

E *orestry*

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policy range aquatics soil forestry wildlife

Sink Your Roots into Forestry

You may ask, “Why do we need to understand forestry when Nebraska is home to the Great Plains?”

Have you ever heard of Arbor Day? This day is especially important to Nebraska. J. Sterling Morton of Nebraska City believed in planting trees on the native grasslands of Nebraska since so many settlers needed trees for fuel, food, building materials, windbreaks and shade.

In 1872, Morton first proposed a tree planting holiday to be called “Arbor Day.” During the first Arbor Day, prizes were offered to counties and individuals for planting the largest number of trees on that particular day. It was estimated that almost 1 million trees were planted in Nebraska during the first Arbor Day.

J. Sterling Morton, was extremely proud of his success with Arbor Day and mentioned, “Other holidays repose upon the past; Arbor Day reposes for the future.”

Here in Nebraska trees also provide...

- Protection for fields
- Shelter for farmsteads
- Shade for homes and streets
- Forested slopes
- Productive farmland
- and much, much more

That is why you need to sink your roots into forestry!

Forestry

Objective #1: Tree Anatomy and Functions

Know these terms and their functions

- Chlorophyll
- Xylem
- Phloem
- Cambium
- Roots
- Trunk
- Leaves
- Decay
- Decomposition

Sample Questions

1. Buds are produced during what season?
2. Water and nutrients are conducted upward in a tree through what structure?

Objective #2: Basic Tree Measurements, & Identification

Measurements

- Diameter at breast height (DBH)
- Tree Height
- Volume **Understand how to use these tools for tree measurements**
- Health diameter tape, increment borer, biltmore stick, prizm
- Crown Size
- Age
- Board feet

Identification

- Be able to identify the main species of trees in Nebraska
- Differentiate between deciduous, evergreen, and hardwood species of trees

Sample Questions

1. What is the major way to tell the difference between pines and spruces?
2. The age of a standing tree can be determined using what instrument?
3. The native conifer that covers the largest area of Nebraska is?

Objective #3: Forest Ecology

Understand the Systems and cycles that occur within the forest and how they are interrelated.

Examples:

- Watersheds
- Soils
- Environmental conditions--human impacts (positive/negative)
- Climatic and microclimatic conditions/changes
- Lifezones-- Habitat types
- Species of plants and animals that inhabit the different lifezones

Disturbances and cycles of nature

- Fire
- What happens when we disturb, disrupt or stop one of these cycles from functioning?
example: Fire suppression
- Understand the role fire plays in forest ecology.
- Understand differences between other forest types such as tropical.
- Understand “sustainable use” and the importance of it.

Sample Question

1. The process of long-term changes in a plant species composition of a forest is called?

Objective #4: Forest Management and Forest Health

Understand the reasons these management regimes are utilized.

- Fire suppression (fuel loading and fuel reduction)
- Prescribed fire
- Forest thinning (patch cuts, clear cuts and selective cuts) *look these up*
- Forest inventory (measurements)
- Determining a plot sample size vs. entire population
- Forest measurements (Density)
 - Number of trees within a sample
 - Amount of total crown cover
 - Amount of ground cover
 - Amount of downed/decaying wood
- Species identification (trees, shrubs, plants, animal sign)
- Insect and disease identification (specify key insects tree diseases))
- Know key exotic tree species in your region

Sample Questions

1. Why do foresters “thin” a pure stand of ponderosa pine?
2. Why is the forest type along the Platte River changing from primarily cottonwood to other species?

Objective # 5: Public Relations in Forest Management

Principles

Identify an exhaustive list of the different values people have relating to the management of utilization of our natural forest resources.

- Aesthetics
- Innate and ethical
- Forest products
- Recreation
 - Hunting
 - Fishing
 - Hiking
 - Mountain biking
 - Wildlife viewing
 - Camping
 - Horesback riding
 - Skiing
 - Homesites
 - Environmental health (air quality)
 - Snow retention
 - Water quality

Develop an understanding for how these different values can cause conflicts.

Identify several resource conflicts in your region.

See Project Learning Tree's Secondary Environmental Education Program, Focus on the forest, pages 23-29

Understand what is meant by the Urban Forest:

- Importance (Social values, mental health)
- Learn how to value the \$ of street tree or city park tree

Understand who manages Nebraska's Natural Resources and the types of Responsibilities they have.

Great opportunity to get in touch with your local Natural Resources District

Some examples of these agencies are:

- United States Forest Service (USFS)
- National Park Service (NPS)
- United States Fish and Wildlife Service (USFWS)
- US Army Corps of Engineers
- Bureau of Land Management (BLM)
- Department of Natural Resources (DNR)
- Natural Resources Conservation Service (NRCS)
- Cooperative Extension
- Natural Resources Districts

Sample Questions

1. Why are Nebraska's forests so valuable?
2. Wood is the only natural resource that is renewable, recyclable, and bio-degradable? T or F
3. A forest can be preserved in its present condition by removing all human influence? T or F

Reference Material

Project Learning Tree, Environmental Education Activity Guide (Pre K-8), American Forest Foundation. 1997 Fifth Edition

Project Learning Tree, Secondary Environmental Education Program, The Changing Forest: Forest Ecology. American Forest Foundation 1996.

Project Learning Tree, Secondary Environmental Education Program, Exploring Environmental issues: Focus on Forests. American Forest Foundation 1996, Second Edition.

Trees are Terrific: Inside and Out, The National Arbor Day Foundation, Level 1 Resource Supplement #17.

****Check out these cool internet sites****

Nebraska Forest Service--<http://ianrwww.unl.edu/nfs/>

Forestry Links--<http://ianrwww.unl.edu/pubs/forestry/links.htm>

Forestry--<http://www.ianr.unl.edu/pubs/Forestry/>

Answers : 1.1) fall, 1.2) xylem
2.1) pine needle are usually in bundles of two or more
2.2) Increment borer
2.3) Eastern Redcedar
3) Succession
4.1) Reduces risk of wildfire, improves health of stand, and reduces time until harvest
4.2) fire suppression, flood suppression, and livestock grazing
5) They produce wood products, provide wildlife habitat, and protect soil and water
true
false