

ENDANGERED & THREATENED SPECIES

Under the Endangered Species Act of 1973 species may be listed as either "endangered" or "threatened". Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. All species of plants and animals, except pest insects, are eligible for listing. The purposes of the Endangered Species Act are to protect listed species and provide a means to conserve their ecosystems. As of August 31, 2002, 1,818 species are listed, of which 1,260 are U.S. species. For more information about the Endangered Species Act see <http://endangered.fws.gov> or contact the US Fish and Wildlife Service Office listed at the end of this factsheet.

Here are some examples of Federal and State Endangered and Threatened Species within Rhode Island:

Federal Endangered
American Burying Beetle
Atlantic Green Turtle
Roseate Tern
Sandplain Gerardia

State Endangered
American Bittern
N. Diamondback Terrapin
Barn Owl
Northern Blazing Star
Bog Rosemary
Plymouth Gentian
Showy Orchis

Federal Threatened
Piping Plover
Northeastern Beach Tiger Beetle
Small Whorled Pogonia

State Threatened
Eastern Spadefoot

Where do I turn for more information and help?

RI DEM Division of Forest Environment
(401) 647-3367 • www.dem.ri.gov
• To talk with a state service forester.
• Obtain answers to specific forest health questions; list of consulting foresters & licensed wood operators.

Rhode Island Forest Conservators Organization (RIFCO)
(401) 568-3421 • www.rifco.org
• Educational programs and events, newsletter, Rhode Island Tree Farm Program, links to numerous publications and local, state, and federal forestry agencies and organizations.

Rhode Island Tree Council
(401) 647-9922
• *Tree Stewards Training Program*—education series on tree planting and care; urban and community forestry.

URI CE GreenShare Program & Plant Protection Clinic
(401) 874-2900 • www.uri.edu/ce/ceec
• Factsheets on Insect and Animal Pests, Tree and Shrub Culture, Integrated Pest Management, available on-line at www.uri.edu/ce/factsheets; *Sustainable Trees and Shrubs Manual*—lists over 250 disease and insect resistant plants that thrive in Southern New England with minimal maintenance, available on-line at www.uri.edu/ce/factsheets/sheets/sustplant.html
• Information and assistance with plant insect and disease identification

USDA Forest Service Pest Alerts and Forest Insect and Disease Leaflets
USDA Forest Service, Northeastern Area, State and Private Forestry
www.na.fs.fed.us
Links to Durham, NH Field Office
(603) 868-7600
www.fs.fed.us/na/durham -- click on Library for Pest Alerts and Disease Leaflets

A Forest Landowner's Guide to Internet Resources: States of the Northeast
www.na.fs.fed.us/pubs/misc/ir/index.htm
• Publications and factsheets for: Tree identification/Species information; Forest Health and Protection; Seedling Suppliers/Tree Planting; Forest Management Planning; Forest Sampling and Inventory; Riparian Forest Management; Biodiversity and Endangered Species; Glossaries of Forestry Terms; *Your Trees Trouble May be You* and *How to Recognize Hazardous Defects in Trees*.

The RI Natural Heritage Program, RI DEM Division of Planning & Development
(401) 222-2776 ext. 4308
www.dem.ri.gov
• Lists of Rare Native Animals and Plants of Rhode Island (on-line in .pdf); database, maps, and other materials documenting rare species and other threats to critical areas; links to New England Plant Conservation Program.

The RI Natural History Survey
(401) 874-5800 • www.uri.edu/ce/rinhs
• Information about invasive species, Rhode Island's ecology, biodiversity protection, and extensive links to many related organizations and publications.

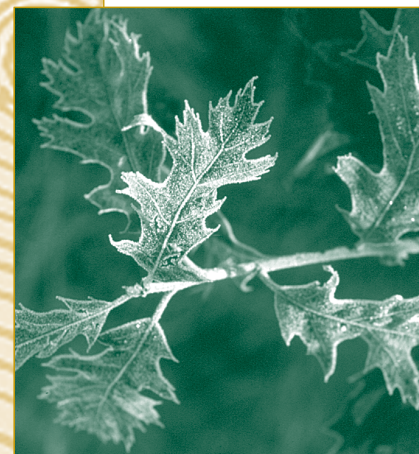
The Rhode Island Wild Plant Society
(401) 783-5895 • www.riwps.org
• List of native plants; official RI Invasive Species Council list of invasive plants; special programs, affiliations & newsletter.

RI DEM Division of Fish & Wildlife
(401) 789-3094 • www.dem.ri.gov

U.S. Fish and Wildlife Service, Rhode Island Field Office
(401) 364-9124
<http://northeast.fws.gov/ri.htm>
Endangered Species Act
<http://endangered.fws.gov>

Programs and activities are available to all persons without regard to race, color, sex, disability, religion, age, sexual orientation, or national origin.

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The USDA Forest Service, along with state forest agencies, make regular ground and aerial surveys of forest pests and damage, both in permanent plots and in surrounding forest areas. One major program aimed at understanding forest health is a joint federal/state program called the Forest Health Monitoring Program, which began in 1990 and is administered through the USDA Forest Service. It includes the active participation of state foresters, other federal and state agencies, and universities. The program goal is to monitor, assess, and report on the status, changes, and long-term trends in the health of our nation's forests. Forest Health in the New England States & New York, January 1998, USDA Forest Service and National Association of State Foresters.

Working for Forest Resources & Health

Forest health is indicated by the overall condition of all the trees in your woods. In other words, there is no single measurement that points to forest health, rather it is an assessment of many factors that serve as an overall sign of existing conditions.

Tree health or condition can be affected by several factors which include: insects, disease, lack of sunlight, water, nutrients or space, weather, fire, animals--wild and domestic, as well as human activities. These factors can cause the trees in your woods to:

- Have reduced growth or lack of vigor
- Have wood that is destroyed or unsuitable for certain uses
- Lose visual quality or aesthetic value
- Result in premature death

It is important to remember that a certain number of dead or damaged trees in your woodlands is not only natural, but also necessary for providing valuable wildlife habitat and nutrient recycling.

We rely on healthy forests to provide us with numerous benefits such as clean, plentiful water and air, wildlife habitat, income, jobs, privacy, and much more. Therefore, it is important to regularly monitor the health of your woodlands and take steps to protect or restore them when threatened by damaging factors. Refer to the factsheet *A Well-Kept Forest is a Legacy* for more information about the benefits of a healthy forest.

What are some "symptoms" or signs of an unhealthy forest?

- **Crown dieback.** A measure of the amount of dead branch tips in the upper portion and outer edges of the live crown. Crown dieback does not include branch tips that are dead due to shading or competition. Some tree species will normally show a small amount of crown dieback, however a large percentage (more than 10% of branch tips) of crown dieback indicates that a tree is under extra stress.

- **Low crown density or small crowns.** Crown density is the amount of plant material, such as leaves, branches, and fruit that block skylight from shining through the tree crown. Low crown density indicates poor amounts of foliage, a thin crown, or a missing section of crown. A high crown density indicates that the tree has a large amount of leaf material available for photosynthesis and conditions that enable full, symmetrical growth.



Photo courtesy USDA Forest Service

- **Large broken branches in the crown,** especially in the top or apical portion of the tree's crown.
- **Sudden loss of many or all leaves.**
- **Cracks in the trunk.**
- **Indicators of decay:** a mushroom shelf around trunk, open wounds, wet, weeping spots on trunk and/or branches (known as resinosis).
- **Tree trunk is crooked or leans in one direction.**

What else should I be looking for?
Use the attached *Woodland Area Inventory Sheet & Woodland Area Map* sheet to note

WHY IS THE FOREST HEALTH PROTECTION PROGRAM IMPORTANT?

The USDA Forest Service, Northeastern Area, State and Private Forestry, Durham, NH Field Office—

Several forest health problems currently plague New England and New York. The Asian Longhorned Beetle was an unwanted import from China and has infested several areas around New York City. It has also been found in the Chicago area. The beetle is a major threat to maples and other species and has no known enemy in the United States. Should this pest invade rural forests, it could create significant biological and economic impacts. The USDA Forest Service Forest Health Protection Program is helping the USDA Animal and Plant Health Inspection Service (APHIS) in the battle against this exotic pest.

Hemlock is an important forest tree, as it provides winter shelter for deer and helps to protect water quality. The Hemlock Woolly Adelgid, a tiny insect from Japan, entered the country on ornamental plants. Winds from Hurricane Hugo carried it to southern New England and New York in 1985. It slowly kills hemlocks. In New England the bug is widespread in Connecticut, Rhode Island, and Massachusetts. The northern New England states ban the import of hemlock logs and ornamental plants from infested states to try to keep the insect out, but there have been recent, limited sightings of the adelgid in Maine and New Hampshire. —Taken from their website www.fs.fed.us/na/durham/foresthealth/index.htm

WHAT ARE SOME OTHER INSECTS AND DISEASES THAT I SHOULD BECOME FAMILIAR WITH?

Insects

Eastern Tent Caterpillar	Forest Tent Caterpillar
Fall Webworm	Gypsy Moth
Orange-striped Oakworm	Pear Thrips
Red Pine Scale	White Pine Weevil

Diseases

Ash Decline	Butternut Decline
Chestnut Blight	Dogwood Diseases
Dutch Elm Disease and the American Elm	

For information and a more inclusive list on tree and shrub insects and diseases contact URI CE GreenShare at (401) 874-2900, www.uri.edu/ce/ceec/greenshare.html (factsheets on-line) and the USDA Forest Service, Northeastern Area, State and Private Forestry, Durham, NH Field Office at (603) 868-7600, www.na.fs.fed.us/spfo/fth_pub.htm (Pest Alerts and Forest Insect and Disease Leaflets on-line).

what tree symptoms you see and where these trees are located.

- Note the types of symptoms you see, what they look like and where they occur on the trees.
- Note what types of trees and their age ranges that are damaged/dead.
- Note how many trees are damaged/dead.
- Note the areas or pattern where these problem trees occur.
- Determine how long these problems may have existed.
- Determine how widespread it may be (does your neighbor have some of the same problems)?

Again, it is normal and unavoidable for woodlands to contain some dead and damaged trees, and the nutrient cycling and wildlife habitat they provide are part of the natural forest ecosystem. However, if you suspect that many of the trees in your woods have one or more serious problems, it is recommended that you contact a forester or other natural resource specialist to help you identify the exact cause(s) and determine the best ways to deal with it. Some problems may have been caused by a widespread infestation such as the gypsy moth caterpillar, another problem may stem from a concentrated over-population of deer in your immediate area, and in some cases, you may mistake a tree problem for something that is, in fact, benign or beneficial.

Certain damaging factors will pop up throughout the future. Ice storms and hurricanes are unpredictable, but history has shown that they do occur periodically over time. Through consultation with a forester or other qualified professional, certain steps may

help protect against some insect and disease damage. For example, a forest that has been maintained in a wide variety of tree types and age ranges tends to resist insect and disease infestations better than forests of uniform tree species and ages. The best way to protect your woods from future damage is to keep your forest healthy today.

A healthy forest can withstand and recover from damaging factors better than a forest that is already stressed.

Sensitive Species -- Rare, Endangered, Threatened, or Special Statewide Concern

There is currently a comprehensive statewide inventory of Rhode Island's most rare and vulnerable natural features. This program, which began in 1978 as a collaborative effort between The Nature Conservancy and the Rhode Island Department of Environmental Management (RIDEM), is known as the RI DEM Rhode Island Natural Heritage Program. The RI Natural Heritage Program has developed lists of those species that are currently considered endangered, threatened, or of special concern in the state.

The RI Natural Heritage Program works closely with several groups on these studies including the:

- RI Wild Plant Society
- The RI Natural History Survey
- New England Plant Conservation Program

This Program maintains an extensive and up-to-date database of maps, computer files, and other materials documenting the locations of rare species and other significant natural features, management and stewardship needs, and threats to critical areas.

As you get to know your woods, become familiar with the resources offered by The RI Natural Heritage Program and their partners in conservation to identify whether your woods are home to one or more sensitive species. As there is limited legal protection for most sensitive species in Rhode Island, private landowners have the opportunity to serve as on-site stewards protecting the various unique species and other natural resources that may be found on their properties.

Take care that your woodland activities are in harmony with sensitive species protection.

What are hazard trees?

While dead or damaged trees can provide valuable wildlife habitat and nutrient recycling, they can also endanger people or property. Branches, limbs, or the entire tree could suddenly fall or uproot without any predictable warning signs. Seek professional advice from a forester, licensed arborist or other tree care professional with the identification and, especially, the removal of hazard trees.

Human activities can often be the biggest culprits in turning a healthy tree into a damaged or dying tree. These damaging activities include:

- Improper pruning methods.
- Injuries caused by mechanical equipment during construction and land clearing activities.
- Depositing of topsoil, mulch or other fill around trees when installing new lawns, access roads, or parking areas.
- Soil compaction due to heavy equipment or improper tree planting methods.
- Planting trees that are not suitable to the existing site conditions.
- Improper tree planting & staking methods.
- Introducing nonnative and invasive tree & plant species.
- Uncontrolled livestock grazing or access — this includes horses!
- Fire that results from mismanaged brush pile burning or campfires.
- Road Salt
- Pollution — acid rain and ozone injury

Your Trees Trouble May be You and How to Recognize Hazardous Defects in Trees are two USDA Forest Service publications that provide more information on the effects that

people have on tree health and what you can to address and prevent these problems. They can be accessed at the USDA Forest Service Northeastern Area Website On-line library, www.na.fs.fed.us/spfo/fth_pub.htm

The following activities are things you can do to protect and improve forest resources & health

- Use the *Record of Woodland Area Plans and Activities* sheet to record actions you plan to take and develop a time frame for accomplishing activities. Refer to the list of contacts and resources listed at the end of this factsheet for specific information and assistance with these activities.
- Cultivate your woodlot with selective removals and pruning leaving vigorous and desirable trees with plenty of room to grow (also known as *Crop Tree Management and Intermediate Thinning*).
- Trees that present a safety hazard to persons or property should be removed with care by an experienced arborist.
- Encourage a variety of tree types to protect against widespread damage. For example, certain trees are severely damaged by gypsy moths, while other trees may only experience moderate or even minor effects. Certain trees are more prone to being uprooted during a hurricane or blizzard than other tree types.
- Discourage trees that are not suited to your land and weather conditions. For example, some trees can withstand drought better than others. Think about your property characteristics. Refer to your *Woodland Area Inventory Sheet*.
- Plant or maintain trees, shrubs, and other plants that provide weather barriers.
- Plant or maintain a buffer of trees and shrubs along streams, ponds and other water resources. Refer to factsheet *Working for Clean, Plentiful Water* for more information.
- Monitor your woods for signs or symptoms of damage and death occasionally and after storms.
- Stay informed about pest problems in the local area and participate in protection programs where possible.
- Take steps to salvage damaged trees where possible. For example, if a group of trees is damaged due to the heavy browsing of deer, take steps to discourage or control deer access.

DID YOU KNOW THAT ABOUT 42% OF THE ENDANGERED SPECIES IN THE U.S. HAVE BECOME ENDANGERED DUE TO NON-NATIVE INVASIVE SPECIES? IN FACT, INVASIVE SPECIES ARE THE SECOND LARGEST THREAT TO BIODIVERSITY AND ECOSYSTEM HEALTH—SECOND ONLY TO DIRECT HABITAT LOSS AND DISTURBANCE. FOR MORE INFORMATION SEE THE FACTSHEET WORKING FOR BIODIVERSITY AND PROTECTION FROM INVASIVE SPECIES.