

COVER STORY

Winter's "Survivor" Challenge

Migration, torpor, hibernation, and food caching are adaptive strategies that animals use to survive during the winter. Animals that live in a seasonal environment (like northeast Ohio) face serious survival challenges during the winter when food is scarce. Many species of mammals, reptiles and amphibians enter an inactive, dormant state known as torpor or hibernation to help them survive through the cold winter months. Many bird species migrate to warmer climates where food is more abundant. Year-round residents change their diets or cache (hide/store) food. These adaptations are triggered by a decrease in daylight hours in the fall.

Raccoons, badgers, turtles, snakes and frogs use this torpor to survive through the cold winter months when food resources are scarce. Torpor is a deep hypothermia where metabolism, respiratory and the heart rate become distressed. Hibernation is a mild form of torpor where body temperature, heart rate, and oxygen consumption decreases. For example, breathing slows to one breath per minute and the heart rate drops to a few beats per minute. Torpor and hibernation require only one seventh of the energy that an animal would use when active, therefore, the animal conserves a lot of energy.

Some mammals, such as shrews, mice, and voles, stay very active during the winter. These rodents make tunnels underneath the snow where the temperature stays constant. In these burrows, they feed on dried grasses or food that they have stored.

Snowshoe hares (an Ohio endangered species) and weasels have the unique ability to turn white in the winter, thus using camouflage for winter protection. Decreases in daylight trigger the pituitary gland to molt the summer coat and inhibit production of hormones that produce pigment, changing the brown coat to white.



Mallards flying south for the winter.

Reptiles and amphibians hibernate in the mud beneath the frost line. When water turtles hibernate, they absorb oxygen through specialized skin cells near the tail opening; they actually breathe through their tails and not their lungs!

Birds migrate in response to changes in food availability. Migration is a seasonal journey to and from breeding grounds or feeding grounds. Food, water, shelter and other necessities that birds depend on determine their migratory behavior. For example, short distance migrants move to southern North America and long distance migrants move to Central and South America. Short distance migrants in Ohio include ruby-throated hummingbird, Eastern phoebe, and white-eyed vireo. The cerulean warbler, turkey vulture, and broad-winged hawk are long distance migrants. Scientists believe that birds use the position of the sun and stars as well as the earth's magnetic field to guide them along their migratory routes.

Year-round residents, such as Northern cardinals, blue jays, and the white-breasted nuthatch, do not migrate. Their food sources are available year-round. Other birds have adapted other means of survival during the winter, such as changing their diets of fruit and insects to seeds and nuts, or food caching (storing). In addition, increase of backyard bird feeders has helped these year-round residents survive through the winter season. Adopt an animal!