

Picture the Forest

Wisconsin's forests cover 46% of the state. That's 16 million acres of forests! With all those trees, forests should be able to meet everyone's needs, right?

Well, it's not that simple. We demand a lot from our forests. We expect our forests to be beautiful places to relax and enjoy the great outdoors. At the same time, we want forested lands to remain wild—undisturbed and able to support diverse species of wildlife. On top of that, we demand that forests produce wood, paper, and other forest products for our use. That's asking quite a bit—even from 16 million acres!

Goals of forest management have always varied by landowner. However, to meet the many demands placed on Wisconsin forests, landowners typically manage their woodlands for a variety of goals. For example, private individual landowners, who own about 57% of the forests in Wisconsin, manage their woodlands for goals ranging from personal income to increasing biodiversity. Private corporations and the forest industry own about 11% of the forests in the state. Besides managing their forests for products, they also manage them to provide wildlife habitat, to protect water quality, and to provide places for all of us to recreate. And of course the 32% of Wisconsin forests in public ownership is managed to provide as many benefits as possible.

Today, we realize more than ever that forest resources are limited. With the growing population and increasing demands, the resiliency and productivity of forests will be put to the test. It's time to plan for the future!

Today's forest managers and resource professionals try to manage forests to provide ecological, economic, and social needs both today and in the future. That's what sustainable forestry is all about. It means making choices. The choices aren't always easy ones, but through sustainable forestry, we can enjoy **all** the benefits of forests.

The idea of managing a forest to reach certain goals is difficult for students to grasp. This activity starts out by finding out how your students picture a forest. Then it challenges them to include the many goals of sustainable forestry in their idea or "picture" of a forest.

Getting Ready

1. Reproduce the student page, **Picture the Forest**, on page 87.
2. Post the **Sustainable Forestry** poster.



Method

Students draw pictures of forests as a springboard to discussing how demands on forest resources are balanced.

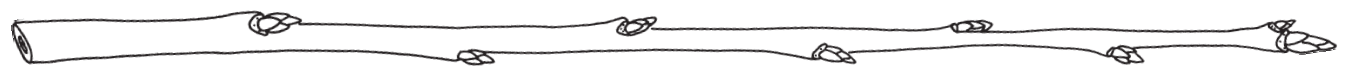
Key Concepts

There are economic, ecological, and social/cultural consequences for every act of production and consumption.

Sustainable forestry balances the needs of today with those of the future.

Objectives

- identify ways that people use forest resources
- realize that forests are managed to satisfy a variety of social, economic, and ecological goals
- explore how different forest uses can be balanced with each other



Subjects & WI Academic Standards

Science:

A.4, B.4, C.4, H.4
B.8, C.8, F.8, H.8

Social Studies:

A.4, B.4, D.4
A.8, B.8, D.8

English/Language Arts:

A.4, B.4, C.4, D.4, F.4
A.8, B.8, C.8, D.8, F.8

Environmental Education:

A.4, B.4, C.4, D.4, E.4
A.8, B.8, C.8, D.8, E.8:

Materials

- drawing paper
- pencils, crayons, colored pencils, and/or markers
- **Sustainable Forestry** poster
- copies of the student page "Picture the Forest" for each student
- **Sustainable Forestry** newsletter reprints

Preparation

Time

10 minutes

Activity Time

2 50-minute class periods

Setting

classroom

Doing the Activity

1. Ask students to draw a picture of a forest. It could be a forest they have visited regularly or an ideal forest of their imagination. Note: The forest should be real—not imaginary.
2. Invite students to share their pictures with each other and tell what is happening in their forests. Comment on the artwork and focus on their feelings about the forests they have pictured.
3. Now look closely at the pictures from a different viewpoint. Ask students to share ways they included people in their forest pictures. Record the different ways people were using or enjoying the forest. Talk about our need for recreation as a group or society. Title this list "**Social Goals.**"
4. Now look at the pictures from the standpoint of the environment. Ask students to list the ways they showed forests being important to the environment. Record their ideas under the heading "**Ecological / Environmental Goals.**" Did they include pictures of plants and forest animals? Are there streams or lakes in the pictures? Is the sky clear and free of pollution? Look back at the activity "It Does What?" for more ecological benefits.
5. Forests are also important for our economy. Look at the pictures from an economic viewpoint. Ask how the pictures show people working in the forest or harvesting products from the forest. List the ways forests meet "**Economic Goals**" on the board. It is very possible that no one included scenes of trees being cut down. Talk about why that might be. Refer to pretest question about the cutting of trees. Discuss the students' responses.
6. Look at the **Sustainable Forestry** poster included in this packet. Can you add any more words/ideas to the three lists you have on the board? Brainstorm other possibilities. You may need to list some things in more than one category. For example, snowmobiling might be listed under social goals because of the value of recreation **and** under economic goals because snowmobilers spend money in nearby towns.
7. Pass out copies of the three-circle diagram from page 87. Discuss what each circle represents and ask students to color in the circles as you talk about them.

* **Ecological / Environmental Goals:**
Forests are an important

part of Wisconsin's environment. They provide habitats for plants and wildlife and help keep our air and water clean. Color this circle blue. Look back at your list and reinforce the idea of ecological goals with examples from the students' pictures.

✿ **Social Goals:** Forests are great places for people to have fun and relax. They give us many social benefits. Color this circle yellow. Discuss examples of social goals from your list.

✿ **Economic Goals:** Forests are an important part of Wisconsin's economy. We need the products and jobs (i.e., direct and indirect) that trees provide. Color this circle red. Talk about how forests are vital to our economy and our way of life.

8. Now, look closely at the circles. Point out the areas of overlap. Talk about how the colors have combined in these areas. In the same way, we can combine uses of forests. Through careful planning, one forest can do many things. Share some of the articles from the **Sustainable Forestry** newsletter that are reprinted in this guide on pages 89 - 92. They show how we can use one forest to meet several goals:

✿ "Saving Habitat May Save Butterflies"

✿ "DNR Works to Keep Forests Good-Looking"

✿ "Forests Offer Outdoor Recreation Opportunities"

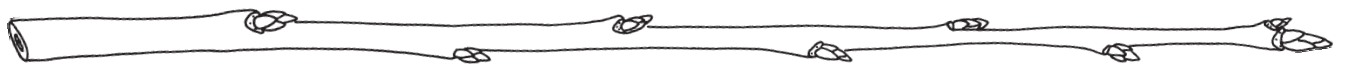
✿ "Sustainable Forests in Cities and Communities"

9. Now look at the center of the circle diagram. This is where everything comes together—both colors and ideas! When forest owners and managers consider the social, economic, **and** ecological goals of a forest, they are beginning to think sustainable forestry. When they also consider the future of the forest and how their land fits into the big picture of forests in a whole area, they are really thinking sustainable forestry.

10. Share the article "Planning for the 7th Generation" from the **Sustainable Forestry** newsletter reprint on page 92. Talk about how the Menominees have kept the future in mind as they manage their tribal forests. How are they meeting social goals? Economic goals? Ecological goals?

11. As a class, come up with a definition of sustainable forestry. Your definition should include these ideas:

✿ Forests are constantly changing.



✳ Forests need to be managed and used wisely.

✳ Forests must provide ecological, economic, and social benefits.

✳ Forests must meet our current needs.

✳ Forests must be used so that they retain their diversity and beauty.

✳ Forests will be needed by future generations.

Assessing Student Understanding

Back to the drawing board! Ask students to draw a different forest picture. This time tell them they must draw a picture of a forest that is managed sustainably. The forest must meet social, economic, and ecological goals. It must also be managed so that the forest can provide those goals far into the future. Students should write a paragraph about how the different demands on the forest are kept in balance.

Extending the Learning

Investigate Sustainable Consumption

Sustainable forestry, sustainable development, and sustainable future are current buzz words, but what do they really mean to each of us? Discuss and research some of these questions with your students:

✳ How has the use of forest products changed over time? Ask students to interview their parents and grandparents. Here are some possible interview questions: Do you use more or fewer forest products today than you did 10/25/50 years ago? Do you throw away more or less than you did 10/25/50 years ago? Do you think you use just the right amount, too few, or too many forest products?

✳ Consider how the demand for and consumption of forest products affects the management of forests. Do you think the stewardship of forest resources includes being careful consumers of forest products?

✳ What do you think will happen to the forests when the world's population reaches seven or eight billion? Can each of us continue to use the same amount?

✳ Depending on your students' level of understanding, you might want to investigate global distribution of resources and/or predictions of population growth.



Read About Different Forest Viewpoints

Read *The Singing Fir Tree* by Marti Stone. This is a Swiss folktale about a woodcarver and his quest to find the perfect wood for his masterpiece. When he wants to cut down the town's beloved singing fir tree, he learns that trees mean different things to different people. This story will spark a good discussion about how different people view the forest.

Make a Concept Map

See the activity "Sustainable Forestry - Concept Mapping" in *Sustainable Forestry: Commitment to the Future*. This activity uses the three-circle diagram as the basis for a sustainable forestry concept map. Students build the map based on their ideas about forest uses and the ideas represented on the *Sustainable Forestry* poster in this packet. See the sample concept map on page 86. Grades 6 - 12.

Create a Collage

See the *NatureScope: Trees are Terrific!* activity "We All Need Forests." A good discussion of multiple use management is followed by suggestions for how to make a forest collage showing all the different uses of a forest. Grades K - 5.

Be a Forest Manager for a Day

See the *Project Learning Tree* activity "A Forest of Many Uses." Students will learn about multiple use management by listing the ways forests are used and then pretending to manage a forest for different uses. They will think about how decisions to use the forest are made and analyze which uses are compatible. Grades 1 - 8.

Finding Out More!

American Forests and Paper Association

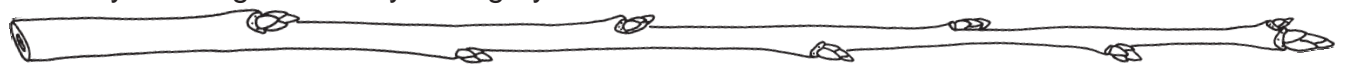
www.afandpa.org/forestry/sfi_frame.html

College of Menominee Nation—Sustainable Development Institute.

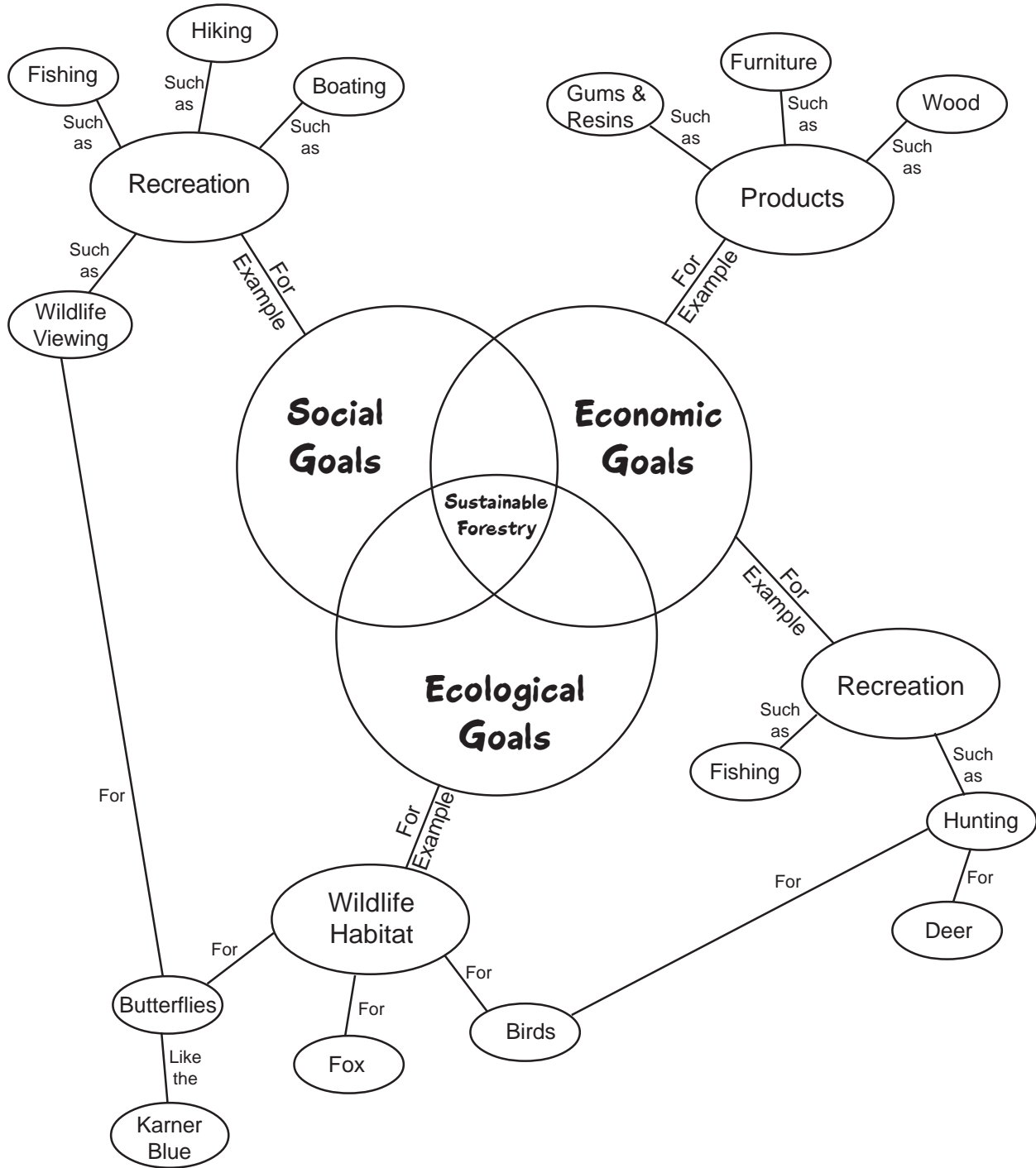
The Menominee's SDI shares information on sustainable forestry and challenges others to look closely at difficult choices. Contact the College of Menominee Nation, P.O. Box 1179, Keshena, WI 54135, (715) 799-1336.

www.menominee.edu/sdi/forestry.htm

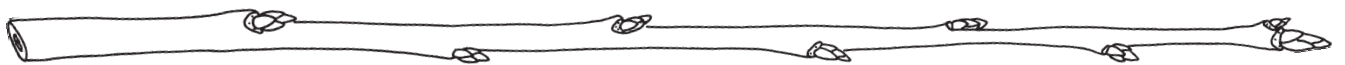
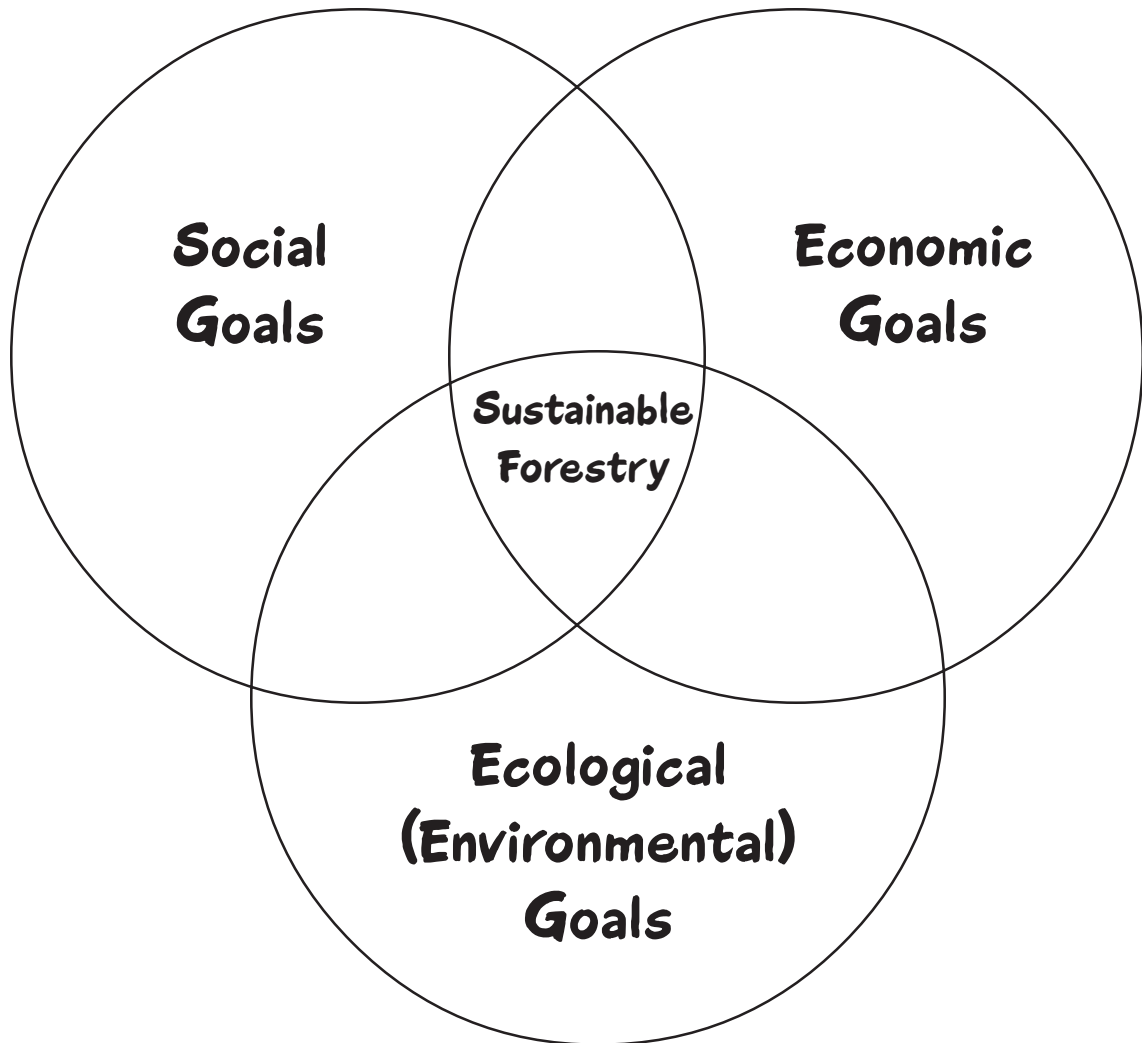
Wisconsin Forests: Resource & Industry. This video examines the many roles forests play in our lives. It illustrates how managing our forest resources to satisfy many needs is a delicate balancing act. This and several other videos are available for loan from the Department of Natural Resources Forestry Training AV Library through your local WDNR forester.

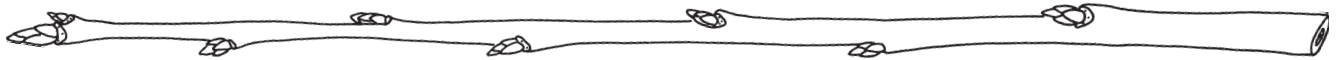


Sample Concept Map



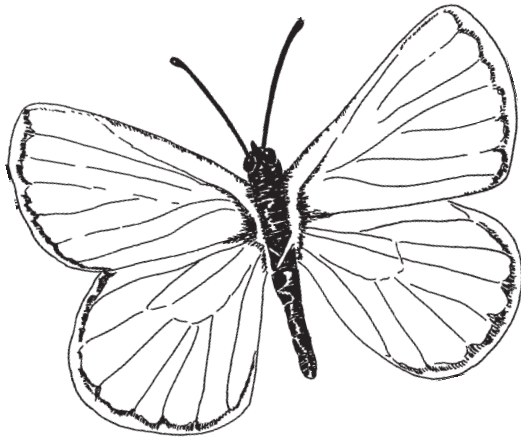
Picture the Forest





SUSTAINABLE FORESTRY

COMMITMENT TO THE FUTURE





Saving Habitat May Save Butterflies


Some delicate, tiny blue butterflies that live in Wisconsin are under federal protection. Wisconsin is believed to support most of the remaining Karner blue butterflies in the eastern U.S. and Canada. They are found in the central and northwestern sand counties—where wild lupine grows. In fact, the butterflies' survival here depends on habitats that can grow wild lupine flowers.

The Karner blue was added to the endangered species list in December of 1992. Federal listing of the Karner blue butterfly means that it is now illegal to kill, collect, harass or harm it, or to destroy its habitat.

That sounds easy enough. In many cases, if the habitat of endangered species is protected—the animals are protected. But this isn't an easy situation. Here are some of the problems:

 Wild lupine is the Karner blue's only known larval food plant. That means that its caterpillars will only eat wild lupine. Many animals that depend on only one thing for survival are endangered. They just don't have many choices. For example, compare a panda that eats only bamboo with a raccoon that eats almost anything!

 Lupine grows in oak and jack pine "barrens." These communities depend on disturbance. They need to be logged or burned to stay an oak or jack pine community. If they aren't disturbed, other plants begin to grow in, and wild lupine can no longer grow there. Remember, no lupine—no butterfly.

 When loggers cut trees, a few butterflies are probably going to be killed. It is illegal to kill an endangered species.

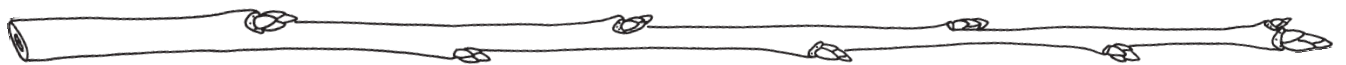
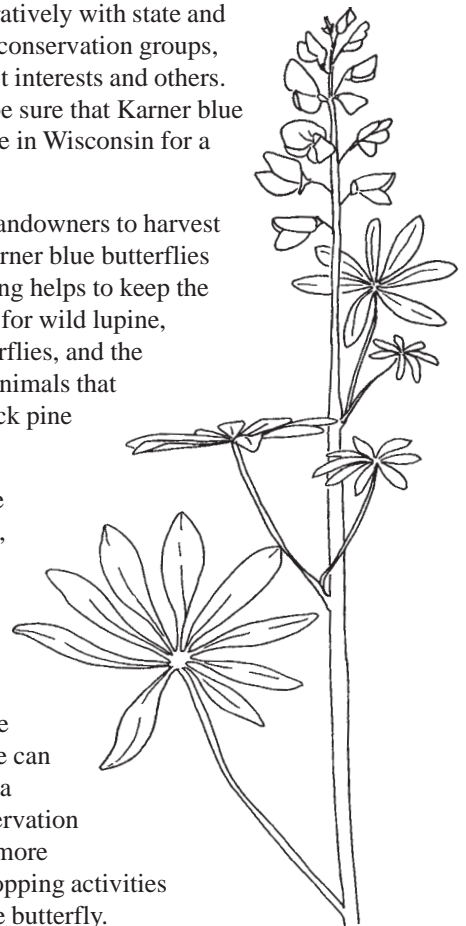
It sounds like there isn't any answer at all. If nothing disturbs the butterflies' habitat, it will change (or succeed) to the point that it is no longer good butterfly habitat. If the habitat is disturbed, some butterflies will die.

Fortunately, the federal Endangered Species Act (ESA) allows for people to develop plans that will conserve the habitat of endangered species, even though those plans may "take" or kill a Karner blue butterfly or alter its habitat. These special plans are Habitat Conservation Plans (HCP).

An HCP is a detailed plan that provides for the conservation of a federally listed endangered species. Wisconsin's Karner Blue Habitat Conservation Plan was developed by the Department of Natural Resources cooperatively with state and federal agencies, conservation groups, landowners, forest interests and others. Its purpose is to be sure that Karner blue butterflies can live in Wisconsin for a long time.

The plan allows landowners to harvest trees in places Karner blue butterflies live. The harvesting helps to keep the area good habitat for wild lupine, Karner blue butterflies, and the other plants and animals that live in oak and jack pine communities.

By conserving the butterfly's habitat, or living environment, planners hope that the butterfly itself will survive and flourish. If the species as a whole can be saved through a cooperative conservation approach, that is more important than stopping activities that might kill one butterfly.



DNR Works to Keep Forests Good-Looking

Most people think they know what a forest should look like—dense stands of tall, green trees, wildflowers coloring the forest floor, perhaps a shaft of light beaming down on a clearing, and a white-tailed deer skittering through the scene.

Today's multi-use, working forests may not look so picture-perfect. Loggers cut trees. Skiers and snowmobilers travel on trails and roads. Foresters control pests and diseases.

We know our forests must do a lot of things at once, but we still want our forests to be beautiful!

Kenneth R. Sloan is a DNR forestry employee at Woodruff. "Sustainability is a mode of (forest) management that we can continue forever," he said, "but part of that is going to be affected by the public's view of how it looks."

For example, some people don't want trees cut in certain areas, such as along interstate highways or near park entrances. If foresters leave these trees, that will affect how many trees can be cut and how much timber the forest can produce.

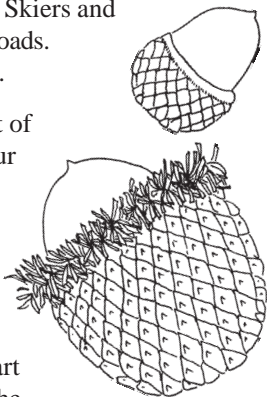
A committee formed in 1979 to develop a management program that considered the beauty of the forest. They published a document called the Forest Aesthetics Handbook.

"Our approach was to look at each individual forest stand, the attributes of its trees, and how long they would live," Sloan explained.

Trying to balance the need for wood products with the need for beautiful forests isn't always easy. Sometimes trees that are ready for harvest must be left to keep an area looking attractive. Every decision is important. Even the location of logging roads and stream crossings can make a difference in how the area looks after logging.

Since a variety of sizes, shapes, ages, and colors of trees is more eye-pleasing, the guide recommends leaving a variety of trees in an area. It also suggests changing harvest patterns and shapes so the area still looks interesting and diverse.

But that's not all! Foresters can't forget the other plants and animals that live in the forest. What would happen if they made a decision that kept the forest beautiful, but harmed the other members of the forest community? As they make decisions about where to harvest trees, they must think about the people who enjoy the forest **and** the ecology of the forest!



Forests Offer Outdoor Recreation Opportunities

Wisconsin's forests are places for many outdoor recreation activities. From hikers to bikers, canoeists to campers, birders to skiers, people are taking to the woods for outdoor recreation in increasing numbers. An important element of sustainable forestry is meeting the needs of people today and in future generations. Recreation is one of those needs.

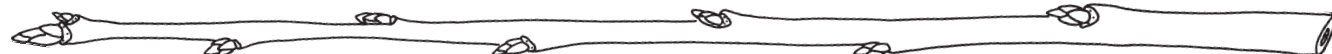
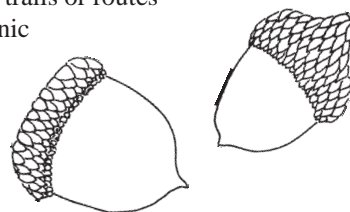
A survey conducted in the early 1990's found that approximately 2.11 million adults—about 54% of the adult population—had enjoyed at least one outdoor activity in the past 12 months. A fair amount of that activity took place in and near Wisconsin's 55 state parks, 10 state forests, 28 county forests, and 2 national forests.

While state parks are intended primarily for recreation, state forests serve a multitude of uses. In fact, timber harvesting can improve forest campgrounds. For example, approximately 3,080 cords of pulpwood and 161,000 board feet of logs were harvested from the Northern Highland / American Legion State Forest's Firefly campground in the winter of 1992. The harvest promoted the growth of bigger trees in the campground area by reducing the number of trees competing for light, water and nutrients. In addition, removing some trees between campsites let in more sunlight. The sunlight encourages the growth of shrubs, which improves the screening between sites.

Wisconsin's state forests are popular tourist destinations, and the Northern Highland / American Legion State Forest is the most heavily visited. The DNR estimates that over two million people a year visit the forest. The area is so popular because of the variety and number of recreational opportunities that are available.

Those visitors contribute significantly to the local economy. As tourism increases, dollars flow into restaurants and service businesses. The state and some municipalities derive income through sales taxes. The growing popularity of snowmobiling and cross-country skiing has created a year-round economy in places that used to shut down during the winter.

Many private forest owners help meet the recreational demands of the public by allowing hunting on their land. Others create nature trails or routes for snowmobiles. The scenic beauty of the woods, whether public or private, lures many hikers, birders and wildlife enthusiasts.



Sustainable Forests in Cities and Communities

They may not know it, but most city dwellers live in the middle of a forest. It's the urban forest—the thousands of trees dispersed in parks, in residential yards, along parkways and around business and industrial buildings.

This forest enhances the quality of life for the people who live in its midst. The forest cleans the air, absorbs pollutants, and provides cooling shade in summer. It also offers windbreaks against winter gales, softens harsh lines of buildings, increases residential property values, minimizes erosion, and adds color to the landscape.

Sustainable forestry practices apply to urban forests, too. Similar to foresters in rural areas, urban foresters promote biodiversity, deal with disease and insect infestations, and manage the resource to meet the needs of both present and future generations.

As recently as 35 years ago, Milwaukee and many of its older suburbs had canopies of American elms shading their streets. The arrival of Dutch elm disease wiped out thousands of these great trees. Because the streets were planted with block after block of nothing but elms, the disease moved from tree to tree, with no natural barriers to stop it.

That hard lesson has taught today's urban foresters to plant more varieties of trees. A maple blight might take some maples, but won't affect neighboring honey locusts or lindens.

Dick Rideout, state urban forestry coordinator for the Department of Natural Resources' Bureau of Forestry, points out that urban forestry involves more than just planting a variety of street trees. The urban forest is not just the trees on public property.

"From a biological point of view, it's all mixed, all one ecosystem, interconnected," Rideout said. "There are interactions between all greenspace, air, water,

soil and infrastructure regardless of political or property boundaries."

Cities and villages are in fact urban ecosystems that include humans, plants, and animals that live in the area.

"To maintain the health of the urban ecosystem, clear air and clean water, you have to integrate the natural systems and the human systems," Rideout said.

Trees and other plants are a major part of this.

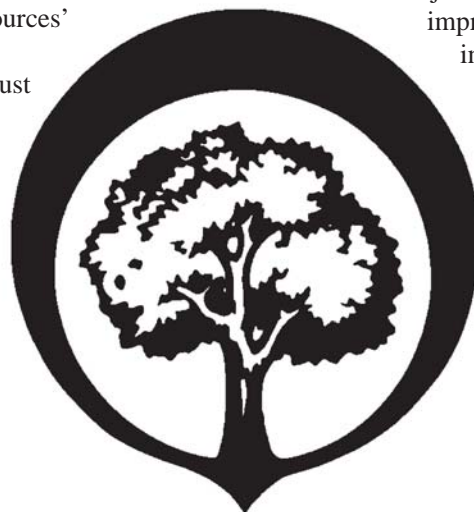
"To practice sustainable urban forestry, not only do you have to increase biodiversity, but you have to increase and improve the environment for plants so they can thrive with minimal effort and cost," Rideout noted. This will provide the greatest long term benefits to the human and natural community, he added.

Maintaining a healthy, diverse tree population contributes to the ability of the urban ecosystem to sustain life. One program aimed at sustaining urban forests is sponsored by the National Arbor Day Foundation. Called Tree City USA, it encourages urban forest management by recognizing communities that have met a minimum set of standards. Wisconsin currently ranks fifth in the nation for the number of communities achieving Tree City USA status.

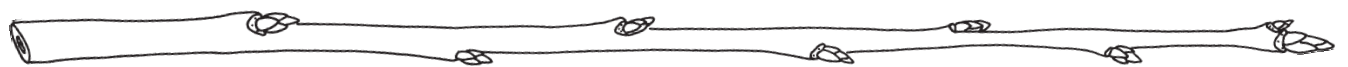
Further encouragement for strong urban forest management programs comes through the state's Urban Forest Assistance Grant program. In 2000, \$500,000 was available to help local governments improve their capacity to manage their trees through the development of inventories, management plans and staff training.

Projects that preserve, protect, expand or improve the forest also are eligible. These include planting, hazard tree removal, and pest control.

Today's urban foresters manage trees through planting, management, and removal of old or damaged trees. They make sure the community's tree inventory is maintained or increased to the benefit of future users.



TREE CITY USA®



Planning for the 7th Generation

So well have Wisconsin's Menominee Indians managed their tribal forests that the tribe's foresters are now recognized as international leaders in forest and ecosystem management.

Since the tribe began commercial logging and lumbering more than a century ago, the Menominee forest has, in effect, been cut over twice. Yet it has more trees now than when the reservation was established in 1854. Not only the quantity but the quality of the forest has improved.

The Menominees have done this by following their centuries-old reverence for the forest and their solid instincts about its preservation and enhancement. But that's not all! They developed annual cutting limits and pioneered regular surveys (akin to a tree "census"). Foresters began using modern management techniques on the reservation long before they came into use elsewhere.

The results speak for themselves:

- ✦ The 220,000-acre forest is spectacularly scenic with the wild and clean Wolf River threading through it.

- ✦ Timber volume has increased from 1.2 billion board feet in 1854 to 1.5 billion board feet in 1989, despite the cutting of 2.1 billion board feet since lumbering began in 1865.

- ✦ The forest is older and more diverse than other northern Wisconsin timberlands which

were heavily logged in the 19th Century. The reservation contains 11 of the 16 major types of forest habitat in the state and more than 25 species of trees.

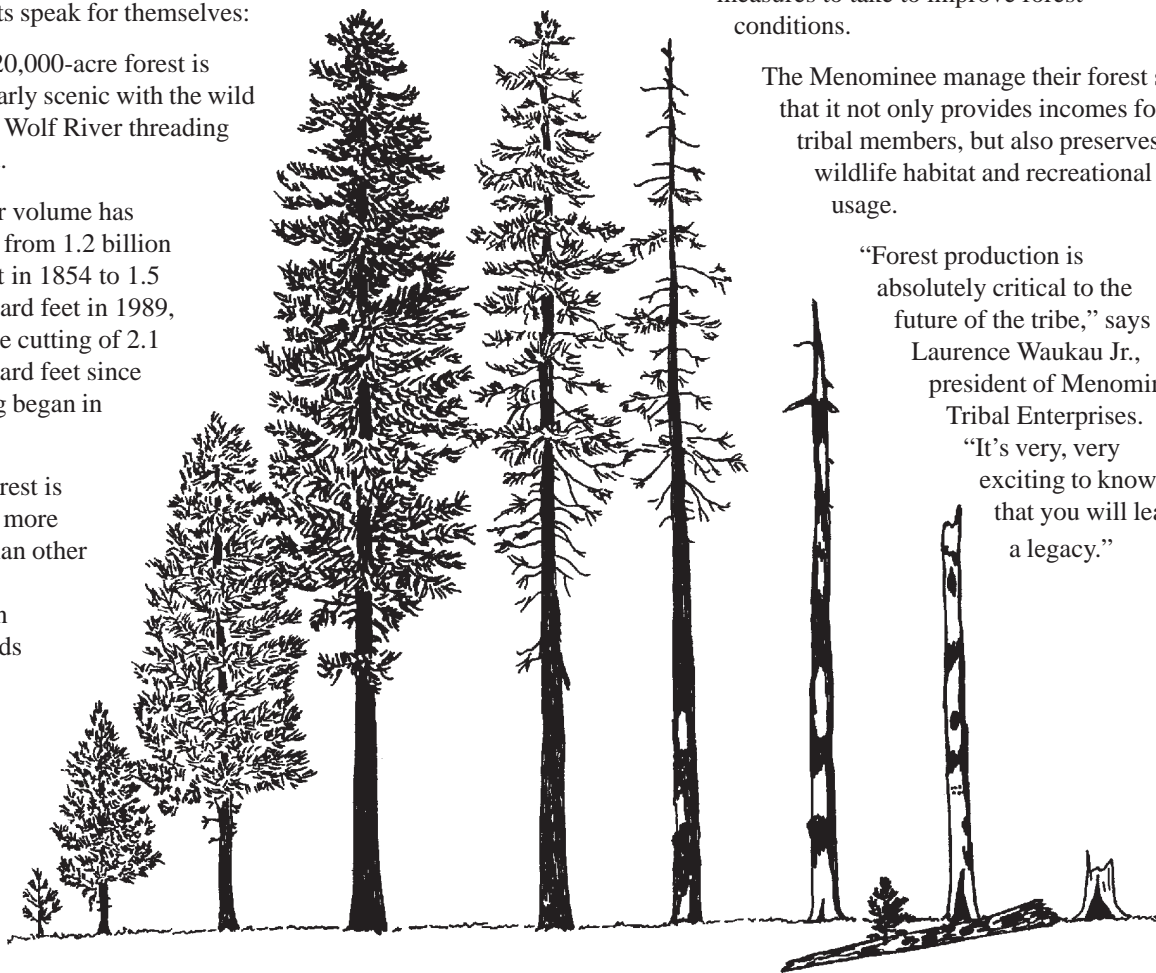
- ✦ Hardwood timber has increased from about 70,000 acres in 1963 to 115,000 acres in 1988. This means the forest is maturing. Hardwoods typically exist as late successional forest cover types on good quality sites.

This has all come about through a strong cooperative relationship between the tribe, the Wisconsin Department of Natural Resources, the Department of the Interior's Bureau of Indian Affairs and its Forestry Department, with research assistance from experts at the University of Wisconsin.

The Menominee developed a Forest Management Plan that would inventory the timber by species, size and acreage; track the annual growth and cut by species; and specify harvesting plans each year. The inventory, conducted every 10 years, gives foresters the data needed to decide what, when and approximately where to cut, and what other measures to take to improve forest conditions.

The Menominee manage their forest so that it not only provides incomes for tribal members, but also preserves wildlife habitat and recreational usage.

"Forest production is absolutely critical to the future of the tribe," says Laurence Waukau Jr., president of Menominee Tribal Enterprises. "It's very, very exciting to know that you will leave a legacy."



These articles have been adapted from *Sustainable Forestry: Commitment to the Future* published by the Wisconsin Department of Natural Resources, Bureau of Forestry, Publication # FR 106-1995.