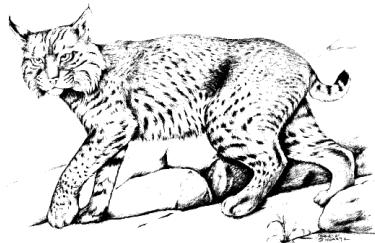


FURBEARER FUNDAMENTALS



Prepared by
**NORTHEAST FURBEARER RESOURCES
TECHNICAL COMMITTEE**

In cooperation with the
NEW HAMPSHIRE FISH AND GAME DEPARTMENT



Acknowledgements:

The Northeast Fur Resources Technical Committee (NEFRTC), comprised of wildlife biologists from the northeastern region of North America, including states and provinces, has made a commitment to educate the public since its founding over a quarter century ago.

In keeping with its commitment to inform and educate the public in matters of furbearer conservation and management, NEFRTC authored *Trapping and Furbearer Management: Perspectives from the Northeast* over a decade ago. Committee members have advised and helped produce trapping education videos, numerous articles, and even set up an education web site www.conservewildlife.org.

More recently, the NEFRTC committed itself to producing this “fur resources educational kit” including a school curriculum geared to middle schools. This project was made possible thanks to a grant from the United States Fish and Wildlife Service Federal Aid Administrative Fund.

Thanks go to biologists Tom Decker, Vermont Fish and Wildlife Department, and Dee Mazzarese, U.S. Fish and Wildlife Service, who wrote the initial grant and to NEFRTC chair Paul Rego from the Connecticut Department of Environmental Protection who supported this project. A very special “thank you” goes to New Hampshire Fish and Game Department’s wildlife educator Mary Goodyear who wrote the curriculum and another department’s educator, Judy Silverberg, who also supported the project.

Lastly, the NEFRTC would like to thank biologists Kim Royar, Vermont Fish and Wildlife Department, who chaired the NEFRTC education committee throughout this entire project and education committee members Susan Langlois, from the Massachusetts Division of Fish and Wildlife, and Eric Orff, from the New Hampshire Fish and Game Department, who to the largest extent are responsible for the completion of this “fur resources education kit” project.

A Teacher's Note

Furbearer Fundamentals is a teacher resource that contains a three-week (or longer), multi-disciplinary unit of study that focuses on furbearers found in the northeastern United States. It can be used in its entirety or broken into parts that can be used individually as supplemental educational materials and activities. The informational materials and activities are designed for middle school students, but may be modified to reach both younger and older students.

The Furbearer Fundamentals curriculum is introduced in the document *Furbearer, What's That?* The rest of the furbearer unit and supporting materials are divided into three sections, each based on a specific theme. The first section, *Lifestyles and Habitats of the Furry and Diverse*, relates to the natural history of furbearers (all related materials can be identified by a beaver in the upper right corner). Students are introduced to the individual furbearers and their specific characteristics, including appearance, life history and habitat requirements; and to the importance of habitat conservation. The second section, *A Window to the Past*, focuses on the importance of furbearers to our nation historically, and how changing landscapes have affected furbearer populations (all related materials have a bobcat in the upper right corner). In the third section, *Nuts and Bolts of Furbearer Management*, students are introduced to the concepts of furbearer population dynamics and wildlife management (all related materials have a fisher in the upper right hand corner). Different techniques used to achieve and maintain healthy furbearer populations are also presented.

The Furbearer Fundamentals Kit contains numerous resources. The three-ring notebook includes a list of the kit contents, instructional objectives with supporting activities and materials, a itemization of the three sub-themes with supporting activities, materials and introductions, and several smaller supporting materials, including species population graphs, track pattern sheets and photographs of each species. Introductory information is in clear plastic sleeves with white edges, while materials relating to the three sub-themes are in color coded plastic sleeves. Track sheets,

photographs and fact sheets are in clear plastic sleeves in the rear of the notebook. Larger supporting materials including pelts, rubber tracks and scat, skulls and reference books are also provided. The Kit also contains various informational resources on furbearers, regulated wildlife management, and regulated trapping including; the website *ConserveWildlife.org* on CD, Videos on Regulated Trapping, the *Trapping and Furbearer Management in North American Wildlife Conservation* booklet and the *Trapping in the 21st Century* pamphlet.

When preparing to introduce the different themes or topics to a class, teachers should first read the introduction to the theme and the background support sections. These materials will present background information on the three themes and will provide the facts and concepts needed to lead the activities and to guide the discussion. A simplified version, identified as the "Student Page" is also available for each theme. We suggest that you provide a copy to the students to introduce the section and prepare them for discussion. You are also welcome to copy any of the activity sections to use as handouts. Both the Teacher and Student Pages have a list of key terms that may be referenced during study of that section. A glossary of relevant terms is included in the back of the Project WILD and WILD Aquatic manuals.

In some instances, students are expected to research specific furbearer topics on their own or in small groups. A template of ten questions to help direct and organize research efforts was created for the students. It is located in section 1 of the notebook. Some research materials, information sheets and brochures are provided in the kit for this exercise. Additional information can be gleaned from visiting some of the websites identified in the notebook.

Included in the introductory section of the notebook is a sample lesson plan that was developed when the unit was piloted for three weeks in two six-grade classes. You are encouraged to extend the activities with further discussions, additional research or by using some of the additional assignments listed at the end of most of the activities.

Furbearer Fundamentals Curriculum Kit - Contents

Books

- Furbearer Fundamentals Manual: Contains several resources including:
 - Thematic unit (3 weeks)
 - List of state and provincial websites
 - Track and track patterns; one for each of 14 furbearers*
 - 8x10 photographs; one of each of 14 furbearers*
 - Glossary
- Project WILD
- Project WILD Aquatic
- (2) Peterson Field Guide to Animal Tracks
- Peterson Field Guide to the Mammals of North America
- Scats and Tracks of the Northeast
- (2) A Key-Guide to Mammal Skulls and Lower Jaws
- New England Forests Through Time

Videos

- Fur: Fabric of a Nation (Fur Council of Canada) (VHS)
- Regulated Trapping and Furbearer Mgt in the U.S. (IAFWA) (VHS)
- VT Public Television's Outdoor Journal: Regulated Trapping (IAFWA) (VHS)
- (2) Best Management Practices (BMPs) for Trapping in the United States (CD)

Miscellaneous

- (2) Calipers
- Pocket Guide to Maine Animal Tracks
- Mammals of Maine Poster
- Maine Wildlife Park Brochure
- Swan Island Brochure
- Department Stickers
- Department Key Chains

Tracks

- Set of 14 furbearer* rubber tracks

Scat

- Set of 10 furbearer** rubber scat

Skulls

- Set of 14 furbearer* Skulls

Pelts

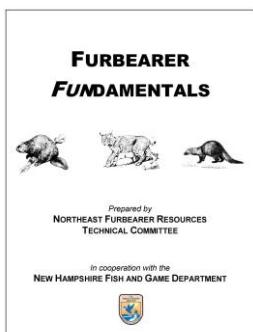
- Set of 14 furbearer* pelts

*14 furbearers in this kit include: beaver, bobcat, eastern coyote, fisher, gray fox, marten, mink, muskrat, opossum, river otter, raccoon, red fox, striped skunk & weasel

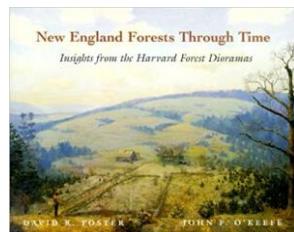
**10 furbearers in this kit include: beaver, bobcat, eastern coyote, gray fox, mink, muskrat, opossum, river otter, raccoon, and red fox

Furbearer Fundamentals Kit Contents

BOOKS



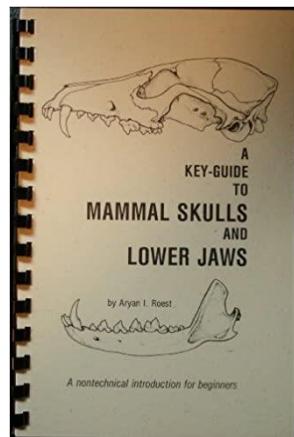
Furbearer
Fundamentals
Manual



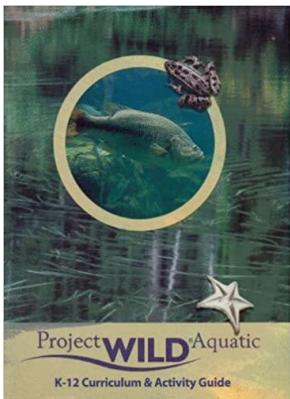
New England
Forests
Through
Time



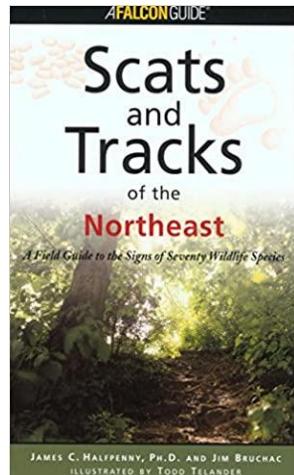
Project WILD



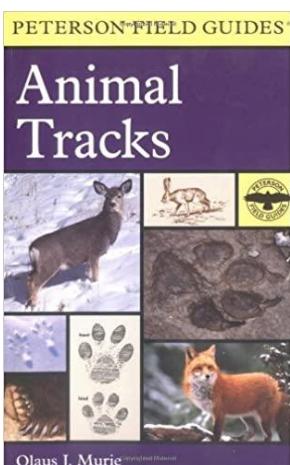
A Key-Guide
to Mammal
Skulls and
Lower Jaws



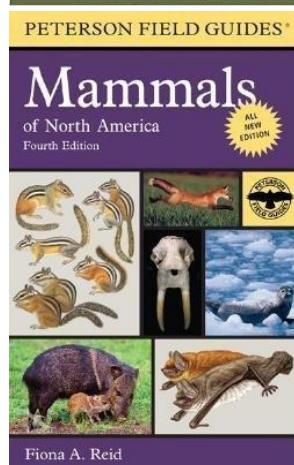
Project WILD
Aquatic



Scat and
Tracks of the
Northeast



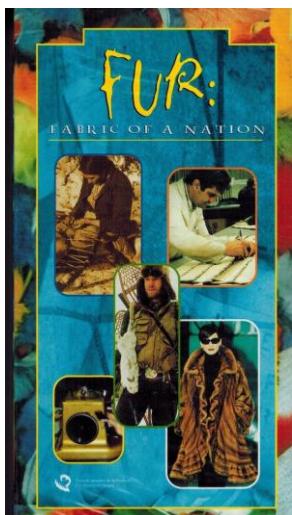
Peterson
Field
Guide to Animal
Tracks



Peterson
Field Guide
to Mammals
of North
America

Furbearer Fundamentals Kit Contents (continued)

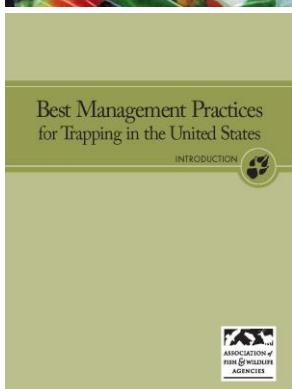
VIDEOS



Fur: Fabric of a Nation (VHS)

No Image Available

Regulated Trapping and Furbearer Management in the United States (VHS)



Best Management Practices (BMPs) for Trapping in the United States (CD)

No Image Available

Regulated Trapping (VHS)

MISCELLANEOUS

Plastic Calipers



Pocket Guide to Maine Animal Tracks



Mammals of Maine Poster

Furbearer Fundamentals Kit Contents (continued)

REPLICAS

No Image Available

Set of 14 Pelts



Set of 10 Rubber Scat



Set of 14 Skulls



Set of 14 Rubber Tracks

Furbearer Fundamentals Curriculum: 3 Thematic Subsections

Introduction: Furbearer, What's That?

Lifestyles and Habitats of the Furry and Diverse (natural history)

- Read introduction to section (*Lifestyles and Habitats...in notebook*)
- Notebook activity: Furbearer Intrigue
- Research: Working in pairs, research, prepare and present to class a report about the natural history of one of the northeast furbearers (*use Furbearer Fundamentals research questions in Notebook*)
- Project WILD activity: Habitat Lap Sit (pg. 61 *Project Wild Book*)
- Project WILD activity: Changing the Land (pg. 345 *PWB*)
- Project WILD Aquatic activity: Dragonfly Pond (pg. 184 *Aquatic Wild Book*)
- Notebook Activity: Who Am I?



A Window to the Past



- Read introduction to section (*A Window...in notebook*)
- Discussion of historic populations of bobcat, fisher and beaver (*use graphs in notebook*)
- Project WILD activity: Pros and Cons: Consumptive and Non-consumptive Uses of Wildlife (pg. 338 *PWB*)
- Students bring a product from home made from a furbearer; compare and discuss in class
- Video: Fur: Fabric of a Nation
- Project WILD activity: What You Wear is What They Were (pg. 210 *PWB*)



Nuts and Bolts of Furbearer Management

- Read introduction to section (*Nuts and Bolts... in notebook*)
- Project WILD activity: Oh Deer (use a furbearer species instead of deer) (pg. 36 *PWB*)
- Project WILD activity: History of Wildlife Management (pg. 267 *PWB*)
- Project WILD activity: Checks and Balances (use a furbearer species) (pg. 387 *PWB*)
- Video: Regulated Trapping and Furbearer Management in the United States
- Video: VT Public Television's Outdoor Journal: Regulated Trapping
- Notebook activity: Where Do You Stand on Trapping? (*WI Dept. of Natural Resources*)

Sample Lesson Plans for Three-Week Unit

Furbearer Fundamentals was piloted for three weeks in two six-grade classes in rural Lincoln, New Hampshire in the spring of 2004. Activities were selected from those identified in the curriculum that best met classroom objectives, were felt most appropriate for sixth graders and that worked in the allotted class periods.

Classes met for forty minutes four days per week and for one hour one day per week. Most of the information included in the introduction pages was covered, but not all the activities were used. A sheet titled, "Furbearer Fundamentals Research Questions", included in the notebook, was created during the pilot process to help students organize information about their assigned species as they researched and prepared for their presentations. You may find it or something similar, helpful for younger students.

Below are lesson plans for the fifteen days the curriculum was piloted. Keep in mind that if a class is scheduled for forty minutes realistically there is only about thirty minutes of good working time; and likewise, if a class is scheduled for one hour, then there may be only fifty minutes of working time.

Day 1 (40 min.): intro furbearer curriculum; discussion of habitat? Project Wild activities. Habitat Lap Sit in gym

Day 2 (40 min.): Read Furbearer, What's That? in class; students write five questions that arise during their independent reading. Assigned reading: Lifestyles and Habitats of the Furry and Diverse student page for homework

Day 3 (40 min.): introduction of 14 northeastern furbearers, with fast facts of each; assign species for each student to adopt for research project; give students a photocopied photo of their adopted species; give blank map of northeast for students to color in the range of their animal. Allow students time to research and answer the "Furbearer Fundamentals Research Questions" provided in notebook (Use wildlife internet resource page in notebook). Complete project for homework. Notebook activity: "Who am I?"

Day 4 (40 min.): prepare student for Furbearer Intrigue; introduce to various field guides; use transparencies of some pages of skull key to show how to take specific measurements; explain how a dichotomous key works

Day 5 (1 hour): Furbearer Intrigue

Day 6 (40 min.): Furbearer Intrigue

Day 7 (40 min.): Furbearer Intrigue; assign reading A Window to the Past student page for homework

Day 8 (40 min.): Furbearer Intrigue; activity wrap-up (End Unit 1)

Day 9 (40 min.): Begin Unit 2: Discuss history of furbearers; use transparency of principal trade routes; hand out copy of beaver pelt barter info Video: "Fur: Fabric of a Nation"

Day 10 (1 hour): What you Wear is What They Were; assign students to bring a furbearer product from home

Day 11 (40 min.): share furbearer products from home; use transparencies of beaver, fisher and bobcat graphs for discussion of land-use changes and the impact of unregulated harvest on their populations (use Harvard Forest Booklet for reference); assign reading Nuts and Bolts of Furbearer Mgt. student page for homework

Day 12 (40 min.): Begin Unit 3. Project Wild Activity: Oh Deer (using fisher population)

Day 13 (40 min.): 15 minute video Regulated Trapping and Furbearer Mgt. in the U.S.; time out to catch up on class details

Day 14 (40 min.): Discussion of trapping today as primary management tool; cite examples of when a wildlife manager would use trapping to decrease a population; increase a population, etc.; examples and info in Trapping and Furbearer Mgt. in North American Wildlife Conservation.

Day 15 (1 hour): Where Do You Stand on Trapping? in gym; slight modification – have students write their responses to each question on a card before moving to a spot on the continuum, as that provides a greater commitment to their selection. They can't change their minds as easily when they see how their classmates are responding. Wrap-up curriculum

At the conclusion of the three weeks, the classroom teacher gave each student a notebook he put together with a page about each of the fourteen northeastern furbearers. Each page contains the animal's name, with an illustration/picture, range map, track and information about the species written by the student or students that had "adopted" and researched it.



Furbearer, What's That?

Key Terms: carnivores, furbearer, habitat, harvest, herbivores, omnivores, range, renewable resource, wetlands, wildlife management

We all know that mammals are furbearers. After all, isn't having fur or hair a criteria by which a mammal is classified as a mammal? Although, technically, that's true, professionals in the field of **wildlife management** don't use the term furbearer to refer to all mammals. Instead, they narrow the scope and consider **furbearers** to be those mammals that have traditionally been trapped or hunted primarily for their fur.

North American furbearers are a diverse group of species, including members of the weasel, cat, dog and rodent families. Some furbearers are fierce and fast **carnivores**, while some are more slow-moving **herbivores**, and some are **omnivores**, ready to eat just about anything that comes their way. Just as they represent a wide range of species, they are found in a wide-range of habitats, including a variety of forests, fields and **wetlands**. In the northeastern United States and eastern Canada, the typical furbearers are beaver, bobcat, coyote, fisher, gray fox, marten, mink, muskrat, opossum, river otter, raccoon, red fox, striped skunk and weasel. (Although there are two species of weasels in the northeast, the long-tail and short-tail they will be treated as one throughout this curriculum.) Most are adaptable species ranging over large geographic areas. A few may have a more limited **range**. Not all furbearer species are harvested in every state. However, all of the furbearing species that are legally trapped in the Northeast are common and abundant in the area where they live. None are threatened or endangered.

Why throughout history have furbearers been sought for their pelts? Most furbearers have two layers of fur. A dense, soft underfur provides insulation and water-repellent qualities. An outer layer of longer, glossy guardhairs grows through the underfur and protects it from matting

and abrasion. A pelt is considered to be prime when the guardhairs are at their maximum length and the underfur is at its maximum thickness. Fur generally becomes prime in mid-winter when the coat is fresh and fully grown.

Fur is a **renewable resource** that has traditionally been used by humans throughout time. It is valued for its natural beauty, durability and insulative qualities. Furbearers have been an important resource throughout the development of our country. Native Americans were dependent on furbearers to provide the basic necessities of survival -food for sustenance and furs for clothing, bedding and shelter. Early European colonists found fur so valuable they used it as a primary currency of trade. Through the 1800's many furbearer populations declined or went extinct, due to unregulated trapping and habitat loss. As the fur resource was depleted in the northeast, explorers pushed west in search of furbearers to meet the demands of the fur trade. Explorers were responsible for establishing the trails that opened the west to further exploration and settlers. Today, as a result of careful management and recovery efforts, all of the furbearers that are trapped are common and abundant. In fact, some have rebounded to the point where they sometimes conflict with their human neighbors.

Furbearers are not only important as a natural resource, but they also play an important role in nature. Beavers create beautiful wetlands that are used by many other wildlife species. Bobcat, fisher, and weasels are important predators that help to control small mammal populations. Thanks to modern day conservation and management that includes habitat protection and harvest regulation, most furbearer populations are increasing. As a result, furbearers again play an important role in our lives – either because we thrill at the chance meeting with a fisher in the woods or because we enjoy the warmth of a fur coat or blanket. While many people today benefit both socially



and economically from the use of furs and other furbearer products, others can suffer economic loss from damage caused by furbearers.

Although beaver create valuable wildlife habitat, they can also cause the flooding of roads, driveways or wells. As both human and beaver populations increase, conflicts between the two become more widespread. If some furbearer populations, such as raccoons, increase due to human changes on the landscape, they can negatively affect endangered species such as spiny softshell turtle or piping plover by preying on the eggs.

Trapping furbearers is a part of our cultural heritage. A knowledge of animals, respect for nature, and additional skills are passed along in many families from generation to generation.

Some families still use furbearers and their products for food and to supplement incomes. Furbearers can help scientists understand human health problems, such as the effects of environmental pollutants. At the same time, some furbearers can pose risks to humans through exposure to diseases and parasites.

Perhaps the most readily recognizable value of furbearers today is the enjoyment so many of us get when we have an opportunity to observe them in the wild. Furbearers contribute significantly to the diversity of wildlife in our fields, forests and wetlands.



Furbearer, What's That?

Key Terms: carnivores, diversity, furbearers, habitat, harvest, herbivores, heritage, omnivores, renewable resource, wetlands, wildlife management

We all know that mammals are furbearers. Having hair or fur is one of the characteristics we use to separate mammals from other animals, such as birds or reptiles. People that work in the field of **wildlife management** use the word furbearer to mean something else. Instead of using it to mean any mammal, they use the word furbearer to mean those mammals that are hunted and trapped primarily for their fur. Beaver, for example, are considered to be **furbearers**. Even though they have many uses such as for food, they are primarily trapped for their fur. Deer, on the other hand are not considered to be furbearers. Although their hides are used to make clothes, the main purpose for hunting them is for food.

Furbearers include a variety of mammals. They include members of the weasel, cat, dog and rodent families. Some, such as bobcats are **carnivores** that catch and eat other animals; some, such as muskrat are **herbivores**, that eat plants; and some, such as raccoons are **omnivores**, ready to eat just about anything. Furbearers are found in a wide range of **habitats**, including fields, forests and **wetlands**. Typical furbearers found in the northeastern United States and eastern Canada are beaver, bobcat, coyote, fisher, gray fox, marten, mink, muskrat, opossum, river otter, raccoon, red fox, striped skunk and weasel.

Why are furbearers harvested for their pelts rather than other species? Most furbearers have two layers of fur. A dense, soft underfur provides warmth and is water repellent. An outer layer of longer, glossy guardhairs grows through the underfur and protects it from matting and other damage. Fur is most valuable in winter when it is thickest.

Fur is a renewable resource that has long been used by people. Fur is beautiful, durable and warm. Native Americans depended on furbearers for food, clothing, bedding, shelter and later for trade with early colonists. Early colonists used furs the same way we use money today. As furbearers became scarce in the northeast from over use and loss of habitat, explorers headed west to find more. It was those colonists that were the first white men to explore the region and opened the way to fur traders and finally, to settlers.

Today, thanks to modern wildlife management, regulated harvests, and habitat improvement, many furbearer populations have increased to healthy levels. All furbearers that are trapped today are common and abundant. They are important to maintaining the diversity of wildlife in our fields, forests and wetlands. Beavers, for example, create and maintain wetlands that provide habitat for many other species of wildlife.

Trapping furbearers is an important part of our **heritage**. The traditional skills of tracking and knowing animal habits, and having a knowledge and love of the outdoors are passed along in many families from generation to generation. Some families still use furbearers for food and sell furs to buy food and clothing for their families. Another value of furbearers is the enjoyment we get when we have the chance to see them in the wild.



Lifestyles and Habitats of the Furry and Diverse

Key Terms: adaptations, degradation, diverse, ecosystem, fragmentation, gait, habitat, pesticide, riparian, scat, sign, succession

Identification

One of the few things furbearers have in common is that they are all mammals. In all other respects, they are a very **diverse** group, living very different lifestyles in a variety of habitats. Each animal has **adaptations** that make it specially suited for the life it leads. A beaver, for example has two big front teeth that are well suited for gnawing on wood, and wide, webbed feet for swimming. It is often these specific types of adaptations that provide us the means to distinguish one species from another. An animals' skull provides clues not only to what it is, but also clues to its size, to what it eats and, ultimately, to its lifestyle. Carnivores or meat eaters, for example, have very different dental patterns and skull shapes than herbivores or plant eaters do.

As much as most of us love to watch wildlife, often all we get is a glimpse. We may see the animal high-tail it away from us as fast as it can or dash across the road in front of our car. There's rarely enough time to form a clear enough picture of the animal in our minds to identify it with confidence. And that's if we're lucky. More likely, all we get are **signs** or clues that an animal has passed our way. We see bits of fur rubbed on the side of a tree, tracks left in fresh snow or wet sand, **scat** left here and there, and occasionally the bones of an animal strewn about. In all of those instances there is usually enough evidence left behind for us to figure out what went there before us. From the scat we can tell the size of the animal and what it was eating. From the tracks we can tell the approximate size of the animal, what it was doing, what direction it was traveling and often what family it belongs to. We can also identify an animal from its **gait** or track pattern. For example, animals that pace or waddle are

typically wide-bodied animals that move rather slowly. Skunks and opossums are waddlers.

Even when we've just had a glimpse, we often register enough information to make a pretty good guess about which animal we saw. We can tell the approximate size of the animal, perhaps color, and another very critical clue we may be apt to overlook, the habitat it was in. If we know the habitats of the different furbearers, we can narrow our selection of possible animals. A long, narrow animal bounding in front of you as you ride through a northern forest, with no wetlands is more likely to be a fisher, than the similar looking otter, which spends much of its time in wetlands.



Habitat

It is important to consider habitat when referring to and identifying wildlife. **Habitat** is simply the place where an animal lives and grows; that area in which it finds all that it needs to survive. Food, water, shelter and space, all suitably arranged, are critical components of an animal's habitat. While some animals may use only one habitat type, many animals use a variety of habitats to meet all of their survival needs. Bobcat, for example, may use steep ledges for resting and raising their young and may hunt for food in brushy areas located many miles away. Animals may also use different habitats at different times of the year.

Habitats do not remain the same, but are always changing. Some changes occur through catastrophic events such as hurricanes, floods and fire, or more slowly through the process of **succession**. Other changes are the result of

SECTION 1



people and the way we use the land. Forests are cleared for timber and agriculture, fields may become dotted with new homes and crisscrossed with roads, wetlands may be filled and paved to provide parking for new shopping malls, and farms may be abandoned and fields allowed to grow into forest. All of the changes to the land affect the plants and animals that live there.

One of the greatest challenges for a wildlife manager is the protection of habitat. Furbearer populations can be seriously effected by the loss and **degradation** of habitat. As wetlands are filled for development, the habitat for otter, beaver and muskrat decreases. Marten and bobcat could decline as a result of the fragmentation of their habitat. **Fragmentation** occurs when large contiguous habitat areas or **ecosystems** are broken up by development such as housing complexes, shopping malls and roads.

In addition to fragmentation, habitat can be impacted by pollution. Farm run-off containing fertilizers and pesticides, can pollute downstream **riparian** habitats. **Pesticides** used to reduce mosquitoes and other pesky insects can impact other forms of wildlife. Mercury from the smoke stacks of mid-western factories can build up in wetland habitats and can be harmful to mink and otter.

To protect furbearers and all wildlife, we need to balance our human needs with conservation of habitats for wildlife. By making decisions to recycle, reuse and conserve our natural resources; and by making responsible land-use decisions within our communities we can take an active role in conserving habitat for wildlife and for future generations of people.

SECTION 1



Student Page

Lifestyles and Habitats of the Furry and Diverse

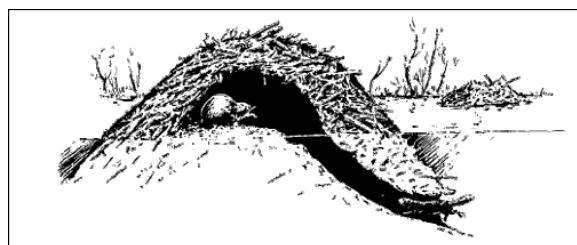
Key Terms: adaptations, community, diverse, ecosystem, fragmentation, gait, pesticide, scat, sign, and succession

Identification

One of the few things furbearers have in common is that they are all mammals. They are diverse, living in different ways in different types of homes or habitats. Some, like fisher, are found in forests; some, like red fox, are often found in fields; while muskrat and beaver live in wetlands. Each animal has adaptations that make it specially suited for the life it leads. Beaver, for example, have two big front teeth for gnawing on wood; and wide, webbed feet for swimming. These adaptations help us tell one animal from another. Even an animal's skull provides clues about who it is, including its size, the type of food it eats, and the way it lives. Carnivores, for example, have teeth and skulls that are shaped very differently than herbivores.

As much as we love to watch wildlife, all we often get is a glimpse. Most of the time all we find are signs or clues that an animal has passed by. We see bits of fur rubbed on the side of a tree, tracks left in fresh snow or wet sand, and scat, droppings, or the bones of an animal scattered about. By looking at the sign we can often figure out which animal left it. Scat gives us clues about an animal's size and the food it eats. For example, small bones of mice can often be found in fisher scat, while berry seeds are often found in bear scat. Tracks give clues as to the size of an animal, what it was doing and what direction it was traveling. We can also identify an animal from its track pattern or gait. For example, animals that waddle are typically wide-bodied animals that move slowly. Skunks and opossums are waddlers.

When we think of what animal may have left the sign, one important clue we need to think about is the type of habitat it was found in. Different animals live in different habitats. Tracks of a bounding animal found in a deep forest are far more likely to be from a fisher, than a similar-looking otter, that usually stays near wetlands.



SECTION 1



Habitat

It is important to think of habitat when thinking about wildlife. Habitat is an animal's home; that area where it finds all it needs to survive. Food, water, shelter and space, in the right arrangement, make up an animal's habitat. While some animals may use only one habitat type, many animals use a variety of habitats to meet all of their survival needs. Bobcat may use steep ledges for resting and may hunt of food in brushy areas located many miles away. Some animals may also use different habitats at different times of the year

Habitats are always changing. Some changes occur quickly, during events like hurricanes, floods and fire. Some take place more slowly through succession, which is the gradual change from one plant or animal community to another. An example of succession is when a farmer no longer cuts hay in a field and it grows up to forest. It doesn't stay a field for long, as bushes and shrubs start growing up in it almost right away. Before you know it, young birch or poplar saplings are present and after several years, the old field has been replaced by a forest. Many changes to the land and habitat are the result of the way we use the land. Forests are cleared for timber and to create farmland, fields may become dotted with new homes and crisscrossed with roads, wetlands may be filled and paved to provide parking for new shopping malls, and farms may be abandoned, and the fields left to grow back to forest. All of the changes to the land affect the plants and animals that live there.

One of the most serious threats to furbearers today is the loss of habitat. As wetlands are filled for development, the habitat for otter, beaver and muskrat decreases. Furbearers, such as marten and bobcat decline as a result of the fragmentation of their habitat. Fragmentation occurs when large undeveloped areas or ecosystems are broken up by human development, such as houses, shopping malls and roads. Habitat can also become polluted. Farm run-off containing fertilizers and pesticides can pollute habitats downstream. Pesticides sprayed over large areas to kill pesky insects, often run-off into wetlands and into both human and wildlife water supplies. Pollution affects people, furbearers and other wildlife.

SECTION 1



Who Am I?

Introduce this activity by discussing the different furbearers, including how and why they are different from one another, and how their habitat needs differ.

Materials:

Included in the notebook are fourteen (8x10) photographs; one of each furbearer with "fast facts" for each.

Make double-sided photocopies of the photograph and the "fact" information for each of the fourteen furbearers. Duplicate the set to insure you have one for each student

Procedure:

1. Give each student a photo of a furbearer. Do not let them see it, rather put it on their back. (Use masking tape or tie a string to the photograph so the student can wear it around their neck). When every student has a photo, have them find out who they are by asking questions of each other that get yes or no answers. Questions might include: Am I bigger than a breadbox? Am I black? Do I have a smell? Am I a carnivore? Do I live in a wetland? You may want to limit the number of specific questions they may ask to three, i.e. Am I a skunk? or Am I a beaver? Students should ask only one question of a person and then move on to ask someone else.
2. Let the students know that on the back of each photograph is information about the species, that they can refer to, when answering questions.
3. After the students figure out who they are, have the students place themselves in habitat groups.

Variations:

Put a list of furbearers on the board for students to refer to when asking questions. Have one student come to the front of the room and without looking, pick an animal. You place it on his/her back. Have him/her turn around and ask yes or no questions of the entire class.

SECTION 1



Furbearer *Fundamentals* Research Questions

1. What am I?
2. What color am I? Do I have any special markings or color patterns?
3. How big am I?
4. Where am I found in New England? (Range)
5. In what type of area do I live? (Habitat)
6. What do I eat?
7. Am I a carnivore, herbivore or omnivore?
8. Am I usually a predator or prey?
9. How do I protect myself?
10. What type of shelter do I need?

SECTION 1



Furbearer Intrigue

Objective

Students will be able to identify at least six furbearers of the northeast from their skulls, pelts, tracks and scat by using keys and guides.

Method

Students match the skulls, pelts, tracks and scat with the appropriate furbearer species.

Materials

Skulls, pelts, rubber scat, rubber tracks and track pattern sheets and photographs of 14 furbearer species; Peterson Field Guide to Animal Tracks, Peterson Field Guide to Mammals, Scats and Tracks of the Northeast and two copies of A Key-Guide to Mammal Skulls and Lower Jaws; rulers

Duration: Two to four 45-minute sessions, depending on whether students work individually, in pairs, or in small groups.

Background

Furbearers include a wide variety of species that do not belong in any one family. That variety can be seen in the different skulls, pelts, tracks and even scat of furbearers. Each species occupies a specific niche and has a special role within the community it lives. For instance, on a very basic level, some of the furbearers are primarily carnivores; some are primarily herbivores and some are omnivores. Based on its role, each species has adaptations, which are special physical or behavioral characteristics that enable it to be successful. Beaver and otter spend a great deal of time in the water. Not only do they have wide, webbed rear feet that aid them when swimming, they also have especially dense fur and oil glands that provides water repellency to the fur. These adaptations make them well-suited to their environment and are revealed in their tracks and in the feel of their fur.

Aside from the very basic carnivore versus herbivore distinction, furbearers can be classified by the order or family they represent. Each classification has at least one identifying

characteristic that can be readily seen in the skull, pelt, or tracks. Beaver and muskrat are rodents and are of the order Rodentia. They have two incisors or gnawing teeth on their upper and lower jaws. Weasel, mink, otter, fisher, marten and skunk are all members of the weasel family (Mustelidae). They usually have long, slender bodies, short legs and anal scent glands. Red fox, gray fox and coyotes are in the dog family (Canidae) and are doglike in appearance. The bobcat is a member of the cat family (Felidae). It has a familiar catlike appearance, with a short tail and retractable claws. The raccoon is the only northeast furbearer that is a member of the family Procyonidae. It has "salt and pepper" gray fur, a bushy ringed tail and a black facial mask. The opossum is the only marsupial (pouched mammal) in North America and is in the family Didelphidae. Its ears and prehensile tail are hairless.

Procedure

Familiarize students with the various guides. Specifically, show them how to use the guides and the types of information that can be found in each. The *Key-Guide to Mammal Skull and Lower Jaws* will require extra time. It will be necessary to go over some of the terms and to demonstrate how to take specific measurements. All the necessary skull-related terms are described in the glossary at the beginning of the manual, and many are also illustrated in the drawings that are included. Be aware that only the first part of the guide, up to page 19, will be used in the activity. Additional skull information is included at the back of the Peterson *Field Guide to the Mammals*. Scat is identified in Peterson's *Field Guide to Animal Tracks*, as well as Halfpenny's *Scats and Tracks of the Northeast*. In addition to the field guides, track, scat and natural history information can be found in the *Trapping Furbearer's... student manual*, the *ConserveWildlife.org* CD, the Massachusetts Furbearer Fact sheet and on several state and provincial websites (list of sites provided).

SECTION 1



Have the tracks and matching track pattern sheets set in one area of the room, skulls in another area, pelts in another and scat in another. Set out the various field guides and keys so they are available to the students. Depending on the size of the class, you may want to borrow additional copies of the guides from the school and public libraries.

Explain to the students that the classroom represents the Abnaki Museum of Natural History. Tell them that vandals have recently broken in and wreaked havoc with many of the wildlife exhibits. They have taken the furbearer exhibits apart and spread the various parts all around. As the museum staff is short-handed, they have called in a team of experts to help put the exhibits back together again. You (the students) are the team of "experts." It is your mission, if you choose to accept, to put the exhibits back together.

Give each of the students a Furbearer Intrigue work sheet. Let them know that each track, scat, skull and pelt has a number on it. Instruct them to write the number that is on the track, scat, skull and pelt in the appropriate box next to the furbearer it matches. All of the numbers are different. Although, the skull of one species has a specific number, it does not mean that the pelt, tracks and scat of the same species will have that same number. (Note: the number on the rubber tracks and on the track sheets match and can be placed together). Students may work alone, in pairs or in groups of three or four.

Variations

Teachers of younger students may want to have groups of students work on a fraction of the species, rather than attempting to identify all fourteen. One way to reduce the number would be to have only one species of each family represented. You may also want to place the scat with the appropriate tracks to aid in the identification process. Another way to help students identify tracks and scat is to give them clues as to the type of habitat they would most likely be "found". Skull identification can also be

simplified a couple of ways. First, by providing dentition patterns, thereby reducing the number of skulls that need to be keyed. A second way is to group the skulls by families; leaving raccoon, opossum and bobcat in a miscellaneous group.

When students have finished, check their work sheets individually and indicate which ones are wrong. Give them time to find and correct their mistakes. If students are puzzling over one part, have them check another guide, where they may find clues that will help them decide. After the students have had time to see where they went wrong, write the answer key on the board and have them check their answers to see if they were able to make all the correct identifications. Allow time for class discussion as they try again to correct any remaining mistakes

Extension

Have the "experts" group the animals as carnivores, herbivores or omnivores based on skull and dental characteristics. Students can make implications about different adaptations they may discover and how they may relate to the specific niche the animal fills in the community.

Evaluation

Using guides and keys have students identify six furbearers from their skull, tracks, pelt and scat.

(Developed by Mary Goodyear, New Hampshire Fish and Game Department)



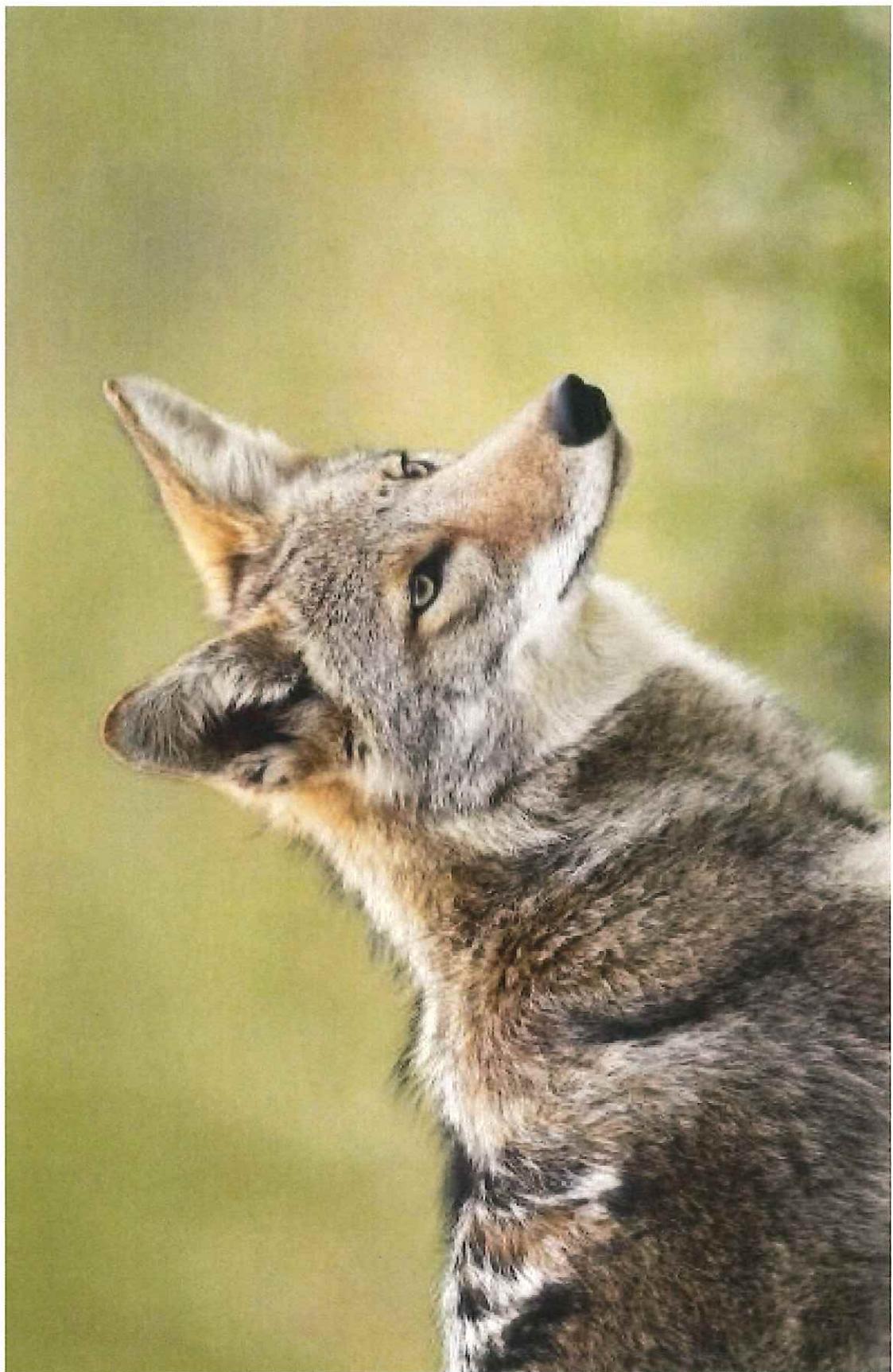
Answer Key

Furbearer Intrigue

	Pelt	Tracks	Scat	Skull
Muskrat	7	8	6	2
Beaver	13	1	9	5
River Otter	2	10	2	3
Mink	8	7	4	7
Weasel	9	6	---	9
Fisher	12	4	---	4
Raccoon	3	11	1	8
Marten	14	13	---	14
Striped Skunk	6	14	---	12
Opossum	4	9	10	6
Red Fox	11	12	5	1
Gray Fox	10	5	3	13
Bobcat	5	2	8	10
Coyote	1	3	7	11

SECTION 1**Student Worksheet****Furbearer Intrigue**

	Pelt	Tracks	Scat	Skull
Muskrat				
Beaver				
River Otter				
Mink				
Weasel			---	
Fisher			---	
Raccoon				
Marten			---	
Striped Skunk			---	
Opossum				
Red Fox				
Gray Fox				
Bobcat				
Coyote				



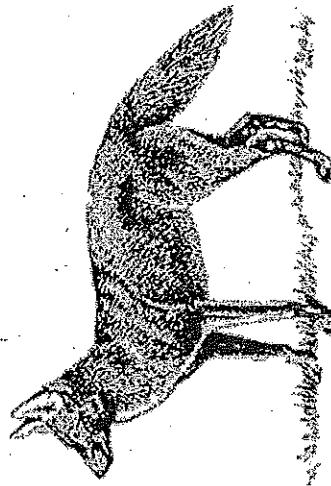


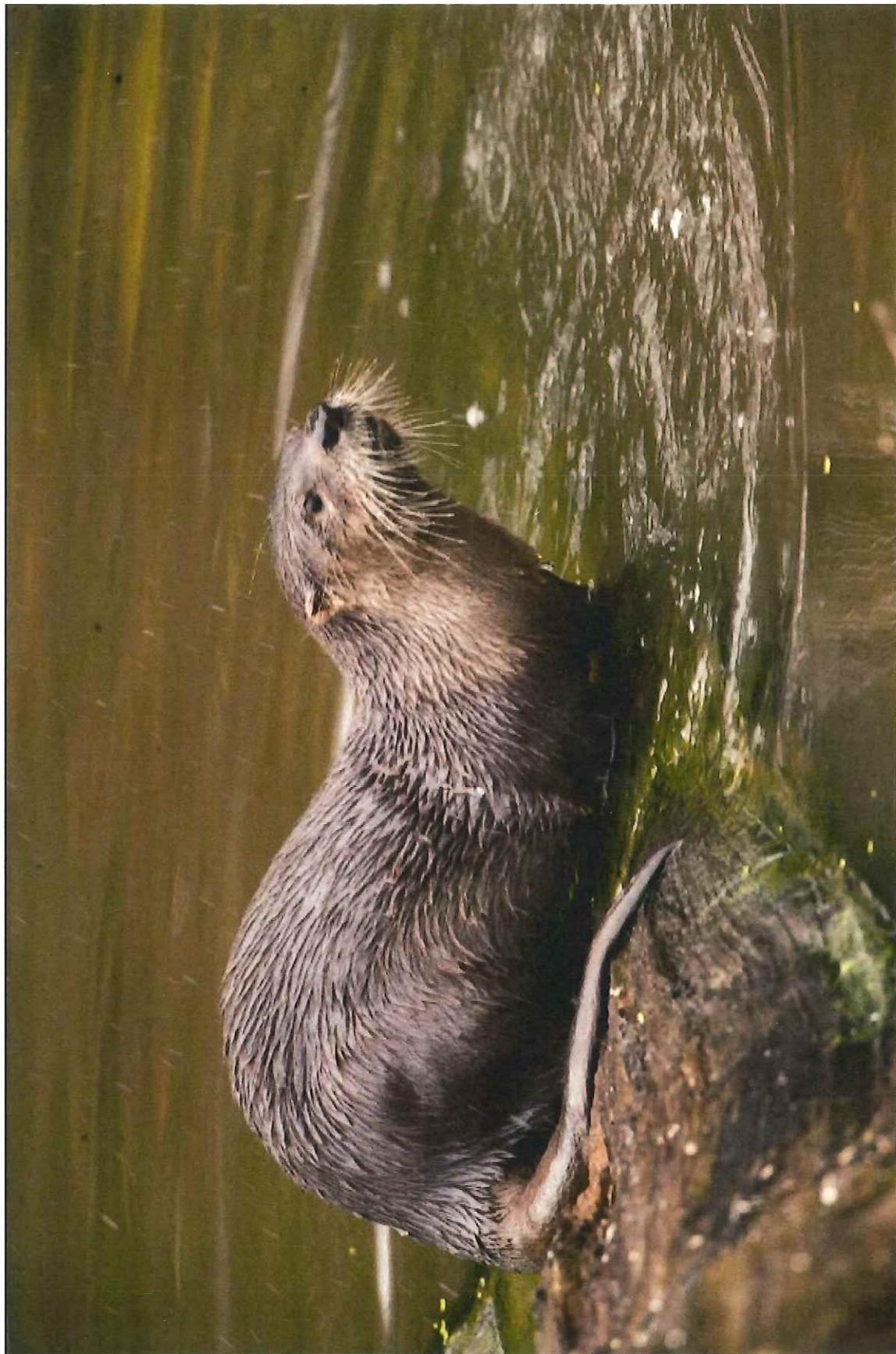
Coyote

Diet: opportunistic; feeds on carrion (dead animals), small live vertebrates, invertebrates and vegetation. Winter food in northeast is mainly snowshoe hare and deer carrion.

Habitat: Edges of second growth forests, open brushy fields, fallow agricultural lands, forest openings created by fire or logging.

Comments: Hunts alone and in small packs; nocturnal and also active at dawn and dusk; den is usually in an excavated burrow that is well-hidden by vegetation; a rock or stump.





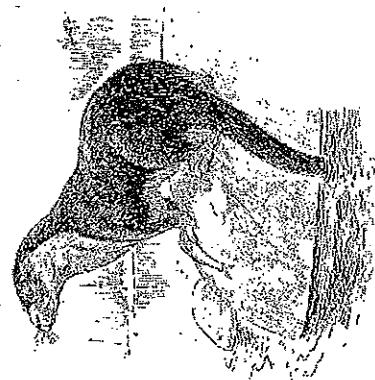


River Otter

Diet: Aquatic animals, especially fish, frogs, crayfish, salamanders and turtles; also, snakes, small birds, mammals, earthworms and insects (carnivorous).

Habitat: Borders of streams, lakes or other wetlands in forested areas.

Comments: Active year-round; most active dawn to mid-morning and dusk; dens in crevice of rocky ledge, under fallen tree, abandoned beaver lodge or muskrat house.







Raccoon

Diet: Eats whatever is most common (omnivorous). Typical foods are fruits, seeds, crayfish, worms, carrion (dead animals), nuts, insects, garbage, eggs and buds.

Habitat: Lives almost anywhere. Usually found in woods near open fields, rivers and ponds; suburban and urban areas.

Comments: Nocturnal (active at night); rubs its food with its paws usually in the water.





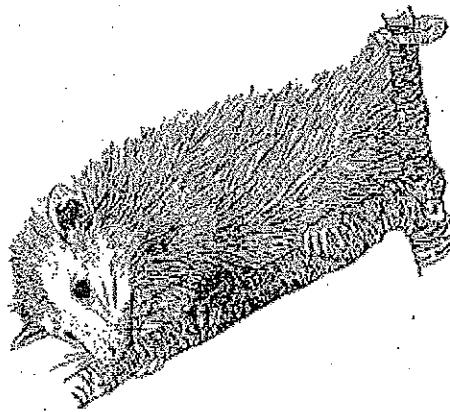


Opossum

Diet: Insects, worms, fruits, nuts, carrion (dead animal) and garbage; almost any vegetable or animal food (omnivorous). Preys on voles, shrews and moles.

Habitat: Dry to wet wooded areas; commonly found in wet woods near rivers and swamps, less often, in uplands or cultivated fields.

Comments: Marsupial, with young born after 13-day gestation; young stay in pouch for 60 days; less active in winter; avoids predators by feigning death and voiding noxious odors.





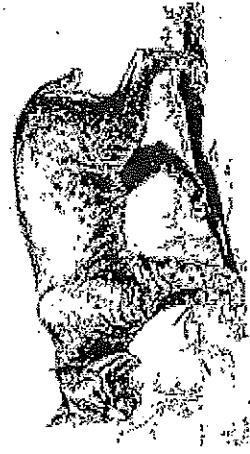


Bobcat

Diet: Small mammals, especially snowshoe hare, cottontails, squirrels, mice, birds and their eggs, deer in winter, carrion (dead animal), snakes, fish, crustaceans, insects and some vegetation (carnivorous).

Habitat: Mixed deciduous-coniferous and hardwood forests, and brushy and rocky woodlands broken by fields, old roads and farmlands; cedar swamps and spruce thickets. Softwood cover preferred in winter.

Comments: Solitary and elusive, mainly nocturnal, but in winter is active during day; avoids crossing bodies of water; dens in rocky crevices, under windfalls, or in hollow logs.





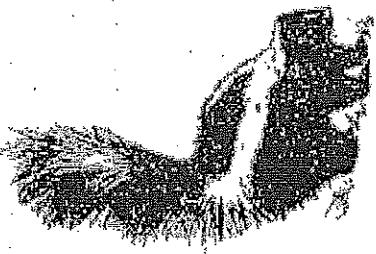


Striped Skunk

Diet: Eats almost anything (omnivorous). Typically eats insects, snails, eggs, fruits, small rodents, grains, nuts, garbage, dead animals (carrion), berries and grasses.

Habitat: Lives in semi-open areas of woods and meadows. Will live near people.

Comments: Member of the weasel family. Inactive during the winter.





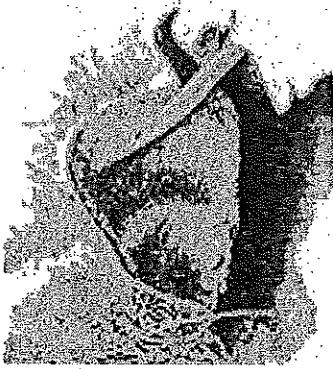


Muskrat

Diet: A variety of aquatic plants, esp. cattails, reeds, pondweeds, bulrushes, water lilies, fresh water clams and other small aquatic animals.

Habitat: Marshes, shallow areas of lakes, ponds, swamps and sluggish streams.

Comments: May construct a lodge over water for nest or may dig a den in stream or ditch bank; mainly nocturnal; active year-round.







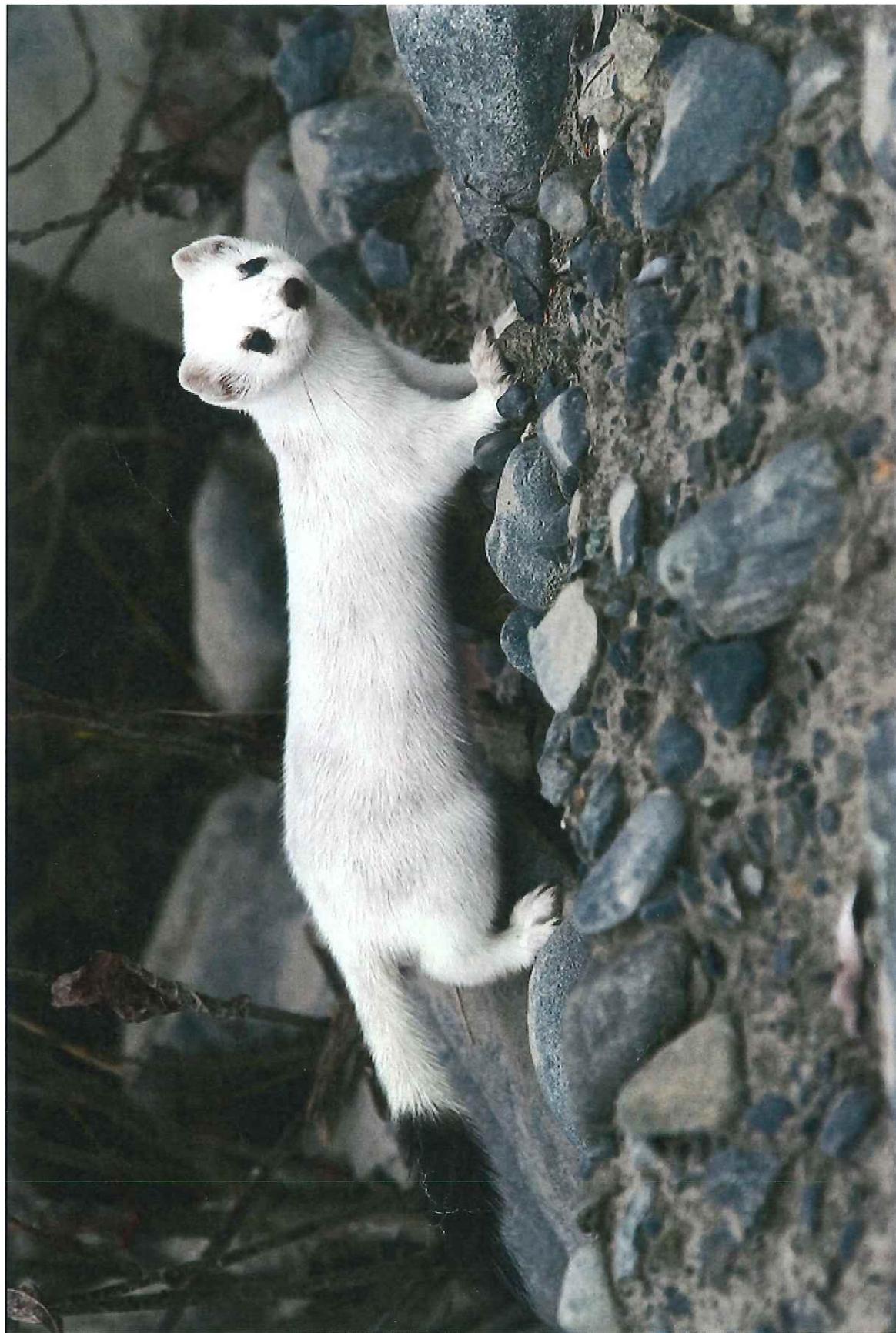
Mink

Diet: Aquatic and terrestrial prey, including muskrats, voles, rabbits, fish, frogs, salamanders, crayfish, clams and insects (carnivorous).

Habitat: Stream banks, lakeshores and marshes. Favors forested wetlands with abundant cover such as thickets, rocks or windfalls.

Comments: Nocturnal; active year-round; dens inside hollow logs, natural cavities under tree roots or in burrows along stream, marsh or lake edges.







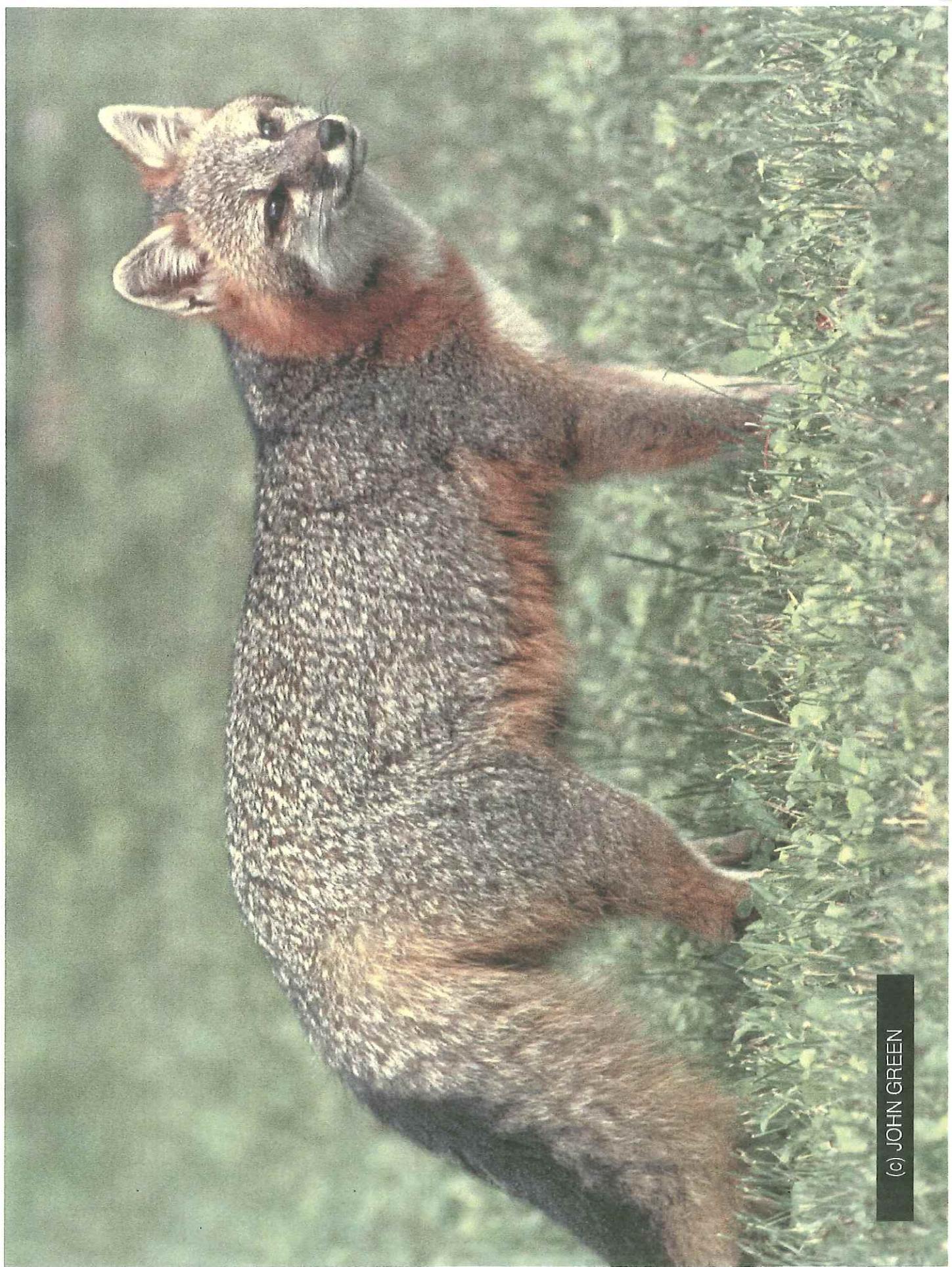
Weasel

Diet: Mice, chipmunks, moles, shrews and occasionally birds and insects; rarely snakes, frogs or fish (carnivorous).

Habitat: Wooded or open country with thickets, rock piles or other heavy cover; often close to watercourses.

Comments: Nocturnal; active year-round; coat molts from brown to white in winter; dens almost anywhere there is a small dry enclosure.





(c) JOHN GREEN

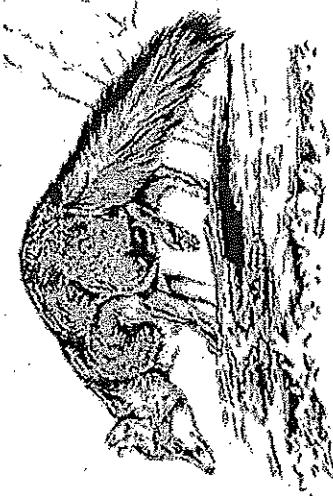


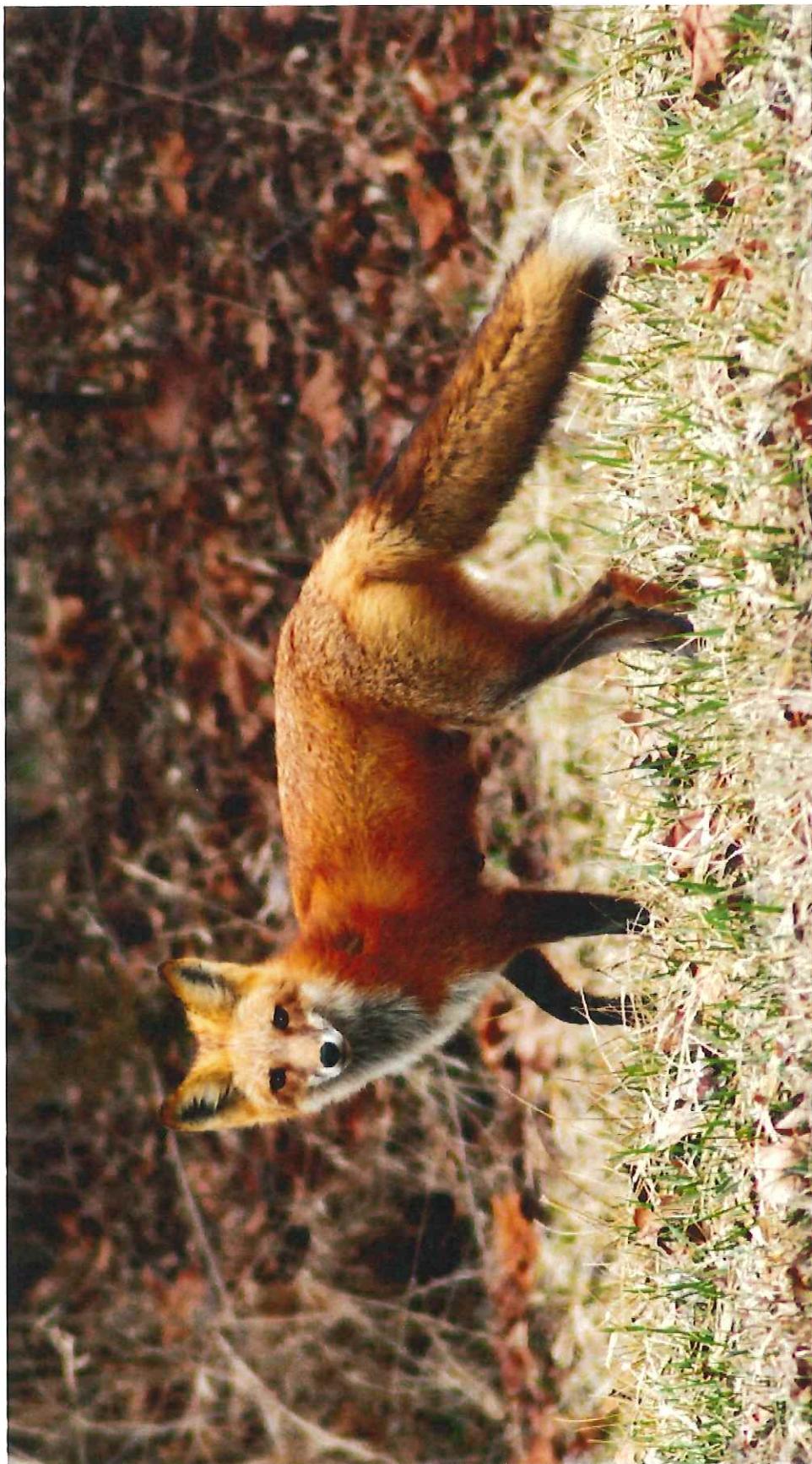
Gray Fox

Diet: Small mammals, especially cottontails, also birds, reptiles and amphibians and their eggs, acorns, insects, fruits and carion (dead animals).

Habitat: Dense northern hardwood or mixed forests; may inhabit thickets and swamps; prefers a mixture of fields and woods.

Comments: Hunts prey and escapes enemies by climbing trees; dens in hollow logs, tree cavities, rock crevices, rarely in ground burrows; nocturnal, also active dawn and dusk.







Red Fox

Diet: Eats whatever is most common (omnivorous). Typical foods are small mammals, insects, berries, birds, turtles, frogs, snakes, and eggs.

Habitat: Prefers mixed forests and open areas. Often found at edges of forests. Needs suitable den sites.

Comments: Very adaptable; uses abandoned woodchuck holes as dens; stores uneaten food under leaf litter or snow.





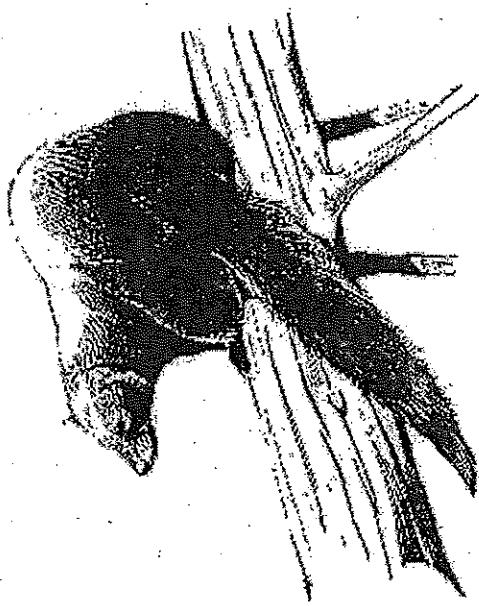


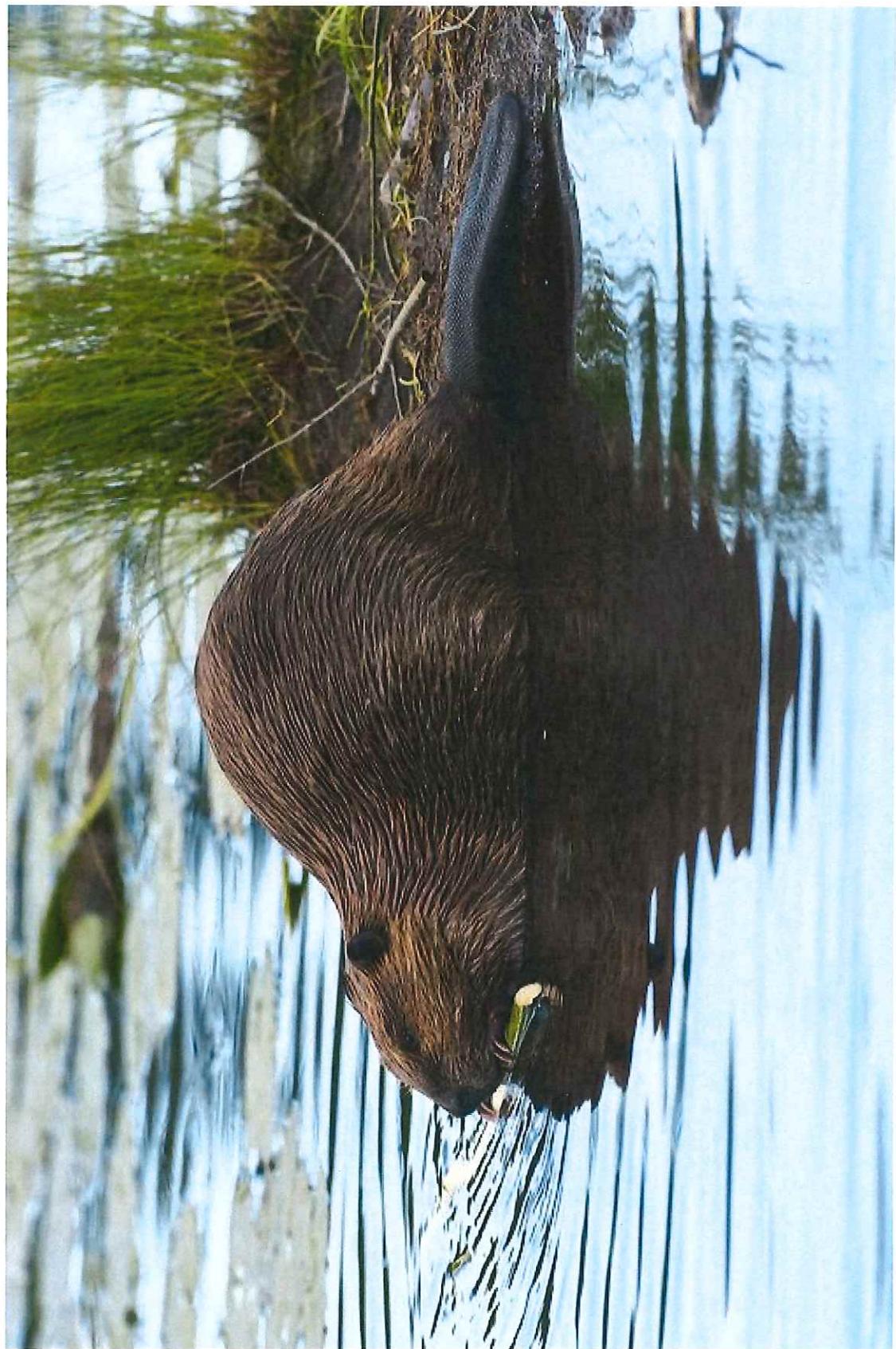
Fisher

Diet: 80 % of diet is mammals; opportunistic feeders; squirrels, shrews, mice, porcupines, birds, toads, insects, berries, nuts and carrion (dead animals).

Habitat: Extensive forests of mixed hardwoods and conifers; also, alder wetlands.

Comments: Good climbers and are as agile in trees as on ground; active day and night, year-round.





SECTION 1

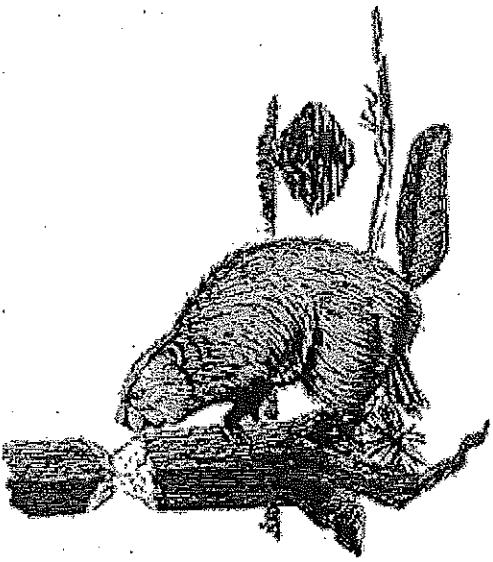


Beaver

Diet: Bark, leaves and twigs of deciduous trees, like aspen, poplar, willow, alder, birch and maple (herbivorous).

Habitat: Lives in slow moving brooks, streams or rivers, ponds and small lakes usually near woods.

Comments: Largest rodent in North America; mates for life; nocturnal; good swimmer.





© Daniel Cadieux



Marten

Diet: Opportunistic; feeds on voles, shrews, snowshoe hare, chipmunks, insects, birds and their eggs, fruit, berries, nuts and carrion (dead animals) (omnivorous).

Habitat: Variety of coniferous forests, including fir, spruce and hemlock; cedar swamps, dense mixed hardwood-conifer forests.

Comments: Spends much time living in trees but primarily hunts on the ground; solitary; active year round.



SECTION 1



TRACK KEY

- 1 BEAVER
- 2 BOBCAT
- 3 COYOTE
- 4 FISHER
- 5 GRAY FOX
- 6 WEASEL
- 7 MINK
- 8 MUSKRAT
- 9 OPOSSUM
- 10 OTTER
- 11 RACCOON
- 12 RED FOX
- 13 MARTEN
- 14 SKUNK

SECTION 1



TRACK PATTERNS

LEAPERS: hind feet larger than forefeet; hind feet land in front of forefeet



New England Cottontail
Eastern Cottontail
Snowshoe Hare
Eastern Chipmunk
Red Squirrel
Gray Squirrel
Deer Mouse
House Mouse
Meadow Jumping Mouse
White-footed Mouse
Woodland Jumping Mouse
Meadow Vole
Southern Red-backed Vole
Woodland Vole

BOUNDERS: the forefeet move forward together and the hind feet land exactly in the tracks made by the forefeet



Short-tailed Weasel (Ermine)
Long-tailed Weasel
Mink
Otter
Fisher
Pine Marten

WADDLERS: large hind track placed next to the smaller front track of the opposite side

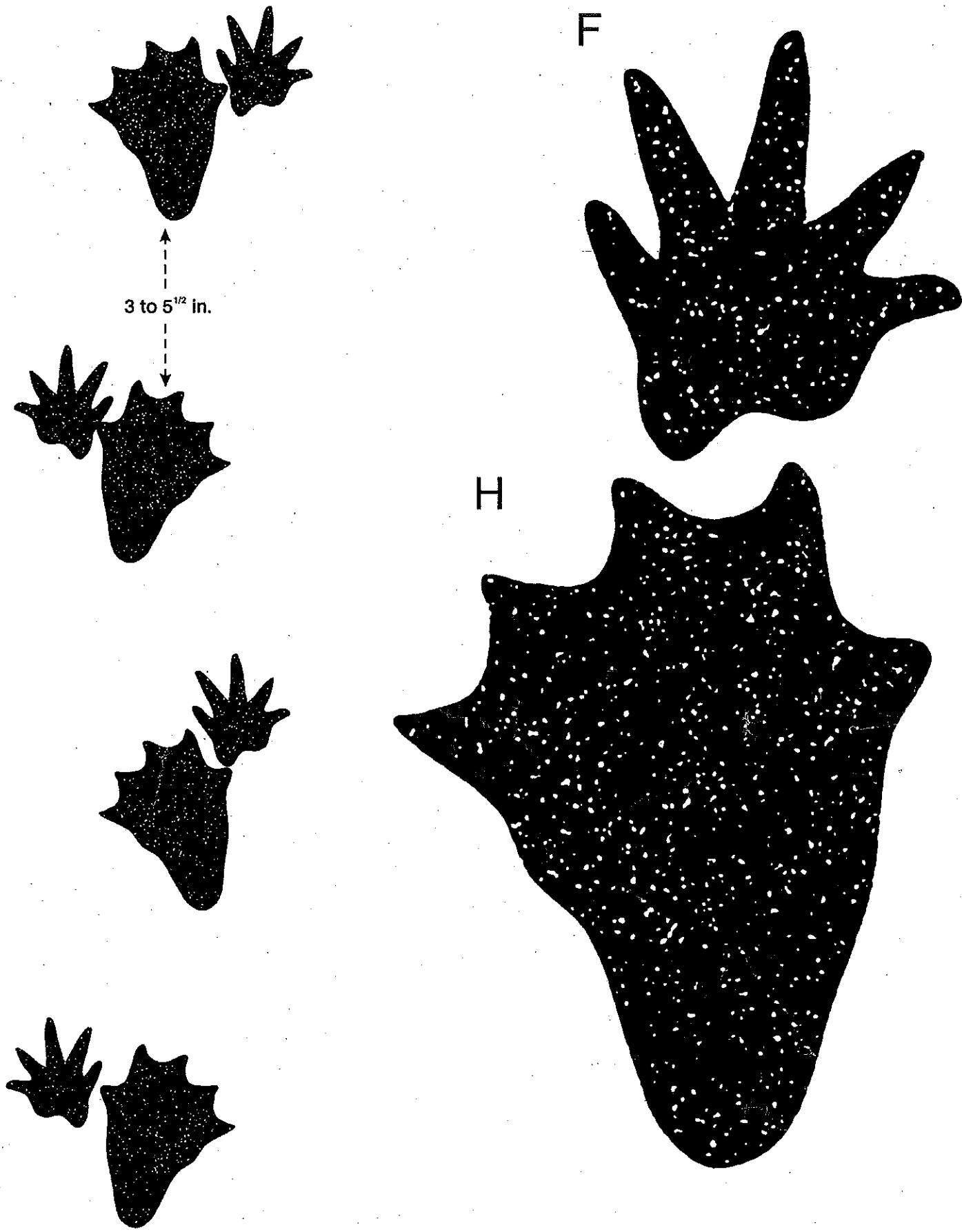


Porcupine
Woodchuck
Beaver
Raccoon
Opossum
Striped Skunk
Muskrat
Black Bear

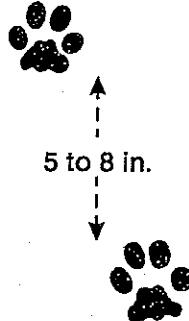
WALKERS: perfect stepping = placing the hind feet exactly into the track of the front feet



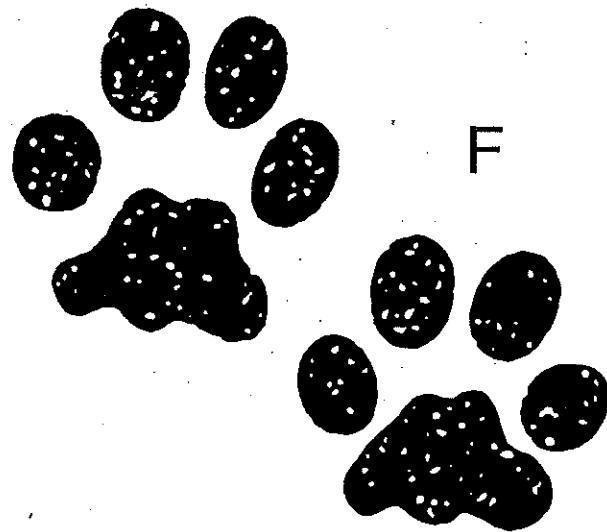
White-tailed Deer
Moose
Red Fox
Gray Fox
Coyote
Bobcat
Dog
Cat
Horse



1

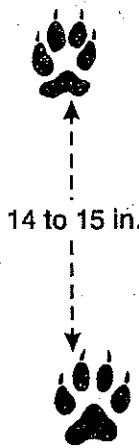


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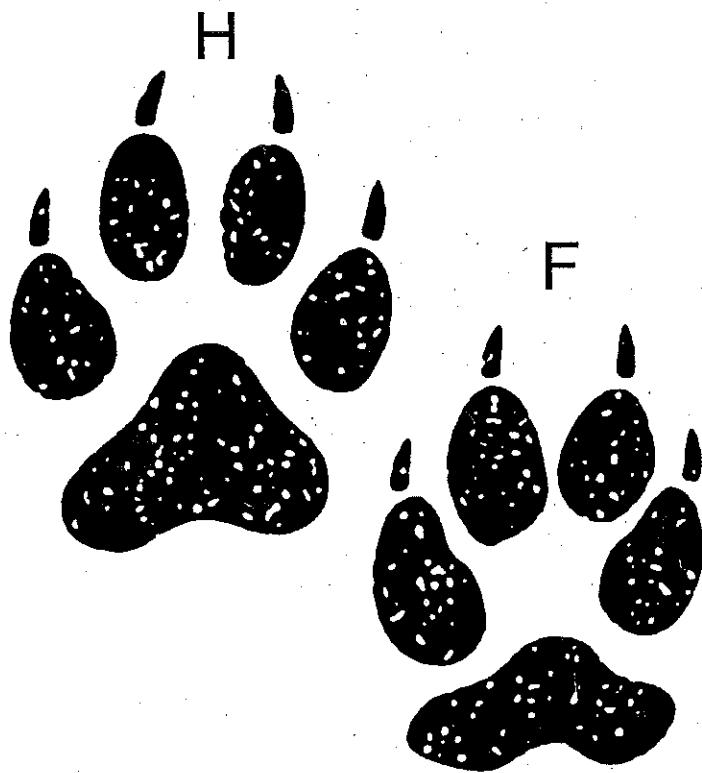


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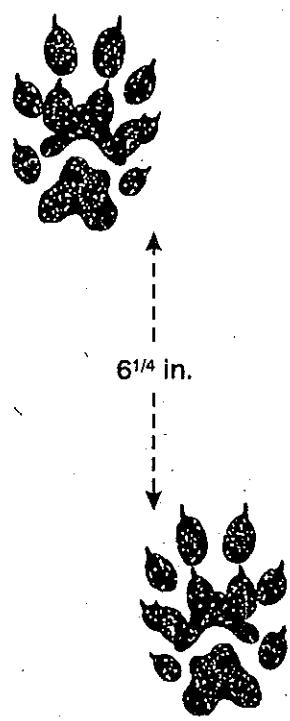
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14 to 15 in.



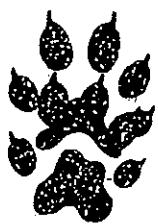
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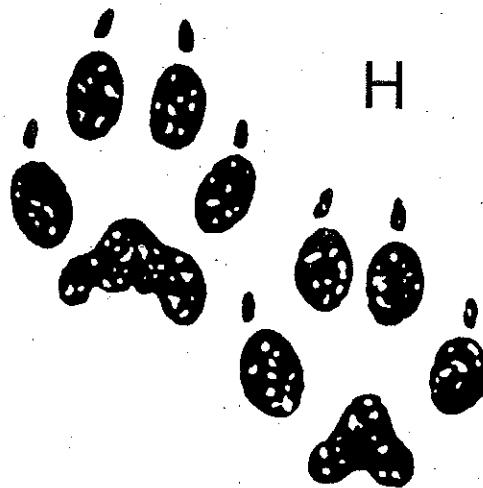
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10 to 12 in.

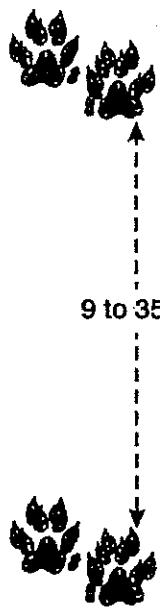


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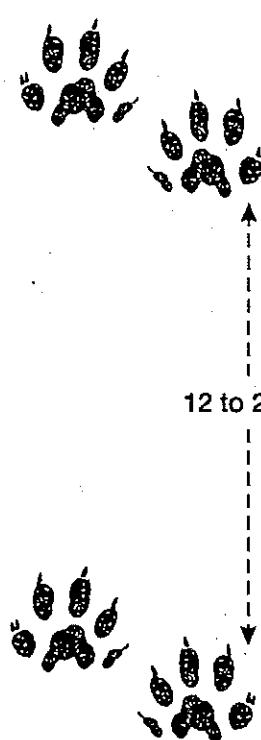


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12 to 23 in.

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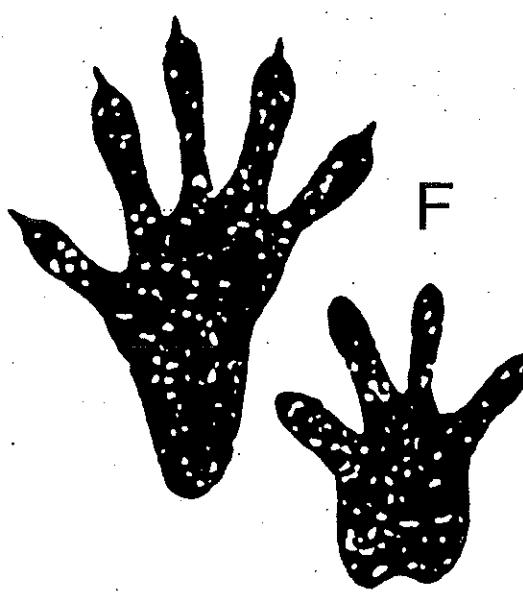
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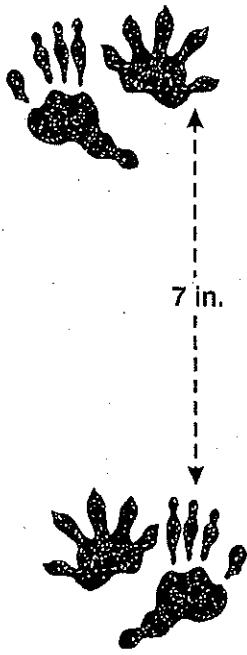
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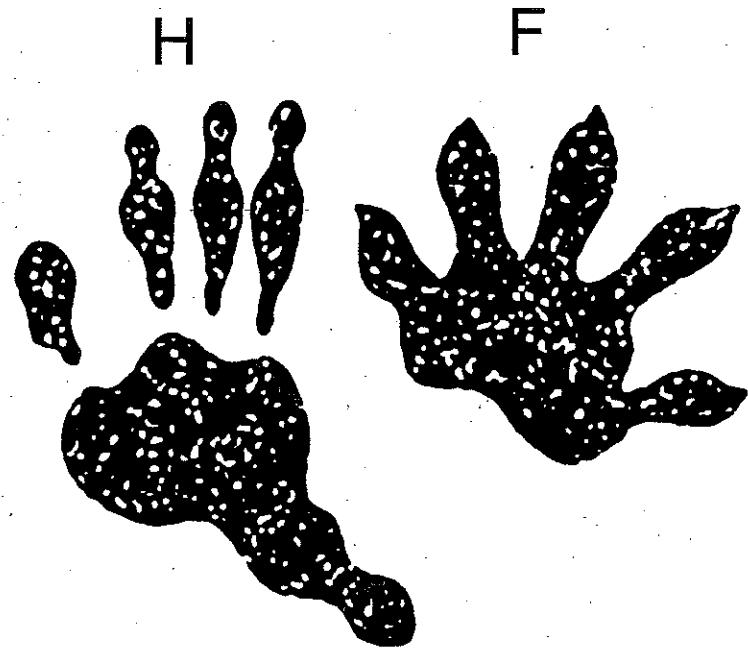
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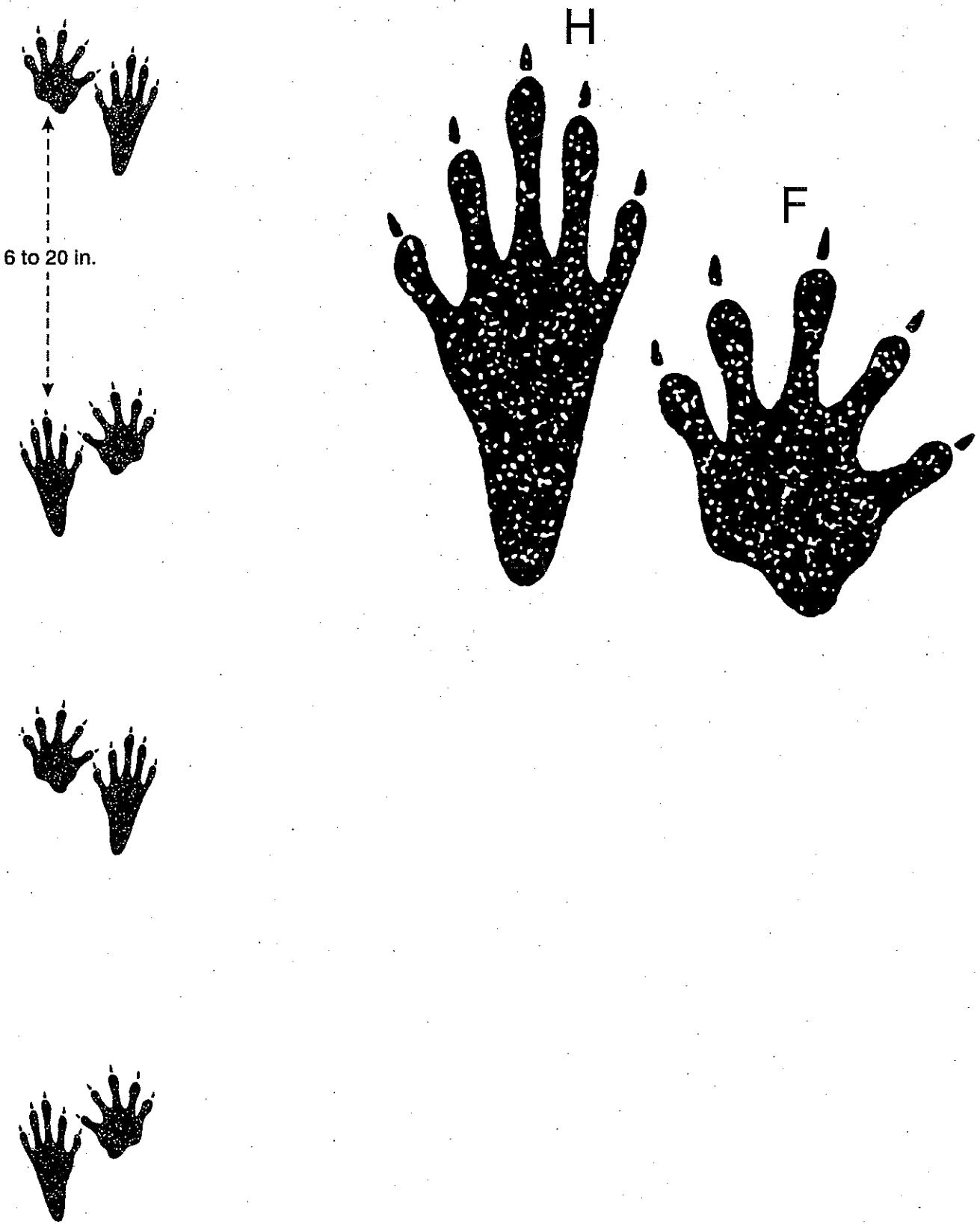


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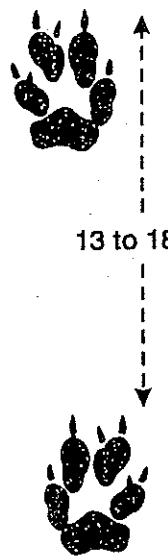


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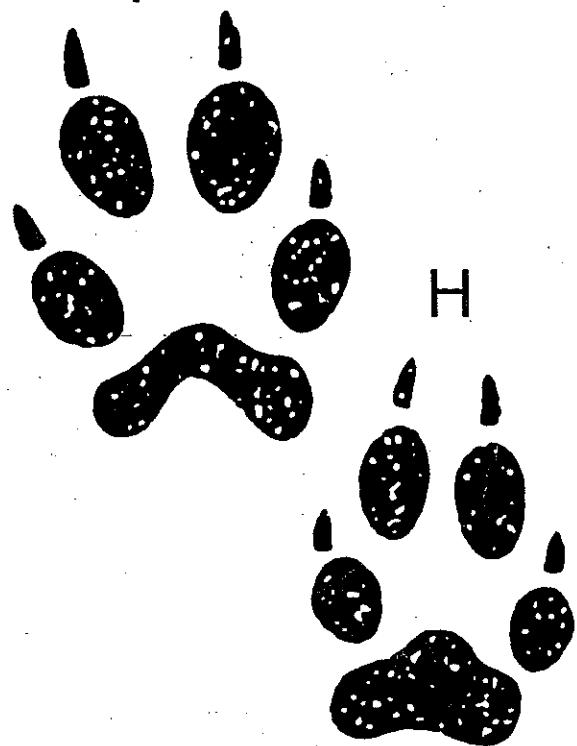
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13 to 18 in.

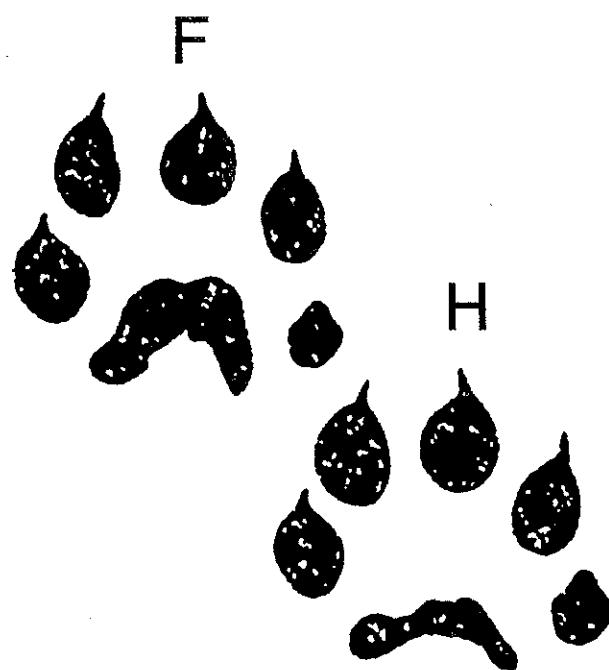
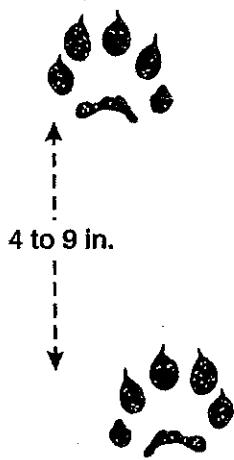


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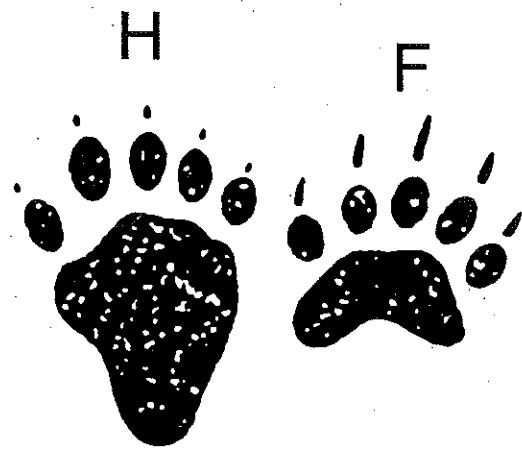
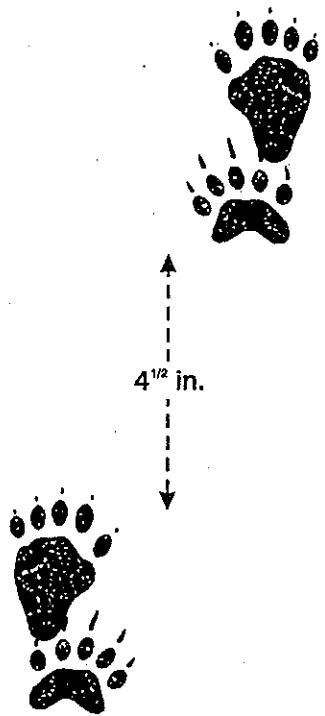


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13



14



SECTION 1



SCAT KEY

- 1 RACCOON
- 2 RIVER OTTER
- 3 GRAY FOX
- 4 MINK
- 5 RED FOX
- 6 MUSKRAT
- 7 COYOTE
- 8 BOBCAT
- 9 BEAVER
- 10 OPOSSUM





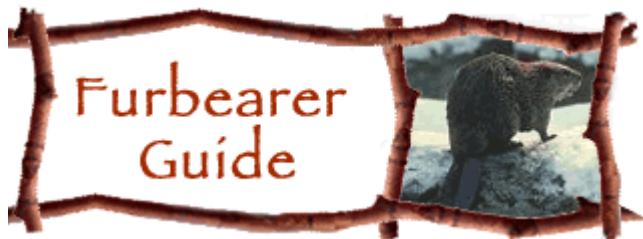
SKULL KEY

- 1 RED FOX
- 2 MUSKRAT
- 3 RIVER OTTER
- 4 FISHER
- 5 BEAVER
- 6 OPOSSUM
- 7 MINK
- 8 RACCOON
- 9 WEASEL
- 10 BOBCAT
- 11 COYOTE
- 12 STRIPED SKUNK
- 13 GRAY FOX
- 14 MARTEN





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What is a Furbearer?

Technically, the term furbearer includes all mammals, all of which, by definition possess some form of hair. Typically, however, wildlife managers use the term to identify mammal species that have traditionally been trapped or hunted for their fur.



Furbearers are a diverse group, including both:

- carnivores (meat eating predators) and
- rodents (gnawing mammals).



Furbearers are adaptable species ranging over large geographic areas.

A few animals that are normally hunted or trapped primarily for their meat or to reduce agricultural or property damage may also be considered furbearers if their skins are marketed.



Most furbearers possess two layers of fur:

- a dense, soft **underfur** that provides insulation and water-repellent qualities; and
- an outer layer of longer, glossy **guard hairs** that grow through the underfur, protecting it from matting and abrasion.



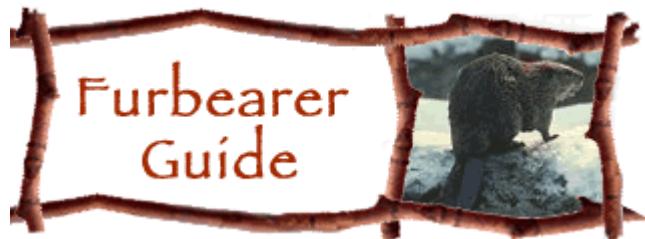
A fur is said to be prime when the guard hairs are at their maximum length and the underfur is at its maximum thickness. Fur generally becomes prime in midwinter when the coat is fresh and fully grown; the timing for primeness may vary somewhat depending on species, location (latitude) and elevation.

Fur Uses:

Furs are generally tanned, trimmed, and sewn into garments, rugs, blankets and ornaments, and sometimes dyed in a variety of colors and patterns. Furs are also used in fishing lures, fine brushes and other products. Some furs are shaved, and the hair processed into felt for hats and other garments.



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Not all furbearer species are harvested in every state and province. However, all of the furbearing species that are legally trapped in the Northeast are common and abundant in the area where they live. None are threatened or endangered.

Choose an animal from the bar (at left) or listing below to find out more about the animal, including: scientific name and abundance range map.

Beaver

Fisher

Mink

Raccoon

Skunk

Bobcat

Gray Fox

Muskrat

Red Fox

Coyote

Marten

Nutria

River Otter

What is a Furbearer? Click the magnifying glass to find out more!



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Wildlife Internet Resources

http://www.dep.state.ct.us	Connecticut Dept. of Environmental Protection
http://www.dnrec.state.de.us/dnrec2000/	Delaware Dept. of Natural Resources & Environmental Control
http://www.furbearermgmt.org/	Furbearer Resources Technical Workgroup
http://www.iafwa.org	International Association of Fish & Wildlife Agencies
http://www.state.me.us/ifw/index.htm	Maine Dept. of Inland Fisheries & Wildlife
http://www.dnr.state.md.us	Maryland Dept. of Natural Resources
http://www.mass.gov/dfwele/dfw/	Massachusetts Div. of Fisheries & Wildlife
http://www.nwf.org/	National Wildlife Federation
http://www.wildlife.state.nh.us	New Hampshire Fish & Game Department
http://www.state.nj.us/dep/fgw/	New Jersey Dept. of Environmental Protection
http://www.dec.state.ny.us/website/dfwmr/	New York Dept. of Environmental Conservation
http://www.gov.ns.ca/natr/	Nova Scotia Department of Natural Resources
http://www.mnr.gov.on.ca/MNR/	Ontario Ministry of Natural Resources
http://www.pgc.state.pa.us	Pennsylvania Game Commission
http://www.gov.pe.ca/enveng/index.php3	Prince Edward Island Dept. of Environment, Fish & Wildlife
http://www.state.ri.us/dem/programs/index.htm	Rhode Island Dept. of Environmental Management
http://web4.si.edu/mna/	Smithsonian Mammals Site
http://federalaid.fws.gov/sfr/fasfr.html	Sport Fish and Wildlife Restoration

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http://www.fur.ca/index-e.asp	The Fur Institute of Canada
http://www.wildlife.org/	The Wildlife Society
http://www.vtfishandwildlife.com/	Vermont Fish & Wildlife Department
http://www.dgf.state.va.us/	Virginia Department of Game & Inland Fisheries
http://www.wvdnr.gov/	West Virginia Division of Natural Resources
http://home.mcn.net/~wtu/marten.html	Wild Things Unlimited (<i>for marten info</i>)
http://wcs.org/	Wildlife Conservation Society

VHS or DVD Resource: **Mountain Men** (Time Machine) follows trappers and mountain men, including Kit Carson and Jim Bridger, who helped open up the west to other explorers and settlers. Available from the History Channel Store; 100 minutes in length.

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A Window to the Past

In Pursuit of Furbearers

Key Terms: extirpated, reintroduced, furbearer.

Furbearers have been an important resource to humans throughout history. People of North America have continuously used furbearers for the past 11,000 years and were dependent upon furbearers to provide the basic necessities for survival; meat for sustenance and fur for clothing, bedding and shelter. When Europeans first came to North America they found an abundance of natural resources, one of which was fur. The demand for fur in Europe created a large fur trade which became North America's largest industry. The availability of fur more than any other factor had a greater influence on European settlement and exploration in North America. Many cities and towns in North America were founded as fur trading centers where Europeans bartered with native Americans for furs.

The French explorer, Samuel Champlain, set up the first fur trading post in Quebec, Canada in 1608 to exchange goods for furs supplied from trappers and Native Americans. Other trading posts were established as the demand for furs grew. The Hudson Bay Company and other fur-trading companies had been established by 1670. They hired trappers and traders to provide for their fur needs. They were to seek new sources for furs and set up new fur trading centers. Some of the fur trading centers grew into major centers, such as New York, Chicago and St. Louis. By the nineteenth century the John Jacob Astor fur companies were the largest industries in the nation.

Trappers were always searching for new sources of fur, particularly beaver. Beaver felt hats were considered very stylish in Europe and demand for them was high. Trappers explored deeper and deeper into the wilderness to find and trap beaver. They discovered many major rivers and lakes and were the first Europeans to cross many of the great western mountain passes. Hunter-trappers, such as Daniel Boone, Jim Bridger and Kit Carson opened the west for future settlers. Their trails became the routes pioneers followed when they traveled west in covered wagons.

By the 1830s the demand for furs declined. European fashion dictated that silk be worn rather than fur. As trappers had to find new ways to make a living, many became guides for the settlers traveling west. The decline in the demand for furs came just in time for the continued existence of some of the furbearers in the northeast. As human settlements and the demand for food grew, much of the forests and many of the wetlands were converted to agricultural lands. Habitat loss had begun to impact furbearer populations. Coupled with the intense, unrestricted harvest, furbearer populations were at a critically low levels.

The Changing Land

By the mid 1850s nearly 60–80% of the land in the northeast had been cleared for pasture, agriculture and buildings. Northern Maine and parts of Canada were the exception. The changing landscape greatly impacted the wildlife that had traditionally lived there. Many species that had been abundant when Europeans first arrived became scarce or were **extirpated** from much of their range. Beavers, once plentiful, were nearly extirpated from the northeastern United States. Some populations did survive in

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northern Maine, the Adirondacks of New York and remote areas of eastern Canada. Wolves, fisher and marten were extirpated while red foxes, skunks and rabbits benefited from the clearing of the land.

By the 1920s many of the farms in the northeast were abandoned. It was much easier to raise crops in the south and mid-west where the soils and climate were more favorable. Abandoned farm land reverted back to forest through the natural process of succession and the landscape once again favored those furbearers of the forest. With new hunting and trapping regulations in place some furbearer populations increased on their own. Others, such as the fisher and beaver had help. Fishers were **reintroduced** into some states, such as Vermont and Connecticut. Biologists, recognizing the value of beaver in the creation of critical wetland habitat, reintroduced them in much of their range. Being prolific as most rodents are, healthy beaver populations were readily established. Wolves and mountain lions, extirpated from the northeast since European settlement, have not returned. Although much of the northeast is now 60-80% forested, fragmentation of the forest is still impacting some furbearer populations. Marten, for example, require continuous, unbroken forest habitat. As the human population continues to increase and spread out from the cities, large, unbroken forest tracts are becoming increasingly rare. On the other hand, garbage from the growing human population is a boon to raccoon and skunk populations.

It is clear that, based on their habitat needs, different furbearer species responded differently to the landscape changes that occurred in the 19th and 20th centuries. The bobcat, unlike the wolf and fisher, is a good example of an animal that benefited from

those changes. (*See bobcat graph in notebook*).

In northern New England and Canada, bobcats are at the northern edge of their range. Competition from other predators such as wolf, mountain lion, lynx, and fisher and the very harsh winters of the 16th, 17th, and 18th centuries probably restricted bobcats to lower elevations. As wolf, mountain lion, lynx, and fisher were extirpated from a significant portion of their range and as much of the forests of New England were cleared, the bobcat managed to survive and thrive. Lack of competition and an increasing prey base improved reproduction and survival of bobcats. Up until the middle of the 20th century, bobcat numbers continued to climb. In the 1950s and 1960s, several events converged that would influence the bobcat population into the next century.

Coyotes moved east from west of the Mississippi to populate New England. Fisher were either reintroduced or their populations began to rebound. Forests matured so that prey populations (deer, rabbit, snowshoe hare) began to decline. As a result, bobcat numbers declined over a 30-year period in the latter part of the 20th century.

Today, bobcat numbers have leveled off and the animals are well distributed across the landscape. In fact, due to warmer winters, there are probably more bobcats in northern New England than there were prior to European settlement.



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Student Page

A Window to the Past

Key Terms: abundant, extirpated, natural resources, over-harvest, populations, reintroduced, succession, unrestricted

In Pursuit of Furbearers

Furs have been important to humans throughout history. Clothing and bedding made of fur were important to protect Native Americans from the cold and wet; and they traded furs for other things they needed. When Europeans first came to North America, they found a land with lots of **natural resources**, one of which was furbearers. When they learned there was profit to be made from furs, trappers went inland in search of furbearers. That search led to the exploration and settlement of much of North America. French, English, and Dutch fur trappers and traders created a successful fur trade with Europe. Europeans paid high prices for clothing made of beaver, mink, and other furs. Furbearers were also trapped for food, medicines, perfumes, and oils used to make clothing water repellent.

The French explorer, Samuel Champlain, set up the first fur trading post in Quebec, Canada in 1608 to exchange goods for furs supplied from trappers and Native Americans. Other trading posts such as the Hudson Bay Company were built as the demand for furs grew. Trappers and traders set off to find new sources of furs and set up new fur trading centers. Some of the fur trading centers they built grew into major cities, such as New York, Chicago, and St. Louis. By the nineteenth century, fur companies were the largest industries in the nation.

Trappers continued to search for new places to find furbearers, especially beaver. The fur of beaver was used to make felt hats that were considered very stylish in Europe. Trappers explored deeper and deeper into the western wilderness to find and trap beaver. They discovered many major rivers and lakes and were the first Europeans to cross many of the high western mountain passes. Hunters and trappers, such as Daniel Boone, Jim Bridger, and Kit Carson opened the west for future settlers. Their trails became the routes pioneers followed when they traveled west in covered wagons.

By the 1830s the demand for furs fell. Silk, rather than fur, became the fashion rage in Europe, where most of the furs had been sold. Because people stopped buying furs, trappers had to find new ways to make a living. Many became guides for the settlers traveling west. The loss of interest in furs came just in the

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nick of time for many of the furbearers in the northeast. Due to **over-harvesting** there were not many left. At the same time, habitat loss was great. As the population of settlers grew, so did the need for food. Much of the forests and many of the wetlands were cleared or filled to make farmland. Habitat loss and heavy **unrestricted** trapping caused furbearer populations to fall to very low levels.

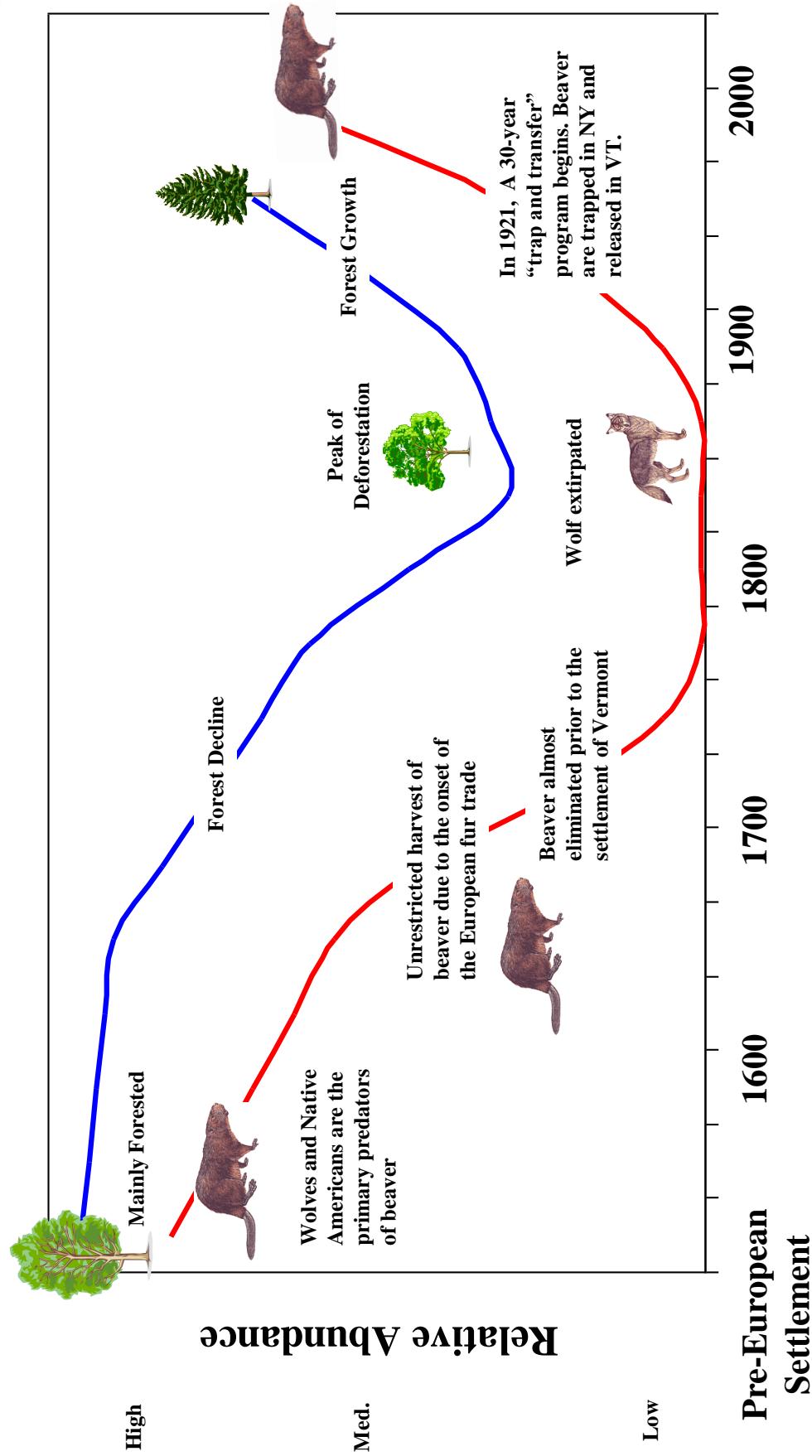
The Changing Land

By the mid 1850s most of the land in the northeast had been cleared for farming. Northern Maine and parts of Canada were exceptions. The changing land greatly affected the wildlife that lived there. Many species that had been **abundant** when Europeans first arrived became scarce or disappeared from much of their range. Beavers, which were once abundant, were nearly **extirpated** from the northeast. In other words, they disappeared from most the area in which they had lived. Some populations survived in northern Maine, the Adirondacks of New York, and remote areas of eastern Canada. Wolves were extirpated from the northeast, killed by farmers who did not want them feeding on their sheep or other livestock. Fisher, marten, and lynx were greatly affected by the loss of their forest habitat. Mink, otter, and muskrat were affected in two ways. They lost their habitat when farmers started using wetlands for farmland. They were also hurt by the disappearance of beaver, which were important because they created wetland habitat. Red fox, raccoon, and skunk **populations** increased when farmland was created, as open lands are an important habitat for them.

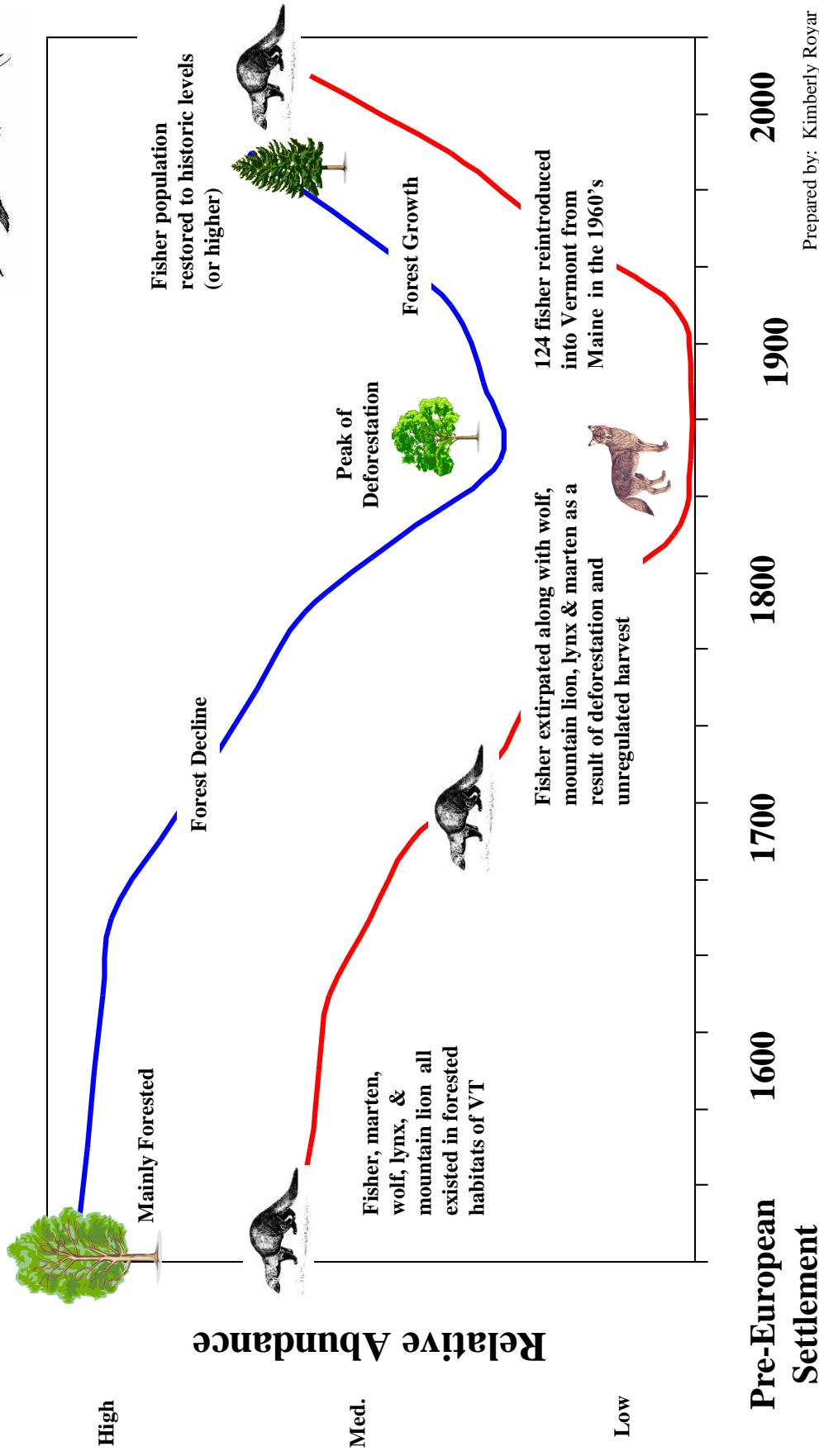
By the 1920s many of the farms in the northeast were abandoned. It was much easier to raise crops in the south and Midwest, where the soils and climate were better. Much of the farmland slowly changed back to forest through **succession**. The new forests provided habitat that many of the furbearers needed. Laws were created that protected wildlife from being over-harvested. With the return of forests and new hunting and trapping laws, many furbearer populations increased on their own. Some populations, such as the fisher and beaver, had help moving back to areas they had once lived. Individuals were **reintroduced** or captured in areas where they were abundant and released in areas from which they had disappeared. Beavers reproduced quickly and today are abundant once again.



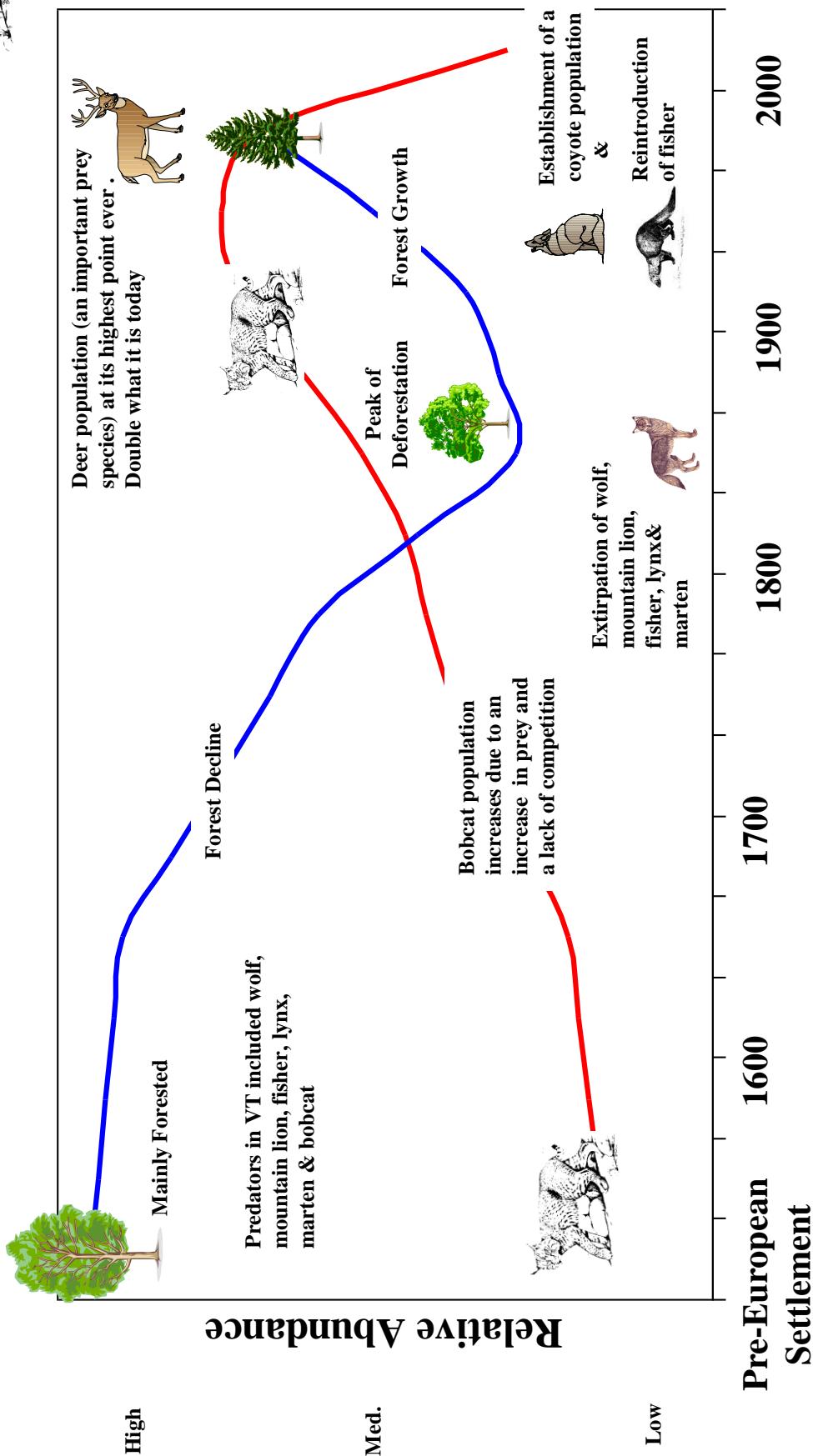
A Schematic of Historic Beaver Abundance in Vermont



A Schematic of Historic Fisher Abundance in Vermont



A Schematic of Historic Bobcat Abundance in Vermont



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Teacher's Page –additional resources can be found at www.ConserveWildlife.org

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History of the Fur Trade

Traveling and Exploring Where We Live --- 300 Years Ago.

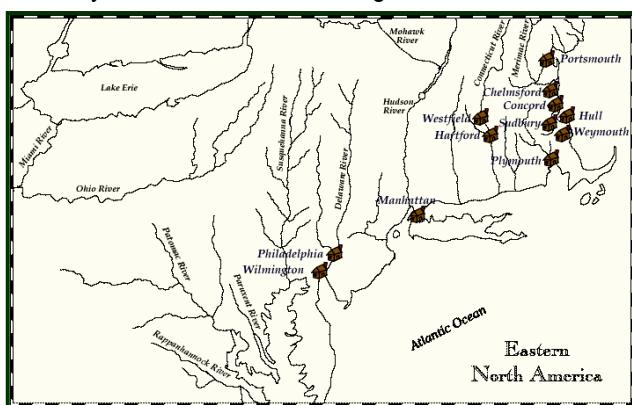
The trade in the furs of wild animals between the native Indian people and the first European colonists was the single most important means of contact between two widely different cultures.

This trade in furs became the economic life blood of the Dutch, English, French and Swedish colonies in North America. Seeking to obtain furs formed the pattern of exploration, then trade, then settlement in the Northeast. Many of the cities and towns in the Northeast today owe their origins as fur trading posts. Exploration of the region by Europeans was not conducted by colonists walking afoot or by riding a horse overland. The Northeast was explored by colonists traveling from the Atlantic ocean up along the many river systems. Moving upstream explorers and fur traders established trading posts or forts on or near the rivers.

The purpose of these locations was to trade in furs with the native Indian people in the area. The accompanying map show the principle fur trading routes and a sampling of many of today's cities and towns along the east coast that were

first established as fur trading centers were native people sold and bartered fur pelts (including beaver, river otter, white-tailed deer, black bear and moose) with early colonists. These interactions were important and valued by both colonists and natives. The exploration of the region and interaction of trading of furs with the native tribes that already lived here did not create hostility or wars. However, the settlement patterns and issues that later followed caused problems and armed clashes with the Native peoples. Later still, much of the antagonism between European countries in the new world related to their efforts to monopolize as large a portion of the fur trade as possible with the Indians. This also eventually led to armed fighting.

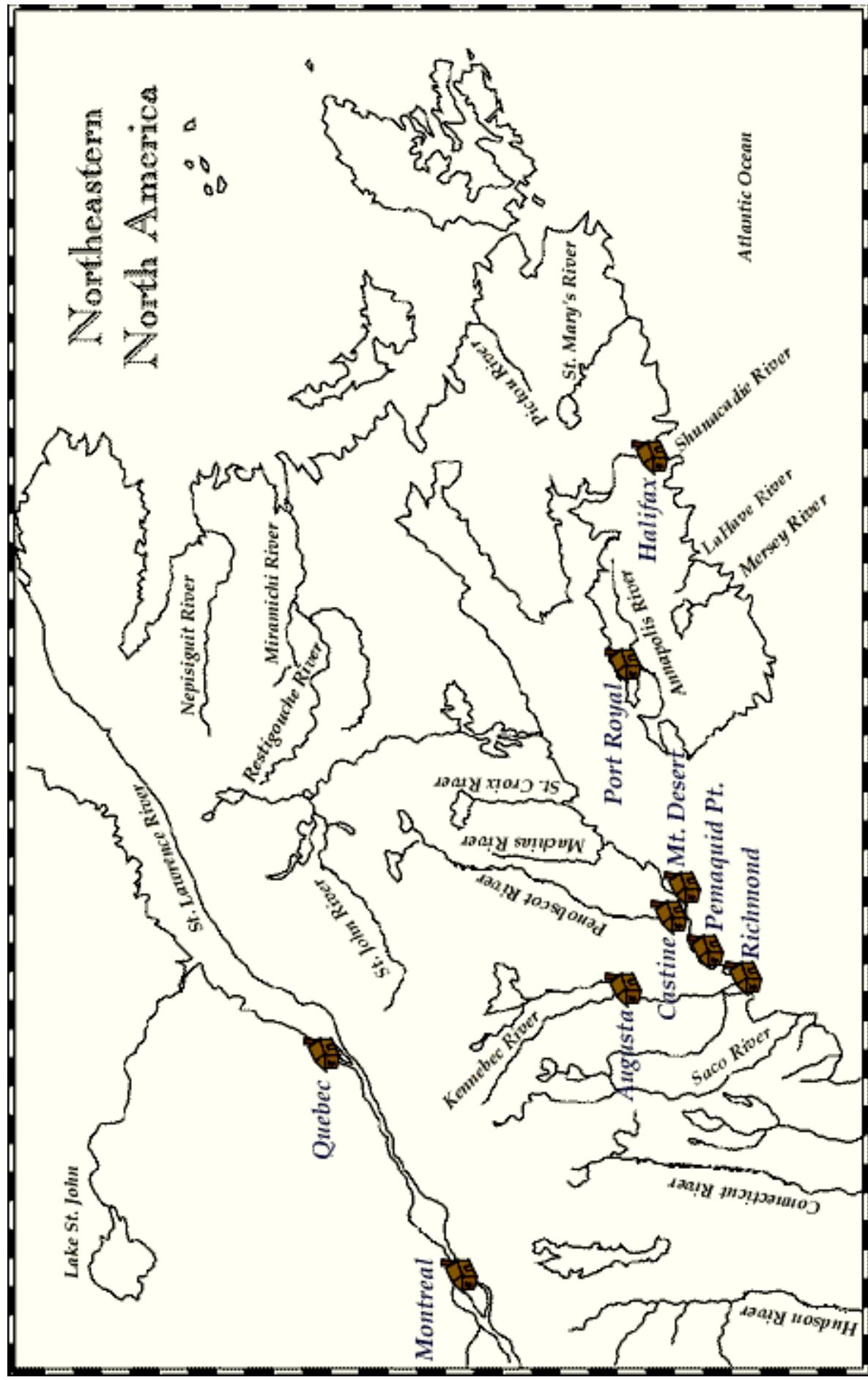
While the colonists sought the furs of many wild animals they did not trap them them-selves, the actual harvest of the wildlife was conducted by the Indians who were very skilled in capturing wild animals. Many of the animals taken by the Natives were not caught in traps. Digging beaver from there lodges during the winter beaver hunt was a predominant way to catch beaver. These hunts often involved the entire tribe and were closely synchronized to ensure successfully catching beaver. Blocking entrance ways to beaver lodges and then digging into the lodge using stone spears and axes to dispatch the beaver inside was an important method used to capture beaver. Beaver were used by native Indians people for their pelts, meat, glands, and bones and for religious ceremonies as well.



Many of today's cities and towns along the east coast were first established as fur trading posts.

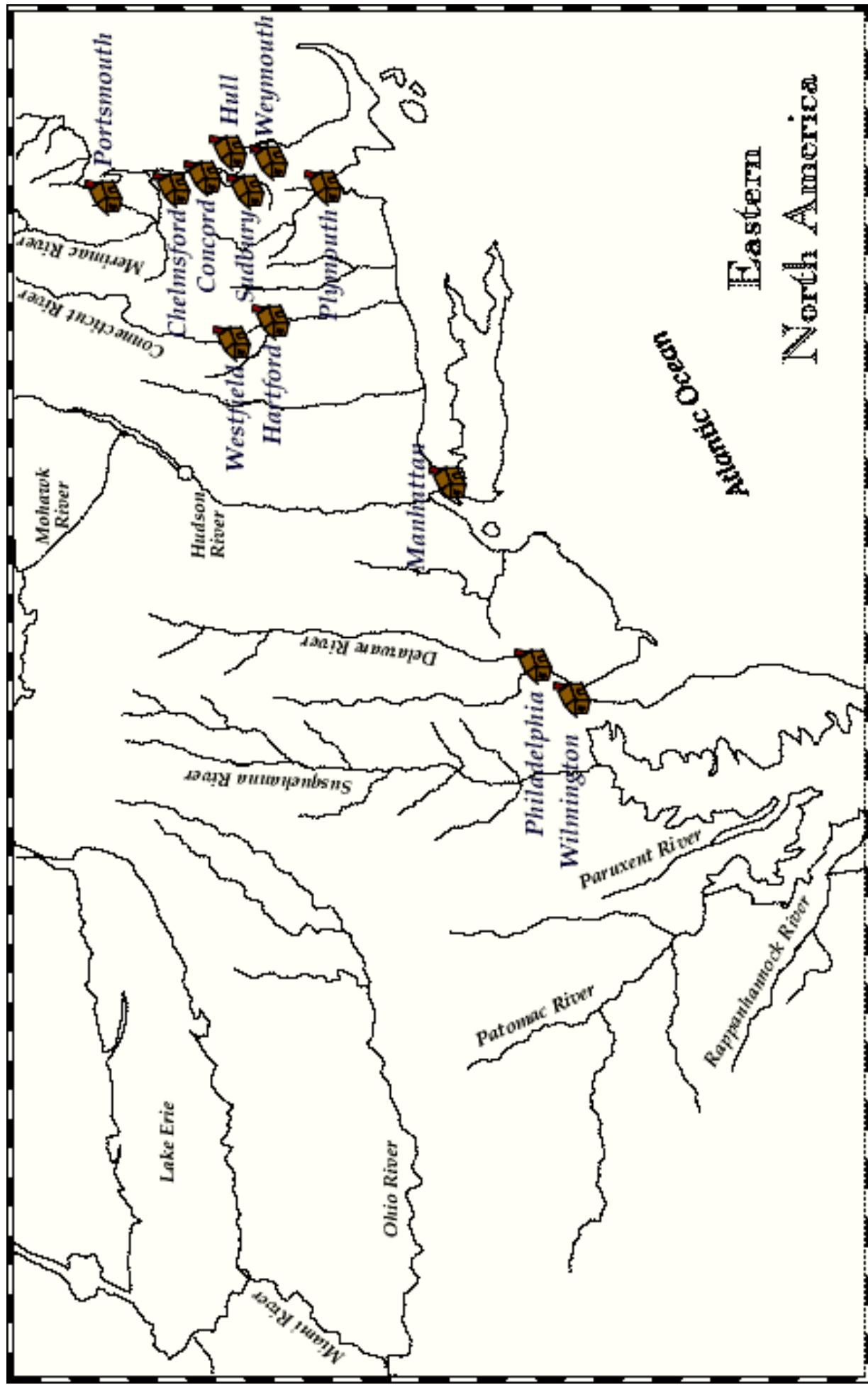


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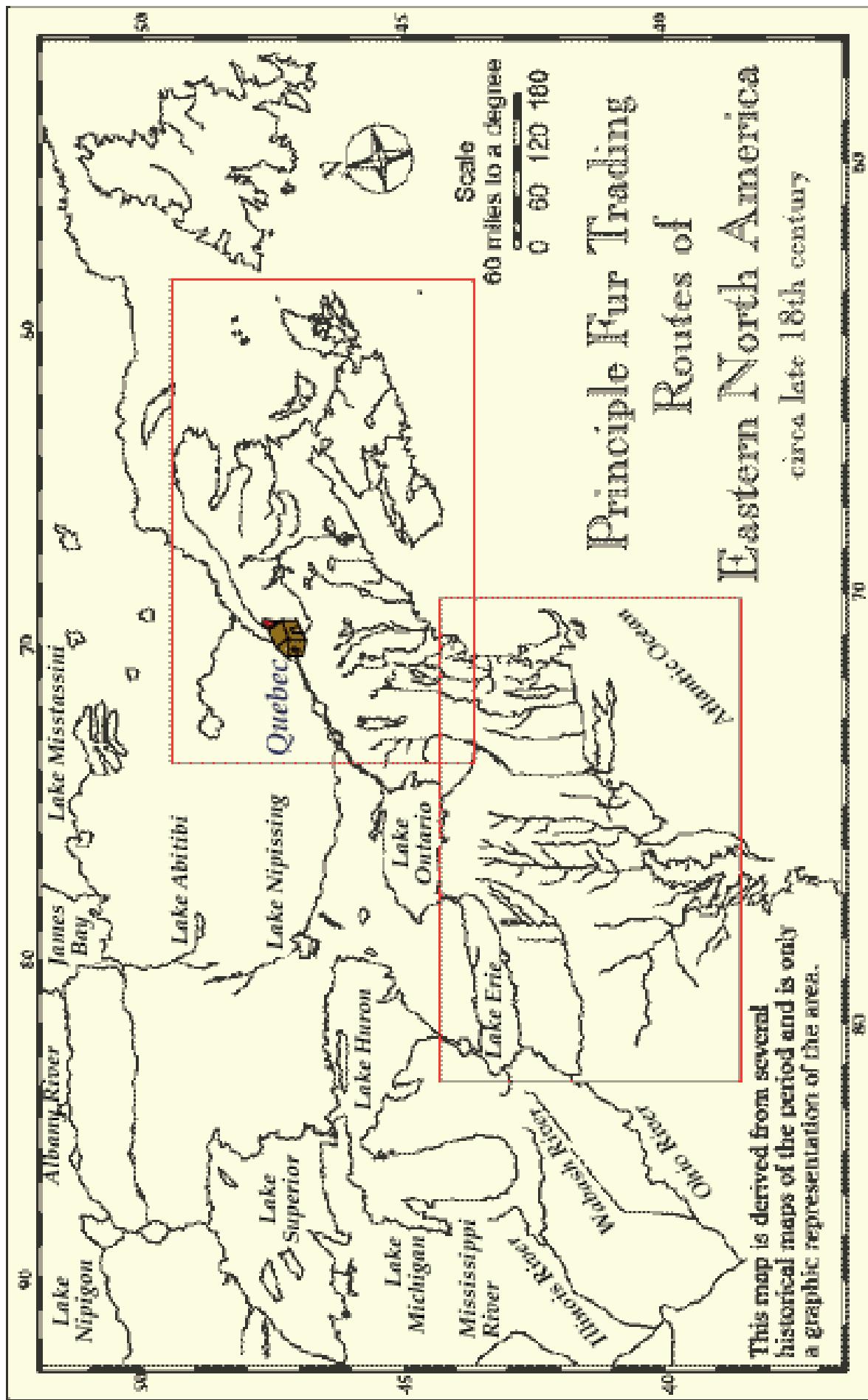


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Historical Perspective

The trapping of furbearers has been an enduring element of human culture ever since our prehistoric hunter-gatherer ancestors devised the first deadfalls, pit traps, snares and capture nets. People were dependent upon furbearers to provide the basic necessities for survival - meat for sustenance, and fur for clothing, bedding and shelter - throughout most of human history.

Defining and defending territory where furbearers could be trapped to acquire these critical resources united families, clans and tribes long before the invention of agriculture and animal husbandry gave rise to ancient civilizations. While modern technology and agriculture have significantly reduced human dependence on furbearers for survival, people in both rural and developed areas continue to harvest furbearers for livelihood and personal fulfillment. The taking and trading of furbearer resources remain on the economic and environmental agendas of governments throughout the world.

Trapping furbearers for their fur, meat and other natural products has a long tradition in the Northeast, dating back to the time the first aboriginal people moved into the area behind receding glaciers. Several thousand years later, fur was the chief article of commerce that spurred and funded European colonization of the continent during the 17th and 18th centuries. Many cities and towns founded as fur trading centers during that period still bear witness to the fact that furbearer trapping had a major influence on our history.

The utilization of furbearer resources was unchallenged throughout that history until early in the 20th century, when the first organized opposition to furbearer trapping emerged. The focus of that opposition was primarily on development of more humane traps and curtailment of trapping abuses, rather than against trapping itself or continued use of furbearer resources.

During the 1920s, however, opposition magnified to challenge all use of animals, and sought to ban the harvest of furbearers. In response to this development, proponents of trapping and the fur industries began organizing to defend



themselves. By the 1930s, furbearer trapping had become a recurrent public issue. Since then, the pro- and anti-trapping factions have disseminated enormous amounts of generally contradictory information. During this same period, new technologies and advances in ecology, wildlife biology, statistics and population biology allowed wildlife management to develop into a scientific profession. State, provincial and federal agencies were created to apply this science to protect, maintain and restore wildlife populations. The harvest of

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furbearers became a highly regulated, scientifically monitored activity. Trapping and furbearer management - one steeped in ancient tradition, the other rooted firmly in the principles of science - allowed furbearer populations to expand and flourish.

Today, as controversy over the use and harvest of furbearers continues, professional wildlife managers find themselves spending considerable time trying to clarify public misconceptions about trapping and furbearer management. The complex issues involved in that management - habitat loss, animal damage control, public health and safety, the responsible treatment of animals - cannot be adequately addressed in short news articles or 30-second radio and television announcements.

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People Who Trap - Choice of A Lifestyle

Historically, people in the United States and Canada looked to the land to secure food and provide for their households. Being independent, self-sufficient, hard working, providing for one's family, being stewards of the land - these values and life styles are traditionally and distinctly part of the fabric of North American society and culture, and they are still present today.



A woman works on an artic fox pelt in the Northwest Territories of Canada

Today, trapping is done as an annual pursuit by many people in the United States and Canada; in addition many homeowners use trapping to deal with wildlife causing property damage. Throughout North America, government sociologists and university researchers have begun to document the importance of trapping in the lives of people who still look to the land, and utilization of wildlife as part of their lifestyle. Sometimes this lifestyle is not understood by a larger segment of society who do not hunt, trap, fish, raise their own vegetables or cut their own firewood - people who do not consider looking to the land to provide for their households.

Households that contain trapping lifestyle are often not apparent in suburban areas that contain a diverse mix of cultures. Yet, researchers have documented and described a very vibrant trapping culture even within the urbanized Northeastern United States.

Research has found that people who participate in trapping do so for many reasons, the most commonly listed ones are: life style orientation, nature appreciation, wildlife management, affiliation with other people, self-sufficiency, income (sometimes complimentary to their household budget, sometimes a critical component or an important safety net to household income). Most people participate for several reasons.

Notable conclusions about trappers in the eastern United States are that trapping is a central theme in the lives of people who trap even though they may live in suburban areas. These people also cut firewood, raise their own vegetables as well as hunt or fish. They also tend to have strong support for conservation programs and environmental protection. For these people, the opportunity to harvest fish and wildlife contributes to a sense of self-reliance independence and the ability to provide for one's self. They consider the land and the utilization of wildlife as part of their lifestyle. Trapping is a means of providing food, clothing and other items for their households. Studies in New England and elsewhere reveal that trappers

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participate in bartering in many communities. They barter childcare, automobile repair, vegetables and other goods or services in exchange for pelts, trapping services, or the removal of nuisance wildlife causing property damage.



A family traps muskrats under the ice in New England

An important observation has been that trapping in today's society has often been referred to as 'recreational' in the context of a 'sport'. However, the body of existing research indicates that this term is a misnomer and not descriptive of the motives of the hundreds of trappers they studied. People who trap list four or five motives as important: Universally a theme is revealed that for many of these people, trapping is a component of their lifestyle that defines them and has deep meaning, and provides sustenance (food, clothing, money) that provides for their households and well being.

In large areas to the north in Canada and Alaska people who trap often fit our image of traditional trappers. In Canada and Alaska between October and March tens of thousands of aboriginal people participate in trapping furbearers. Mirroring the motives of their contemporaries in the more developed areas of the continent, these trappers are motivated by sustenance (food and clothing). Fur

trapping can be particularly important due to the remoteness of the communities and may provide the only source of income for specific times of the year. Many values and traditions of these people are passed along from generation to generation through the seasonal rituals of trapping. Trapping teaches youth survival and subsistence skills and provides a meaningful winter activity that helps instill a sense of responsibility to their families and communities. An assessment of the impacts of various uses of mammals included furbearer trapping in the Yukon as one case. The results of the assessment determined that it was sustainable (i.e. good) and should be encouraged because harvests by local people were within natural population fluctuations of the animals they trapped. Additionally, advocacy by local trappers to maintain wildlife habitat prevented abuse of the land by people looking to remove non-renewable resources like oil.

Whether being conducted by aboriginal trappers in Canada and Alaska or people living in suburban or rural areas of New England, Louisiana, or the mid-west, a common link in the values of these people is they utilize wild animals and plants to bring sustenance into their households (e.g. the meat for food, pelts for clothing, or money to buy household goods). For many, this is an integral part of their life, and is an enduring element of their relationship to nature and link to the land. With proper management of wildlife resources, people today can still choose to participate in this lifestyle as they have done since the beginning of time. This is a unique opportunity and experience for people in the United States and Canada because this lifestyle cannot be pursued throughout most of Europe and the rest of the industrialized world.

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In the Days of Bartering -

In 1703 you didn't sell a beaver pelt - you traded one. In fact, the beaver pelt was the "dollar" of the day.

This is what your choices were for one beaver pelt:

- 1 broad/2 yards of broad fine cotton
- 6 knives
- 5 pecks of Indian corn
- 6 combs
- 2 pints of gun powder
- 1 shirt
- 1 pint of shot
- 2 small axes
- 10 pounds of pork
- 2 small hoes

Or if you wanted to trade a beaver skin for other pelts, here were your choices for one beaver pelt:

- 1 otter
- 8 mink
- 1 bear
- 4 marten
- 5 pounds of feather
- 4 raccoons
- 2 woodchucks
- 2 foxes
- 4 large seal skins
- 1/2 moose hide



SECTION 3



Nuts and Bolts of Furbearer Management

Key Terms: carrying capacity, endangered, harvest, limiting factor, population, stabilize, surplus, wildlife manager

Population Dynamics

Furbearer populations like all wildlife populations vary in number from season to season, year to year and place to place. The size of the population can be influenced by several factors. The health of the habitat, changes in climate, the amount of food, competition with other species and diseases. Populations persist when the number of births equal or exceed the number of deaths. All species, then, have evolved to produce a **surplus** of young during each generation. Furbearers are no exception. Some are even capable of doubling their population in just one year. One would think that wildlife populations would grow continuously. But they do not. Different **limiting factors** come into play that restricts the number of animals that survive. Usually, the lack of a basic need such as, food, water, shelter or space, limits the size of a given population. These factors also cause seasonal and yearly changes in wildlife numbers. It is easy to see that the amount of food would limit the size of a population, but perhaps, not as readily recognizable, is that the lack of appropriate shelter can be just as limiting. An outbreak of a disease, such as rabies may also serve as another limiting factor.

Habitat can only support a given number of animals based on the food, water, shelter and space available. The number of individual animals that a habitat can support is referred to an

area's **carrying capacity**. For example, beaver ponds are rich wetland habitats that support many species of wildlife such as insects, fish, birds, mink, otter, and moose. They are very productive for the first 5 to 10 years after the dams are built. Over time though, the beavers eat all the existing vegetation and eat themselves out of house and home. The 'carrying capacity' of the area for beaver declines drastically, and in most cases, they abandon the site. Beavers may be absent for as long as 10 to 20 years. In the beaver's absence, new trees begin to grow. This new food source improves the 'carrying capacity' of the site and provides habitat for the next group of beavers that occupy the area.

Management

Today, wildlife biologists work to maintain furbearer populations at levels that are favorable for the animals, the habitat and the public. Furbearer populations and their habitats are closely examined by biologists who are trained to assess them. Biologists then manage the furbearer populations based on their findings and the goals they hope to achieve. Generally, the overarching goal is to maintain stable populations over time. There may be situations, however, when the goal is to increase or decrease a population. Marten populations, for example, are very low or even non-existent throughout much of its range in the northeast. So, in many states, the management goal is to increase the number of martens. Beavers, on the other hand, are so abundant in some areas that roads and agricultural lands

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are being flooded. The goal in these areas may be to reduce the population.

When managing a population, biologists employ any number of tools designed to increase, decrease or stabilize the population. Managing habitat is a way to positively affect many species that use the area. To increase a population, the habitat may be enhanced to raise the carrying capacity. For example, improving habitat for a prey species such as snowshoe hare can increase the number of predators like bobcat, fisher, and coyote that live in an area. The conservation of large tracts of undeveloped forest benefits wide-ranging species such as marten, lynx, bobcat, and fisher. The retention of old cavity trees benefits many species that rely on them for den sites. Maintaining a mix of fields and forests enhances the habitat for species such as coyote and red fox.

Regulated trapping is the primary tool wildlife managers use to reduce, **stabilize** or even increase a furbearer population. All of the furbearers managed through trapping are common and abundant. **Harvest** regulations and restrictions are set according to the management goals. Generally, many furbearer species produce more young than the habitat can support and therefore, more than will survive. Each year a number die of starvation, disease or old age. In a sense, there is often a **surplus** produced. It is that surplus that **wildlife managers** target when they set trapping regulations designed to keep populations constant. Furbearers are a renewable natural resource. Like forests, a carefully calculated portion of the population can be harvested and used for human benefit. In fact, in many

parts of the Northeast today, the level of harvest is actually lower than that applied by the Native Americans prior to European settlement.

There are times when the reduction of a furbearer population may be necessary. That is usually the case when a population begins to cause too many problems for people. A common example is when the dam building of beavers causes the flooding of roads or farmland. Although tools such as water control structures may help to stabilize water levels and solve some problems, often beaver numbers need to be reduced as well. Wildlife managers may therefore recommend an increase in the harvest. In addition, it may be a surprise to some that trapping is sometimes an important tool in the management and protection of **endangered species**. A reduction of a species may be warranted when an endangered species is being impacted by predation. For example, endangered piping plovers and their eggs, are frequently preyed upon by raccoons. Raccoon populations are increasing due to their adaptability to humans and can severely affect the reproductive success of the piping plover. In many situations, wildlife managers have chosen to reduce the population of raccoons in coastal nesting areas to protect the plover population.

Traps and trapping are also used to restore some animal populations. Some of the same types of traps used to harvest furbearers have also been used in furbearer reintroduction and recovery efforts. Wolves, for example, had been eliminated from the greater Yellowstone area for more than 100 years. Recently, in an attempt to restore wolves to

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Yellowstone National Park, they were caught in Canada using foothold traps and released unharmed in Wyoming. In New York State, otter populations had declined drastically throughout the 1800's due to changes in land use practices, unregulated harvest, and water pollution. Otters were recently trapped in surrounding states and relocated to New York. Today, the otter population in New York is being carefully managed to increase otter numbers.

There are many things to keep in mind when we consider trapping as a viable management tool.

- Professional wildlife biologists and conservation officers from state Fish and Wildlife agencies strictly regulate and enforce trapping activities.
 - Only abundant species of wildlife can be legally trapped. Since the inception of modern wildlife management in the 1940s, no animal populations in the United States have become endangered or extinct as a result of regulated hunting or trapping.
 - Each state restricts what species can be trapped and what kinds of traps can be used.
 - Only licensed trappers are allowed to participate during a trapping season, which lasts only a few months of the year; seldom during spring or summer when animals are busy caring for their young.
 - Trapping is used to relocate wildlife to areas where they once lived, but may no longer be found. For example, the restoration of fishers to Vermont was made possible through the use of trapping.
- Regulated trapping is an important way for biologists to collect important ecological information about wildlife, especially wildlife diseases like rabies and Lyme Disease that also affect people.
- Threatened and endangered species also benefit from regulated trapping. Sea turtles, whooping cranes, black-footed ferrets, piping plovers and other rare species are protected from predation and habitat damage caused by fox and coyote. (See pamphlet in kit "Trapping in the 21st Century")
 - Regulated trapping is supported by all fifty state wildlife agencies, the International Association of Fish and Wildlife Agencies, U.S. Department of Agriculture, The Wildlife Society, Wildlife Management Institute and many other conservation organizations that recognize the important role trapping plays in wildlife management.
 - Most states require that new trappers take a mandatory trapper education course before buying a license.

Trapping organizations and state and federal agencies are continually looking for ways to improve the welfare of furbearers, including researching and changing trapping techniques. A Best Management Practices process is an ongoing national movement to test traps and provide recommendations to trappers for which traps are most effective and humane for each species.



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Student Page

Nuts and Bolts of Furbearer Management

Key Terms: carrying capacity, endangered, harvest, limiting factor, population, renewable resource, species, surplus, wildlife manager

Population Dynamics

Wildlife **populations** are always changing. They change due to different factors, such as the amount of available food or the severity of the winter. Populations normally produce more young than they need each year. That way, even if many die, perhaps by starvation or disease, some will still survive. Some furbearers can even double their population in just one year. Because they produce extra or **surplus** young, it would seem that populations would always be growing. But they do not. Different **limiting factors** prevent their growth. Often there is a limited amount of food, water or shelter that stops a population from growing. Another factor that would limit a population would be the outbreak of a disease, such as rabies.

Only a certain number of animals of each kind can live in a habitat. The number of individual animals that a habitat can support is referred to an area's "carrying capacity". For example, beaver ponds are rich wetland habitats. Many species benefit from these habitats. Over time though, the beavers eat all the existing vegetation. The 'carrying capacity' of the area for beaver and the other species declines drastically. In most cases, the beaver abandon the site. Beavers may be absent for as much as 10 to 20 years. In the beaver's absence, new trees begin to grow. This new food source improves the 'carrying capacity' of the site and provides habitat for the next group of beavers that occupy the area.

Management

Today, **wildlife managers** work to keep furbearer populations at levels that are good for the animals, the habitat and the public. Usually, the goal is to keep the population stable over time. There may be situations when the goal is to increase or decrease a population. Marten are rare or absent in much of its range in the northeast. So, in many states, the goal is to increase the number of martens. Beavers, on the other hand, are so abundant in some areas that roads and agricultural lands are being flooded. The goal in these areas may be to reduce the population.

Wildlife managers use different methods or "tools" to increase or decrease a population. Improving habitat to increase the carrying capacity is a way to increase many species that use the area. For example, improving habitat for a prey species such as snowshoe hare can increase the number of predators such as bobcat, fisher, and coyote that live in an area. Leaving large areas of forest intact is good for marten,

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lynx, bobcat, and fisher. Leaving standing dead trees with cavities or holes standing helps wildlife that relies on them for nest and den sites.

Wildlife managers use regulated trapping to reduce, maintain or increase a furbearer population. Furbearers are considered to be a **renewable resource**. Like forests, a certain portion of each population can be harvested and used by humans, without hurting the overall population. Generally, furbearers have more young than the habitat can support and therefore, more than will survive. There is often a **surplus** produced. It is that surplus that **wildlife managers** target. Rules are set that let people know how many furbearers of each kind or **species** they are allowed to trap or **harvest** each year. All of the furbearers managed through trapping are common and abundant.

There are times when wildlife managers may want to reduce a certain furbearer population. This is usually the case when a population begins to cause too many problems for people. A common example is when beaver dams cause roads or farmland to be flooded. Wildlife managers may recommend that more beaver be harvested. It may be important to reduce the size of a furbearer population when it is causing problems for a population that is **endangered**. A species that is abundant in an area may prey upon an endangered species. Endangered piping plovers and their eggs, for example, are frequently preyed upon by raccoons. Wildlife managers reduce the raccoon population in plover nesting areas to protect the plover population.

Traps and trapping are also used to restore some animal populations. Some of the same types of traps used to harvest furbearers have also been used to restore populations. In New York State, otter populations had declined throughout the 1800s.

Otter were recently trapped in surrounding states and relocated to New York. Today, the otter population in New York is being managed to increase otter numbers.





Where Do You Stand On Trapping?

Overview

Presented with a series of statements, students take a stand along a continuum and then discuss their opinions and values about a controversial issue: trapping.

Concepts

Trapping is a controversial topic, causing diverse reactions among people.

Trapping is both part of our past heritage and a modern-day tool for wildlife management.

There are a variety of factors that influence our values and affect our behaviors.

Objectives

Students will be able to: explain one way trapping has been significant in American history; describe two ways in which trapping is part of modern day life; state two pros and two cons of trapping furbearers

Materials

Where Do You Stand statement sheet or other polarizing statements

Key Points

- The kinds of wildlife that are trapped today are abundant; regulated trapping has never resulted in placement of wildlife species on the federal or state endangered species list.
- Sometimes an action that harms an individual may benefit populations of wildlife.
- Scientific studies have sought and promoted regulations and capture methods to make trapping as humane as possible.
- Regulated trapping may reduce wildlife damage to crops and property as well as threats to human health and safety in certain situations.
- Trapping is managed through scientifically based regulations that are strictly enforced by conservation officers.

Background

Trapping is an important part of the history of the area. For generations, Native Americans trapped animals for food and clothing. When Europeans first came to North America they found an abundance of natural resources. They traded with the indigenous people for furs and learned how to trap for themselves. It was beaver that drew European interest to this area at that time, and since they were sent to Europe for processing, beaver pelts were among the first trade items extracted from North America.

People began to see the New World as a source of wealth from natural resources. In this context, trapping is an important part of environmental education in the Northeast.

But why beaver? Beaver, mink, otter, muskrat, fisher, marten, coyote, bobcat and others have a dense, thick, soft, and warm underfur growing beneath a top layer of guard hairs to keep them warm. Animals with fur are called furbearers. Other animals, such as deer, elk, moose, and tree squirrels rely on long, protective, sometimes hollow hairs to keep them warm, without underfur. Fur tends to be warmer, softer, thicker, and more durable than hair. Furbearers that, like the beaver, live in water have especially thick, short fur to keep them warm even in icy water. It was these furs that were most desirable. Beaver pelts were sent to Europe where the guard hairs were sheared off. The underfur was then removed from the skin and pressed, under intense heat, into felt. The felt was used to make top hats worn by the European and, eventually, the American elite.

In the days when people thought our natural resources were unlimited and the market for fur was rewarding, competing companies over-harvested beaver and depleted fur resources. At the same time when beaver were largely trapped out, changes were occurring on the landscape. Most of the region was forested when the early colonists came to establish new settlements. They cleared the land to build their homesteads, create pastureland and to plant crops. Then silk hats began to replace those made of beaver felt

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in the hierarchy of fashion and the market for beaver fur fell.

Although Native Americans may have worn furs for warmth, furs have been more of a status symbol or fashion statement in European-American culture. In the early 1900s, fur coats and mink stoles became symbols of glamour for women. It may not have been the beaver that made this significant fashion statement, but it was still fur. Then, in the later 1900s, opposition to trapping and wearing furs gained media attention. With the advent of easy-care synthetic fabrics, some people considered fur completely non-essential. Some people opposed trapping on the grounds that it caused suffering to the individual animal caught in the trap, and obtaining fur for glamour did not seem to justify the killing of animals.

Unlike synthetic fabrics, which are processed from petroleum products, the fur of wild animals represents a renewable natural resource. Although beaver populations were once diminished to the brink of extirpation, their numbers have risen again. Forest regrowth and regulating harvest activities allowed beaver populations to rebound. As beaver and human populations have both been expanding, occasional conflicts arise. People complain when their basements flood or their fishing spots change because of beaver dams; or when their favorite tree is gnawed down by one of the large-toothed rodents. Some people have begun to realize that there may still be a role for trapping as a wildlife management tool today. While some people still oppose trapping, others choose to exercise their option to pursue this activity as licensed trappers. Understanding trapping in a modern-day context is important, particularly because of this continuing controversy.

Given that some people view trapping as an unnecessary activity that is cruel to the animal, why do some people still choose to trap? Largely, people trap because they value the opportunity to learn about wildlife in their natural environment and to enjoy an outdoor activity that has been part of the lives of many people and cultures for hundreds of years. Some people

trap to provide warm, functional, fashionable clothes, a source of additional healthy food, or additional family income. Biologists trap some animals to help maintain healthy wildlife populations overall: to relocate an animal to an area where it once lived; to remove a problem animal from the population by trapping and killing it; to protect rare, endangered, or threatened species from predation; to protect habitat from damage caused by furbearers; or to collect ecological information about wildlife and wildlife diseases such as rabies.

Today trapping is managed through scientifically based regulations that govern what kinds of animals can be trapped, how many can be trapped, when they can be trapped, and how they can be trapped. These regulations help ensure that none of our furbearers will be trapped out of existence in the wild. The kinds of wildlife that are legally trapped are abundant. Regulated trapping does not cause wildlife populations to become endangered (in danger of extinction). In fact, it is sometimes trapping that has provided individual animals to be transported from one location to another to repopulate an area with a species that has been killed off or endangered by changes to the habitat or previously unregulated harvesting. Conservation officers strictly enforce trapping regulations to make sure the number of animals taken is limited. Trained natural resource professionals are continually reviewing and developing the rules and regulations for trapping. Through scientific studies, the methods of trapping and the types of traps used are changing to make trapping more humane for animals and safer for trappers. Trapper education is a critical component of regulated trapping and is mandatory in some states. Trapper education provides participants with basic knowledge of ecology and behavior of furbearers, laws and regulations, trapping skills, tips for handling furbearers, landowner respect, trapper responsibility, trapper ethics, and care and respect for all natural resources. Education programs that look at the trapping controversy help to reach current and future trappers with these messages and to put trapping in a new

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context for today's students interested in wildlife and the outdoors.

While being caught in a trap is not a pleasant experience for the trapped animal, regulated trapping does offer some benefits to wildlife populations as a whole and to people. If there were no trapping at all, how could we reintroduce or monitor endangered or threatened species, prevent furbearers from becoming over-populated, protect some other managed species from over-predation by hungry furbearers, remove problem wildlife that is damaging crops or property, or presenting risks to people's health or safety? If biologists want to protect wolves, for example, and a wolf begins preying on calves on a dairy or beef farm, it may be necessary to trap and dispense that one problem wolf so that farmers and the remaining wolves can live compatibly side-by-side. Biologists might also use trapping to protect rare, threatened, or endangered species, such as piping plovers, from habitat damage or predation by fox, beaver, and coyote.

Some people object to trapping animals for fur because they perceive this to be a luxury item in the United States rather than a necessity for warmth. However, warm materials made from other natural fibers, such as wool and cotton; do not come without some cost to the environment. Consider the impacts of sheep-grazing on grasslands and pesticide-use on fields of cotton. In addition, most American furs end up in northern regions of Europe and Asia, where their warmth is important. People in some cultures of northern China, Russia, Japan, Scandinavian countries and Canada still depend on the warmth and protection of fur garments in harsh environments. Even if an animal is trapped primarily for its fur, other parts of the animal can be used for food or to make products such as soap, paint, and lubricants. How different is this from the killing of domestic animals for food, leather to make shoes and belts, etc.?

Some people object to the perceived indiscriminate nature of trapping. People are concerned that pets may get caught in traps intended for wildlife. Most experienced trappers

take great care to place traps where they will ensure select catches. Trapper education programs can help teach new trappers to choose the proper trap and set it in a manner and location most likely to catch the selected animal, and catch it in the most humane way. Some traps are designed to kill the animal relatively quickly. In some cases, this may be the most humane way to avoid suffering. Modern foot-hold traps are designed to hold the animal's foot with as little stress as possible. Whether the trapper intends to market the fur or release the animal, it is in the best interest of the trapper to avoid injury to the animal. Being killed by a trapper may not seem like a happy end to a beautiful animal's life, but all animals die, and the other forms of death-starvation, disease, freezing, being eaten by a predator, being hit by a car or killed by some other accident – may be no more pleasant. The main difference is that the trapper is trained, licensed, and regulated to perform in a manner that puts humane treatment of wild animals foremost.

There are many different ways of looking at trapping. Clearly trapping has played an important role in the history of the region, but understanding trapping in a modern-day context is important, too. This activity is intended to explore different perspectives and interest students in thinking about the issue.

Procedure

1. Tell students that one end of the wall represents a position that strongly agrees with a statement; the other end of the wall represents strong disagreement. The space in between, all along the wall, represents the continuum between those two opposing viewpoints. Label the two ends of the wall so there is no confusion regarding which is which. Explain that you will read a statement and the students are to move to the spot on the wall which best represents their degree of agreement or disagreement with the statement and that you will ask some of them why they are standing where they are on the continuum.

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2. Read a statement. Have students move to a spot on the agree/disagree continuum. When they have settled, ask a student to explain why s/he is standing where s/he is. It helps to ask the students standing in the more extreme positions first, the outliers, and then to ask for additional opinions from those remaining mid-stream, in the main current. It is interesting that sometimes students will be standing right next to each other, but for very different reasons. At other times, students may appear at opposite ends of the continuum, but for similar reasons. There's no need to ask for each student's explanation for each statement, but be sure everyone is included at least once in the course of the activity. Solicit student responses to one another (What do you think about what so-and-so said?) so the activity becomes an active discussion among the students. When questions that could benefit from the input of factual information are raised, you as the educator can step in and share information from the background provided. The key points listed at the beginning of the activity may serve as a convenient reference. Additional sources of information are provided in the kit; *ConserveWildlife.org* on CD, Videos on regulated trapping, *The Role of Regulated Trapping and the Management of Furbearers in VT* booklet, the *Trapping and Furbearer Mgmt. in North American Wildlife Conservation* booklet and the *Trapping in the 21st Century* pamphlet.
3. As the discussion winds down on a statement, invite anyone who wants to move to a different place on the continuum to do so. If anyone moves, ask what motivated the person to move. Discuss what factors can influence us to change our minds about controversial topics. Sometimes people change their stance on an issue simply because of where their friends are standing. That is a valuable comment on peer pressure and how our thinking is influenced by others. Connect this to the changing popularity of fur fashions.
4. When you have adequately explored one statement, repeat the procedure with another, etc.

Discussion

Have you ever known someone who traps animals? For what purpose does s/he trap? Have you ever seen or heard of a wild animal creating problems for people? What kind of problems were they and how did the people handle the problems? Is using a mousetrap any different than using a foot-hold trap? How do you feel about trapping mice in your house? How could trapping some problem wildlife ever help the whole population? Do you feel any differently about trapping animals for food than you do about trapping them for fur? How is trapping different today than it was during the days of the voyageurs? What do you think would happen if no one were ever allowed to trap an animal again? How do people arrive at their values? What factors influenced your opinions in this activity?

Extensions

Have students tally how many are standing in each zone of the continuum and graph the percentages of those agreeing and disagreeing.

Have students research a related topic such as use of traps for working with endangered species.

Invite a trapper into the classroom to explain how s/he places the traps for the optimum opportunity to catch only the target animal.

Have students interview a wildlife biologist about trapping as a tool in his/her profession.

Have students form teams and debate the ethics of trapping: to trap or not to trap. Provide background material from state trappers' associations, animal rights groups, and wildlife biologists.

Have students do a history report comparing trapping in the 1700s to trapping today.

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Assessment

Tally where students stand in the beginning. Ask the first question again at the end of the discussion and see if the explanations have differed. Tally the numbers standing in each part of the continuum again.

Ask students to write a short report on the impact of trapping on North America in the 1700s.

Have students write an article on the role of trapping in wildlife management today.

Observe a student debate on trapping and note points raised.

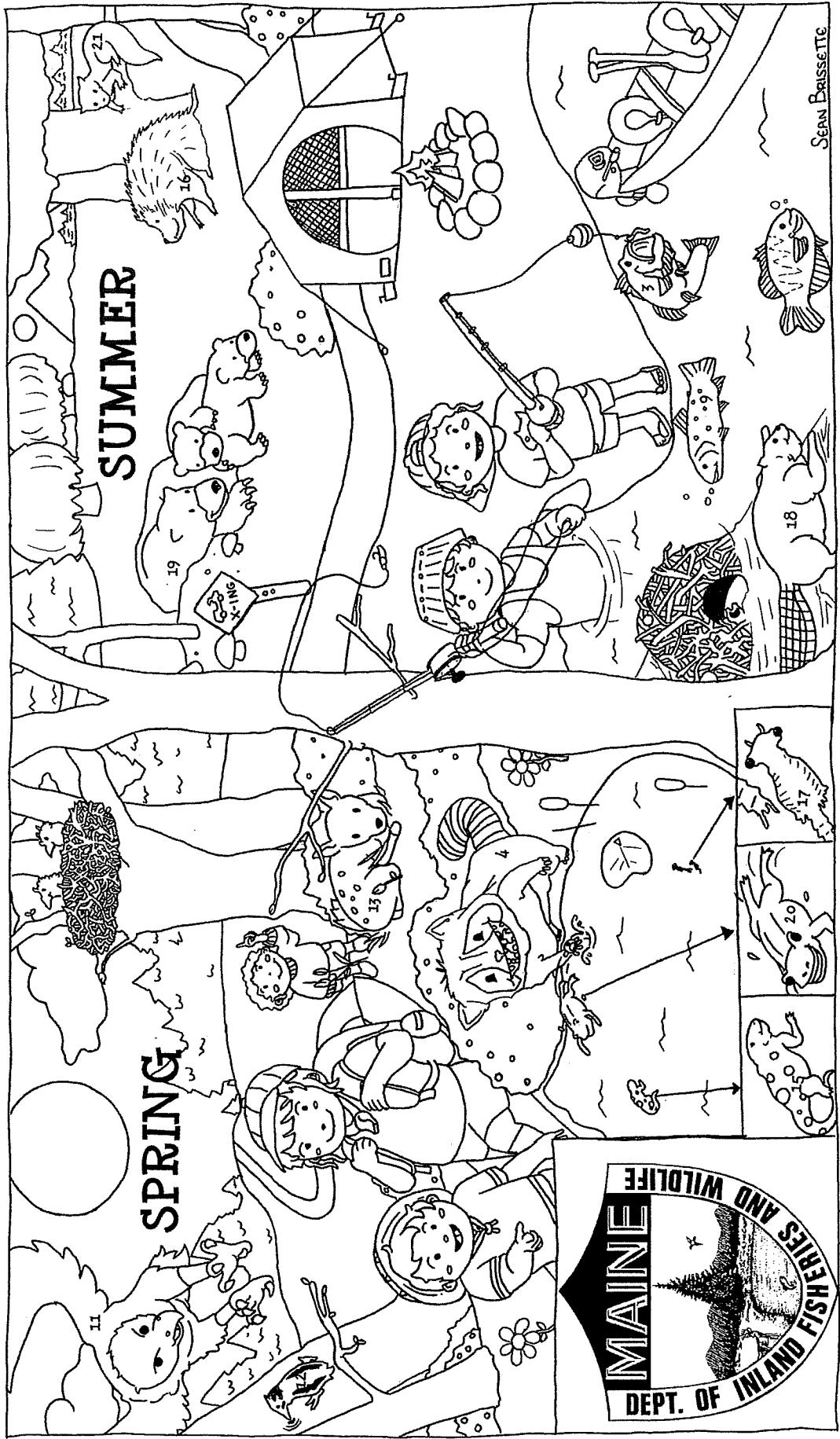
Developed by Susan C. Gilchrist, Wisconsin Department of Natural Resources
With grateful acknowledgment of assistance from John Olson, Robert Rolley, Warren Gartner, and Mary Kay Salwey.



Where Do You Stand Statements

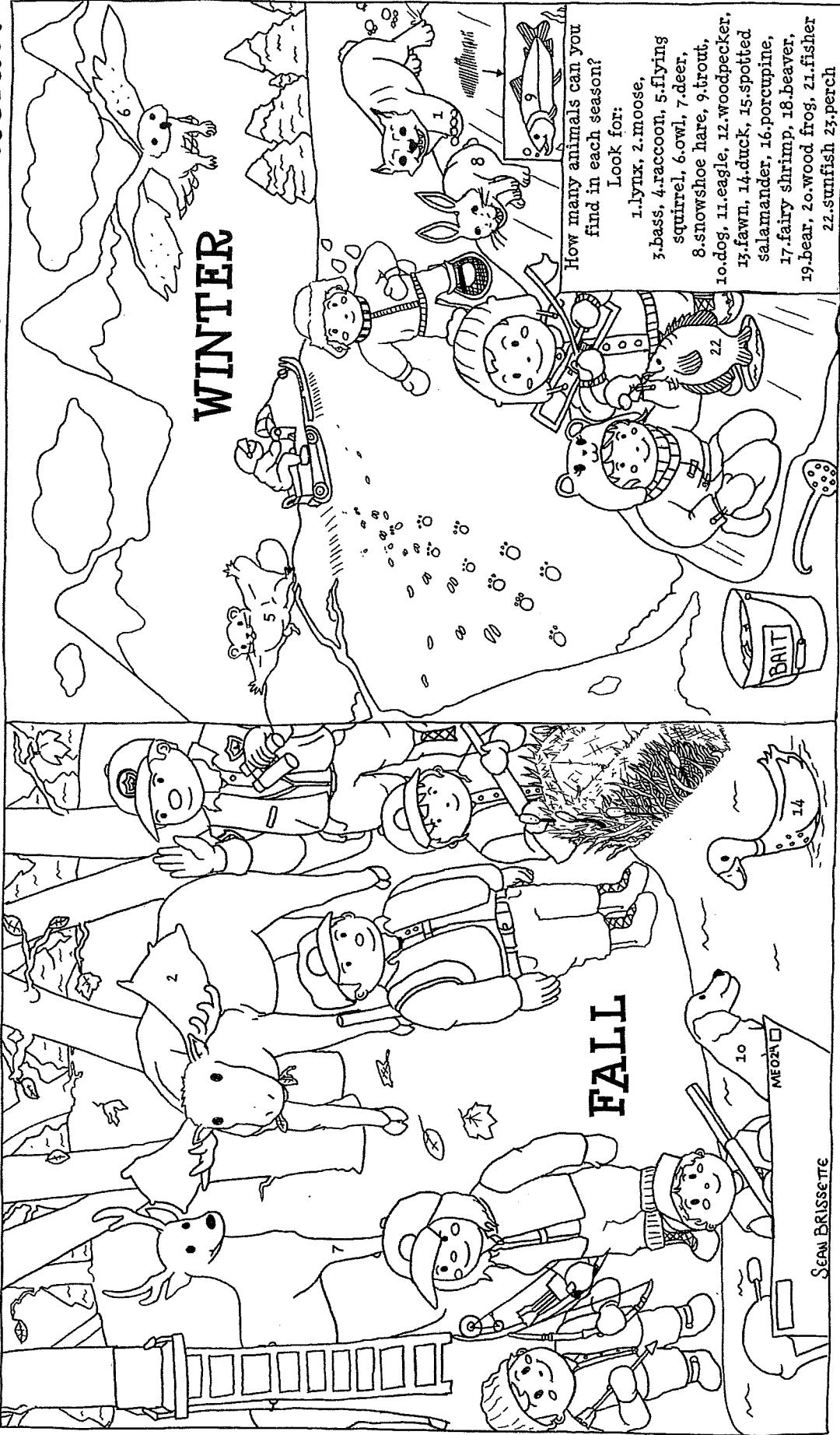
1. All trapping should be illegal.
2. Trapping only hurts wildlife.
3. Trapping has caused serious population declines in some animals.
4. Trapping had a significant impact on North American history.
5. Trapping is a relic of history and has no place in our modern day lives.
6. Trapping regulations help protect wildlife today.
7. It's okay to trap individual animals that endanger people's health or safety.
8. It's okay to trap animals that are very common.
9. It's okay to trap animals for fur.
10. People should be able to get rid of animals that cause damage to crops or other property.
11. Trapping helps endangered species.
12. Modern day trapping has never caused a species to become endangered.
13. Foot-hold traps should be illegal.
14. We should promote trapper education programs.
15. Trapping is a legitimate outdoor activity that is highly regulated.
16. People should be able to trap any animals they want on their own land.
17. Trapper education should be mandatory.
18. Trapping helps control the spread of wildlife diseases.
19. No one should wear fur.
20. The biggest threat to wildlife is loss of habitat.

What do you like to do outside?

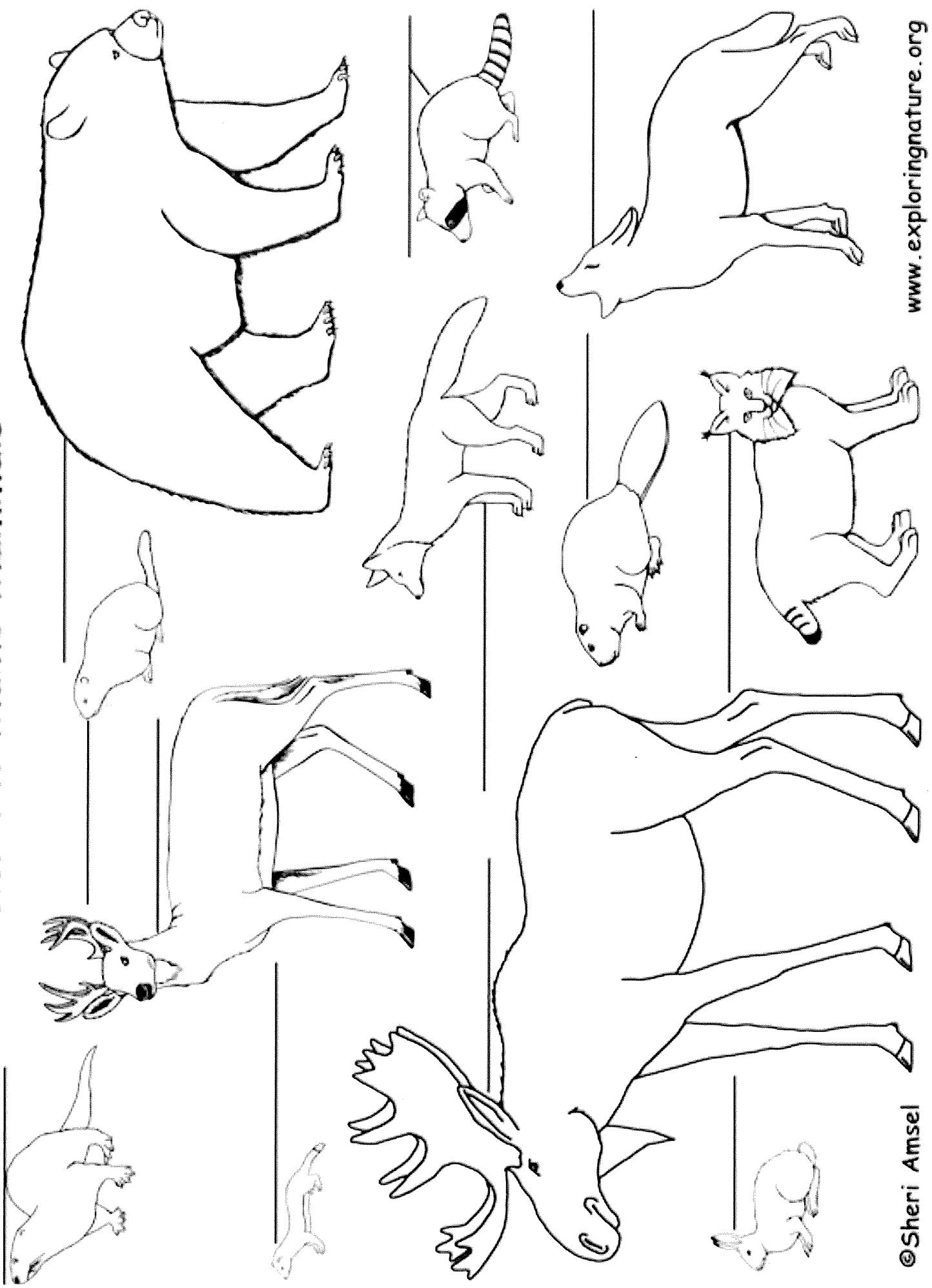


hiking • bird watching • vernal pool exploration • fishing • camping • boating

What's there to do outside?



Color the Maine Mammals



Name: _____

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Furbearing Animals of Maine

Find the animals listed.

L	W	U	X	I	J	B	W	Y	R	E	T	T	O	N
G	W	S	G	U	Y	K	M	X	F	T	L	R	U	X
Q	N	A	F	Z	Q	C	O	C	I	A	A	A	G	K
L	E	S	A	E	W	F	F	I	G	C	R	Q	G	U
I	X	G	R	Q	D	H	J	X	C	B	A	V	B	P
J	U	B	R	E	N	M	H	O	C	O	R	V	U	F
V	G	G	R	A	Y	F	O	X	K	B	E	L	H	G
X	Z	I	P	M	K	N	O	B	I	B	V	P	M	V
Q	M	C	R	K	R	G	I	O	O	R	A	V	X	O
P	B	O	T	N	E	C	P	B	C	F	E	H	M	R
Q	S	Y	H	I	H	O	X	E	O	M	B	B	K	H
J	N	O	A	M	S	A	H	T	F	K	O	P	N	O
N	N	T	W	S	I	D	T	W	P	P	J	S	U	I
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W	R	M	U	S	K	R	A	T	T	T	R	H	S	M

COYOTE

BOBCAT

BEAVER

SKUNK

MARTEN

OPOSSUM

OTTER

MINK

FISHER

WEASEL

MUSKRAT

RACCOON

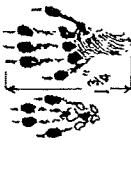
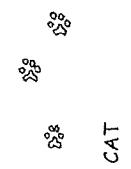
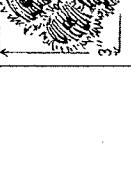
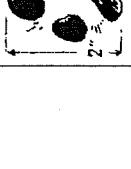
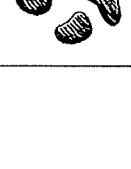
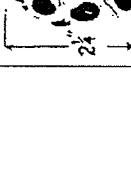
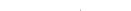
GRAYFOX

REDFOX



MAINE ANIMAL TRACKS

(Direction of travel of all tracks is to the right)

1. CANADA LYNX		8. GRAY SQUIRREL		15. BEAVER		22. OTTER	
2. BOBCAT		9. RED SQUIRREL		16. COTTONTAIL RABBIT		23. MUSKRAT	
3. HOUSE CAT		10. CHIPMUNK		17. SNOWSHOE RABBIT		24. WHITETAIL DEER	
4. RED FOX		11. WEASEL		18. RACCOON		25. MOOSE	
5. DOG		12. FISHER		19. SKUNK		26. WILD TURKEY	
6. COYOTE		13. MARTEN		20. PORCUPINE		27. PHEASANT	
7. BLACK BEAR		14. MINK		21. WOODCHUCK		28. RUFFED GROUSE	

Originally prepared by KLR Beck
Revised by Cindy House, 1975
Revised April 2017

All in for the Maine Outdoors
mainewildlife.com

Play Animal Signs Bingo!

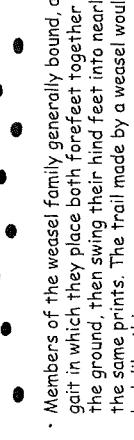
Cut out each square below. Glue squares on a sheet of paper. Glue 4 squares across and 4 squares down - just like they are here, but in any order you like. Title your card "Animal Signs Bingo".

Using your bingo card, explore your school yard or backyard for animal signs.

If you get 4 across, 4 down, or all 4 corners - You've got Bingo!

The ability to interpret animal tracks and traces takes practice. Here are some tips to help you hone your powers of observation and instincts as a nature detective.

- Tracks can tell a story about where the animal travelled from and where its now going. It gives us clues about where the animal makes its home
- Canines, felines, and members of the deer family generally walk or trot. The trail looks like an almost perfectly straight line of prints, because the animal places its hind foot into the print just made by the front foot. The tracks should look like this:



- Members of the weasel family generally bound, a gait in which they place both forefeet together on the ground, then swing their hind feet into nearly the same prints. The trail made by a weasel would look like this:



- Hints to identifying a track:
 - Does the track show claws?
 - How many digits?
 - What is the overall shape of the track?
 - Measure the Stride: distance from heel of one foot to heel of the other foot
 - Measure the Straddle: the width of the track pattern between left and right heels
 - Direction of travel
 - Type of substrate (soil, mud, sand, snow) in which the track was made
 - Identify the Habitat in which the track was observed
 - If you photograph the track, put an object of a known size or length next to the track (a pocket knife, pen, quarter, pack of gum) to give size reference to the track in the photograph
 - Then, if you can identify the gait by the appearance of the trail, i.e., trotting, bounding, galloping, etc., you are already on your way to identifying the maker!

Make A Plaster Cast

Track casts of many animals are now

available from commercial supply houses that deal in scientific and natural history equipment models, but many people prefer to make their own. The standard procedure is outlined below and should be varied according to air temperature and the amount of time you have.

Find a sharp, clean-cut footprint of an animal in mud, sand, or snow and stand a cardboard collar around it. Mix plaster of Paris and water until just thin enough to pour, and fill the track to the top of the cardboard collar. Sink a couple of small twigs lengthwise into the plaster to help hold it all together. If the temperature is below freezing,

mist the track with a water spray bottle so it freezes and hardens before you fill it with the plaster. Allow the plaster to stand about fifteen minutes to harden, then pick the plaster up, collar and all, and wrap it carefully in newspaper to prevent damage while it is still slightly soft.

When it is thoroughly dry and hard, brush off any sand or mud that may be clinging to the track, and you will have a raised cast of the foot print.

To make the reverse, grease the first cast, fit a cardboard collar around it, and fill with more plaster of Paris. The second cast will show the sunken impression of the animal's foot just as it originally appeared in the mud, sand, or snow.

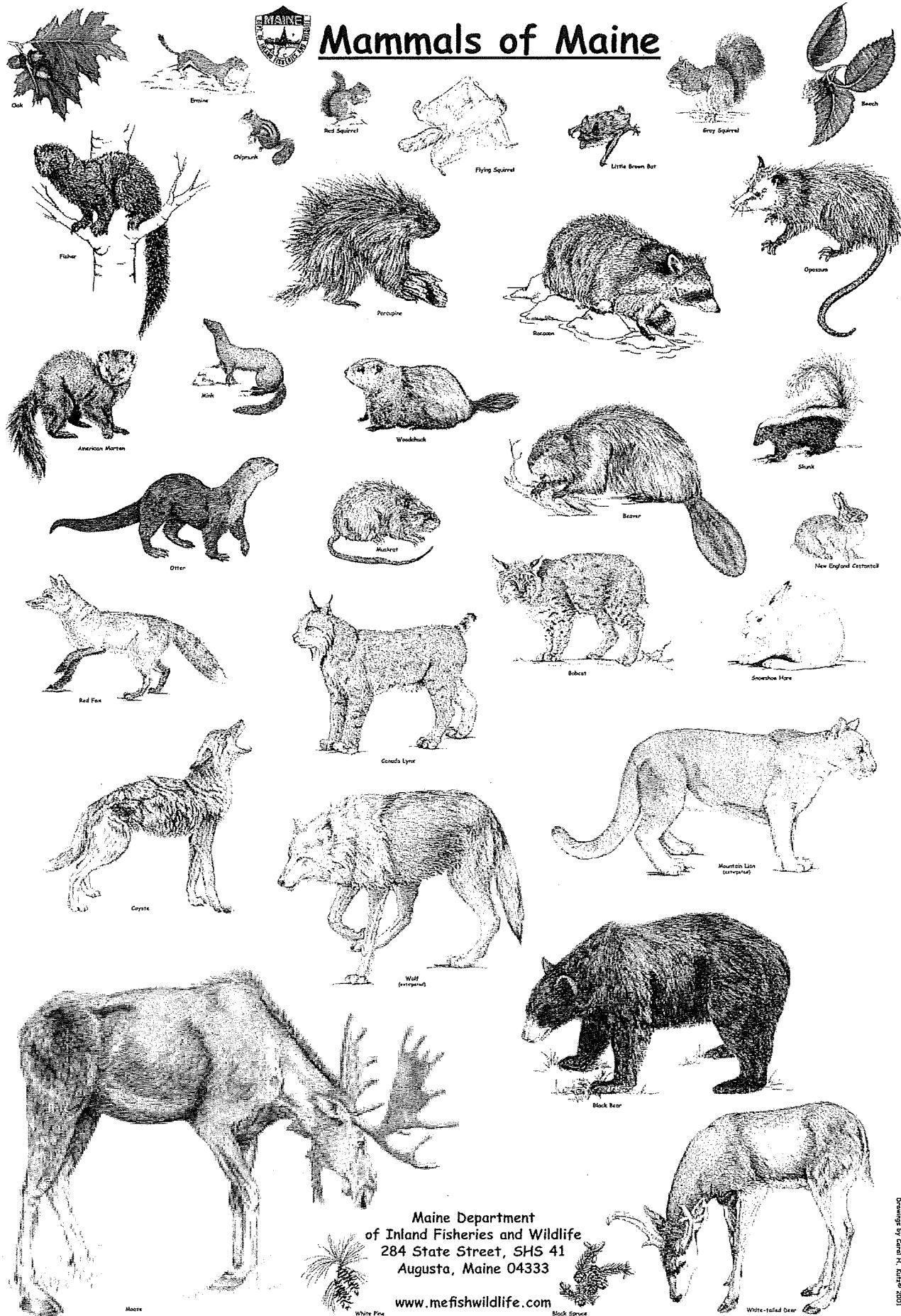


Whose Scat is That?

All animals must eat to survive. After digesting their food, they rid their bodies of waste by leaving behind droppings, called scat. Scat is a sign that gives us clues about local animals. Herbivores (plant eaters), such as deer and rabbits, leave piles of small, round droppings. Carnivores (meat-eaters) leave scat piles that are larger, in clumps or cords, and may contain hair and fur. Coyote and bear scat often contain plant material and berries. Raptors like hawks and owls regurgitate pellets of fur and bone. Don't be afraid to take a closer look to find out whose scat is that!



Mammals of Maine



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284 State Street, SHS 41
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www.mefishwildlife.com

Drawing by Carol H. Kurk 2001

Oak

8 species grow in a variety of habitats statewide at the top of the wildlife food list acorns are favorites of deer, bear, squirrels, turkeys, woodducks & small rodents

**Mammals of Maine****Red Squirrel**

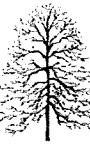
found statewide
feeds heavily on pine seeds
leaves 'middens' or piles of shredded cones on tree stumps or the forest floor
also eats fungi, bird eggs & insects
important prey for fisher, marten & ermines

Gray Squirrel

common in Maine's central & southern habitats
found strictly around mast (nut) producing trees
can have 2 litters a year
smells its way to the nuts it buries; even in winter under a foot of snow

Beech

often found growing in pure stands in moist, rich soils
beechnuts are important fall food for bears, squirrels, raccoons & gamebirds
if the beech mast crop fails for a season, many species of wildlife goes hungry

**Ermine**

also called the long-tailed weasel
changes pelage from summer brown to winter white
must eat 2/3 of its body weight each day to maintain its metabolic needs
feeds on mice, squirrels, frogs, insects
found statewide in open woods, meadows, suburban areas
uses previously excavated burrows or large brushpiles for denning

Chipmunk

active during the day
eats nuts, berries, mushrooms & even baby birds & eggs
likes open woodlands, backyards
will climb trees
spends most time foraging on the ground
lives underground during winter where food is cached
does not hibernate

Flying Squirrel

found statewide but seldom seen
winter nests in hollow trees & bird houses
visits bird feeders at night
does not 'fly' but glides from tree to tree on large skin flaps that open up from its sides
strictly nocturnal
eats acorns, nuts, seeds; even bird eggs & young

Little Brown Bat

the only mammal that can fly
wingspan of 8-9"
may catch up to 600 moths & thousands of mosquitoes a night
colonizes & roosts in groups in buildings, attics, caves & tree cavities
hibernates or migrates south
very susceptible to rabies

Fisher

one of the few predators of porcupines; also feeds on snowshoe hare & squirrels
arboreal - often found in trees
found in coniferous & mixed forests
dens in hollow trees, logs, or ground holes under large boulders
active throughout winter
breeds in March; delayed implantation produces 1-6 kits 1 year later

Porcupine

lives throughout Maine
prefers hardwood/hemlock forests
cannot throw its 20,000+ quills but swats attackers with a strong tail and embeds quills into their bodies
gives birth to one pup annually
craves salt & may gnaw on wooden tool handles

Raccoon

name comes from Native American word arakunem
habitats include woods, suburbs, agricultural fields, wetlands
omnivorous; eats anything edible
does not hibernate but during periods of very cold weather may den up & sleep
susceptible to canine distemper & rabies
uses its keen sense of touch to feel for food in streams, under logs, etc.

Opossum

the only marsupial (pouched) animal on the N. American continent
has 50 teeth, more than any other N.A. land mammal; an omnivore, it eats fruits, worms, insects, eggs, & anything edible
recently expanded its range northward to include Maine; been reported to north central part of the state
when cornered, falls into a deathlike state (playing 'possum)

Mink

lives statewide in wetland habitats along streams, ponds & rivers
eats fish, frogs, ducks, mice, freshwater mussels & insects
mainly nocturnal
look for the characteristic white chin & slim dark brown body
active year-round
an important furbearer in Maine

Woodchuck

a true hibernator; body temperature drops from 97 to less than 40 degrees for up to 6 months
digs burrows up to 5' wide and 30' long
eats clover, dandelions, fruits, garden vegetables
active mornings & late afternoon
abandoned burrows provide denning sites for opossums, raccoons, foxes & skunks
gives a sharp whistle as an alarm call

Beaver

the only animal that can alter habitats: (by damming rivers & streams)
eats bark, twigs, buds, inner cambium
builds 'lodges' of sticks & mud in which families spend the winter months
may build homes in river or lake banks
important furbearer in Maine; but becoming a nuisance animal when its dam work floods woodlots, roads & fields
historically & economically important as early trappers explored Maine territory

Striped Skunk

found throughout Maine in suburbs, open woodlands & agricultural fields
an omnivore, skunks eat insects, berries, fruits, birds' eggs, nuts, corn and more
skunk musk is composed of butylmercaptan, a sulfur-alcohol compound secreted by the anal glands in a mist or droplet stream
bold stripes advertise 'do not disturb'
a routine prey item for great horned owls

American Marten

commonly called the 'pine marten'
found in a variety of mixed forest habitats in northern Maine
eats voles, moles, red squirrels, birds & fruits, nuts, berries
important Maine furbearer
prefers to den in tree cavities
breeds late June-Sept. with 7-8 months of delayed implantation; young born mid March-April

Muskrat

found statewide in wetlands with dense emergent vegetation
eats cattails, reeds, rushes & pond-weeds; some mussels, insects, crayfish
builds small lodges out of aquatic plants
active year-round
important furbearer in Maine
stays under water for up to 15 minutes
creates a 'V' shaped wave as it swims

Snowshoe Hare

lives in open woodlands with dense shrubby cover statewide
eats clover, grasses, twigs, buds & bark
changes pelage from summer brown to winter white
most important prey for lynx
very large feet allow it to move freely on top of snow pack
can leap up to 12 feet in a single bound & reach speeds of up to 30mph

New England Cottontail

at the northern limit of its range in southern Maine; uncommon to rare here
lives in brushy, scrubby habitat like abandoned farmland which is becoming quite rare in southern Maine
eats clover, grasses, twigs, buds, & bark
distinguished from Eastern Cottontail by shorter ears with a black line on the edges, smaller body, & a black spot between ears

Otter

the most aquatic member of the weasel family; lives in/dalong rivers, streams, ponds & lakes
eats fish, frogs, crayfish, mussels, turtles & even young beavers
highly mobile 'circuit riders'; maintain a circular travel route over 20 miles
otter 'slides' on grass, mud or snow are signatures of its fun-loving nature
an important Maine furbearer

Canada Lynx

long an uncommon carnivore in northern & western Maine
prominent ear tufts, longer legs, larger paws & tawny-grey fur distinguish it from a bobcat
principle food is snowshoe hare
Maine, Washington & Montana only states in lower 48 with lynx populations listed as a federally threatened species protected from hunting/trapping

Bobcat

likes brushy, rocky woodlands interspersed with old roads & clearings
takes rabbits, squirrels, birds & deer for food
can swim well but would rather not
nocturnal; but in winter active during daytime, too
a limited annual hunting & trapping season
an important Maine furbearer

Mountain Lion

considered extirpated in Maine although hundreds of sightings have been reported
some tracks here have been verified
no known breeding population
called catamount, puma, cougar, painter
preys on beaver, deer, moose, small mammals; catches larger prey
preferred habitats are wooded swamps, riparian areas, mountain forests
protected by state/federal law

Red Fox

found statewide
likes open woods & farm lands but has adapted to city life, too
may avoid areas with established coyote populations
eats fruits, berries, small mammals, birds & carrion
may use abandoned woodchuck burrows to den
an important Maine furbearer

Coyote

roams statewide in habitats from deep woods to city streets
will eat anything edible
keeps its tail down as it runs
at dawn & dusk barks, yelps, yaps and howls
stalks prey by freezing its position & then pouncing
responds to hunting pressure by having larger litters of pups

Wolf

extirpated from Maine since the early 1900s; recent occurrences here in 1993 & 1996; completely protected by law
nearest wolf population in Quebec only 75 miles from the Maine state border
IFW conducts winter wolf snow track surveys; & has conducted howling surveys with limited response from coyotes only
runs with its tail horizontal to its body
long legs also distinguish from coyotes

Black Bear

one of our most important game animals
lives in forest landscapes interspersed with clearings, wetlands & regenerating stands
are not true hibernators, but go through 'carnivore lethargy': den up for up to 6 months/yr but can easily be awakened
classified as carnivores, yet larger part of diet is insects, fruits, grasses, beechnuts, acorns & hazelnuts
1-3 cubs born Jan.-Feb. every other year

White Pine

is the Maine state tree & flower
found statewide
valuable for wildlife cover, nesting & roosting
cones/seeds provide food for squirrels, crossbills, spruce grouse
porcupines & more
preferred nest tree of the bald eagle

Moose

largest North American land mammal found throughout Maine; expanding its range south
found near water in summer foraging on aquatic plants; vegetation in regenerating clearcuts & wet meadows
in response to the increased moose population, the hunting season has lengthened & number of permits increased

White-tailed Deer

a Maine population of over 300,000;
about 10-15% harvested each year
our deer herd has increased since the 1960s by protecting important wintering areas & implementing a variety of hunting opportunities
adaptable to many habitats from deep woods & farmland to suburbs & backyards
most plentiful game animal in eastern North America

Black Spruce

prefers wet soils & bogs
are found statewide
cones, needles & twigs provide food for spruce grouse, squirrels, chipmunks, deer & rabbits
nesting, roosting & winter cover for many birds
dense stands may provide winter cover for deer & moose

