

How do Animals Survive our Cold Nebraska Temperatures?

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There are two problems animals have trying to survive wintertime in Nebraska and other northern states. The first is cold temperatures may freeze or stress animals and kill them. The other problem with winter is food resources for many animals become scarce or nonexistent. Animals that overwinter in northern states have evolved adaptations to help them survive cold temperatures and insufficient food. Mammals and birds are warm-blooded and are equipped with hair/fur that helps insulate them from freezing conditions allowing many to overwinter successfully. To maintain a constant body temperature means warm-blooded animals must eat more or use fat reserves they have built up.

Because food resources are scarce, herbivores like rabbits and deer, can do serious damage to trees and shrubs during the

squirrels chew buds of trees, twigs, and can mutilate trees and shrubs.

Many animals try to find or construct a sheltered place to spend the cold winter months. This movement into sheltered



locations is why mice move into outbuildings and houses in the fall of the year. Squirrels look for shelter in hollow trees, build a den (a nest made from leaves), or chew their way into attics.

Many cold-blooded animals also seek sheltered places to prevent severe freezing. In the fall of the year, boxelder bugs crawl into cracks and crevices around window and door frames and under bark. These locations provide just enough shelter to help them survive through the winter. Face flies and cluster flies also overwinter in cracks and

crevices and "come alive" during periods of warm winter temperatures. These are just a few of the nuisance insect pests that are all trying to survive our winter temperatures.

Hibernation is another survival adaptation some animals use. Hibernating

animals develop fat reserves during warmer months when food is plenty and seek a sheltered, safe location when temperatures become cold. They lower their body temperatures to reduce the metabolic demand and live off stored fat. Studies have shown, in addition to living off fat reserves, hibernating bears maintain muscle mass and healthy bones by recycling body waste products that normally would be excreted.

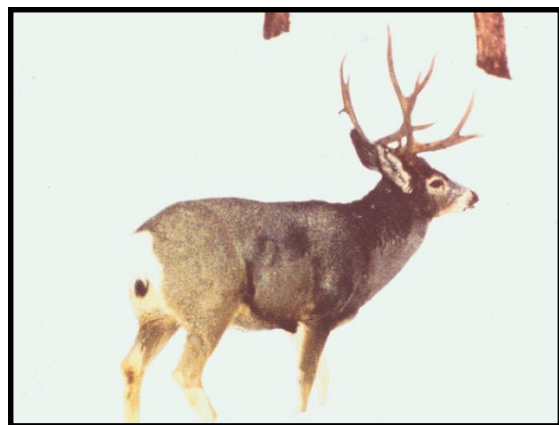
Some animals, especially birds, that cannot acclimate to the cold Nebraska winters, migrate to the southern U.S. or even Central or South America. Why do some birds stay here and others fly south? Those that migrate are often insectivores and cannot find sufficient food during the wintertime. Birds that overwinter in Nebraska are often seed eaters, predators, or omnivores that eat a variety of foods.

Insects have also evolved some mechanisms to cope with our cold temperatures and seem to survive freezing temperatures quite well. How do they do this? As temperatures get colder, insects produce glycerol, which prevents ice crystals from forming in their cells. Glycerol serves as a natural antifreeze.

Bees survive cold temperatures differently than other insects. They remain active in their hive, keeping it a constant temperature—a behavior essential for their survival. How do they do this?

As temperatures get colder, colonies of honeybees form a dense cluster and generate heat. As the bees on the outside of the cluster become too cold to move, the warmer bees on the inside of the cluster move to the outside and push the cold bees into the cluster where they will warm up

See COLD on page 11



wintertime. Some animals seem to be smarter and plan ahead better. For example, squirrels have developed the behavior to gather nuts over and above their dietary needs in the fall, bury them and then dig them up as needed. But, in the late winter when their cache of nuts is gone,

Environmental Focus



Firebrat Frustration

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Lots of folks are familiar with silverfish. These carrot-shaped nocturnal insects are small, gray to greenish in color with a metallic sheen. Many people first encounter silverfish when they find them in the morning in the bathtub or sink where they have fallen and cannot climb out. Silverfish have a close affinity for areas of high humidity and may be attracted to bathrooms and kitchens because of water sources in these rooms.

Firebrats are closely related to silverfish and have a very similar body shape. Instead of being silvery metallic, they are mottled gray to brown with patches of dark and light colors. Their name probably comes from the fact they are found in furnace rooms, fireplaces, insulation around hot-water and heat pipes, and other warm places. We are hearing about firebrat infestations in attics. Firebrats prefer temperatures around 100 degrees F—warmer than optimal temperatures for silverfish.

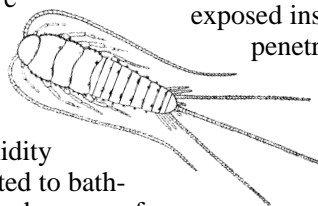
Both silverfish and firebrats feed on a variety of substances but love to eat starchy materials. They eat paste, glue (as in book bindings), starched cotton, linen, silk and rayon, cereals (especially wheat flour), and wallpaper paste and paper. When firebrats infest attics, they may feed on cellulose insulation.

During summer or winter months, people start calling our office complaining firebrats are crawling on the ceiling or walls in rooms below the attic. We believe there is a firebrat infestation in the attic and the firebrats are descending because the attic temperatures are too extreme and the living quarter temperatures are more to their liking. While the firebrats are probably not causing any real damage, their presence distresses many people. Unfortunately, it is not easy to control attic-infesting firebrats.

Because the infestation is in the attic, the attic should be treated. A major obstacle to getting a good treatment is that most houses have insulation in the attic—either fiberglass batting between the joists, or blown-in cellulose insulation—or both. With most insecticide

treatments, the insulation will prevent insecticide from reaching the firebrats that are living underneath it. The key is to apply the insecticide so the firebrats living under the insulation will come into contact with it.

Many people automatically think an insecticide bomb will work in this situation. However, an insecticide bomb is a total release aerosol that will control exposed insects, but does not



penetrate the insulation where the firebrats are living. Bombs just don't work in this situation and are a waste of time

and money. These types of over-the-counter bombs are not the same as a gas fumigation treatment which is quite dangerous and must be done by a pest control professional certified to apply fumigants.

Liquid insecticides also don't work very well for firebrats because the liquid soaks into the insulation and will not reach the firebrats. Dust formulations are the best option, but the dust must be put underneath the insulation for best success. This often means removing the insulation, dusting the area, and replacing it. This is likely to be a difficult, dirty, and time-consuming job. Even pest control professionals may have difficulty completely eradicating an attic firebrat infestation. So, we recommend folks who have this problem might try to tolerate an occasional firebrat in their living space. A vacuum cleaner is very effective in controlling individual firebrats.

Dust formulations, labeled for silverfish and firebrat control, can sometimes be purchased from a pest control supply business, but are not commonly found in hardware stores and other places most people shop for these products. However, these products are best used by professionals who have the skill and equipment to apply them. If a complete attic treatment cannot be done, efforts should focus on the areas around electrical fixtures and vents between the attic and the living quarters. When using any pesticidal product, including insecticides, it is important to always read and follow the label directions.

Not sure if you have silverfish or firebrats? Bring specimens to the Lancaster County Extension Office, and we will identify them for you. Or, call 402-441-7180 weekday mornings.

Number One Nuisance/Number One Clown

Soni Cochran
Extension Associate



"I parked my RV on the street and the squirrels chewed through the electrical wiring. I paid \$800 to have it repaired. We drove the RV home, parked it on the street and the squirrels chewed through the wiring again!"

"My kids carved jack-o-lanterns and the squirrels carried them away."

"We enjoy our Christmas lights and this year hung them in our trees. The squirrels are chewing through the lights and ruining our display."

"The squirrels have taken all the stuffing out of my lawn furniture and have chewed our expensive awnings."

"While our employees were inside working, the squirrels chewed through the electrical wires in the cars parked in the employee lot."

"The squirrel I've been feeding on my apartment balcony has chewed through my patio door screen and is loose in my apartment."

What a love/hate relationship! A survey of the National Pest Control Association voted the tree squirrel as the number one nuisance animal in the United States. I believe it. Based on the number of calls we get at

the extension office, and the amount of caller frustration—squirrels have certainly had their share of run-ins with Lancaster County residents.

Squirrels damage trees, flowers, lawns, gardens, vehicles, and homes. They eat acorns, nuts, fruits, vegetables in gardens, and raid your expensive bird feeders. Squirrels can chew through homes and damage insulation and walls. Worse yet, they chew through electrical wiring in homes and vehicles, creating a fire hazard.

Yet, these clowns of the trees are fun to watch and add value to our enjoyment of backyard wildlife. They run, they chase, they dig, they seem to be able to fly through the air. I actually like to watch them torment dogs, cats, and my kids

See NUISANCE on page 11

A REMINDER FOR INTERNET USERS:

Lancaster County Extension Office has a new, shorter home page address: www.lanco.unl.edu

Some shortcuts:

www.lanco.unl.edu/food

www.lanco.unl.edu/ag

www.lanco.unl.edu/enviro

www.lanco.unl.edu/nebline

www.lanco.unl.edu/hort

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