumation.) To prepare for dormancy, they feed heavily during the late summer and increase body fat.

Some species of turtles spend most of their lives in or near water. When the



Thirteen-lined ground squirrel



Painted turtle



Opossum

turtles get ready for winter, they swim to the bottom of a pond and snuggle down into the mud. Their heartbeat slows and they stop breathing. But, they get a small amount of oxygen into their body from the water. It sinks into specialized skin cells just inside the tail opening. Water turtles can stay submerged in mud for two or three months.

Snakes search for caves, holes in the ground or cracks in rocks to sleep in. This is why some snakes also find their way into basements and crawlspaces if there are cracks they can squeeze through.

Garter snakes are interesting because they may travel two miles or more to travel back to where they were "born." They hibernate in large masses—hundreds of snakes gathering in the same hibernaculum, spending the winter together and breeding in the springtime.

Non-Hibernating Animals

Animals and birds active during the winter either store food during the summer and fall or have a ready supply of food available.

Tree Squirrels. Unlike ground squirrels, tree squirrels do not hibernate. They den up in nests and openings for several days at a time during severe winter weather.

Opossums. In fall and winter, opossums devote almost twice as much time to feeding and improving their nests as they do the rest of the year. Opossums do not hibernate, but may den up

during cold or snowy periods. They add a layer of fat, but do not grow a winter pelt and their fur is a poor insulator. During severe cold, opossums lose the tips of their ears and tails to frostbite. An opossum is primarily nocturnal (active at night) but may become diurnal (active during daylight hours) during cold weather. To survive, opossums must continue to look for food on a regular basis.

Muskrats. Do not hibernate but remain active throughout winter, food must be readily accessible even under ice and snow. The four foot thick walls of muskrat homes help protect the animals from winter cold, but muskrats must also have at least 3 feet of water to survive winters since they are virtually entombed under a layer of ice.

House Mouse. Because the house mouse cannot hibernate, it must remain active throughout the winter. When it's cold, mice must feed constantly to maintain their body temperatures. This is the reason why mice are drawn to outbuildings, barns and houses in the fall of the year. Once inside, mice seek out warm locations, like furnaces, heaters and

appliances that give off heat (refrigerators, ovens and dishwashers).

Other animals active in winter include moles, voles, shrews, pocket gophers, weasels and rabbits.



House mouse

Where Do Insects Go in the Winter?

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Insects have a variety of methods for surviving the coldness of winter.

Migration is one strategy for escaping killing temperatures. The monarch butterfly is the most famous example, but other insects migrate into northern areas from the southern states in the spring. Monarchs migrating in the fall have just emerged from the pupae; monarchs migrating in the spring are the second or third generation of those that overwintered in the south. It's still a mystery how these insects know their migratory route.

Overwintering as **larvae.** Many

insects successfully pass the winter as immature larvae. Leaf litter and similar shelters protect the woolly bear caterpillar. Larvae may replace the water in their bodies with glycerol, a type of antifreeze. Some grubs burrow deeper into the soil to escape the cold.

Overwintering as **nymphs.** Not many insects are active in the winter, but the nymphs of dragonflies, mayflies and stoneflies live in waters of ponds and streams, often beneath ice. They feed actively and grow all winter to emerge as adults in early spring.

Overwintering as **eggs.** Fewer numbers of insects lay eggs which survive the winter. Praying mantids, grasshoppers and crickets are well-known insects in this category. Corn rootworms, a pest of

corn, also overwinter as eggs.

Overwintering as **pupae.** Some insects overwinter in the pupal stage, then emerge as adults in the spring. Many butterflies and moths overwinter as pupae.

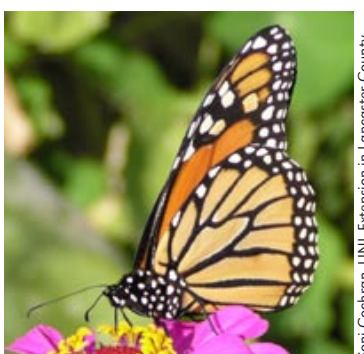
Overwintering as **adults.** There are many examples of insects which hibernate as adults. Lady bird beetles congregate in masses to overwinter. Many species of hemipterans, the true bugs, overwinter as adults. Well-known examples include boxelder bugs, conifer seed bugs and chinch bugs. Many large wasps seek shelter in the eaves and attics of houses or barns.

Cracks and crevices around houses, tree holes, leaf litter and under logs and rocks are common shelters for overwin-

tering adult insects. As in some insect larvae, adults reduce the water content of cells and increase glycerol concentrations which prevents damage to cells from freezing.

Honey bees survive the winter by keeping temperatures constant inside the hive. The honey they have stored from the previous summer (about 30 pounds per hive) is consumed to keep them active. Worker bees fan their wings to circulate heat throughout the hive.

In general, insects survive cold temperatures best when the temperatures are stable and do not fluctuate through alternate thaws and freezes. Snow is good for overwintering insects because it insulates the ground and keeps temperatures more constant.



Monarchs migrate south for winters.



Wireworms survive winters in their larvae stage.



Grasshopper eggs overwinter in the ground. Shown is egg case broken apart to show individual eggs.



Many butterflies and moths overwinter as pupae. Shown is cecropia moth cocoon opened to show pupae.



Boxelder bugs survive winters in adult form.