



Spring, 2004

Too many magazines? If you are receiving more copies of *Northern Woodlands* than you need or want, please let us know. There are teachers and kids on the waiting list to join Northern Woodlands Goes to School who would really appreciate your extras! Contact Anne Margolis at anne@northernwoodlands.org or 802-439-6292.

Looking for an article? A complete index of the past five years' worth of *Northern Woodlands* is available at http://www.northernwoodlands.org/nw_index.html; we would be happy to make a photocopy of an article you need and mail it to you.

Project Learning Tree Coordinators

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NORTHERN WOODLANDS MAGAZINE

802-439-6292

www.northernwoodlands.org

Editorial Mission

To shape the future of the forests of the Northeast through information and education about their value, use, and conservation.

To inspire landowners' sense of stewardship by increasing their awareness of natural history and the principles of conservation and forestry that are directly related to their land.

To encourage loggers, foresters and purchasers of raw materials to continually improve the standards by which they utilize the forest's resources.

To increase the public's awareness and appreciation of the social, economic and environmental benefits of a working forest.

To raise the level of discussion about environmental and natural resource issues.

To educate a new generation of forest stewards.

Please allow your students to keep their copy of each edition of the magazine, and encourage them to share what they have learned with their families.

Teacher's Guide

Northern Woodlands Goes to School

Welcome to the Spring 2004 edition of *Northern Woodlands* magazine. Our northern forests will soon be ringing with the songs of warblers and thrushes returning from their southern wintering grounds. What did they dine on during the long journey? In this issue of *Northern Woodlands*, you and your students will find out how scientists determine that avian travel diet. And you'll learn about much more – from the joys of searching for springtime fiddleheads to the effects of soil compaction on forest health.

This teacher's guide serves as a companion to *Northern Woodlands* magazine. In it are several in-class and outdoor activities that expand upon ideas presented in some of the magazine's articles. For each activity, we offer recommendations of related publications, contacts, and websites, as well as Project WILD and Project Learning Tree activities that build upon each activity theme. We also indicate the state curriculum standards each activity fulfills.

We'd like to extend special thanks to the sponsors of this project. As a result of their support, over 5000 students throughout the Northeast are able to participate in Northern Woodlands Goes to School this year. The sponsors are: the Alexander Host Foundation, Britton Lumber Company, Cersosimo Lumber Company, Inc., Columbia Forest Products, Fountain Forestry, Inc., Freeman Foundation, French Foundation, International Paper, Maine TREE Foundation, Mill River Lumber, Northeast Lumber Manufacturers Assoc., Pompanoosuc Mills, and Upper Valley Community Foundation's Wellborn Ecology Fund.

We would love to know your thoughts about our teacher's guide. If you have comments or suggestions, or if you need more (or fewer) copies of the magazine for your students or would like additional copies of this guide, just call or email Anne Margolis at (802) 439-6292 (email: anne@northernwoodlands.org). Visit our *Northern Woodlands Goes to School* website at www.northernwoodlands.org/goestoschool.html.

Noteworthy News:

Essay Contest! *Northern Woodlands*, in conjunction with Yellow Wood Associates and the National Community Forestry Center, Northern Forest Region, is sponsoring an essay contest. We are asking people to write short essays (300 words or fewer), due by May 1st, that describe what the Northern Forest will be like in 25 years. You'll find a description of the contest on page 18 of the magazine. One of the three activity sheets included in this teacher's guide helps get students started on the essay. Encourage them to polish their essays and send them to *Northern Woodlands* for inclusion in the contest. The winning essays will be published in the Autumn 2004 edition of *Northern Woodlands*. To listen to audio files of how some people envision the future forest, visit <http://www.ncfcnfr.net/notable.html>.

Northern Forest museum exhibit. The traveling exhibit, *Middle Ground*, will be on display at Bethel Historical Society's Regional History Center in Bethel, Maine, until March 31st. Funded in part by the National Community Forest Center, Northern Forest Region, this exhibit explores the need for wood and woods in a modern, consumer-based society. The interactive exhibit features numerous large-scale paintings, drawings, and photographs, as well as forest-related artifacts, to reflect 400 years of change in the Northern Forest. *Middle Ground* encourages visitors to participate by sharing their opinions on how best to achieve balance between the desire for wood and woods. For more information on viewing or hosting this exhibit, visit <http://www.bethelhistorical.org/middleground.html>.

Resource for middle school teachers. <http://www.middleschool.net>. This excellent website provides middle school teachers with resource suggestions and curriculum links on a host of topics, including biology and ecology.

National Wildlife Week, April 19-25, 2004. The National Wildlife Federation sponsors this annual event and provides teachers' guides, curricula, and posters for K-12 educators. <http://www.nwf.org/national-wildlifeweek/index.html>.



The Framework identifies fields of knowledge considered necessary in the public school curricula of Maine, New Hampshire, and Vermont.



Project WILD is a national conservation education program designed to prepare students to make decisions affecting people, wildlife, and their shared home, Earth. Project WILD is administered by your state's fish and wildlife department.



Project Learning Tree (PLT) is a program of the American Forest Foundation and the Council for Environmental Education. PLT provides a series of educational activities focused around forests and forest issues. Contact your state forester's office for more information on PLT activities.



Websites are increasingly critical as a research tool. The Teacher's Guide includes web addresses that we hope will help to increase your students' learning opportunities.



Suggested books and readings are also included in the Teacher's Guide to help teachers and students get the most benefit from each edition of the magazine. These references focus on enhancing the concepts featured in the activities.



Where applicable, the Teacher's Guide offers helpful information or resources to supplement activities.

Suggested Activities


1. Unwelcome Guests – Exploring Invasive Exotics (field study)

Emerald Ash Borer, Agrilus planipennis, by Virginia Barlow (pg. 53)

Moth vs. Fungus, by Anne Margolis (pg. 14)

Two articles in this *Northern Woodlands* issue deal with non-native plant and animal species wreaking havoc on their adopted habitats—species known as invasive exotics. *Emerald Ash Borer* describes a potent new threat to North American ash species. *Moth vs. Fungus* describes how one exotic species was purposefully introduced to our country to try to control another. Invasive exotics are changing the composition and dynamics of ecosystems around the world. Help your students explore their effects in your region.

- Which invasive exotic species are problems in your area? The United States Department of Agriculture maintains an excellent website, <http://www.invasivespecies.gov/>, that offers regional listings of invasive exotics, as well as links to fact sheets on each species. Your state's natural resources department will also have such information, and may have staff members available to visit your class or lead a field trip. Your county forester may also be available for such a visit. With their help, take an "exotics" tour of your community. How has your region changed as a result of exotic introductions?
- Have students work in small groups to select and study in depth an invasive species that has impacted your region, including species profile, rate of spread, ecological and economic impacts of introduction, control methods, and so on. Have each group create a display that includes such elements as maps, graphs of population spread, and illustrations, as well as a written report.

 Website: http://www.msue.msu.edu/reg_se/roberts/ash/. <http://www.emeraldashborer.info>. These sites offer many articles and links related to emerald ash borers.

<http://www.invasivespecies.gov>. In addition to extensive information on exotic species, this site also provides a list of middle and high school teaching curricula related to invasive exotics (click on the "resources" link).

<http://www.newfs.org/conserve/invasive.htm>. The New England Wildflower Society website lists many invasive plant resources, including the Invasive Plant Atlas of New England. They also have vol-


unteer opportunities to participate in eradication. 508-877-7630.


 Home Sweet Home (in *Forest Ecology*, High School Module)

Saga of the Gypsy Moth (in *Forest Ecology*, High School Module)

 World Travelers (gr. 5-8)
Turkey Trouble (gr. 9-12)

 English Language Arts A, E, D, H
Geography A
Science and Technology B, J, L


 English Language Arts 1, 2, 5, 6, 7
Science 1a, 2c, 3a, 6c
Social Studies 10, 11, 15

 1.5 Writing Dimensions
1.8 Reports
1.17 Notation and Representation
1.19 Research
3.10 Teamwork
4.6 Understanding Place
6.2 Uses of Evidence and Data
6.3 Analyzing Knowledge
6.7 Geographical Knowledge
7.13 Organisms, Evolution, and Interdependence

2. The Art of Nature Appreciation

Crazy Bets, by Justin Barron (pg. 14)


This essay about marsh marigolds, written by Justin Barron when he was a high school student involved in the *Northern Woodlands Goes to School* program, is an example of the art of nature appreciation—of imparting to the reader the meanings, sensory experience, and significance of a natural object or event. Encourage your students to read essays by two regional masters of this art – Henry David Thoreau and John Burroughs. Then ask them to select a natural object (plant, animal, mountain, pond, etc.) to appreciate. Following the examples of Thoreau, Burroughs, and Barron, their writing might include references to the object's natural and cultural history, the writer's personal interaction with the object, sensory information, vivid anecdotes of others who have interacted with the object, and so on.

 *Henry David Thoreau: Collected Essays and Poems*, selected by Elizabeth Witherell (New York: The Library of America, 2001). Includes all of Thoreau's essays and poems, with each genre presented in chronological order. The Wild Apples essay is an excellent example to study. For a complete listing of Thoreau's works, www.thoreau.niu.edu/writings_editions.


WILDLIFE

Birds Seek Shrubland in the Forest, by Anne Margolis (pg. 44)

Springtime is the perfect time to plan and create shrub habitat for birds on your school grounds. You can do so by planting shrubs, or you can cordon off an area of the school grounds that is currently open field or mowed grass and allow it to return, on its own, to a shrubby state. This latter process is slower, but presents a natural study site for ecological succession. Consider combining the two approaches in your site plan. Have students develop a site plan and map and then draw models of what it will look like this year, in five years, and in 10 years. What future maintenance will the site need to remain shrub habitat? If their plan includes planting of shrub species, encourage them to use native varieties (see Audubon book below). Have them present their plan to the school board or principal for approval.

 *The Audubon Society Guide to Attracting Birds*, by Stephen W. Kress. Charles Scribner's Sons, 1985.


Backyard Wildlife Habitat in Vermont. Produced by the Vermont Agency of Natural Resources. \$2.00. 802-241-3700.


 <http://www.nwf.org/schoolyard-habitats/>. Website for the National Wildlife Federation's Schoolyard Habitats program.


 Improve Your Place

 Time Lapse

CONNECTION

 English Language Arts E, G, H
Geography A
Science and Technology B, J, L

 English Language Arts 2, 6
Science 1a, 2b, 3a, 6c, 6d
Social Studies 10, 15

 1.8 Reports
1.11 Persuasive Writing
1.22 Simulation and Modeling
2.13 Product/Service
2.14 Planning/Organization
6.7 Geographical Knowledge
7.2 Investigation
7.13 Organisms, Evolution, and Interdependence

Bird and Bough, by John Burroughs. Boston and New York: Houghton Mifflin and Company, 1906. For a complete listing of Burroughs's works, www.johnburroughs.org/works/work.



Wild Words (gr. 5-8—can easily be adapted to 9-12)



Words to Live By (in *Focus on Forests*, High School Module)



English Language Arts A, D, E, H



English Language Arts 1, 2, 5



1.12 Personal Essays
1.19 Research
4.6 Understanding Place
7.2 Investigation

3. A Logging History

Timber Baron: George Van Dyke was King of the Connecticut River Log Drives, by Bill Gove (pg. 30)

Rx for a Broken Forest, by Michael Snyder (pg. 46)

The articles by Bill Gove and Michael Snyder both deal with regional logging history, using two very different styles. Explore your community or regional logging history with your students to see how past and present land use practices have shaped both human and natural communities. Have students investigate the history of the land on which their home sits. Who lived there before them? What is the area's history of forest growth and clearing? For what purposes did past residents use the forest? Were there local mills and other forest products industries that are not present today? Your community's historical society is an excellent source for information and photographs of past land use, as are town records and community elders, with whom the students can conduct interviews. Have students create a timeline showing the forest's history, from whatever starting date you determine up to the present.

Follow this activity with the writing exercise on the enclosed activity sheet, in which students ponder the future of the Northern Forest.



For an excellent synopsis of New England's forest history, have your students read chapter one ("A New England Forest History") of *Working with Your Woodland*, by Mollie Beattie, Charles Thompson, and Lynn Levine. University Press of New England, 1983.



Then and Now (gr. 5-8)
The Native Way (gr. 5-8)
Where are the Cedars of Lebanon? (gr. 5-8)



English Language Arts B
History B
Science and Technology J

Science 2c
Social Studies 17



1.17 Notation and Representation
1.20 Communication of data
4.6 Understanding Place
6.4 Historical Connections
6.6 Being a historian
6.8 Movements and Settlements



4. Measuring Up (field study)

At Work Measuring Big Trees with Robert Leverett, by Gayle Goddard-Taylor (pg. 62)

Measuring trees is a wonderful, interdisciplinary activity, through which students can learn a real-life application of mathematics and gain insight into a forester's work and the biological processes that contribute to a tree's growth. Invite your county forester to teach your students how to use forestry measuring tools (tree-scale [or Biltmore] stick, clinometer) and lead them on a survey of the trees on your school grounds. How much wood is in each tree you measure? How tall is the average six-inch-diameter maple? If a 2000-square-foot house requires roughly 15,000 board feet of framing lumber, how many 12-inch white pines would you need to frame

that house? The measuring and mathematical possibilities for this exercise are limitless.

Though it's fun for students to use real forestry measuring tools, such tools aren't necessary for measuring trees. The American Forests website gives instructions on how to measure trees using a measuring tape and a stick. <http://www.americanforests.org/resources/bigtrees/measure.php>.



<http://www.uark.edu/misc/ents/home.htm>. The website of the Eastern Native Tree Society, the group started by Robert Leverett and friends in 1997.



How Big is Your Tree?



Science and Technology J
Mathematics E, F



Science 1a, 2a, 2b, 6d
Mathematics 1a, 2a, 2b, 4a, 4c, 4d (if using clinometer)



7.1 Scientific Method
7.2 Investigation
7.7 Geometric and Measurement Concepts

CAREER

One Hundred Birds by Bedtime, by Peter Brewitt (pg. 22)

Brewitt's witty essay on the trials, tribulations, and rewards of birding gives students a glimmer of some of the realities of wildlife observation. Wildlife researchers often endure long hours and much physical discomfort to make their observations and may come away with little to show for their efforts. Invite a wildlife researcher to the classroom to discuss their work and show students some of the tools of their trade. Better yet, join them in the field for a glimpse at the efforts and rewards of a career in wildlife research. Contact your state's wildlife department for leads on wildlife researchers.



Maine Department of Inland Fisheries and Wildlife. 207-287-8000. <http://www.state.me.us/ifw/>.

New Hampshire Fish and Game. 603-271-2461. info@wildlife.state.nh.us.

New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources fwwildlf@gw.dec.state.ny.us. <http://www.dec.state.ny.us/>.

Vermont Department of Fish and Wildlife. 802-241-3700 fwinformation@anr.state.vt.us.



The Woods Scientist, by Stephen R. Swinburne. Written for children ages 9-12 about Vermont wildlife biologist Susan Morse. One of several books for younger middle school students in Houghton Mifflin's *Scientists in the Field* Series, designed to introduce children to scientific investigation and careers.



Older students can read along in the deliberations that take place among professional birders and researchers in websites and list serves such as www.conservations-throughbirding.org, Vermont's eBird list and others.

The American Birding Association website, www.americanbirding.org, reviews the autobiography, *Birding on Borrowed Time*, in which Phoebe Snetsinger tells her remarkable story as the woman who saw more birds in her life than any other human being in the history of the world.



Wildwork



Who Works in this Forest?



Career Preparation A,



Science 1a



3.15 Career Choices



Suggested Activities

5. Toxic Runoff (field study)

A Flush of Acid, by Geoff Wilson (pg. 17)

Return of the Osprey, by Cassandra Hemenway Brush (pg. 54)

Brush's *Osprey* article cites mercury as a current threat to the Northeast's rebounding osprey population. Mercury contamination in northeastern waters stems largely from coal-burning power-plant emissions, the same primary source for acid rain, the subject of Wilson's article. Wilson's article describes how stream acidity intensifies in springtime due to runoff from acidic snowmelt.

Measure the pH of the snow on your school grounds. If a stream runs near your school, monitor its pH before, during, and after snow-melt. Initiate or take part in ongoing monitoring of a nearby waterway so that you and your students can observe and record local water-quality trends.

Mercury contamination hits home with students who enjoy fishing, as there are sobering limits throughout northeastern regions on consumption of many fish species because of the dangers posed by mercury. What animals are most susceptible to mercury bioaccumulation? Why? Though much of the mercury content in northeastern lakes and streams is due to fossil fuel burning in midwestern power plants, empower your students to do their part in reducing mercury contamination. All of the websites below offer suggestions of how to take action.



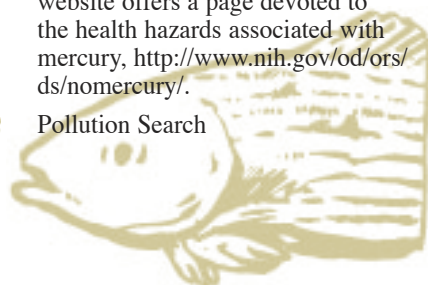
Field Manual for Water Quality Monitoring: An Environmental Education Program for Schools, by Mark K. Mitchell and William B. Stapp. Reviewed by the National Association of Science Teachers as "THE reference for those working with community water monitoring projects."



<http://www.epa.gov/mercury/>. The Environmental Protection Agency hosts a webpage devoted to mercury contamination, with much information about sources and consequences of mercury contamination, as well as actions the EPA is undertaking to mitigate the problem.

The National Institute of Health website offers a page devoted to the health hazards associated with mercury, <http://www.nih.gov/od/ors/ds/nomercury/>.

Pollution Search



ME

Science and Technology B, J, M

NH

Science 1a, 2a, 2b, 3a, 6a, 6d
Social Studies 13, 14

VT

7.1 Scientific Method
7.2 Investigation
7.13 Organisms, Evolution, and Interdependence

6. Harnessing Alternative Energy

Regarding the Wind, by William Shutkin (pg. 27)

William Shutkin's article describes the current public debate in the Northeast regarding wind-generated power.

- Every form of energy has its assets and liabilities. Have students work in small groups to select and research one alternative energy source and investigate its economic, ecological, and societal pros and cons. They can then create a captivating display, perhaps involving photographs, quotes, graphs, diagrams, and a model of how their energy source functions. Create an Alternative Energy Expo with their displays in the school or local library.
- Consider your town's natural resources and the kinds of alternative energy that your community could support. Have students envision what your town might be like in 25 years, if it developed and relied upon these alternative energy sources. Students can then create a skit portraying a slice of life in this

community, including such roles as a land-owner erecting a wind-powered generator, a developer, someone having trouble paying their electric bill, birds that might run into a wind energy turbine, or fish that cannot migrate past a newly constructed hydroelectric dam.

<http://solstice.crest.org/>. Center for Renewable Energy and Sustainable Technology website offers information about several of the leading alternatives to fossil fuels.

<http://www.nrel.gov/> National Renewable Energy Laboratory also offers basic information and links relating to alternative energy sources.



Pollution Search (5-8)
Planning the Ideal Community (5-8)
Energy Sleuths (gr. 6-8)



Sustainability: Then, Now, Later (gr. 9-12)

ME

English Language Arts A, E, D, H
Science and Technology B, J, L
Economics A
Visual and Performing Arts A

NH

English Language Arts 1, 2, 5, 6, 7
Science 1a, 2c, 3a, 6c
Social Studies 5, 9, 11

VT

1.5 Writing Dimensions
1.16 Artistic Dimensions
1.17 Notation and Representation
1.22 Simulation and Modeling
3.9 Sustainability
4.6 Understanding Place
5.8 Artistic Proficiency
6.2 Uses of Evidence and Data

CALENDAR

Fiddlehead Season, by Sheila McGrory-Klyza (pg. 36)

After a long winter, there's nothing as wonderful as eating delicious, wild, springtime greens. Merge botany and culinary arts in your classroom by foraging for wild edibles and concocting a springtime classroom feast. Fiddleheads are but one of the many delicious wild edibles available this time of year. Concoct a sauté of tender dandelion greens, fiddleheads, and cattail shoots. Stir up a pot of cream of wild leek soup. The *Fiddleheads* article offers some mouth-watering recipes – Euell Gibbon's classic, *Stalking the Wild Asparagus*, offers many more.

If you're not familiar with the how's and where's of collecting wild ingredients, there's sure to be someone in your community who is. Many food cooperatives purchase wild edibles from local gatherers who may be willing to share their expertise. Your local Cooperative Extension may have leads as well. Be sure to discuss with your students the importance of sustainable gathering, and only harvest edible plants you can identify with certainty.

Stalking the Wild Asparagus, by Euell Gibbons. Alan C. Hood & Co.: 1987.



Pass the Plants, Please

ME

Science and Technology B, J

NH

Science 1a, 2a, 3a

VT

2.14 Planning/Organization
4.6 Understanding Place
7.2 Investigation
7.13 Organisms, Evolution, and Interdependence

Word Search

Fiddlehead Season, by Sheila McGrory-Klyza (pg. 36)

Month when the fiddlehead season begins in Vermont.

Term given to the study of the uses of plants by primitive cultures.

When this native tree blooms, fiddleheads should be ready for harvest.

Common name for *Matteuccia struthiopteris*, which produces edible fiddleheads. (2 words)

Term meaning “to blend in with surroundings.”

Common name for the fern species sometimes mistaken for edible fiddleheads by inexperienced foragers. (2 words)

Chemical in fiddleheads that can cause stomach upset. It can be removed from the fiddleheads with proper cooking techniques. (2 words)

The fertile soils found here make ideal habitat for fiddleheads.

The flavor of cooked fiddleheads resembles that of this farm-raised vegetable.

When searching for fiddleheads, you should leave at least this many fiddleheads on each plant, to ensure the plant’s survival.

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

Word Search

Fiddlehead Season, by Sheila McGrory-Klyza (pg. 36)

Month when the fiddlehead season begins in Vermont. APRIL

Term given to the study of the uses of plants by primitive cultures. ETHNOBOTANY

When this native tree blooms, fiddleheads should be ready for harvest. SHADBUSH

Common name for *Matteuccia struthiopteris*, which produces edible fiddleheads. (2 words) OSTRICH FERN

Term meaning “to blend in with surroundings.” CAMOUFLAGE

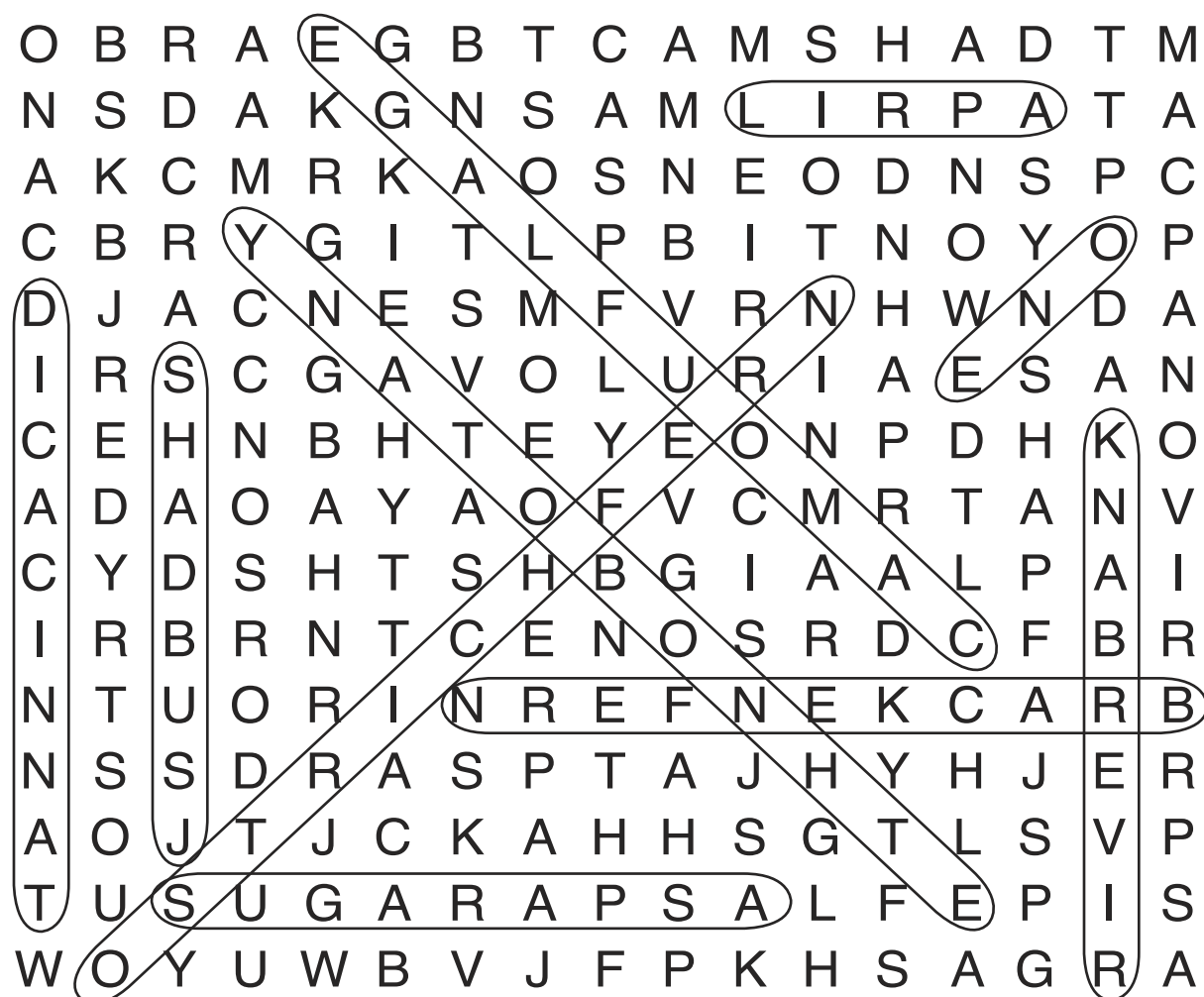
Common name for the fern species sometimes mistaken for edible fiddleheads by inexperienced foragers. (2 words) BRACKEN FERN

Chemical in fiddleheads that can cause stomach upset. It can be removed from the fiddleheads with proper cooking techniques. (2 words) TANNIC ACID

The fertile soils found here make ideal habitat for fiddleheads. RIVERBANK

The flavor of cooked fiddleheads resembles that of this farm-raised vegetable. ASPARAGUS

When searching for fiddleheads, you should leave at least this many fiddleheads on each plant, to ensure the plant’s survival. ONE





Imagine life in a Northern Forest community 25 years from now. How are the people in the community connected with the forest? Choose a person or a type of person (a logger, a student, or a wildlife biologist, for example) from whose point of view your story is told. In this person's daily life, how does it look, feel, smell, taste, sound to be connected with the forest?

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



Writing Exercise

Note to teachers: This writing exercise is the subject of an essay contest sponsored by *Northern Woodlands*, Yellow Wood Associates, and the National Community Forestry Center (see page 18 of the magazine for details). Encourage students to write and polish their essay, honing it to 300 words. Submissions for the contest are due May 1 to *Northern Woodlands*. Winning entries will be published in the Autumn 2004 edition of *Northern Woodlands*.

Crossword Puzzle

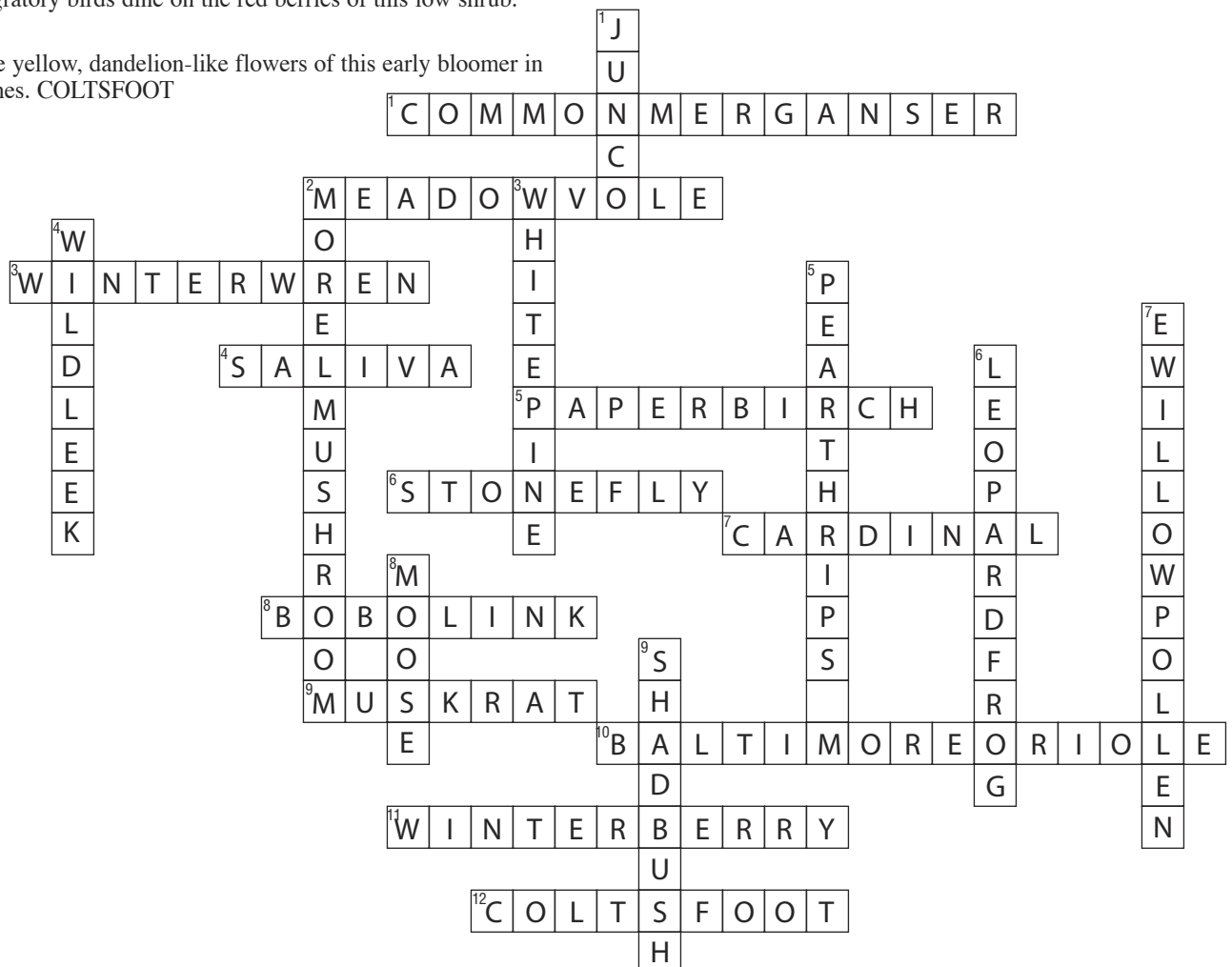
Winter Calendar (page 4)

Across

- Duck species that returns early to Northeast breeding grounds. (2 words)
COMMON MERGANSER
- Rodent responsible for much tree girdling in winter. (2 words)
MEADOW VOLE
- This bird species nests in the roots of overturned trees. (2 words)
WINTER WREN
- Substance chimney swallows use to attach their stick nests to chimneys.
SALIVA
- Sapsuckers often forage from this tree species. (2 words) PAPER BIRCH
- Phoebes and robins eat the adults of this insect as they emerge from rivers and streams. STONEFLY
- In most bird species, only the male sings in springtime, but in this songbird species, both males and females sing. CARDINAL
- Bird species found in grassland habitats. BOBOLINK
- Mammal that eats cattails and builds its home with them. MUSKRAT
- This bird builds a pendulous nest made of milkweed down, wool, yarn, and weed fibers. (2 words) BALTIMORE ORIOLE
- Returning migratory birds dine on the red berries of this low shrub.
WINTERBERRY
- You'll spot the yellow, dandelion-like flowers of this early bloomer in wet roadside ditches. COLTSFOOT

DOWN

- Songbird that builds its nest of dried grass and lines it with deer hair. JUNCO
- Apple blossom time is the best time to search for this delicious wild fungus. (2 words) MOREL MUSHROOM
- Too much road salt can brown the leaves of this coniferous tree species. (2 words) WHITE PINE
- The edible leaves of this plant are best eaten in mid-April. WILD LEEK
- Insect that damages emerging maple buds. (2 words) PEAR THRIPS
- Amphibian whose call sounds like a long snore. (2 words) LEOPARD FROG
- First spring food for many bee species. (2 words) WILLOW POLLEN
- Mammal that browses the bark of red and striped maple saplings. MOOSE
- Early-blooming tree species. SHADBUSH



Crossword Puzzle

Winter Calendar (page 4)

Across

1. Duck species that returns early to Northeast breeding grounds. (2 words)
2. Rodent responsible for much tree girdling in winter. (2 words)
3. This bird species nests in the roots of overturned trees. (2 words)
4. Substance chimney swallows use to attach their stick nests to chimneys.
5. Sapsuckers often forage from this tree species. (2 words)
6. Phoebe and robins eat the adults of this insect as they emerge from rivers and streams.
7. In most bird species, only the male sings in springtime, but in this songbird species, both males and females sing.
8. Bird species found in grassland habitats.
9. Mammal that eats cattails and builds its home with them.
10. This bird builds a pendulous nest made of milkweed down, wool, yarn, and weed fibers. (2 words)
11. Returning migratory birds dine on the red berries of this low shrub.
12. You'll spot the yellow, dandelion-like flowers of this early bloomer in wet roadside ditches.

Down

1. Songbird that builds its nest of dried grass and lines it with deer hair.
2. Apple blossom time is the best time to search for this delicious wild fungus. (2 words)
3. Too much road salt can brown the leaves of this coniferous tree species. (2 words)
4. The edible leaves of this plant are best eaten in mid-April.
5. Insect that damages emerging maple buds. (2 words)
6. Amphibian whose call sounds like a long snore. (2 words)
7. First spring food for many bee species. (2 words)
8. Mammal that browses the bark of red and striped maple saplings.
9. Early-blooming tree species.

