

Spring 2001

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## NORTHERN WOODLANDS MAGAZINE

802-439-6292

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### Editorial Mission

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.

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

## A NOTE TO TEACHERS

Welcome to the Spring 2001 issue of *Northern Woodlands*. It's springtime in the woods, and this issue will help take you there, with articles about tree flowers, nesting songbirds, and the seldom-seen world of living snow. We hope you and your students enjoy them, along with the many other forest-related articles you'll discover in this issue, and find them a useful complement to your studies.

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 6,500 students throughout the Northeast receive four issues of *Northern Woodlands* each school year. The sponsors are: Vermont Department of Forests, Parks and Recreation; USDA Forest Service—State and Private Forestry; Maine TREE Foundation; Mill River Lumber; the Rondo Club; Forest Resources Association; and Warren and Barry King.

We would love to know your thoughts about our teacher's guide. If you have comments or suggestions, or if you need more (or less) copies of the magazine for your students or would like additional copies of this guide, just call or e-mail Ghostwriters Communications at 802-287-4284 (e-mail: [tharvey@gwriters.com](mailto:tharvey@gwriters.com)). Visit our *Northern Woodlands* Goes To School website at [www.northernwoodlands.com/goestoschool.html](http://www.northernwoodlands.com/goestoschool.html).

## SOME IMPORTANT NOTES

**Questionnaires coming your way.** In April, we'll be sending you a questionnaire about your involvement in the *Northern Woodlands* Goes To School program. Keep an eye out for it, and please fill it out and return it to us. Your comments will help us create the best possible publication for you.

**Don't miss the summer edition!** We'll be sending you the summer edition of *Northern Woodlands* and its accompanying teacher's guide on June 1st, just in time for a few end-of-the-year activities.

**Mark your calendar:** April 29-May 6, 2001, is Soil and Water Stewardship Week, sponsored by the National Association of Conservation Districts (NACD). This year's theme is "Habitat for Life." To order their "Habitat for Life" Educator's Guide, or for more information on how you and your students can take part in the week-long event, contact NACD at [www.nacdnet.org](http://www.nacdnet.org) or call 1-800-825-5547.

**A notable book:** In this edition of *Northern Woodlands*, you'll find a review of *Wetland, Woodland, Wildland*, by Elizabeth H. Thompson and Eric R. Sorenson. You'll find this book an excellent complement to your field guide collection, useful for many of the activities described in our teacher's guides.



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. "SILK PURSE OR SOW'S EAR" (FIELD STUDIES)

by Stephen Long (page 29)

- Invite your county forester or a local consulting forester to accompany your class on a field trip to a local woodland area to learn how foresters evaluate trees for their timber value. If your school has a significant wooded area, you can measure the trees on your school grounds. Using simple tools, students can determine tree diameter, height, volume, and commercial value of the various species they measure.
- Before the trip, have your students reacquaint themselves with Stephen Long's article in *Northern Woodlands* Winter 2000 edition (the first in this series on woodlands management), in which he discussed managing your woodlands for wildlife. With these two articles in mind, students can then look at managing the woodland in terms of the needs of wildlife, the potential for timber harvest, and the goals of the landowner, determining what management practices would be most appropriate in their study site.
- If you are joining *Northern Woodlands* Goes to School with our spring edition, call or e-mail Ghostwriters Communications and we will send you the winter edition. 802-287-4284 (e-mail: tharvey@gwriters.com).

 Vermont county foresters:  
[www.state.vt.us/anr/fpr/forestry/steward/county/](http://www.state.vt.us/anr/fpr/forestry/steward/county/).

 Small Woodlot Owners Association of Maine (SWOAM)  
[www.swoam.com](http://www.swoam.com).  
877-467-9626.

 Maine county foresters:  
Tom Doak, ME Forest Service. Phone: 207-287-2791.  
E-mail: [tomdoak@state.me.us](mailto:tomdoak@state.me.us).  
Kevin Doran, Natural Science Educator, Maine Forest Service. Phone: 207-287-4988.

New Hampshire county foresters: Philip Bryce, Division of Forests and Lands.  
Phone: 603-271-2214.



A Forest of Many Uses (grades 5-8)  
Forest Consequences (grades 5-8)  
What's a Forest to You? (grades 9-12, *Focus on Forests* module)  
Tough Choices (grades 9-12, *Focus on Forests* module)

VT

VT Standards:  
4.6 Understanding Place  
7.1 Scientific Method  
7.2 Investigation

NH

NH Standards:  
Science: 2a, 2b, 2c

ME

ME Standards: Science and Technology: A, B, J

## 2. "CROWN JEWELS: TREE FLOWERS ARE TINY GEMS" (FIELD STUDIES)

by H.W. Vogelmann (page 38)

- Have your students survey the school property to discover the flowering of trees in spring. Before they head outdoors, have them work in small groups to create their own survey forms. What do they want to find out about the trees? What information will they need to record, what measurements, what observations? (Depending on the purpose of their survey, they'll want such information as tree species name, date of flowering, appearance of flowers, type of flowering—monoecious, dioecious, or perfect.) Be sure to bring tree ID books with you, as well as the Table of Tree Species found on page 41. If you'd prefer to have an experienced forester along, contact your county forester or consulting foresters in your area.
- As the article states, most trees bloom in early spring, often before the tree is fully leafed, so time your field studies accordingly. Not all of the trees will be flowering on the day you investigate. Have students make records of those not in bloom, and ask them to come up with a monitoring process for those trees' blooming schedule. (For example, they might choose to assign particular students to each tree species and have them check the trees' progress

once a week and report to class). You might suggest tying their monitoring in with their daily field journals, described in Calendar Connection.

- Have students work in teams to research, in depth, one tree species to share with the rest of the class. Suggest that they bring in a sample of the tree's flowers and leaves, and be able to explain, with the aid of drawings, how this tree reproduces itself. You may want them to investigate more than reproduction and share such information as the tree's preferred habitat, how common it is, wildlife and human associations with it (for food, shelter, aesthetic enjoyment). Ask that their research include at least one-half hour of field study—observing the tree for wildlife signs, for spring growth, for distribution within their study area.



*Knowing Your Trees*, by G.H. Collingwood and Warren D. Brush. American Forestry Association, 30th printing, 1978. An old standard, first published in 1937, that has, unlike many other tree identification books, bark and flower photographs for most trees.



A list of members of the Consulting Foresters Association of Vermont is available at [www.gwriters.com/cfav/member.html](http://www.gwriters.com/cfav/member.html). For other states, ask your county forester for a listing of consulting foresters in your area.



Trees as Habitats (grades 5-8)  
Dynamic Duos (grades 5-8)  
Bursting Buds (grades 5-8)

VT

VT Standards:  
1.8 Reports  
1.19 Research  
1.20 Communication of Data  
4.6 Understanding Place  
7.1 Scientific Method  
7.2 Investigation

NH

NH Standards:  
Science: 2a, 2b, 2c  
English Language Arts: 2, 3

ME

ME Standards:  
Science and Technology:  
A, B, J  
English Language Arts: H


# Suggested Activities


## 3. "FOREST NESTERS AVOID SUBURBAN NEIGHBORS" (FIELD STUDIES) (page 37)


- Early spring, before the trees leaf out, is an excellent time to observe songbirds that otherwise disappear into forest foliage. Take your students out onto your school grounds or to nearby woodlands to observe springtime bird activity. Go beyond identification to observing bird behaviors. Are they staking out territories, looking for food, building nests, incubating eggs? Call your local Audubon Society chapter to find a volunteer birder to accompany you on your survey and offer tips on bird identification.
- Conduct your own bird research. While the researchers in the article monitored the reclusive ovenbird, your students can monitor a far more accessible bird, *Turdus migratorius*, or American robin. Where do they nest? At what level of the tree canopy do they prefer to nest? How much time do they spend foraging? Of their time spent on the ground hunting for invertebrates, how often are they successful? Your students can brainstorm questions they'd like to answer, then choose one and develop a research plan to answer the question. They can then conduct preliminary outdoor investiga-


tions. You may have time for only one or two research sessions, but students will have a taste of the world of research.

- Invite an ornithology graduate student into your classroom to talk about his or her research and interest in birds.


 Local Audubon Society chapter contacts: [www.audubon.org](http://www.audubon.org).

 For a good example of bird research methodology and findings, visit the University of Vermont's Forest Bird Monitoring Program website at [www.uvm.edu/~snrdept/vmc/bird.html](http://www.uvm.edu/~snrdept/vmc/bird.html).

 The American Birding Association, North America's largest membership organization for active birders, maintains a superb website. They offer a state-by-state listing of volunteer opportunities for birders, many of them ones with which your students could get involved. ABA also sells birding supplies and books, including *A Guide to Bird Education Resources*. This guide contains information about bird-related curricula, books, posters, videos, and more. Visit their website at [www.americanbirding.org](http://www.americanbirding.org).


 Help your students learn how to observe wildlife without disrupting the animals they're watching. Visit the Watchable Wildlife Association's website, [www.watchablewildlife.org](http://www.watchablewildlife.org), and download their publication on wildlife viewing ethics, *A Guide to Ultimate Wildlife Viewing*.

 The *Partners in Flight* project sponsors International Migratory Bird Day each year. This year's event is May 21. To learn about events near you, to order their Educator's packet and supplement, or to register and promote your own event, visit their website at [www.americanbirding.org/imbd/imbdgen.htm](http://www.americanbirding.org/imbd/imbdgen.htm), or call the US Fish and Wildlife Service, Office of Migratory Bird Management, at 703-358-2318.

 *The Birder's Handbook: A Field Guide to the Natural History of North American Birds*, by Paul R. Ehrlich. Simon and Schuster, 1988.

 Trees are Habitats (grades 5-8)

 Bird Song Survey; Wildlife Research; Field Ethics (Appendix)

 VT Standards: 4.6 Understanding Place; 7.1 Scientific Method; 7.2 Investigation

 NH Standards: Science: 1a, 2a, 2b, 2c

 ME Standards: Science and Technology; A, B, J

## CAREER

### "FINDING AND KEEPING RURAL WORKERS" (COMMUNICATION SKILLS) by Bob Sherman (page 75)


"It was the challenging and rewarding work, in and of itself, that made their employment satisfying." This quote from Bob Sherman's article offers excellent material for classroom discussions. Ask students to consider the following questions:

- What is your vision of good work?
- What are its characteristics?
- What is the measure of good work? (Is it financial compensation, social status, personal well being, greater knowledge/wisdom, benefit to community as well as self?)
- What is the good work you hope to do in your life?

Think of someone you know or know of whom you admire as one who does good work. Plan an interview with them. Write down questions to ask them that will get to the heart of what they do and why. (What do they do for work? How long have they done it? How do they feel about it? What makes it worthwhile? How did they choose their work? Have they always done that line of work?)

## CONNECTION

Interviewing someone can be daunting. Have students practice interviewing one another, asking questions, and recording information and quotes. Have them recite back to their partner or to the rest of the class what they heard and recorded to check their accuracy.


 Learn more about careers in wood manufacturing on the website, [www.vermontwood.com/careers](http://www.vermontwood.com/careers). Starting this spring, this website will also be offering a free 10-minute video on careers in the wood industry.

 Who Works in This Forest? (grades 5-8)

 Guidelines for Interviewing People (Appendix)

 VT Standards: 1.13 Clarification and Restatement  
2.1 Questioning/Problem Solving  
3.15 Career Choices

 NH Standards: English Language Arts: 2, 3

 ME Standards: Career Preparation: A  
English Language Arts: E

# Suggested Activities


## 4. "AT WORK IN THE MEDICINE WOODS WITH CHARLES 'BUD' THOMPSON"

by Eleanor Kohlsaat (page 46)


## "Allegheny Serviceberry, *Amelanchier laevis*" (Field Studies)


by Virginia Barlow (page 35)


- Have your students read Eleanor Kohlsaat's article on Bud Thompson and the Medicine Woods. Ask them how many species of edible and/or medicinal plants they think grow on the school grounds. Invite a botanist or ethnobotanist to the class to help you conduct a school grounds survey.
- Once your ethnobotanical survey is complete, have students choose one of the surveyed plants to research in greater detail. Virginia Barlow's article on the Allegheny Serviceberry offers a great example of the kinds of ideas they can research—where did their plant's name come from? What do wildlife and humans use it for? Where does it grow? What does it and its edible parts look like? How does one prepare the food/medicine?


 *Tom Brown's Guide to Wild Edible and Medicinal Plants*, by Tom Brown, Jr. Berkley Books, 1985.


 *Healing Wise*, by Susun S. Weed. Ash Tree Publishing, 1989.

 *Field Guide to Edible Wild Plants*, by Bradford Angier. Stackpole Books, 1974.

 The Native Way (grades 5-8)  
A Look at Lifestyles (grades 5-8)

 Wild Edible Plants

 VT Standards:  
1.8 Reports  
1.19 Research  
1.20 Communication of Data  
4.6 Understanding Place  
6.13 Concepts of Culture  
7.1 Scientific Method  
7.2 Investigation


 NH Standards:  
Science: 2a, 2b, 2c  
English Language Arts: 2, 3  
Social Studies: 17

 ME Standards:  
Science and Technology: A, B, J  
English Language Arts: H  
Social Studies: B

## 5. "UNDER THE MICROSCOPE" (page 49)

The white pine weevil has the reputation of being a pest. Challenge your students to look at the white pine weevil from a broader perspective, considering its role in the ecosystem of which it is a part.

- Study the white pine weevil's remarkable strategies for reproducing successfully.
- Search your school yard for evidence of white pine weevil activity. If you find affected young pines, monitor their reaction over the school year to weevil infestation, as lateral branches being to grow vertically to take over as leader.
- What is the white pine weevil's relationship with white pine (parasitic, symbiotic, commensalistic, predatory)?
- What animals feed on white pine weevils?
- Are white pine weevils "bad"? For whom?


 Visit "The White Pine Weevil Homepage," [www.pfc.cfs.nrcan.gc.ca/landscape/weevil/](http://www.pfc.cfs.nrcan.gc.ca/landscape/weevil/), for great information on the weevil's life cycle.

 Saga of the Gypsy Moth (grades 9-12, Forest Ecology module)

 Which Niche?

 VT Standards:  
7.1 Scientific Method

 NH Standards:  
Science: 2f, 3a

 ME Standards:  
Science and Technology: B

## Take on the Envirothon!

### What is the Envirothon?

The Envirothon experience is a unique approach to environmental education. Activities are designed to help students become environmentally aware, action-oriented adults.

The Envirothon tests students' knowledge on topics such as soil and water resources conservation, forestry, wildlife and fisheries management, and current environmental issues. Teachers recognize the value of the Envirothon for strengthening the environmental awareness of their students.

Teams of high school students compete in an outdoor setting where they learn that cooperation is needed to achieve success. Participation in this competition is fun for students and advisors alike. The same spirit of competition that motivates athletes, drives successful businesses, and stimulates new ideas is used in the Envirothon.

Each spring local Envirothons are held in each of the four northern forest states. The winning team from each competition then goes on to represent its state at the National Envirothon.

The Envirothon began in Pennsylvania in 1979. Since then, it has spread to many other states. New York held its first Envirothon in 1990 and Vermont's first was in 1995. Visit the Envirothon website at [www.envirothon.org/](http://www.envirothon.org/)

### State Contacts:

New Hampshire: Herb Vadney, 10 Sleep Hollow Rd., Meredith, NH 03253. Phone: 603-279-3436. Fax: 603-279-3436, [vadney@juno.com](mailto:vadney@juno.com)

Jan Hooper, 719 No. Main St., Rm. 203, Laconia, NH 03246. Phone: 603-528-8713. Fax: 603-528-8783

Liz Frederic, University of Maine, Farmington. Phone: 207-778-7000

# Suggested Activities

Maine: Tim Chandler, 46 Road Less Traveled, Bryant Pond, ME 04219. Phone: 207-743-5946. Fax: 207-674-2381, chandler@megalink.net

Geneva Duncan Frost, Rt. 1A, Box 73, Jonesboro, ME 04648. Phone: 207-434-2622. Fax: 207-434-2624, geneva.duncan@state.me.us

New York: Tim Hotaling, 7413 County Horse Rd., Auburn, NY 13080. Phone: 315-252-4171. Fax: 315-252-1900, jimhotaling@ny.nacdn.net.org

Vermont: Nancy Allen, Winooski, NRC D, 617 Comstock Road, Ste 1, Berlin, VT 05602. Phone: 802-828-4493. FAX: 802-223-6163. nallen@vtberlin.fsc.usda.gov

Mary Jeanne Packer, Vermont Association of Conservation Districts, PO Box 196, Poultney, VT 05764. Phone: 802-287-4284. FAX: 802 287 4285, mjpacker@vacd.org

## 6. "NATURE AT MY DOORSTEP" (WRITING SKILLS)

by Scott Darling (page 27)

- Ask students to read Scott Darling's article, then consider for themselves the questions asked by the Vermont Fish and Wildlife Department at last fall's Wildlife Congress:

**What is it about your state that makes you want to live here?**

**What is your ideal vision for how your state will look to your great-grandchildren?**

**What challenges do we face in achieving your vision?**

- Have students write for 10-15 minutes, answering these questions. Emphasize that ideas are what matter here, that they can list images and phrases rather than compose crafted sentences.
- As a group, have the students share their ideas in a brainstorming session on each of the questions. Is there a common theme among the students' visions? Where do visions diverge? How can we live together within these differing visions?

- Vermont students can share their thoughts with Mr. Darling in the Waterbury office. Students in other states may wish to share their ideas with their state fish and wildlife department director.
- Your students will have great-grandchildren in roughly 2070. Have them write a newspaper article as if it is 2070 and the Vermont they ideally envision is actually in place. What does it look like/sound like/smell like? How does it feel to live here? How is it different from other states?



Scott Darling's address: Department of Fish and Wildlife, 10 South Bldg., 103 S. Main St., Waterbury, VT 05671-0501.



New Hampshire Department of Fish and Game, 2 Hazen Drive, Concord, New Hampshire 03301. 602-271-3211.

Maine Department of Inland Fisheries and Wildlife, 284 State Street, 41 State House Station, Augusta, ME 04333-0041. 207-287-8000.



In the Good Old Days



VT Standards:  
1.12 Personal Essays



NH Standards:  
English Language Arts: 2



ME Standards:  
English Language Arts: A, D, G

## WILDLIFE

## CONNECTION

### "SCRATCH AND SNIFF"

by Susan C. Morse (page 14)

In her article, Susan Morse states that Canada lynx were, a year ago, federally listed as threatened. What does this mean to your students? What does it mean for the lynx? Invite a US Forest Service or US Fish and Wildlife Service biologist to your classroom to talk about the status of lynx in your state and beyond. Ask them to help your students understand the federal listing process and the degree of protection that listing offers.



To contact Green Mountain National Forest (VT), Finger Lakes National Forest (NY), White Mountain National Forest (NH and ME), visit <http://www.fs.fed.us/recreation/states/us.shtml>.



To contact the US Fish and Wildlife Service, visit <http://www.fws.gov/>.



Squirrels vs. Scopes (grades 9-12, Focus on Forests module)



Here Today, Gone Tomorrow



VT Standards:  
7.13 Organisms, Evolution, and Interdependence



NH Standards:  
Science: 3b



ME Standards:  
Science and Technology: B

## 7. "BIRDS IN THE BRUSH"


by Bryan Pfeiffer (page 22)


**(Field Studies, Communication Skills)**


- Your students, like most people, will be surprised to learn how many bird species nest on or near the ground. They can spread the word by creating a series of public service announcements informing people of threats to ground-nesting birds and simple things they can do to mitigate those threats. Have students work in teams to develop a public service announcement, which could take many forms—newspaper article, leaflet, poster, video, radio spot, even sculpture and other three-dimensional art.


# Suggested Activities

- Assess your school grounds as habitat for ground-nesting birds. Have students determine where and how the school might improve its shrub and tall grass habitat. Consider creating such habitat through native shrub plantings. Students can then document their management recommendations and planting plans in a report to the school administration.


 In celebration of Soil and Water Stewardship Week, The National Association of Conservation Districts (NACD) has created the "Habitat for Life" Educator's Guide. Order this publication at [www.nacdnet.org](http://www.nacdnet.org) or call 1-800-825-5547.

-  Learn more about ground-nesters and how to help protect their habitat from the Cornell Laboratory of Ornithology. Each year, the Laboratory sponsors the Great Backyard Bird Count, with which students can get involved. Check the website for results from this year's count, February 16-19, 2001, and to find out how you can take part in their next count. [www.ornith.cornell.edu/](http://www.ornith.cornell.edu/).

 The National Wildlife Federation has a great backyard habitat program, and offers a Schoolyard Habitat Certification program. For more information and to order a "Schoolyard Habitats Kit," visit [www.nwf.org/habitats/index.html](http://www.nwf.org/habitats/index.html).

 Birds and Worms (grades 5-8)  
Schoolyard Safari (grades 5-8)  
Publicize It (grades 5-8)

 Improving Wildlife Habitat in the Community

 VT Standards:  
1.11 Persuasive Writing  
1.16 Artistic Dimensions  
5.29 Visual Arts  
7.1 Scientific Method  
7.13 Organisms, Evolution, and Independence

 NH Standards:  
Science: 2a, 2b, 3a

 ME Standards:  
Science and Technology: A  
Visual and Performing Arts: A  
English Language Arts: E



## CALENDAR

## CONNECTION

### "A LOOK AT THE SEASON'S MAIN EVENTS" (PAGE 4)

Spring, with its daily unfoldings, is the perfect time of year to begin keeping a field journal. Ask your students to begin their own field journal, recording at least one observation about the natural world each day. They can refer to the *Northern Woodlands* calendar on page 4 for ideas about the kinds of natural events occurring each month. Their journal can take many sizes and shapes. Encourage them to use unlined paper so they can illustrate their observations. Have students enter their observations on a large classroom calendar. By making daily journal entries, your students will quickly become more attuned to the continual changes in the natural world around them.

 Keeping a Nature Journal: Discover a Whole New Way of Seeing the World Around You, by Clare Walker Leslie and Charles E. Roth. Storey Books, 2000.

 Wild Words...A Journal-Making Activity  
Learning to Look, Looking to See

 VT Standards:  
4.6 Understanding Place; 5.3 Visual Arts

 NH Standards:  
Science: 1a

 ME Standards:  
Visual and Performing Arts: A  
Science and Technology: B