

Trees For Kids

2006



Shagbark Hickory
Carya ovata

The Native
Trees of Iowa

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Trees for Kids 2006 Team

Editorial Intern
 Layout and Design
Tiffany Summy

Illustrations
Mark Muller
Tiffany Summy

Technical Assistance
Gail Kantak
Mark Muller
John Walkowiak

Educational Materials
Tivon Feeley
Gail Kantak
John Smith
Tiffany Summy
Mark Vitosh
John Walkowiak

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*Teaching Kids the Value
of Trees for 16 Years*



*To plant trees is to give
body and life to one's
dreams of a better world.
~ Russel Page*

The Program

Trees For Kids/Teens is a tree education and planting program that targets Iowa's elementary and secondary school students. Its goals are to educate students about the values of trees and to encourage tree planting projects at schools or other public areas around the state of Iowa. In 2005 12,670 teachers and their students were involved with the Trees For Kids/Teens programs, planting over 77,729 trees.

This unique program is sponsored by the Iowa Department of Natural Resources (DNR), the Iowa Nursery and Landscape Association (INLA), the Iowa Banker's Association (IBA), MidAmerican Energy, Aquila, Alliant Energy, Iowa State University Extension Forestry, the Iowa Tree Farm Committee, the USDA Forest Service, Trees Forever, the Iowa Society of American Foresters, Iowa Woodland Owners Association and the Iowa Conservation Education Council.

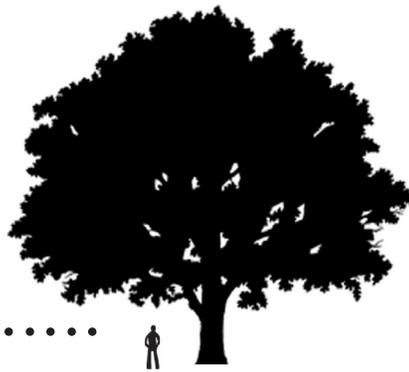
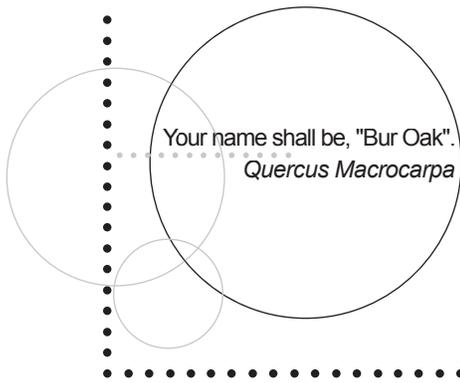
This teacher's packet of tree information and classroom activities is designed to complement science, reading, math, geography, computer skills, history and other subjects. Feel free to utilize any or all of the packet and/or to photocopy specific activities and lesson plans. Should you need more copies of the materials, please contact the DNR at (515)281-4915 or download individual activities off the web at www.iowadnr.com/forestry/.

The Trees

A landscape tree is available "free" to your class to plant in celebration of Iowa's Earth/Arbor Day in the spring of 2006. Contact Trees For Kids Coordinator Tiffany Summy at (515)281-4915 or e-mail tfkids@dnr.state.ia.us (after May 15 contact John Walkowiak at john.walkowiak@dnr.state.ia.us), for the names of participating Iowa nurseries (INLA members) who will sell trees at reduced or wholesale costs to participating Trees For Kids teachers. Tiffany will also give you local funding source contacts from the Iowa Bankers Association (IBA) and local Tree Committees who will assist you in getting the remaining funds to pay for your trees. In the end, there is no cost to your school!

We suggest that you do the following in preparation for planting your tree. Discuss planting trees with your principal and grounds keeper, locate a site, and contact a local INLA nursery. Next, contact a funding source at your local IBA bank or Tree Committee and explain that you are working on a Trees For Kids project for Earth Week/Arbor Day 2006 that needs funding. When sponsors agree to fund the project, have the nursery bill the bank or committee directly for the tree. Once you have secured funding, make arrangements for delivery with the nursery and set a planting date. Now you're ready to plant a tree with your students!

How Do They Name Trees?



The “common names” which most people use when referring to trees have been handed down from generation to generation and can be traced back to one of several origins: (1) habitat where it grows, (2) distinctive features of leaves or bark, (3) product that comes from the tree; (4) botanist that discovered it, (5) geographic location and (6) Native American name.

Swamp white oak a native and hardy tree in Iowa got its name from the type of wet and low oxygen soils in which it grows.

Quaking or Trembling aspen also a native tree in Iowa but more famous and abundant in the Lake and Rocky Mountain States got its name from distinctive feature of its leaves moving in the slightest breeze. White or Paper birch got its name from the peeling white bark that was used to make canoes.

Sugar maple another Iowa native tree got its name from the distinctive sweet sap that provides maple syrup for our pancakes.

Hills’s oak also known as Northern pin oak located in extreme North Central Iowa is named for E.J. Hill who originally described it.

Ohio buckeye, a native also to Iowa is named for the state, Ohio, in which the tree is very common in their forests. Chinkapin oak also a rare and unusual oak found on dry bluffs and ridge tops is a Native American name.

But the use of “common names” for trees can cause great confusion – when several refer to the same tree species. For example, the Osage Orange, not a native to Iowa was planted for fence rows or living fences across the southern regions of our state is referred by some as “hedge apple” due the large fruit. The native under story tree known as American Hornbeam is also known by many as “iron wood” or “muscle wood” or “blue beech”.

Botanists use a scientific name to ensure positive identification of a tree worldwide using the scientific language – Latin. Scientific names for trees consist of two words – the generic or genus name and the specific or species name. Most tree genera are natural clearly defined groups of trees that are easy to recognize such as oaks, maples, willows, etc. The genus name in Latin is always capitalized for example, the genus names for oak are *Quercus*; for maple it is *Acer* and for willow it is *Salix*. Species are variable units distinguished by less obvious characteristics than the genera. Species names are always in lower case in Latin. For example the genus and species name for Bur oak is *Quercus macrocarpa*.

For more information about Native Trees of Iowa refer to the Iowa DNR Forestry publication – Common Native Trees of Iowa available at www.iowadnr.com/forestry/.

Upland Forests

Comprised mostly of various species of oak and hickory trees, or central hardwoods, upland forests make up the largest portion of Iowa's forest land. There is approximately 900,000 acres of oak-hickory and 500,000 acres of sugar maple-basswood forests in Iowa.

The types of trees found in the upland forests of Iowa depend upon the amount of moisture as well as many other variables. White and bur oak as well as shagbark and bitternut hickory survive where the land is drier. As the soil slopes and gains moisture, red oaks join into the mixture. In the more moist areas of the Iowa upland you can find black walnut, sugar maple, basswood, ironwood and white ash.

Trees of the upland forests are beloved for a variety of reasons. Whether it is the brilliance of autumn's colors, blooming in the spring or a home for wildlife, the trees of the upland forest are most valuable in sustaining an ecosystem. These trees are also used by humans for a variety of products. Oak, walnut and sugar maple are most recognized in the making of furniture but are also used for flooring, paneling, and fuelwood. Hickory, because of its great strength, is valuable in making tool handles. The sap of the sugar maple is used to make maple syrup. The wood of basswood is used for musical instruments and wood carving.

Human Planted Forests

Windbreaks are multiple rows of trees and shrubs planted on the north and west sides of buildings. People plant windbreaks to reduce home heating bills, protect farmsteads, livestock, crops and soil, and to provide critical wildlife habitat.

Plantations are areas of trees planted for future forest products. About 7200 acres are planted in Iowa each year. Christmas tree plantations, fuelwood plantings, nut-producing groves and fruit tree orchards are the most well known.

Located near Iowa's major rivers, floodplain forests make up another large portion of the forest life in the state. Also known as bottomland forests, roots of trees such as silver maple, green ash, hackberry, cottonwood, willows, elm and boxelder are developed to withstand flooding and a lack of oxygen for long periods of time. Dutch elm disease has greatly reduced the amount of native American elm. Bottomland forests make up 500,000 acres of Iowa's forest land.

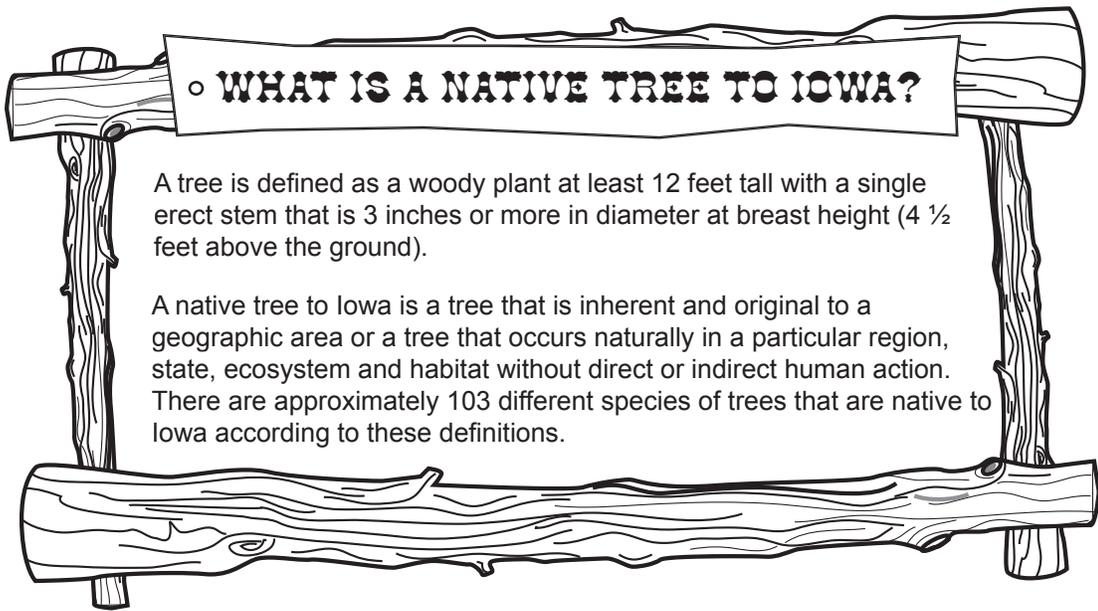
The trees of the floodplain are used for lumber, veneer and firewood. They are also home to a large number of native wildlife.

Perhaps the greatest value of floodplain forest is the ability to control soil erosion, minimize flooding impacts and filter out herbicides and other chemicals to maintain our water quality. Known also as riparian areas, there are great efforts to expand these forests abutting productive agricultural ground as "buffer strips." These buffers are made up of some of the trees mentioned above, as well as shrubs like dogwood and chokecherry, and native grasses and hedges.

Urban Forests

The trees in Iowa's communities make up another important forest resource in Iowa, its urban forest. Each Iowa community boasts about 30-45 different tree species. Green ash, silver maple, Norway maple, and sugar maple have been the most popular species in Iowa's urban forest since the 1960's. Before then, the American elm dominated the streets of Iowa cities. However, overplanting and an outbreak of "Dutch elm disease" virtually wiped out our elms.

Urban forests enhance our communities by shading to cool our homes during the summer, preventing soil erosion, and actually increasing property values. Trees provide urban dwelling animals sources of shelter and food. In many Iowa cities, tree maintenance, replacement, and planting do not keep up with tree removal. Local governments' limited budgets and urban sprawl reduce the quality and quantity of the urban forest.



WHAT IS A NATIVE TREE TO IOWA?

A tree is defined as a woody plant at least 12 feet tall with a single erect stem that is 3 inches or more in diameter at breast height (4 ½ feet above the ground).

A native tree to Iowa is a tree that is inherent and original to a geographic area or a tree that occurs naturally in a particular region, state, ecosystem and habitat without direct or indirect human action. There are approximately 103 different species of trees that are native to Iowa according to these definitions.

Benefits

Using available and under-utilized native tree and shrub species in your landscaping offer several benefits:

- Native trees/shrubs are better adapted to Iowa's extremes in weather and planting sites.
- Native trees/shrubs provide superior native wildlife habitat.
- Native trees/shrubs have the ability to be in balance with natural insect and disease issues.
- Native trees/shrubs are less invasive and offer better management opportunities.
- Native trees/shrubs are Iowa's link to our heritage.



WHY PLANT NATIVES?

The creation of a thousand forests is in one acorn.

~ Ralph Waldo Emerson ~

Trees & Shrubs Native to Iowa

(Common Name)

American Basswood
 American Elm
 American Hazelnut
 American Hornbeam
 Balsam Fir
 Balsam Poplar
 Beaked Hazelnut
 Bebb Willow
 Bigtooth Aspen
 Bitternut Hickory
 Black Ash
 Black Cherry
 Black Maple
 Black Oak
 Black Walnut
 Black Willow
 Blackhaw Viburnum
 Blackjack Oak
 Blue Ash
 Boxelder
 Buffalobery
 Bur Oak
 Butternut
 Canada Plum
 Canadian Yew
 Chinkapin Dwarf Oak
 Chinkapin Oak
 Chokecherry
 Cockspur Hawthorn
 Common Juniper
 Common Pawpaw
 Common Persimmon
 Cottonwood
 Coyote Willow
 Dotted Hawthorn
 Downy Hawthorn
 Downy Serviceberry
 Eastern Red Cedar
 Eastern Redbud
 Eastern Wahoo
 Elderberry
 Fleshy Hawthorn
 Gray Dogwood
 Green Ash
 Hackberry
 Heart-Beaved Willow
 Honeylocust
 Hoptree/Water Ash
 Hortulan Plum
 Inland Serviceberry
 Ironwood/Hophornbeam
 Kentucky Coffeetree

(Scientific Name)

Tilia americana
Ulmus americana
Corylus americana
Carpinus caroliniana
Abies balsamea
Populus balsamifera
Corylus cornuta
Salix bebbiana
Populus grandidentata
Carya cordiformis
Fraxinus nigra
Prunus serotina
Acer nigrum
Quercus velutina
Juglans nigra
Salix nigra
Viburnum prunifolium
Quercus marilandica
Fraxinus quadrangulata
Acer negundo
Shepherdia argentea
Quercus macrocarpa
Juglans cinerea
Prunus nigra
Taxus canadensis
Quercus prinoides
Quercus muhlenbergii
Prunus virginiana
Crataegus crus-galli
Juniperus communis
Asimina triloba
Diospyros virginiana
Populus deltoides
Salix exigua
Crataegus punctata
Crataegus mollis
Amelanchier arborea
Juniperus virginiana
Cercis canadensis
Euonymus atropurpureus
Sambucus canadensis
Crataegus succulenta
Cornus racemosa
Fraxinus pennsylvanica
Celtis occidentalis
Gleditsia triacanthos
Ptelea trifoliata
Prunus hortulana
Amelanchier interior
Ostrya virginiana
Gymnocladus dioica

American Hornbeam
Carpinus caroliniana

(Common Name)

Margaret's Hawthorn
 Meadow Willow
 Mexican Plum
 Missouri River Willow
 Mountain Maple
 Nannyberry
 Northern Pin Oak
 Ohio Buckeye
 Pagoda Dogwood
 Paper Birch
 Peachleaf willow
 Pear Hawthorn
 Pecan
 Pignut Hickory
 Pin Cherry
 Pin Oak
 Post Oak
 Prairie Crabapple
 Prickly Ash
 Pussy Willow
 Quaking Aspen
 Red Maple
 Red Mulberry
 Red Oak
 Red-Osier Dogwood
 River Birch
 Rock Elm
 Rough-Leaf Dogwood
 Roundleaf Dogwood
 Roundleaf Serviceberry
 Sandbar Willow
 Saskatoon Serviceberry
 Shagbark Hickory
 Shellbark Hickory
 Shingle Oak
 Shining Willow
 Showy Mountainash
 Silky Dogwood
 Silver Maple
 Slippery Elm
 Smooth Sumac
 Speckled Alder
 Staghorn Sumac
 Sugar Maple
 Swamp White Oak
 Sycamore
 White Ash
 White Oak
 White Pine
 Wild Plum
 Witchhazel
 Yellow Birch

(Scientific Name)

Crataegus margareta
Salix petiolaris
Prunus mexicana
Salix eriocephala
Acer spicatum
Viburnum lentago
Quercus ellipsoidalis
Aesculus glabra
Cornus alternifolia
Betula papyrifera
Salix amygdaloides
Crataegus calpodendron
Carya illinoensis
Carya glabra
Prunus pennsylvanica
Quercus palustris
Quercus stellata
Malus ioensis
Zanthoxylum americanum
Salix discolor
Populus tremuloides
Acer rubrum
Morus rubra
Quercus rubra
Cornus stolonifera
Betula nigra
Ulmus thomasii
Cornus drummondii
Cornus rugosa
Amelanchier sanguinea
Salix interior
Amelanchier alnifolia
Carya ovata
Carya laciniata
Quercus imbricaria
Salix lucida
Sorbus decora
Cornus obliqua
Acer saccharinum
Ulmus rubra
Rhus glabra
Alnus incana
Rhus typhina
Acer saccharum
Quercus bicolor
Platanus occidentalis
Fraxinus americana
Quercus alba
Pinus strobus
Prunus americana
Hamamelis virginiana
Betula alleghaniensis

adapted from: Iowa State University Forestry
 Extension: Trees & Shrubs Native to Iowa;
 Ames, IA 2001

The Benefits of Trees

Why take the time to plant a tree?
Good question.

Of course, there's a very good answer too. Besides being the best place to spend an adventurous afternoon, trees are beautiful additions to our personal environments. Trees give us memories. I saw my first birds nest in the pine in front of my house. The blue robin's eggs were huddled in the center while their mother squawked above me. My brother and I were forever fishing our cat out of the apple tree my dog had chased her into. It was in a tree that I could be taller than my older brother and even my dad. Trees make us smile in the winter as we think about all the time we've spent playing around them, in them, under them; and how that's the first place we'll go when the snow stops.

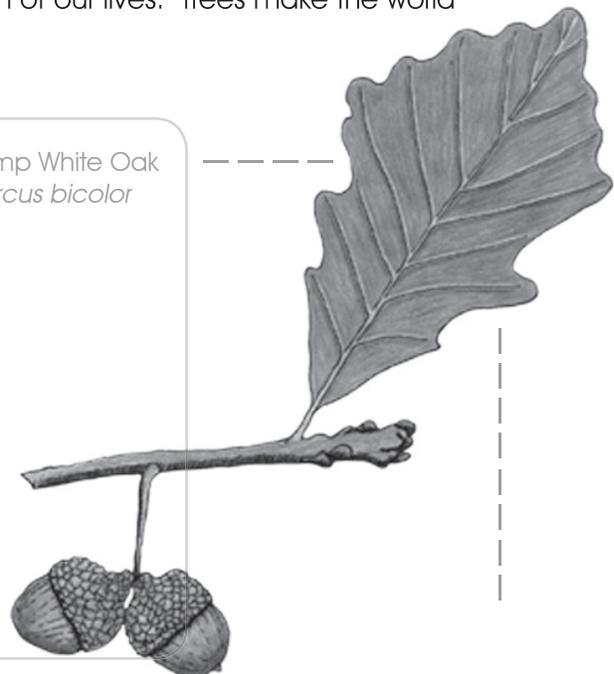
Trees make everything look better. They help us see the outside world a little more easily. Trees make our communities and homes more friendly and give us shade from the sun. People who are sick recover more quickly when they can see trees outside their room. They make your home look more friendly, and increase its value from 5 - 20 percent. It's a neat feeling to travel down a street where the trees meet above your head. Trees create privacy for your home, and a cool shaded place to play in the summers and have picnics in the afternoons.

Trees help to keep your house warmer in the winter-time and cooler in the summer. They filter the sun's bright UV rays from waking you up too early in the morning. They can block wind and absorb rain. Because of trees, rain causes less soil erosion. Trees also help to remove dust and other stuff from the air that could be harmful to you. The leaves absorb carbon dioxide from humans and other mammals. They also absorb ozone, carbon monoxide and sulfuric acid from car exhaust. Trees create habitats for a variety of wildlife and continue nature's cycles in more populated areas.

Trees help to keep the ways of nature from disappearing in our daily lives. They help to bring nature into each of our lives. Trees make the world around us nicer to look at and live in.

*He that plants trees loves
others beside himself.*
-English Proverb

Swamp White Oak
Quercus bicolor



in other words. . .

Famous Poems and Quotes about Trees

Trees

I think that I shall never see
A poem as lovely as a tree,
A tree whose hungry mouth is pressed
Against the earth's sweet flowing breast
A tree that looks at God all day,
And lifts her leafy arms to pray;
A tree that may in summer wear
A nest of robins in her hair,
Upon whose bosom snow has lain;
Who intimately lives with rain,
Poems are made by fools like me,
But only God can make a tree.
-Joyce Kilmer

What Do We Plant?

What do we plant when we plant a tree?
We plant the ship that will cross the sea,
We plant the mast to carry the sails,
We plant the planks to withstand the gales-
The keel, the keelson, and beam and knee,
We plant the ship when we plant a tree.

What do we plant when we plant a tree?
We plant the house for you and me.
We plant the rafters, the shingles the floors,
We plant the studding, the lath the doors,
The beams and siding, all parts that be;
We plant the house when we plant a tree.

What do we plant when we plant a tree?
A thousand things that we daily see.
We plant the spire that out-towers the crag,
We plant the staff for our country's flag,
We plant the shade from the hot sun free;
We plant all these when we plant a tree.
- Henry Abbey

Plant A Tree

Trees are your cradle when you are born
Trees are the plow that tills your corn
The threshold over which to carry your bride
The table where she sits by your side
The warmth of the hearth on a cold winter eve
Trees are a gift of God I believe
Trees are the beds in which you lie
They are the coffins when you die.
- Robertson and Fulch

"If you want to be happy for a year...plant a garden. If you want to be happy for a lifetime...plant a tree."
- Unknown

"The planting of a tree shows faith in the future."
- Charles Schultz

"Give me a cabin in the woods,
Where not a human soul intrudes,
Where I can sit beside a stream,
Beneath a balsam bough and dream."
-Robert Service

"If a tree dies, plant another in its place."
- Linnaeus

"Do what you can, with what you have, where you are."
-Teddy Roosevelt

"Character is like a tree and reputation is like its shadow. The shadow is what we think of it; the tree is the real thing."
- Abraham Lincoln

Write your own poem or quote in this space.

What do you think?

Trees in the schoolyard provide beauty and shade, and can serve as visual screens. Unfortunately, it can be difficult to get a shade tree established in the tough growing conditions of schoolyards. The soils in the schoolyard are often poorly drained and compacted, making it difficult for a shade tree to survive and thrive.

Not all sites are appropriate for trees. Before planting, envision how the mature tree will fit into the site. Will it interfere with buildings, utilities, sidewalks, playground equipment, or block the view of traffic near corners? Will the tree selected produce maintenance problems due to unwanted fruit or messy leaf litter? Selecting a durable tree that best fits the planting site can reduce these problems.

During the planning, match the soil drainage on the property to the tree species, making sure that the tree will not outgrow the site. Diversify the species of trees you are planting to maximize the protection against diseases, insects, and environmental stresses. Proper planting and post planting care will help insure a healthy tree. Below is a list of trees and their growing requirements. Use this list to help determine what species is right for your school grounds.

Shade, Low-growing, and Landscape Trees:

Species	Life span	Growth rate	Shade tolerance	*Soil drainage	Height (ft)
Alder, Black	short	fast	intolerant	mp, mw, well	40-60
Ash, Black	short	fast	intolerant	poor, mp	40-50
Ash, Green	long	fast	intolerant	mp, mw, well	50-60
Ash, White	long	medium	intermediate	mp, mw, well	50-80
Aspen, Bigtooth	short	fast	very intolerant	mp, mw	20-40
Aspen, Quaking	short	fast	intolerant	mp, mw, well	40-50
Basswood, Amer.	long	medium	tolerant	mw, well	60-80
Boxelder	short	fast	very intolerant	poor-well	15-20
Cedar White	long	medium	tolerant	poor-well	40-60
Cherry, Black	long	medium	intermediate	mw, well	50-60
Cherry, Choke	long	medium	intermediate	poor-well	20-30
Coffeetree, Kent.	long	medium	intermediate	mp, mw	60-75
Cottonwood	short	fast	intermediate	poor-well	50-75
Hackberry	long	medium	intolerant	mp, mw, well	40-60
Hawthorn	short	slow	intolerant	mw, well	15-30
Hickory, Shagbark	long	slow	intermediate	mp, mw, well	60-80
Larch, European	long	medium	intermediate	mp, mw, well	40-80
Locust, Honey	short	fast	intolerant	mw, well	50-70
Maple, Amur	long	medium	intermediate	mw, well	15-20
Maple, Red	long	medium	intermediate	poor-well	40-60
Maple, Silver	short	fast	intermediate	poor-well	50-70
Maple, Sugar	long	slow	intolerant	mw, well	60-75
Mulberry, Red	short	fast	intolerant	poor, mp, mw	40-50
Oak, Bur	long	slow	intermediate	mp, mw, well	70-80
Oak, Pin	long	medium	intermediate	poor, mp, mw	60-70
Oak, Red & Black	long	medium	intermediate	mw, well	60-75
Oak, Shingle	long	slow	intolerant	mp, mw, well	50-60
Oak, Swamp White	long	fast	very intolerant	poor, mp, mw	50-60
Oak, White	long	slow	intermediate	mw, well	50-80
Pine, Jack	short	medium	very intolerant	poor, mp, mw	35-50
Pine, Red	long	medium	intermediate	mw, well	60-80
Pine, White	long	medium	intolerant	well	50-80
Poplar, White & Hybrid	short	fast	intolerant	mw,well	50-80
Red Cedar, Eastern	long	slow	very tolerant	mp, mw, well	40-50
Spruce, Blue	long	slow	intermediate	poor-well	30-60
Spruce, Norway	long	medium	tolerant	poor-well	40-60
Sumac, Smooth	short	fast	intolerant	poor-well	9-15
Spruce, White	long	slow	tolerant	mp, mw, well	40-60
Sycamore	long	fast	intermediate	poor-well	70-100
Walnut, Black	long	fast	intolerant	mw, well	50-75
Willow, Austree	short	fast	very intolerant	poor-well	30-50
Willow, Black	short	fast	very intolerant	poor, mp	30-50

*Poor, Moderately Poor, Moderately Well, and Well. Shade intolerant trees require full sunlight, intermediate trees can handle some shade, and shade tolerant trees can handle low, partial, or full sunlight. A short-lived tree has an average life span of less than 65 years of age. Trees with a long life span averages more than 70 years of age. As always, there are exceptions to these general rules.

"He who plants a tree, plants a hope."
-Lucy Larcom



Shade and Landscape Tree Selection:

Each year millions of trees are planted throughout Iowa. Many of these trees will be planted in urban communities. There are a few basic guidelines that should be considered to help insure a successful planting, including planning/site selection, species selection, and proper planting.

Planning/Species Selection:

- Consider where the above and below ground utilities are located (i.e. electric wires, phone and television cables, sewer and water pipes). Call Iowa One Call at 1-800-292-8989 at least two days before you start digging to find the exact location of underground utilities.
- Examine the soils in the selected site to make sure they match the tree species you will be considering. Does the soil stay wet or saturated for an extended period of time after rains? Or does the soil seem dry and somewhat sandy? Is this a high traffic area such as a playground that will have compacted, poorly drained soils?
- Pick a species that will fit in the site selected. The site should be a minimum of 40 feet away from electrical power lines and light poles, and 20 to 30 feet away from buildings for large shade trees.
- Consider low-growing trees for planting areas that are closer to power lines and light poles. Utility companies recommend keeping the vegetation at least 10 feet away from existing lines. Keep in mind that most power lines are 30 to 35 feet above the ground.
- Avoid planting low-growing trees near signs, street corners, and other areas where they could block people's view. Is the planting site in full sun, partial sun, or full shade?

Proper Planting:

- Dig the planting hole 2 to 3 times wider and no deeper than the root ball.
- Do not plant the tree too deep or too shallow, the root collar, (swelling where the trunk meets the roots), should be at or slightly above ground level.
- Lower the tree by the root ball, (not the trunk), carefully into the hole to avoid damaging the trunk or root system.
- Remove the twine and plastic labels from the branches and trunk, and at least the top one-third of the burlap and wire from the root ball. If the tree is container grown, remove it from the container.
- Fill the hole with the original soil, and do not use amendments such as moss or potting soil.
- Gently settle the soil in around the roots by hand when filling the hole, making sure that air pockets are not created.
- Slowly water the area to remove any air pockets that remain. Mulch around the tree with wood chips to keep the site moist.
- Add organic mulch around the tree being sure that the mulch is not piled up against the tree trunk. The mulch depth should be four to six inches deep and out as far as the branches spread.

"To be able to walk under the branches of a tree that you have planted is really to feel you have arrived with your garden."
~ Mirabel Osler

Speaking the "Native" Language

Acre: an area of land that contains 43,560 square feet or 0.405 hectares.

Biological Diversity: a combination of different kinds of plants and/or animals that make up a healthy ecosystem.

Bottomland: an area close to a body of water, a floodplain where it is covered by water during a flood, a place where cottonwood and silver maple grow.

Canopy: the layer of vegetation in a forest made up of tree crowns.

Carbon: Green plants remove carbon from the atmosphere, extracting carbon dioxide from the air, separating the carbon atoms from the oxygen atoms and returning oxygen to the atmosphere.

Cone: a coniferous fruit, having a number of woody, leathery, or fleshy scales, each bearing one or more seeds, and attached to a central axis.

Conifer: a tree that is cone bearing, has needle like leaves and often referred to as a softwood.

Coniferous: cone bearing.

Conservation: the careful management and wise use of natural resources

Crown: the leaves and branches of a tree.

Deciduous Tree: a tree that loses its leaves during the winter, sometimes referred to as a hardwood.

Ecosystem: complex array of organisms, their natural environment, the interactions between them, the home of all living things and the ecological processes that sustain the system.

Environment: all the living and non-living things that surround and affect living things.

Erosion: the wearing away or washing away of soil by wind or water.

Extinct: a species no longer found on earth.

Foliage: leaves on a tree or other plant.

Forestry: the science, art, and practice of managing trees and forests and natural resources for human benefit.

Habitat: a place that provides seasonal or year-round food, water, shelter, or other environmental conditions.

Invasive Species: an alien or exotic species whose introduction could harm the environment, economy or human health.

Mast: tree produced nuts and fruits that are edible to wildlife.

Photosynthesis: a chemical reaction that takes place in green plants in which carbon dioxide and water combine to produce sugar and oxygen.

Native: occur naturally in an area.

Natural Resources: raw materials provided by the earth, such as water, plants and minerals.

Overstory: the highest canopy in a forest.

Prescribed Fire: a fire started by people to reduce wildfire danger and/or to restore ecosystems.

Preserve: a natural area of unique value.

Range: the geographic area in which a tree species grows.

Roots: the portions of the tree that generally is underground and that functions in nutrient absorption, anchorage, and storage of food.

Sapling: a small tree that is between 1" and 4" in diameter and between 3 and 10 years old.

Shade Tolerance: ability of a plant to reproduce and grow under shade.

Snag: a standing dead tree.

Species: a group of living things that are very similar and can reproduce among themselves.

Sprout: a tree that has grown from the stump of another tree.

Succession: the process by which one plant community is gradually replaced by another.

Topography: the shape, elevation and terrain of the land.

Tree: a woody plant.

Tree Farm: a privately owned forest dedicated to the production of trees.

Trunk: main stem or bolt of a tree.

Understory: plants growing close to the ground in a forest.

Upland: an area usually on a slope where water drains away, a place where red and white oaks grow in Iowa.

Native Tree Word Search

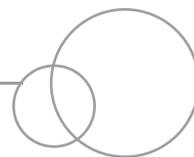
Find the Native Trees and Terms

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

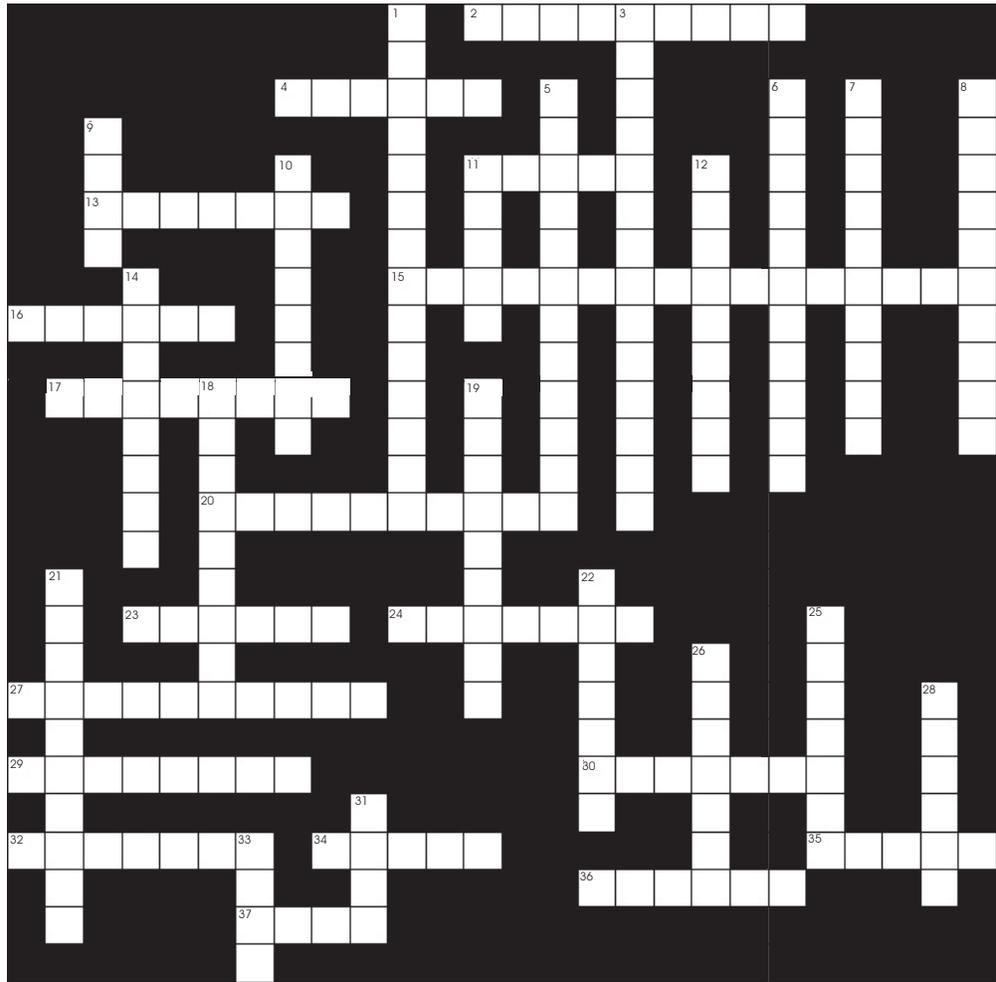
AMERICAN ELM
 ASH
 BASSWOOD
 BUR OAK
 BOX ELDER
 BOTTOMLAND
 BLACK WALNUT
 BUTTERNUT
 CHOKECHERRY
 CHINKAPIN OAK

COTTONWOOD
 ECOSYSTEM
 HACKBERRY
 HAWTHORN
 HONEYLOCUST
 HICKORY
 LINDEN
 MULBERRY
 RED CEDAR
 RED OAK

ROOTS
 SUCCESSION
 SILVER MAPLE
 SUGAR MAPLE
 SERVICEBERRY
 SYCAMORE
 WHITE PINE
 WETLAND
 WHITE OAK
 WILLOW



Native Tree Crossword



Across

- 2 General term for the highest layer of the forest
- 4 The layer of the forest primarily made up of the crowns of the trees
- 11 The geographic area in which a tree species grows
- 13 A small tree 1-4 inches in diameter and 3-10 years old
- 15 Raw materials provided by the earth - water, plants, minerals
- 16 A tree that has grown from the stump of another tree
- 17 A natural area of unique value, protected by a government or group
- 20 The process by which one plant community is gradually replaced by another
- 23 Occurs naturally in an area
- 24 The wearing away or washing away of soil by wind and water
- 27 A location in the landscape where Cottonwood and Silver Maple trees like to grow.
- 29 A privately owned forest, dedicated to the production
- 30 A species no longer found on earth
- 32 A group of living things that are similar and can reproduce among themselves
- 34 The leaves and branches of the tree
- 35 Main stem of a tree
- 36 A plant community dominated by trees
- 37 An area of land that contains 43,560 square feet of trees

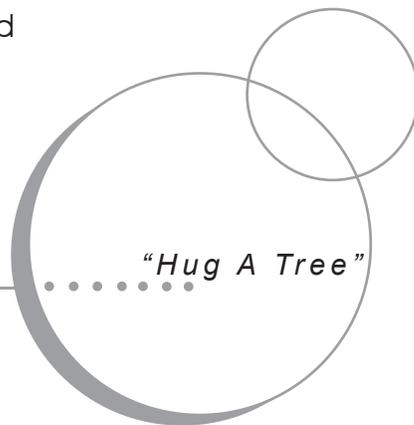
Plant Iowa Native Trees to Help Restore our Native Ecosystems!

(Continued on page 15)



Word Key

- | | |
|-------------------|-----------------|
| Acre | Resources |
| Bottomland | Roots |
| Canopy | Sapling |
| Conifer | Shade Tolerance |
| Conservation | Snag |
| Crown | Species |
| Deciduous | Sprout |
| Diversity | Succession |
| Ecosystem | Topography |
| Environment | Tree Farm |
| Erosion | Trunk |
| Extinct | Understory |
| Foliage | Upland |
| Forestry | |
| Habitat | |
| Invasive | |
| Mast | |
| Native | |
| Natural Resources | |
| Photosynthesis | |
| Prescribed | |
| Preserve | |
| Range | |



Down

- 1 The process used by green plants to convert carbon dioxide and water to sugar (food) and oxygen
- 3 Ability of a plant to reproduce and grow under shade
- 5 The careful management and wise use of natural resources
- 6 All the living and non-living things that surround and affect living things
- 7 "_____ " fire is started by people to reduce wildfire danger and/or to restore the ecosystem
- 8 General term for the layer of plants growing close to the ground in a forest
- 9 Edible, tree-produced nuts and fruits important to wildlife
- 10 A species is said to be "_____ " when its growth or reproduction is so great that it could harm the environment, economy or human health.
- 11 The anchor portion of the tree, generally found underground, that supplies the water and nutrients
- 12 Biological _____ is a combination of different kinds of plants and/or animals that make up a healthy ecosystem.
- 14 The science, art and practice of managing trees, forests and associated natural resources for human benefit
- 18 A term for the complex interaction between organisms and their environment
- 19 A category of trees that lose their leaves in the winter
- 21 The shape, elevation and terrain of the land
- 22 A category of cone-bearing trees with leaves shaped like needles
- 25 A place that provides seasonal or year-round food, water and shelter
- 26 Leaves on a tree or other plants
- 28 An area in the landscape, usually on a slope where water drain away; a place where white oak grows in Iowa
- 31 Tall woody plant
- 33 A standing dead tree

Prescribed Fire Crossword



Across

- 2 An element of the fire triangle that is described by "degrees"
- 4 State tree of Iowa, providing important wildlife food.
- 7 Burnable material
- 8 "_____" describes land with a perennial, ungrouted ground cover; a wild and uninhabited area.
- 9 Fire is a _____ agent of change; a function of nature.
- 11 Irresponsible, recklessness
- 15 The people who lived in America before European settlers claimed ownership of the land.
- 17 Number of kinds of things; variety, variedness
- 18 Refers to the city and areas of where there are lots of homes.
- 19 The fire _____ (3-sided shape) describes the combination of oxygen, fuel and heat needed to produce or control a fire.
- 21 A cloud of fine particles of ash suspended in the air
- 23 The education and action to keep something bad from happening
- 24 Fire _____ describes the function of fire within natural ecosystems.
- 25 The measurement of heat

Down

- 1 The place that plants and animals call home.
- 3 A park-like wooded area of the native grass plains dotted with oak and hickory trees
- 5 Food provided to plants through the soil
- 6 A raging, rapidly spreading, uncontrolled fire occurring in the wildlands
- 10 A natural partner to thunder
- 12 A treeless grassy plain
- 13 Environmental conditions; wind, humidity, temperature, air pressure, etc.
- 14 _____ fires are started as a result of carelessness, putting people, animals and property in danger.
- 16 Planned for; recommended
- 20 "_____" fires are set under controlled conditions for specific, beneficial purposes.
- 22 The most abundant element on the earth's crust; a component of the fire triangle

Word Key

BAD	HEAT	PREVENTION
CARELESS	INTERFACE	SAVANNA
DISEASES	LIGHTNING	SMOKE
DIVERSITY	NATIVE AMERICAN	SUPPRESSION
EXCLUSION	NATURAL	SUSTAINABLE
FIRE BEHAVIOR	NUTRIENT	TEMPERATURE
FIRE ECOLOGY	OAK	TOPOGRAPHY
FIRE TRIANGLE	OXYGEN	URBAN
FUEL	PESTS	WEATHER
GOOD	PRAIRIE	WILDFIRE
HABITAT	PRESCRIBED	WILDLAND

* Not all of the words will be used

... Keeping a Nature Journal

Introduction

During the time of early America, people wrote down their thoughts in diaries and journals as a way to record and remember things they did and saw. Sometimes they would share these thoughts with others through stories, articles and even books. Famous naturalists and foresters, such as Aldo Leopold and many others used their personal journals like "A Sand County Almanac" to successfully communicate the needs for the conservation of our natural resources and the protection of wildlife to others. But today in our fast paced modern world, the art of "keeping a journal" has been lost - replaced by the instant gratification of television, computers and the Internet. This exercise is to bring students back to this "lost art of journal writing", perhaps they can communicate what they see and desire for Iowa's natural resources and later share that with classmates or even friends on the Internet.

Starting Your Nature Journal

You will need a wirebound notebook or diary that you can dedicate to be your nature log, and your 5 senses to get started. A copy of one or two common field guides to help you identify plants, animals and birds will help, but are not required. Check with your parents or the library for field guides that you could use.

What Should I Write?

Your journal can be general or it can be designed around special interest you may like, such as bird watching, tree identification or even playing outside with your favorite dog or cat. You can make daily entries, as in a diary or occasional remarks on special days. A journal with regular entries can be a valuable historical record. Record the date, weather and location of your observations. Don't make the mistake of recording only rare or unusual things because common events today may be uncommon ten years from now.

What You Could Write

Don't worry about having to write too much - just write down what you see, hear, smell or feel while you are outside. Look for animals or birds, look for their tracks in the snow or mud. Look for tree holes, nests, stray feathers, scat, twig ends nipped off, holes or digging in the ground and countless other signs that indicate that animals are present. Draw what you see, record how many you see - was there more than one animal? Can you tell the story of what happened when they walked by? Come back to the same location later, did you see the same foot prints - are there more or less? Animals, birds and insects are often hiding when people walk by, but if you stop and stay quiet for a short time you will be able to listen for their sounds. Write down what sounds you heard, where do you think they were coming from? The same can be said for smells, especially during the growing season - when trees and flowers are breaking bud - can you describe the smell - what does it remind you of? Our ability to touch things is an extremely important tool of observation, touching a leaf of a Red or Slippery elm feels just like sandpaper between your fingers. Carefully touch and record how natural items feel, such as smooth or rough (remember to avoid touching or putting something in your mouth that you do not know what it is to avoid things like poison ivy).

Background

This activity will give students an opportunity to learn about different native forest habitats in Iowa, native tree species that grow in those different habitats, and what and where are some of Iowa's biggest native trees. Students will also have the opportunity to learn how to identify some of Iowa's native tree species.

Procedure

Have the students work in groups to answer the questions below by logging into the homepages associated with each set of questions. Some of the answers will not jump right out at the students, which will encourage them to read and research for their needed information. Have a group discussion on the answers and general topics once the students have completed the sheet.

Section I. Native Habitats

Address: <http://project.bio.iastate.edu/trees/campustrees/Habitat.html>

Search the Natural habitat section and Common names Index for information

Questions

- 1) Common native tree species found on Iowa's ridges and dry slopes include white oak, _____ oak, _____ hickory, and white _____.
- 2) The tree species above are usually _____ - growing and _____ - lived.
- 3) Shagbark hickory wood is used to make handles for _____, _____ and other striking tools. The wood from this tree was once used for wooden wheels and _____.
- 4) Animals such as _____, chipmunks, _____, grosbeaks, wood peckers blue jays, _____, and turkeys will eat the shagbark hickory nut.

Section II. History of Iowa's Forests

Address: <http://www.extension.iastate.edu/pages/tree/history.html>

- 1) The forests that remain in Iowa are one of the most important natural resources providing _____, _____ habitat, protection, recreation, and _____.
- 2) About ten thousand years ago Iowa was cool and probably supported a -fir forest similar to modern-day _____.
- 3) As the climate (weather) in Iowa became warmer and drier the conifers began to disappear and they were replaced by oaks, _____, and other _____ trees. After this change the weather became even warmer and drier and many areas with deciduous trees gave way to the more heat and drought resistant _____ plants.
- 4) Many of the forests in Iowa before settlement were more _____ than our woodlands today, with widely spaced _____ and other trees. Where fires burned into the woods on a regular basis, the understory was _____ and _____.



Section III. Iowa's Big Native Trees

Address: <http://www.iowadnr.com>

Click on State Forests or Forestry under DNR Programs, and then click on Big Tree List.

- 1) When measuring big trees in Iowa what 2 different measurements other than Height are used to determine the total points of a tree? _____ and _____
- 2) How many total points _____ does the biggest bur oak have?
- 3) Are there in big trees from the list located in the county you go to school in? If yes, how many?
- 4) If you used a yardstick to estimate the height of a tree how far do you need to be from the tree?
Feet ____ How many inches do you need to hold the yardstick from your eye?
_____ Inches
- 5) If you used the yardstick method to estimate height of a tree and your stick measured 15 inches about how many feet tall would the tree be? _____ Feet Tall
- 6) What is the tallest tree in height currently on the list? _____
Which county is it found in? _____
- 7) What tree on the list currently has the biggest circumference? _____
Which county is it found in? _____ What tree on the list currently has the most total points? _____
- 8) Which tree on the list currently has the biggest spread? _____
Which county is it found in? _____

Section IV. Identifying Native Tree Species

Address: <http://www.extension.iastate.edu/Pages/tree/>

Work through the interactive key using the hints below to identify the unknown tree species.

- 1) This tree has broadleaf leaves, compound leaves, alternate leaves, no thorns or spines, leaf margins are toothed, has 5 to 14 leaflets, 5 leaflets, leaves 8 to 14 inches long. Name of tree is _____ .
- 2) True or False, The tree above is an important timber tree and most common of its group.
- 3) This tree has broadleaf leaves, simple leaves, no thorns or spines, lobed, alternate leaves, pointed leaf lobe tips, leaves and twigs no white color bark or hair, leaf lobe margins are generally smooth, the fruit is an acorn, lobe sinuses stretch 1/2 way to the midvein, leaf has 7 to 11 lobes. Name of the tree is _____ .
- 4) True or False The tree above is one of the largest and most important timber trees in Iowa.

www

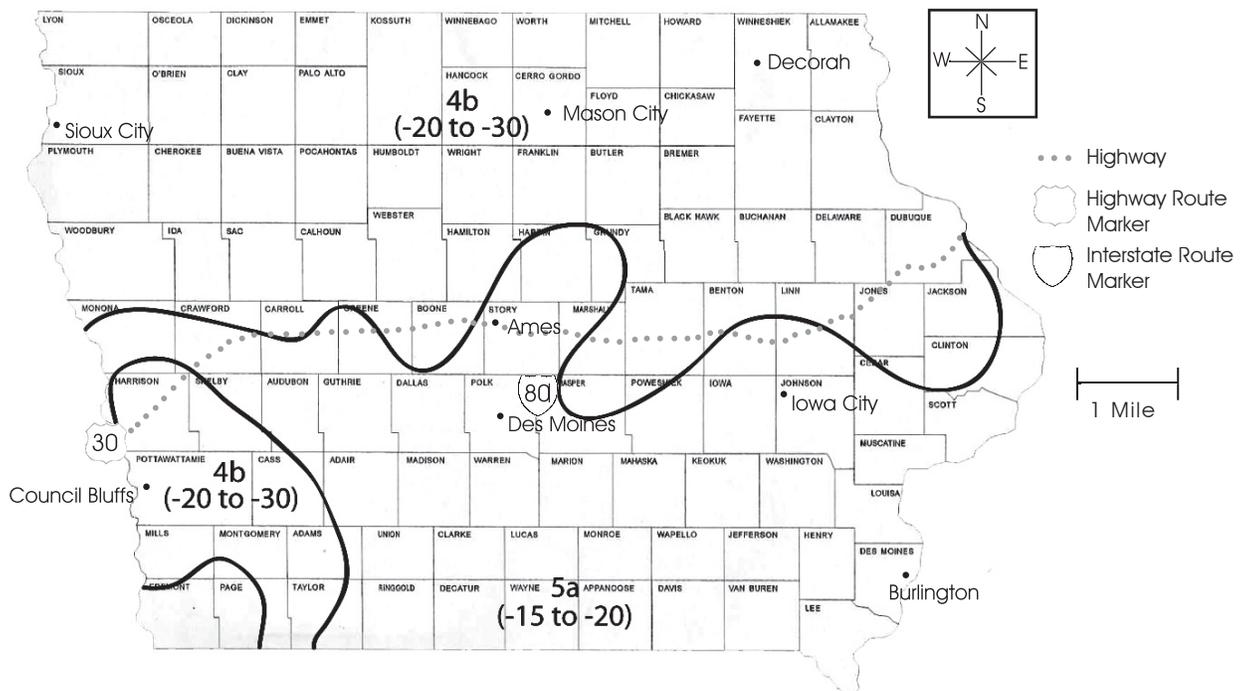
URL

Maps represent the earth's surface and are one of the primary tools used in geography for recording, interpretation and analysis. The formal definition of a map is a two-dimensional graphic representation of the spatial distribution of selected phenomenon.

Maps bring clarity to reading a large amount of information. A road map shows people how they can travel from one place to another. It also shows some physical boundaries, such as mountains and rivers; political features, such as States and counties; and populated places, such as cities, towns and villages.

Foresters use what is called a Topographic map. It shows the elevation of the land at all points, so that the reader can learn the absolute elevation of any given place.

Use this Iowa road map to answer the following questions.



1. What direction are you traveling if you go from Des Moines to Mason City?
2. Traveling from Council Bluffs to Des Moines takes you in what direction?
3. Can you find the scale of the map?
4. Can you find the symbol for an interstate route marker?
5. Can you find the symbol for a State highway route marker?

You can use Iowa road maps to tell whether or not a tree will grow in a certain area. Recognizing that Highway 30 South/North is the line differentiating hardiness zones makes it possible for you to determine whether or not a tree or plant could survive the extreme cold temperatures. South of Highway 30 is 4B that is 20-30 below zero and north of Highway 30 is 5A that is 10 to 20 below zero.

Once you have determined where Highway 30 is you can answer the following questions.

1. Can you plant a Red Bud in Forest City?
2. Why won't Shingle Oak grow in Spencer?
3. Spirit Lake is known for its Bur Oak trees. Why can't other oaks grow there?

1) no, because it will not be able to handle the extreme cold
 2) It is a 5a plant and the temperatures are too cold
 3) It is the only oak that can handle to cold temperatures

Succession can be defined as a natural pattern of change that takes place over time in a forest or ecosystem. There are two types of succession: primary and secondary. Primary succession takes place in a landscape that lacks vegetation and soil. This is the soil building phase and may take over hundreds or thousands of years. The soil is built by living organisms. Fungi, lichens or mosses and ferns are the first plants to arrive. These plants are sometimes called pioneer species because they are the oldest types of land plants. Over time, mosses and ferns cover the landscape; rock is weathered to soil; and small seeds, carried by animals or blown by wind, take root in the soil. The seeds produce small shrubs and plants. A healthy plant community with mature trees and plants will grow if the conditions are right.

Secondary succession occurs on landscapes where the natural vegetation has been removed or destroyed but the soil remains intact. It is considered an extension of the soil building phase. This stage begins with the growth of annual weeds, followed by perennial weeds and grasses, shrubs and develops into a young forest community before becoming a mature forest community.

Succession occurs at a relative rate. At any given site succession may be slowed down or accelerated by natural or human-induced events or environmental factors.

There are times when people purposely hold back succession to allow one state to dominate. For example when mowing or plowing is discontinued, new species or vegetation appear or begin to dominate the landscape. Weeds are the first stage of secondary succession.

Talk to your students about succession. Ask them to identify the stages. Then ask them what kind of things affect the growth of ecosystems.

An example of a whole region undergoing succession occurred in southern Iowa when from 1974 to 1990 cattle grazing was reduced in the 1980's, and went to confined feeding operation, our forests rebounded close to 500,000 acres in 16 years. The forests rebounded because the cattle no longer ate the small trees or compacted the soil so tight that trees could not grow.

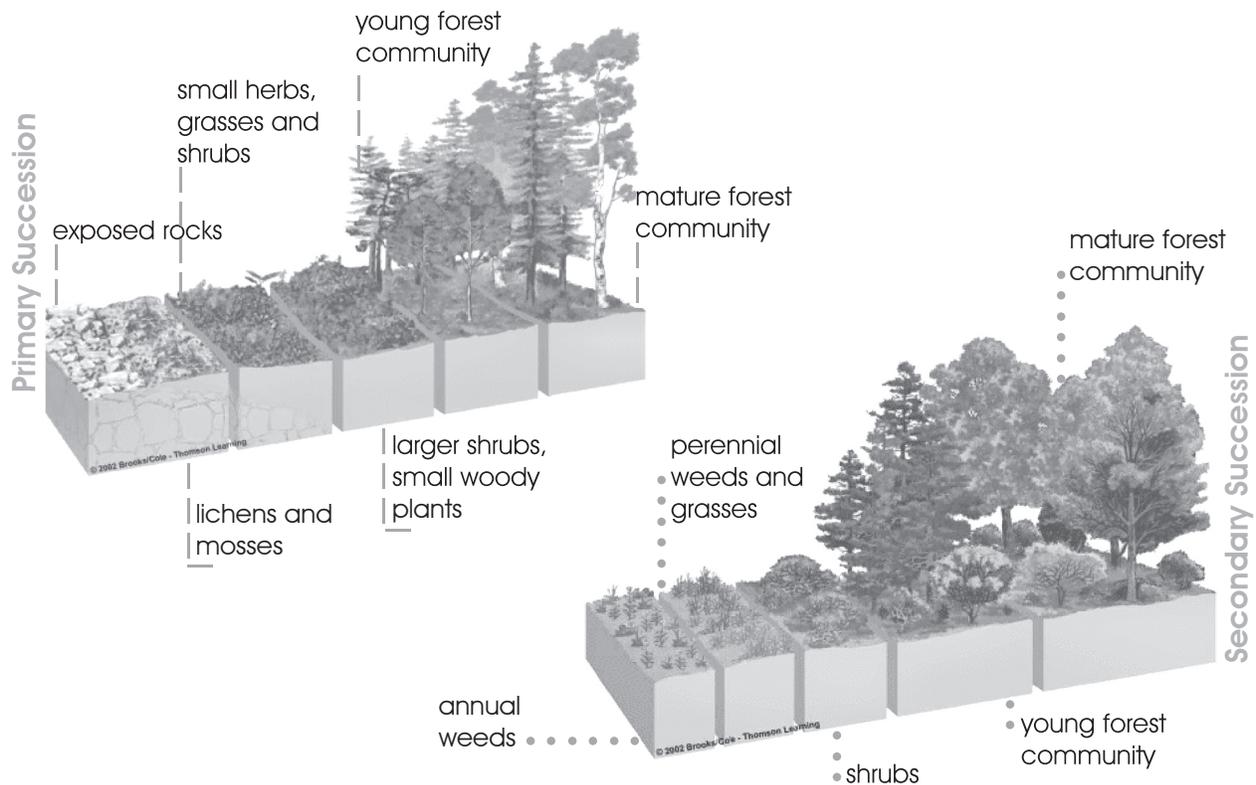
A characteristic animal species accompanies each successional stage. The early-successional animal species find food and shelter among the weedy pioneer plants that invade areas that have been cleared by natural or human causes. Mid-successional species are found in partially open areas. Openings in the forest canopy promote the growth of plants that many mammals and birds like to eat. The opening serves as a provision of edge habitat where field and forest meet. These opening allow certain animals to feed on the vegetation in the opening and the ability to escape quickly into the forest. The success of wild turkeys in southern Iowa occurred partially due to increased mid-successional oak-hickory trees for them to feed.

Late-successional animal species, such as neo-tropical birds, require mature forest habitats to provide the food and cover they need.

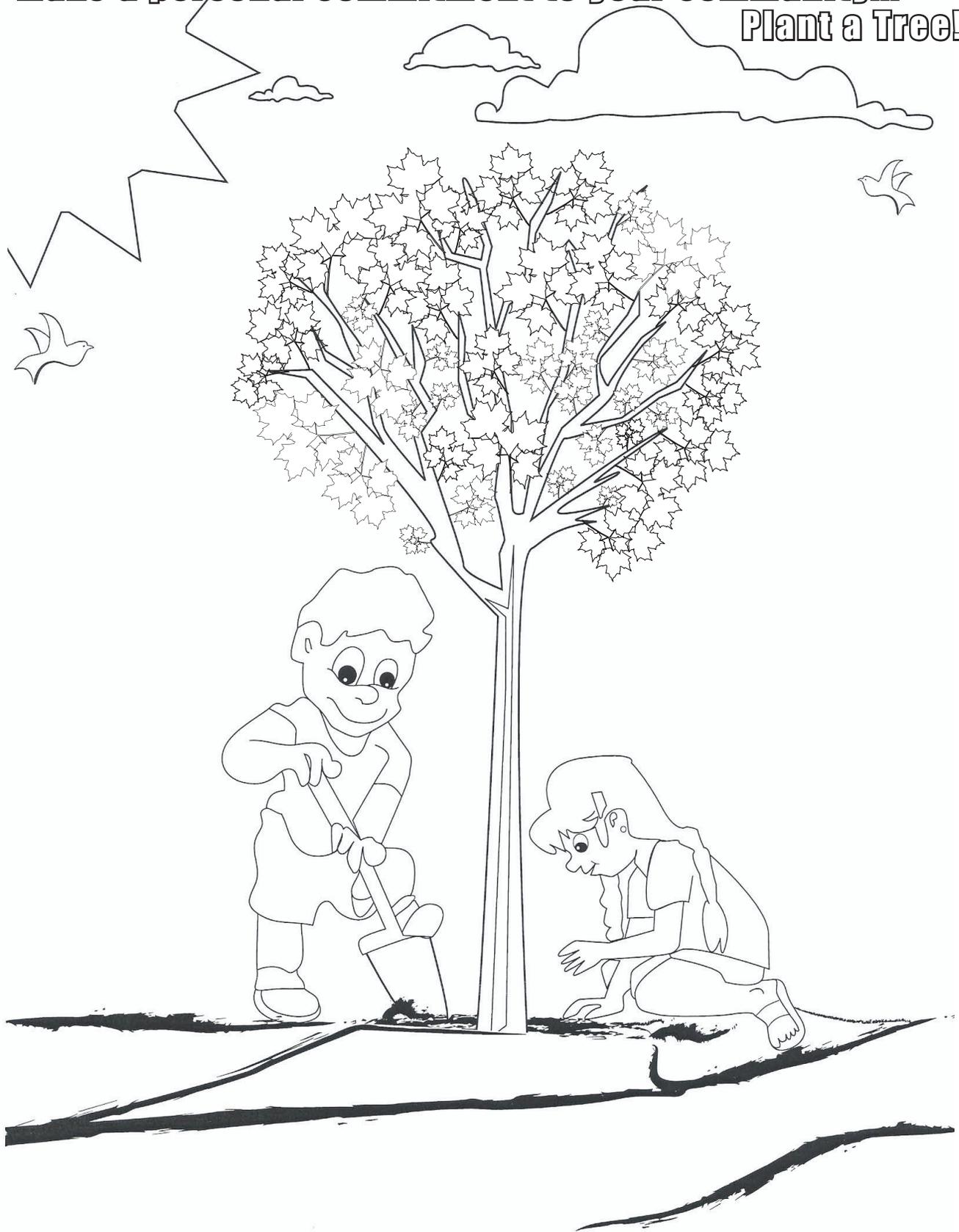


To help your students get a close-up look at succession, try this activity:

- 1.) Take your students on a field trip through an area that has several types of vegetation communities (e.g., an urban park with wooded areas). Have them try to find plant communities in different stages of succession. Tell them not to worry about plant or tree names, only types (i.e., grasses, non-woody herbaceous plants, wood shrubs, trees). Have them look for animals and signs or sounds of animals. They should look for evidence of disturbance (such as erosion, tire tracks, fire and construction) that might have altered the natural succession. They can look for the following stages of succession:
 - Grasses and non-woody plants only.
 - Grasses, woody and non-woody plants.
 - Grasses and shrubs, with young tree saplings (stem < " [1.3 cm])
 - Ground vegetation and young trees (stem " to 2" [1.3 cm to 5 cm])
 - Mature trees (stem > 2: [5 cm] can still be under canopy)
- 2.) Call the group together and define the stages of succession evident at your site. Discuss what factors might alter succession at your sight, including disease, insects, fire, wind, lightening, pollution and drought.
- 3.) Divide the class into teams with three members each. Have students draw a general map of the study area, including major landmarks (such as major trees, trail junctions, parking lots, benches, creeks, etc.), and then identify and draw areas on the map that fall into the different categories of succession identified in the proceeding step.



Make a personal commitment to your community...
Plant a Tree!



Color the planting of a new Native Tree! You can also add a scene in the background and even draw yourself planting the Native Tree!



Reading Rangers

Read a book and plant a tree with the Iowa Department of Natural Resources for Earth Week 36 & Arbor Day 2006!

We know that planting trees is a lot of fun for kids and teachers alike, yet it may not be possible for your class to plant a tree this Earth/Arbor Day due to space limitations on school grounds, or time constraints for classroom activities. In response to the need for new trees, and the knowledge that classes may not have enough time to plant their own trees personally, the Forestry Bureau of the Iowa Department of Natural Resources (DNR) has developed a program called Reading Rangers.

The Reading Rangers program offers trees to be planted by DNR foresters in state forest and wildlife areas in exchange for students reading nature related resource publications. These nature publications may be either books or magazines, as long as their subject matter relates to our natural environment. The DNR will plant a tree for each student who reads a minimum of 20 pages of a nature-related resource publication during Earth Week (April 22-29, 2006). That's right! If someone reads 200 pages, we'll plant ten trees in return! You may read one 200-page book or ten 20-page books, but as long as you meet that challenge, the DNR will meet your pages with a freshly planted tree!

Send us the names of your students (see form opposite) who read nature related publications during Earth Week and the number of pages they each read, and we'll plant the trees and send the class a Reading Rangers certificate of appreciation. Check out a listing of books and other resources on the inside cover of this booklet.

Thank you for your support of the Trees for Kids and Reading Rangers programs! We hope you and your students enjoy learning the value of trees in our environment!

Please mail your record sheets to:

Trees For Kids - Reading Rangers
IDNR - Forestry Bureau
Wallace State Office Building
Des Moines, IA 50319-0034

Forest: Heritage

Forest Heritage

finding the roots

It was once written that Iowa's history is written in its trees, since our trees live a long time and are silent witnesses to the passing of human events and time. Iowa has many historic trees under whose shade Native American lived a nomadic life, and whose wood provided homes and fuel for early explorers and pioneers.

Back in 1996 as part of Iowa's sesquicentennial (150 years of statehood), Iowa Famous and Historic Trees publication was produced and can be viewed at www.iowadnr.com/forestry/treesforkids.html. Iowa DNR and Iowa Public Television's K12 Connections (www.k12connections.iptv.org) would like to update and expand this Famous and Historic Trees of Iowa publication with the help of Iowa teachers and students. This document would be available in electronic form and would be kept up to date for future teachers and students to use.

What Qualifies as a Famous and Historic Tree or Forest?

A Famous and Historic Tree is one that has special significance to the Nation, State, County and or City. Trees that are significant to families here in Iowa also may qualify. It must possess the following qualities: (1) it must be living, (2) the species and size dimensions are verified, (3) its story of its significance must be documented in writing and confirmed by more than one person, (4) the tree's specific location is documented and (5) a digital photograph must included with the nomination.

How to Nominate Your Famous and Historic Tree or Forest?

- (1) Download a Famous and Historic Tree Nomination Form from the Iowa DNR Forestry website at www.iowadnr.com/forestry/treesforkids.html
- (2) Start checking with student family members, senior citizens, local county historic societies, conservation professionals and others to find a Famous and Historic Tree in and around your community. Document in writing why your tree is famous or historic.
- (3) Once a possible Famous and Historic Trees is located seek property owner permission to identify the species, measure and take photos
- (4) Using the trees address go to www.topozone.com to get the Latitude and Longitude
- (5) Submit your nomination to tfkids@dnr.state.ia.us with a digital photo

Instructions

Try to fill in the missing numbers in the left box and decode the message below using the letters in the matching box on the right. Use the numbers 1 through 10 to complete the equations. Each number is used only once. Each row is a math equation. Solve the rows from left to right. Each column is a math equation. Solve the columns from top to bottom. The numbers in the boxes on the left are equal to the letters on the right. We have started to give you a hint. Good Luck!

Math Decoder



	L			
1	7	2	3	10

2

3	2	10	5	6	8

	R		
10	4	8	8

Letter or box in right table

Value of box in left table

<input type="text"/>	×	<input type="text"/>	-	<input type="text"/>	15
-		+		-	
7	×	<input type="text"/>	-	<input type="text"/>	13
×		+		×	
4	+	<input type="text"/>	-	<input type="text"/>	9
12		11		3	

T	×	A	-	I	15
-		+		-	
L	×	N	-	E	13
×		+		×	
R	+	V	-	P	9
12		11		3	

C			
1	5	4	9

8	3	4

		W	
2	3	6	5

					T
8	3	4	9	7	

Letter or box in right table

Value of box in left table

6	+	1	-	<input type="text"/>	4
×		+		×	
<input type="text"/>	×	<input type="text"/>	-	<input type="text"/>	5
÷		÷		-	
<input type="text"/>	-	<input type="text"/>	×	<input type="text"/>	20
3		1		22	

W	+	C	-	O	4
×		+		×	
I	×	S	-	E	5
÷		÷		-	
R	-	F	×	A	20
3		1		22	

Lesson:

You have gone to your local USDA Service Center and determined that cost share money is available for a Riparian Buffer Strip. Your next step is to use the Iowa Department of Natural Resources (IDNR) website to select trees and shrubs for a Riparian Forest Buffer planting.

Materials:

Computer with Internet connection (recommend dedicated line for connection (dial-up and wireless connections might have speed/performance issues, but still work)
 Web browser software (recommend Internet Explorer 5.0 or later version)
 Printer (optional)

Procedure (Part 1):

Determine the cost of trees and shrubs to plant a riparian buffer strip along Dead Briar Creek located in T82N R30W, NW ¼ of Section 17 in Greene County, IA.

1. Access the Watershed Atlas interactive map. Go to the IDNR'S website <http://www.iowadnr.gov>, and click on the Mapping (GIS Interactive) link in left menu.
2. Go to **Greene County** using your Zoom In tool.
3. Zoom to Township T82N R30W.
4. Zoom to the NW ¼ of Section 17.
5. Using the **Legend** record the following information for the Dead Briar Creek site:
 - a. The major soil type:
 - b. Soil loss in tons per acre per year:
 - c. If the soils are Hydric:
 - d. The predominant land cover in 2002:
 - e. If the soils are highly erodible:
 - f. The average annual precipitation:
 - g. The CSR (corn suitability rating):

Procedure (Part 2):

6. Turn on the Air Photography (CIR) 2002 layer and draw a polygon along the North side of the creek (between N St. on the west to Neola St. on the east) to represent your riparian buffer strip site. Determine its perimeter in feet and meters:
7. Overlay this polygon onto the map of the soils and print the map (printing is optional).
8. Go to the IDNR Home Page at <http://www.iowadnr.gov>. For a shortcut you can click on the Interactive Map title and then find the DNR Home link at the bottom of the page.

9. Select Forestry; next select Private Woodland Management; then select Woodland Soil Suitability Information.
10. Using the soil type you recorded in question 5a, go to the Woodland Suitability Index and determine:
- If the site is suitable for trees?
 - Would you recommend for the landowner to plant conifers in the Riparian Buffer Strip?
 - What is the Woodland Suitability Composite Group?
11. Go "BACK" and select the Woodland Suitability Guide and:
- Select three tree species to plant:
 - Select three shrub species to plant:
12. Return to the Forestry Home Page. Locate the link to the State Nursery under the Buying Trees heading in the left menu.
- Search the "Catalog" to determine if the tree and shrub species you selected are available for sale?
13. Assuming you want to plant 500 trees and shrubs per acre, search the "Order Form" to determine the cost to plant 3 acres of:
- 8' to 16" Elderberry shrubs:
 - 17" and larger Silver Maple trees:

Answer Key

5.
 - Calco
 - 2-5
 - Yes
 - Soybeans
 - Not Hel
 - 33"
 - 75-83
10.
 - Yes
 - No
 - 5W3
11.
 - Green Ash, Hackberry, Silver Maple, Cotton wood, Hybrid Poplar
 - American Plum, Arrow wood, Hazelnut, Buttonbush, Silky Dogwood, Elderberry
12.
 - Yes
13.
 - It costs \$37 for 100, so \$555 for 1500
 - It costs \$42 for 100, so \$630 for 1500

Someone's sitting in the shade today because someone planted a tree a long time ago.

~ Warren Buffett ~

Books

- Cullina, William. Native Trees, Shrubs, and Vines: A Guide to Using, Growing and Propagating North American Woody Plants. 2002
- Gramlin, Linda. Trees. DK Publishing. 1997
- Neumann, Kay & Riley, Linette. Iowa Department of Natural Resources-Forestry Bureau. An Iowa Supplemental to Project Learning Tree, K-8. 1993
- Project Learning Tree Secondary Educational Program. The Changing Forest: Forest Ecology. American Forest Foundation. 1996
- Staub, Frank. America's Prairies. Earthwatch. 1994
- Sternberg, Guy & Wilson, Jim. Landscaping with Native Trees. 1995. Chapter Pub. (Vermont)
- Tresselt, Alvin. The Gift of the Tree. Lothrop, Lee and Shepard Book. 1992
- Vander Linden, J. Peter & Farrar, R. Donald, Forest and Shade Trees of Iowa (2nd Edition). ISU Press. 1993

Websites

Page Title: ARTSEEDGE: Wonderful Woodlands: A Group Collage

Includes students learning about leaves, forests, and seasonal changes, and then create group collages of forests.

<http://artsedge.kennedy-center.org/content/2081/>

Project Learning Tree

Includes sample lessons and describes this interdisciplinary environmental education program.

<http://www.plt.org/>

Earth Day at Kids Domain

Includes Earth Day history and activities

<http://www.kidsdomain.com/holiday/earthday/>

Iowa State University Forestry Extension

Identification of common trees of Iowa with an interactive key

<http://www.extension.iastate.edu/pages/tree/>

U.S. Environmental Protection Agency

Includes information on landscaping with natives, the benefits of natives, and a native plant fact sheet

<http://www.epa.gov/greenacres/>

EEK: Environmental Education for Kids. Wisconsin DNR

Includes fun interactive and informational activities for kids on topics varying from Arbor Day to native trees, also has teaching activities and educational resources

<http://www.dnr.state.wi.us/org/caer/ce/EEK/index.htm>

Iowa DNR Forestry

<http://www.iowadnr.com/forestry>



Ironwood/Hophornbeam
Ostrya virginiana

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Thanks for caring
about Iowa's
Native Trees



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