

NEW YORK STATE

Conservationist

for
KIDS!



**SURVIVING
WINTER**



NEW YORK STATE Conservationist

IN THIS ISSUE we will look at how animals survive the winter, and whether they migrate, hibernate, or remain active throughout the season. Students will learn what migration and hibernation are, and what types of animals do each. Students will also learn some of the signs of wildlife species that remain active during the winter, specifically their tracks and scat.



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Cover photo by Susan Shafer

STAY OR GO (MIGRATION)

As the days begin to grow shorter, animals are busy preparing themselves for the coming winter. Although many people think cooler weather triggers this behavior, a variety of factors are involved, including shorter days, lower temperatures, decreasing food supplies, and genetics. Scientists have long noticed an increase in restless behavior in captive birds in the

spring and fall, which seems to indicate the birds are preparing for migration. To migrate means to move to another location where resources such as food are more readily available, or the weather is better for survival. German scientists call this behavior *zugunruhe*, which means migratory restlessness.



There are four main categories

that scientists place birds into: permanent residents, short-distance migrants, medium-distance migrants, and long-distance migrants.

Permanent residents do not migrate; they spend the entire year in one location. These birds are adapted to the different types of weather and are able to eat different foods, such as seeds and berries, after the insects disappear. Short-distance migrants may move only a few miles, such as from higher elevations at the tops of mountains to lower elevations such as sheltered river valleys. Often, these birds migrate due to changes in the weather.

Medium-distance migrants may move only a few states north or south, just far enough to find better weather or food sources. Long-distance migrants make up most of the migratory bird species. They may fly thousands of miles south in the fall and then thousands of miles back north in the spring. Some fly from Canada and New York State all the way to the lower end of South America, while many spend their winters in the southern United States, the Caribbean, and Central/South America.



Many species of birds choose the option to fly south for the winter. The decrease in available food in cooler, northern regions seems to be one of the important reasons. Many of the birds that migrate eat insects or nectar, or feed them to their young. As the seasons change, these food sources start to disappear, so the birds head south, where the food is still plentiful. Of the more than 650 species (kinds) of birds that nest in North America, more than half will migrate. They will return to the north in the spring, when food becomes plentiful again, to raise their young.



Birds are not the only species that migrate, though. Butterflies, such as the monarch butterfly, also fly south for the winter. Monarch butterflies that emerge in the late summer in New York State fly all the way to Mexico! Many species of fish also migrate, spending most of their lives out in the ocean and returning to freshwater rivers, streams, and connected lakes in the spring to lay their eggs.



HIBERNATE OR

For those animals that don't migrate, there are two choices: go to sleep or remain active and try to survive the winter. Hibernation is when animals go into a period of no activity and their body processes slow down. It is very much like a deep sleep, although they may wake up for short periods at a time. Some animals don't go through a true hibernation, but go through a period of

what is called torpor, which is a time of decreased activity similar to hibernation, but for a shorter time period! In New York State, animals that hibernate or go through torpor include mammals like bears, woodchucks (groundhogs), some mice, and some bats. Other kinds of animals hibernate as well, including frogs, turtles, snakes, salamanders, and even some fish and insects.



Some of the animals that hibernate spend the summer months eating as much as they are able to, putting on extra layers of fat that will help them to survive without eating during their hibernation. This is most common in the mammals that hibernate. Other species, such as turtles, salamanders, snakes, and insects, choose to hibernate in other ways. Some of them bury themselves in mud at the bottom of a pond, where they won't freeze. Others develop a special chemical in their blood that keeps their important body parts from freezing. In the spring, they thaw back out again.

Animals that don't migrate or hibernate have to find other ways to survive the winter.

They have certain features called adaptations that help them to do this. Some birds, like the ruffed grouse, will grow fringes of feathers along their toes, which help them walk on deep snow. Many species of birds will fluff their feathers to keep warm, which helps trap warmer air closer to their bodies.



FUN FACT:

Ruffed grouse will "snow roost" when conditions are right. Rather than roost in a tree at night, deep, powdery snow allows grouse to bury themselves, taking advantage of the insulating quality of the snow and keeping them warm. They burst out in the morning, leaving a cool imprint behind.



STAY ACTIVE?

Animals like squirrels, skunks, and chipmunks will store food to eat during the winter and will nap during the worst weather, waking up to eat and move around when the weather is milder. Raccoons will remain active most of the winter, but will hide in their dens if the weather is too bad. Other animals, like white-tailed deer, will grow a special winter coat of thicker, hollow hair, which helps insulate their bodies and keep them warm. Some animals such as the ermine (a small weasel)

will grow white fur to help them blend in with the snow. Then in the spring, this white fur is replaced with darker fur. Small mouse-like animals called meadow voles survive the winter by making tunnels through the grasses beneath the snow and building grass-filled nests to keep them warm. Beavers will spend the winter holed up in their lodges, coming out through their underwater entrances only to eat the food they have stored under the surface of their surrounding beaver pond.



SOLVE A WINTER MYSTERY!

When it snows, one of the easiest ways to learn more about what animals are active during the winter is to look for their tracks and scat (droppings, poop). On these two pages are some images of both tracks and scat to help you figure out what animals you might have living in your area during the winter.



Dog



Coyote



Red Fox



Grey Squirrel



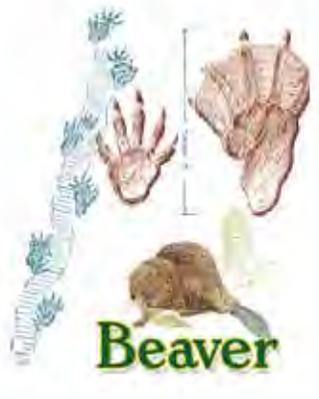
White-footed Mouse



White-tailed Deer



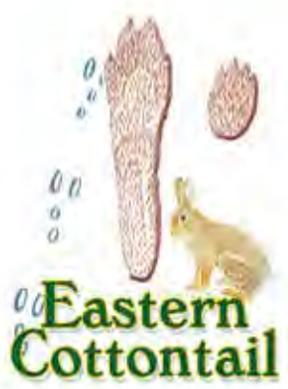
Muskrat



Beaver



Bobcat



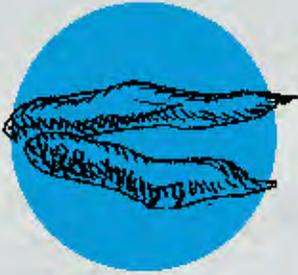
Eastern Cottontail



Cat



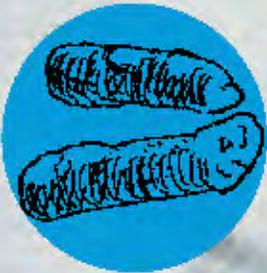
Raccoon



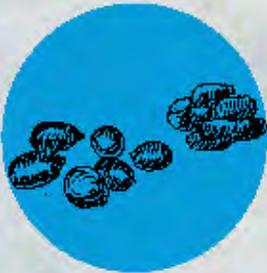
Fox



Rabbit



Raccoon



Deer



Deer

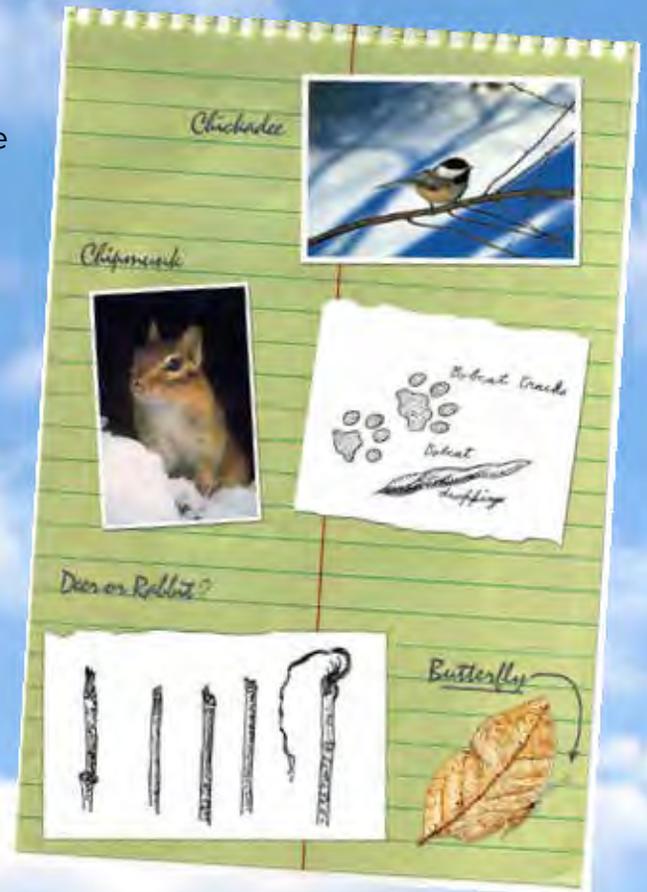
Turkey tracks in the snow.

KEEP A FIELD JOURNAL

A field journal is a diary of what you see, hear, and experience as you explore the outdoors. All you need is a notebook and something to write with. For each entry, write the date, location you are exploring, and what the weather is like. Take your journal outdoors with you to write down your discoveries as you find them. You can also draw the things you see. If you like, you can tape in photos you take during your adventures. Record whatever is of interest to you: animals, signs of animals, plants, sounds, cloud patterns in the sky, and more. You can even record how seeing and experiencing these things made you feel!

Helpful Hint

Rite in the Rain notebooks are weather resistant, so you can record your observations under any weather conditions.



FEED THE BIRDS

Feeding wild birds is a popular hobby throughout the United States and much of the world. By putting up a bird feeder, you will not only be giving many species of birds an easy food source to help supplement the food they find in the wild, you will also be providing yourself with hours of entertainment watching the different birds that come to your feeder(s). Different kinds of birds eat different kinds of food, but a bird feeder filled with black-oil sunflower seeds will attract a wide number of birds. Putting out a suet feeder will also attract woodpeckers, in addition to other species. To learn more about feeding wild birds, visit <https://feederwatch.org/learn/feeding-birds/>. While feeding birds during the winter may help them make it through this tough season and be a great way to observe birds up close, once spring comes it's a good idea to take the feeder down. The weather is mild, birds can switch to insects and other food sources, and you'll reduce the chance of unintentionally feeding an animal like a bear!

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Conservationist for Kids **Supplement for Classroom Teachers – Surviving Winter** **October 2019**

Survival Strategies

Animals have three options when it comes to surviving the winter: migrate, hibernate, or remain active. This issue of *Conservationist for Kids* introduces students to the different options, and takes a look at some examples of each. Migration is an option chosen by many birds, and some insects, and while it takes them away from the stresses of winter, it is a very energy-intensive survival strategy. Hibernation is a great solution for animals that are unable to migrate, find sufficient food, or regulate their body temperature. For animals that remain active, they are constantly on the lookout for sources of food, a shelter from the often extreme weather conditions, and for many of them, trying to avoid becoming the meal for something larger. Discussing these various strategies with your students will give them a better understanding of some of the many challenges faced by animals.

This Issue’s “Outside Page”

The “Outside Page” in this issue of *Conservationist for Kids* gives students information about how to keep a field journal, which is a great way of reinforcing observation skills, as well as giving students a chance to practice writing and artwork. Consider having the students bring their journals in and sharing them with the class. Students will also learn information about feeding birds, which has become an increasingly popular hobby across the country and around the world. You might even look into the possibility of setting up bird feeders at your school, and participating in Project FeederWatch, a project of the Cornell Lab of Ornithology (<https://feederwatch.org/>). See below for a related classroom activity.

Teacher Workshops

For teachers who have participated in a Project WILD or Flying WILD workshop, the activities listed below complement this issue of *Conservationist for Kids*. Visit www.dec.ny.gov/education/1913.html for information about workshops and how to obtain curriculum and activity guides.

Project Wild Activities

Learning to Look, Looking to See
Urban Nature Search
Below Zero “Snow Place Like Home”

Flying Wild

Bird Buffet
Feeder Frenzy

Supplemental Activities for the Classroom

Feed the Birds

Materials needed for each student:

pine cone
string
popsicle stick
peanut butter*
bird seed*

* If you are concerned about peanut allergies, substitute suet (beef fat) for the peanut butter and select bird seed without peanuts.

Student Instructions: Tie the string around the pine cone so you can hang it outside when it's ready. Use the popsicle stick to cover the pine cone with peanut butter, stuffing it into all of the cracks. Roll the pine cone in bird seed, pushing as many seeds into the peanut butter as possible. Hang the pine cone outside and wait for the birds to find it. Refill it as often as needed. Keep a record of the types of birds that visit your feeder and what their favorite foods are. (Note: Squirrels like these too, and may bite the string and take the whole pine cone away. Make a bunch in case the squirrels take some.)

A Blanket of Snow

If you have at least 12 inches of snow, it can be fascinating to compare the temperature above and below the snow. Divide the class into small groups and give each group a thermometer, a yardstick, a shovel, and a page on which to record their data. Have each group go to a different area of the schoolyard or other open space and record the depth of the snow. At each study site, have the students cut straight down into the snow so they can see the profile, and move away some of the snow so they can reach the ground. Have them measure and record the temperature of the snow at different depths, including at ground level and at the surface. Ask them to consider where they'd rather be on a cold, windy day, and why. Compare notes with other groups and see if different snow conditions (icy and compacted vs. light and fluffy) result in different insulation values. (HINT: They do.)

Online Resources*

www.dec.ny.gov/23.html DEC's Animals, Plants, Aquatic Life webpage

<https://birdday.org/birdday/free-materials> World Migratory Bird Day - Free Materials

www.exploratorium.edu/frogs/woodfrog/index.html The Exploratorium, San Francisco, CA "Cold-blooded Solutions to Warm-blooded Problems"

www.exploringnature.org/db/view/1278 Exploring Nature Science Education Resource: How Do Animals Survive Winter?

http://idahoptv.org/sciencetrek/topics/bird_migration/teachers.cfm Idaho Public Television - Bird Migration Lesson Plans

www.si.edu/spotlight/buginfo/winter Smithsonian Institution "Where do Insects Go in the Winter?"

Books*

Animals Hibernating: How Animals Survive Extreme Conditions by Pamela Hickman (Kids Can Press, 2005)

Animals That Hibernate by Phyllis J. Perry (Franklin Watts, 2002)

Bird Migration: The Incredible Journeys of North American Birds by Stan Tekiela (Adventure Publications, 2018)

Do Not Disturb: The Mysteries of Animal Hibernation and Sleep by Margery Facklam (Little Brown & Co., 1989)

Migration (First Step Nonfiction — Discovering Nature's Cycles) by Robin Nelson (LernerClassroom, 2010)

Migration: Incredible Animal Journeys by Mike Unwin (Bloomsbury Children's Books, 2019)

Peterson Field Guide to Animal Tracks: Third Edition (3rd edition) by Olaus J. Murie & Mark Elbroch (Houghton Mifflin Co., 2005)

Stokes Guide to Animal Tracking and Behavior, Don and Lillian Stokes (Little, Brown & Company, 1987)

What is Hibernation by John Crossingham and Bobbie Kalman (Crabtree Publishing Co., 2002)

**Please note, the listing of websites and books is not to be considered an endorsement, as not all have been reviewed by the editor.*

Conservationist for Kids and an accompanying teacher supplement are distributed free of charge to 4th-grade classes throughout New York State three times per school year (fall, winter, and spring). If you would like to be added to or removed from the distribution list, need to update information, or if you have questions or comments, please e-mail the editor at KidsConservationist@dec.ny.gov or call 518-402-8047. Limited quantities of some back issues are also available on request. The full archives can be found online at www.dec.ny.gov/education/100637.html