

Management Practices



OSU EXTENSION
4-H YOUTH DEVELOPMENT

Objectives

- Gain an understanding of various forest management practices.
- Gain an understanding of how the actions of nature and human activity can lead to changes in the forest.

Forest Management Practices

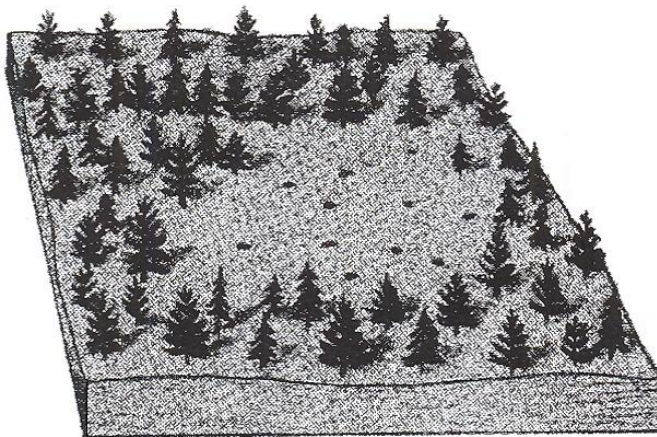
Once goals and priorities for the forest area have been set, the forest manager must decide which practices should be used to best meet those goals. To produce sustainable wood products, wildlife, water and recreational opportunities, forest managers utilize various practices to manage forest resources.

- Harvesting practices
- Reforestation
- Thinning and pruning
- Insect and disease control
- Prescribed burning

Harvesting Practices

Clearcutting is a harvest practice that removes all trees in a stand at the same time. To ensure that the area continues to produce desirable trees, these areas are usually replanted or reseeded soon after being cut.

Clearcutting allows higher wood production of intolerant species as well as allowing those trees that require large amounts of sunlight to grow more quickly without competition from other species. Large cuts without proper care may bring increased danger of soil erosion. Changes in tree species during harvest and replanting may also change the habitat for wildlife.



The forest is divided into blocks that are cleared at different times.

Materials:

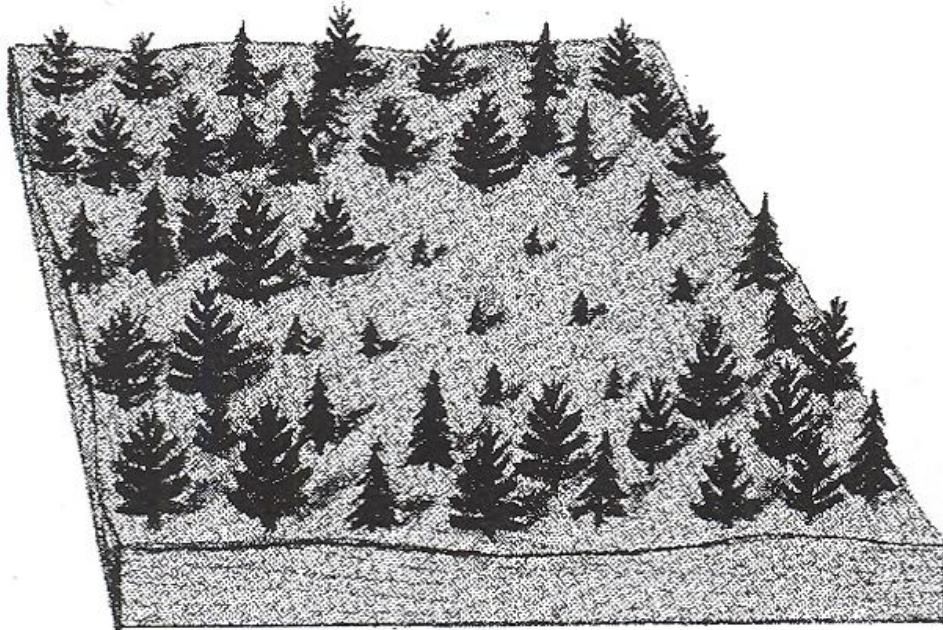
- Handout

Life Skill:

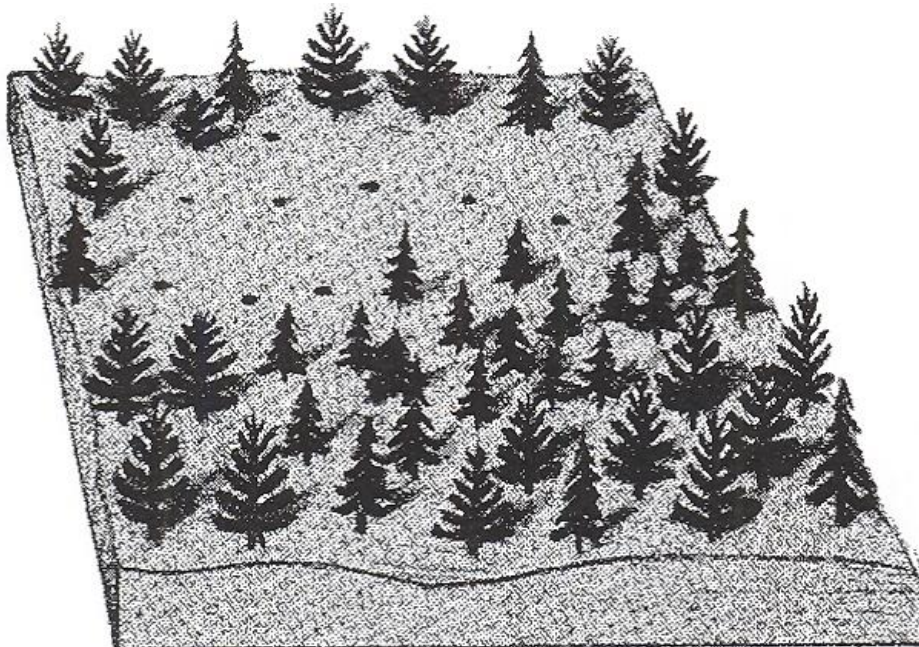
- Keeping Records
- Critical Thinking
- Problem Solving
- Decision Making
- Learning to Learn

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Remaining trees are left to protect the soil. The clear-cut area is then replanted or reseeded or left to reseed naturally.



Once the clear-cut area begins to grow back, another section is harvested

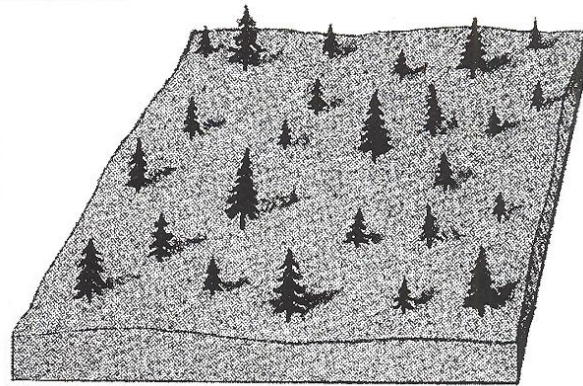
In **selective cutting**, individual trees or groups of trees are harvested on a regular basis and over a longer period of time. A number of "light" cuttings are made as trees mature. This method keeps trees of different ages and helps to create an "all-aged forest". All-aged forests help to support a wider variety of wildlife and the trees are better able to resist damage caused by insects and/or disease.

Reforestation

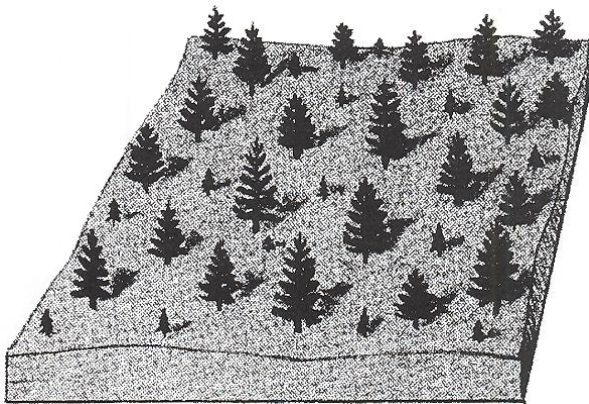
Planting of seedlings may be done manually or by machine. The major advantage of using this method is that the desired species will be present and have proper spacing to allow for best growth conditions.

Seeding is often used in areas where machines are not able to be used. This is an effective method for large areas that need to be reforested quickly. While less expensive than direct planting, using this method, it is more difficult to control the number of trees growing in the same area.

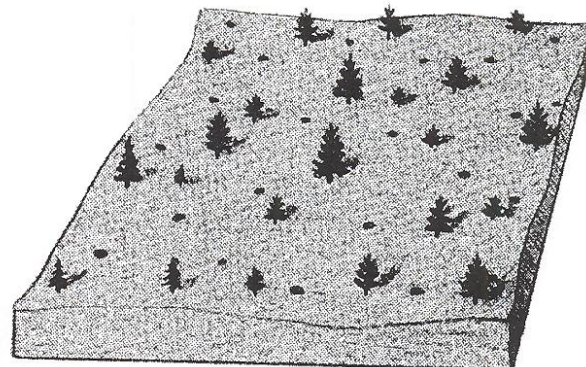
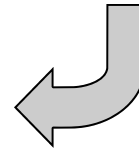
Seedtree Regeneration is only used with those species that are able to regenerate by seed. During harvest, enough of the best trees are left so the forest can reseed itself. This method is inexpensive, however, not always efficient. There is no control on how the seed is spread or the number of trees that will grow.



A large area is cleared leaving seed trees evenly spaced for seed drop



Seed trees provide seed for new growth



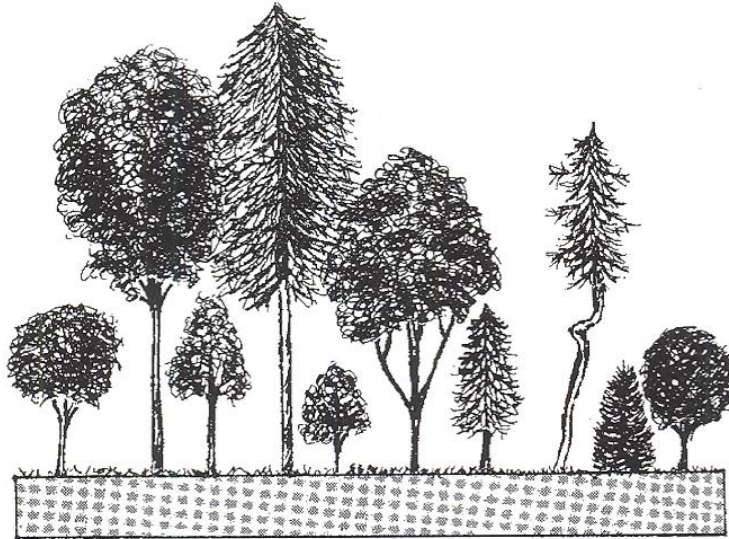
Seed trees and deformed trees are thinned in one or two cuttings

Shelterwood regeneration is similar to seedtree regeneration but this method allows more trees to stand to reseed the area.

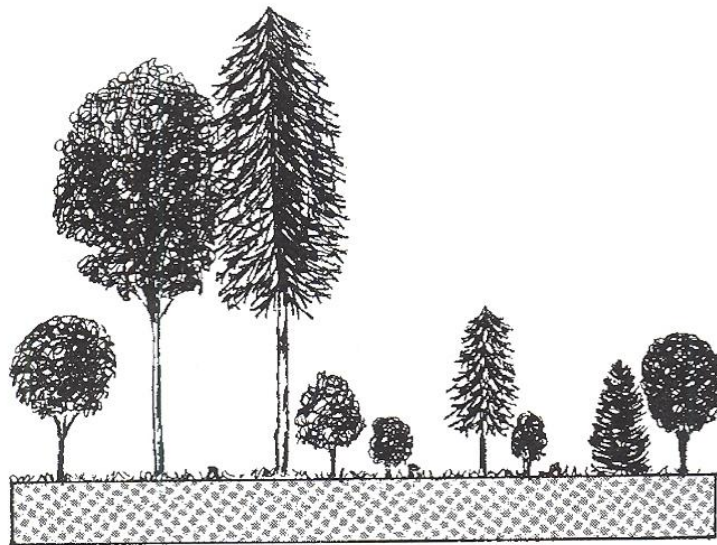
Thinning and pruning

This management practice is used to encourage growth in young forest stands. Undesirable, poor quality or slow growing trees are removed allowing desirable trees more space for their crowns and roots. The remaining trees become stronger, more productive, are less crowded, increase in quality and are less susceptible to insect and disease damage.

Stand of trees before and after thinning



Overstory trees of poor quality and suppressed trees in need of thinning



Undesirable trees are thinned and dominant trees are left standing

Insect and Disease Control

Foresters are often asked to recognize and identify forest insects and disease or evidence of damage caused by the various insect agents or pathogens. This is a valuable skill because most insects or diseases that damage trees affect only certain species or groups of related species.

Insects can slow tree growth, destroy the wood, or kill the tree. Damage from insects can result in large losses of trees. Insects can also attack and destroy seeds. Insects attack all of the living parts of a tree.

Diseases can be classified into two types: *noninfectious disease* (caused by environmental changes) and *infectious disease* (caused by living organisms).

Noninfectious diseases are caused by changes in environmental conditions, temperature change, soil and water changes or from mechanical injury.

Infectious diseases can occur year after year with no serious injury to the tree. Most of the serious tree diseases affect the tree stem and roots.

Generally, native trees are less susceptible to insect and disease attacks than are non-native species. This is because they have adapted to the area and natural conditions occurring there.

Prescribed Burning

Fire ecology principles are applied in developing prescriptions for setting fire to help meet ecosystem management goals. Under a range of weather and fuels types and conditions, fire has predictable effects on fuel removal, vegetation and soils. By selectively returning fire to our forested landscapes, forest managers help restore and maintain the forest's ecological integrity.

After a fire, the burned area may seem dead, but many forms of life survive. The rapid, 'green up' of the forest floor is living proof that a new forest cycle has begun. Fire creates ideal growing conditions for new regeneration in several ways. Nutrient cycling is accelerated by the combustion process, which reduces slowly decaying woody material to ash, containing minerals available for plant growth. The blackened and exposed forest floor draws heat, encouraging the germination of dormant seeds and the sprouting of new growth. Fire reduces forest litter, which exposes mineral soil, lowers the pH balance of the soil and creates conditions, which generally favor new growth of tree and shrub species.

Reflection:

1. Have you seen evidence of forest changes caused by nature? If yes, what were they?
2. Have you seen evidence of forest changes cause by the implementation of forest management practices? If yes, what were your initial thoughts when viewed the practice? Have your thoughts changed with knowledge gained?
3. What are your perceptions regarding the benefits and/or negative effects of implemented forest management practices? Are these based on sound scientific research or your value system?

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Suggested Oklahoma Guides

A recommended study guide for Tree Identification is the 2002 revision of: *Forest Trees of Oklahoma* by Elbert L. Little, Jr.

Additional Resources

Oklahoma 4-H at <http://oklahoma4h.okstate.edu/index.htm>

Oklahoma 4-H Forestry Judging website at <http://nrem.okstate.edu/Extension/judging.html>

Oklahoma 4-H Forestry Judging Manual. 2007 revision.

4-H Forestry Program—Unit A: Trees

4-H Forestry program—Unit B: Forests

Oklahoma Forestry and Wildlife Camp website at <http://whatisforestry.org/youth-camp.php>

Oklahoma Cooperative Extension Forestry at <http://nrem.okstate.edu/Extension/pubs.html>

References Cited

Oklahoma 4-H Forestry Judging Manual. 2007 revision.

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