

Activity 45: Web of Life

Overview

By conducting research and simulating a food web, students will take a close look at a forest ecosystem and discover ways that plants and animals are connected to each other. While this activity focuses on forests, you can also use it to study other ecosystems, such as oceans, deserts, marshes, or prairies by substituting the appropriate information.

How to Use This Information

This supplement enhances the information provided in the Background section of this activity. Use this material in addition to the information contained on page 194 of PLT's Pre K-8 Activity Guide.

Resources

Little, Elbert L. National Audubon Society Field Guide to North American Trees, Eastern Region, Alfred A. Knopf, Inc., NY, 1998.

Discover Wild New Hampshire Posters for Spruce/Fir Habitat, Northern Hardwood Habitat, and Wetland Habitat. Concord, NH: NH Fish and Game Department <http://www.wildlife.state.nh.us/Education/education.htm>

Peterson Field Guide Series. Boston, MA: Houghton Mifflin Co. This series contains guides for trees, birds, mammals, insects, and many more plants and animals.

Sperduto, Daniel D., and William F. Nichols. Natural Communities of New Hampshire. Concord, NH: UNH Cooperative Extension, 2004

Taylor, James, Thomas D. Lee, and Laura Falk McCarthy. New Hampshire's Living Legacy: The Biodiversity of the Granite State. Concord, NH: New Hampshire Fish and Game Department, 1996. <http://extension.unh.edu/forestry/FORNHLL.htm>

UNH Cooperative Extension – Wildlife <http://extension.unh.edu/wildlife/wildlife.htm>

New Hampshire Fish and Game Department www.wildlife.state.nh.us

National Wildlife Federation www.nwf.org

Correlations to NH Frameworks

Literacy:

Reading Indicators:

Informational Texts: 1.2, 1.3

Written and Oral Communication:

SL: 1.1

Informational Writing: 3.1

Oral Communications:

1.1, 1.2, 1.3, 1.4, 1.5

Correlations found at www.nhplt.org/Correlations.htm

Natural Communities in New Hampshire

New Hampshire is comprised of about 190 natural communities including marine, freshwater, and terrestrial. Nearly a third are forest communities, some of which cover large areas. For example, the state can be roughly divided into three broad forested regions: spruce/fir, northern hardwood, and central hardwood.

Many other smaller natural communities, such as bogs, cedar swamps, and meadows, can be found within these forest types. Though wetland communities do not cover as many acres as forests do, they provide critical wildlife habitat, among other benefits.

In each natural community and sometimes across them, patterns of behavior between species of animals and plants create a web of life.

Three common natural communities are described on the following pages, including a sampling of animals that make these places their homes.



Forest art courtesy FCIT, <http://etc.usf.edu/clipart>

Spruce/Fir Habitat

This community is found in the White Mountain and New Hampshire Upland areas at mid to high elevations, or approximately 2,500 to 4,800 feet in elevation. The dominant trees are red spruce and balsam fir, with sugar maple, yellow birch, and American beech interspersed. Other tree species found in the spruce/fir forest include paper birch, white pine, and eastern hemlock.

downy woodpecker

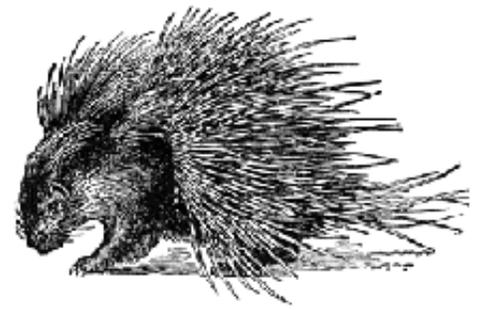
Art of various habitat animals courtesy FCIT, <http://etc.usf.edu/clipart>



| Common Name | Scientific Name | Predator | Prey/food |
|-----------------------|---------------------------------|---|--|
| downy woodpecker | <i>picoides pubescens</i> | owls, peregrine falcons | beetle larvae, ants, weevils, caterpillars |
| moose | <i>alces alces</i> | humans | leaves, twigs and shoots of trees and shrubs |
| gray fox | <i>urocyon cinereoargenteus</i> | bobcats, humans | cottontail rabbits, mice, voles, birds, plants |
| red squirrel | <i>tamiasciurus hudsonicus</i> | weasels, hawks, foxes, bobcat | pine seeds, acorns, beechnuts, berries, young birds, fungi |
| great horned owl | <i>bubo virginianus</i> | raccoons, fishers and ravens prey on nestlings | rodents, rabbits, skunks, birds, porcupines (occasionally) |
| white-footed mouse | <i>peromyscus leucopus</i> | gray fox, great horned owl | nuts, seeds, fruits, beetles, caterpillars, other insects |
| ladybug | <i>coccinella species</i> | unpalatable to predators | aphids |
| snowshoe hare | <i>lepus americanus</i> | weasels, foxes, minks, owls, hawks, bobcats, lynxes | grasses, berries, conifer buds, bark of aspen, alder, willow |
| red-backed salamander | <i>plethodon cinereus</i> | various mammals and snakes | insects, other invertebrates |

Northern Hardwood Habitat

These forests are a mix of primarily sugar maple, yellow birch, and American beech. They are generally found in central New Hampshire between 1,000 to 2,500 feet elevation. Covering the ground below the trees are a variety of wildflowers and ferns.

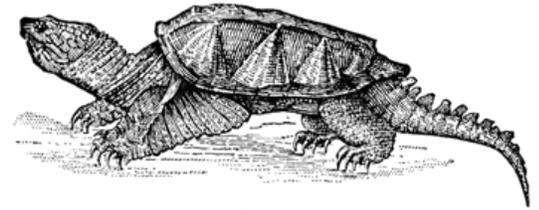


porcupine

| Common Name | Scientific Name | Predator | Prey/Food |
|----------------------------|----------------------------------|--|---|
| black bear | <i>ursus americanus</i> | humans | deer, fish, mice, porcupines, rabbits, woodchucks, fruit |
| porcupine | <i>erehizon dorsatum</i> | bears, bobcats, foxes | bark, buds, twigs, fruits, leaves, nuts |
| eastern chipmunk | <i>tamias striatus</i> | long-tailed weasel, hawks, foxes, bobcat | acorns, hickory nuts, seeds, slugs, snails |
| white-breasted nuthatch | <i>sitta carolinensis</i> | owls, peregrine falcons | insects, spiders and their eggs, nuts, acorns, small fruits, large seeds, berries |
| striped skunk | <i>mephitis mephitis</i> | great horned owl | plants, insects, grubs, small mammals, eggs of nesting birds, amphibians |
| spring peeper | <i>hyla crucifer</i> | skunks | insects |
| northern red-bellied snake | <i>storeria occipitomaculata</i> | broad-winged hawk, long-tailed weasel | slugs, snails, earthworms |
| american woodcock | <i>scolopax minor</i> | humans | earthworms |
| black-capped chickadee | <i>parus atricapillus</i> | owls, peregrine falcons | insect eggs and larvae, spiders, ants, seeds, wild fruits |

Wetland Habitat

Shallow or deep standing water, hydric soils, and floating and emergent herbaceous plants characterize wetland habitats. Some may also be wooded. Shrubs and trees may include red maple, spicebush, speckled alder, elderberry, viburnums and willows. Generally there is an influx and outflow of water via stream, river, pond, or lake. Marshes are scattered throughout the state. The species given below are only a few that are found in this habitat.



snapping turtle

| Common Name | Scientific Name | Predator | Prey/Food |
|-----------------------|--------------------------------|---|--|
| raccoon | <i>Procyon lotor</i> | bobcat, great horned owl, humans | grapes, nuts, grubs, small mammals, crickets, grasshoppers |
| red-winged black bird | <i>Agelaius phoeniceus</i> | crows and grackles eat eggs and young | grains, seeds |
| wood duck | <i>Aix sponsa</i> | hawks, owls, and raccoons eat eggs and young; humans | young eat insects, tiny fish, vegetable material; adults eat insects, spiders, seeds, tubers |
| Fowler's toad | <i>Bufo woodhousii fowleri</i> | snakes, raccoons | insects |
| beaver | <i>Castor canadensis</i> | otter, coyote, red fox, bobcat, humans | Inner bark of willow, aspen, birch, and maple; aquatic vegetation |
| eastern ribbon snake | <i>Thamnophis sauritus</i> | broad-winged hawk, long-tailed weasel, mink, milk snake | frogs, fish, salamanders (occasionally) |
| snapping turtle | <i>Chelydra serpentina</i> | raccoon and skunk eat eggs and possibly hatchlings; American bittern eats young | fish, frogs, plants |
| common green darner | <i>Anax junius</i> | kingbirds, great-crested flycatcher | midges, mosquitoes, other flying insects |
| white-tailed deer | <i>Odocoileus virginianus</i> | eastern coyote, humans | acorns, beechnuts, twigs, fruit, leaves, herbaceous vegetation (grasses and clovers) |