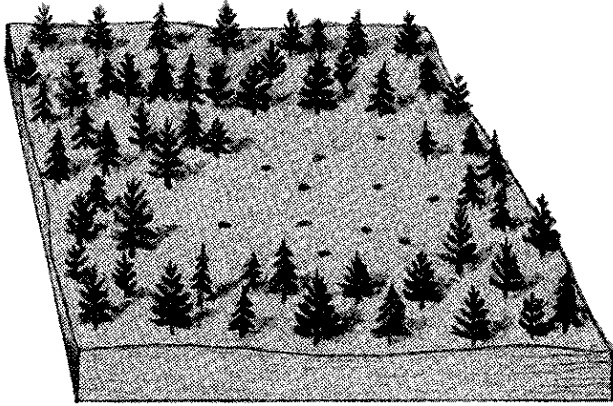
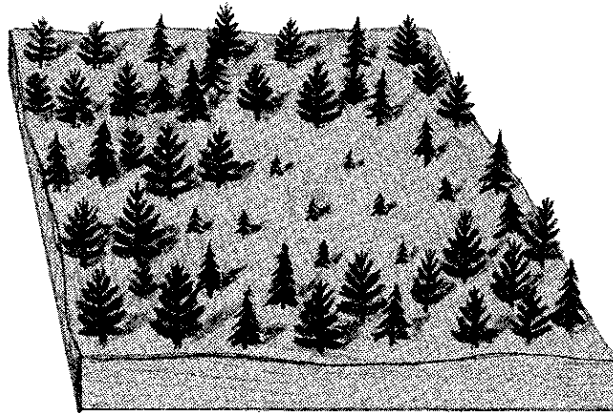


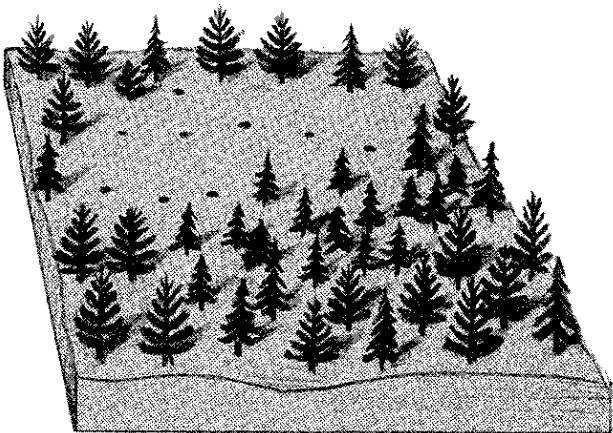
Clearcutting



The Forest is Divided Into Blocks That Are Cleared at Different Times. After Some Period of Years, The Forest Will Contain a Mixture of Age Classes in Even-aged Stands or Blocks.



Remaining Trees Must Protect The Soil and Wildlife Habitats. The Clear-cut Area is Either Planted With Nursery Stock, Seeded or Left To Be Re-seeded Naturally.



Once the Clear-cut Area Begins to Grow Back, Another Section is Harvested For Timber.

Clearcutting

Clearcutting is a harvest system that removes all the trees in a stand at the same time. The size of the stand may vary greatly. A few clearcuts are as little five acres. Large clearcuts of 40 to 200 acres are called patchcuts. In order to make sure that the area continues to produce desirable trees, foresters usually re-plant or reseed soon after cutting.

People disagree over the use of clearcutting in some forest areas, especially where a large acreage is involved. Clearcutting allows higher wood production of intolerant species. It also allows those trees that need much sunlight (such as the Douglas fir) to grow more quickly without competition from other tree species. These kinds of trees are important to some forms of wildlife. But large patch cuts without proper care bring increased danger of soil erosion. The great change in tree species during harvest and re-planting can greatly change the habitat for various forms of wildlife. The ecosystem is much simpler, and the forest is more likely to be harmed by disease or insects.

Selective Cutting

In this type of harvesting, individual trees or groups of trees are harvested from time to time on a regular basis over a longer period of time. Timber harvesters make a number of light cuttings as the trees mature. In selective cutting the forest keeps trees of different ages. This is called an all-aged forest. An all-aged forest supports more varieties of wildlife and can better resist natural attacks of disease and insects.

Most softwood varieties of trees, such as pine, fir and redwood, do not regenerate as well under this system. They are naturally replaced by climax species that are more tolerant to shade. Another problem is that wind and ice storms can damage the open stands that are left behind after cutting. In general, timber production is less under this system than under clearcutting.

Both clearcutting and selective cutting are good forms of harvesting in certain areas. The forest manager must decide when to use which system of harvesting.

Seedtree and Shelterwood Regeneration

Seedtree regeneration is one of the oldest ways to start new crops on a harvested area. It can only be used with those tree species that regenerate by releasing lightweight seeds to the wind. When loggers harvest they leave behind enough of the best trees in each acre so that the forest can reseed itself. This is an inexpensive way to produce a new stand of trees, with little disruption of the ecosystem. But seedtree regeneration is not always efficient. The forest manager has no control over how the seed is spread or how many trees of what species will grow as a result. There could be up to a seven-year wait for enough seedfall to begin a new crop.

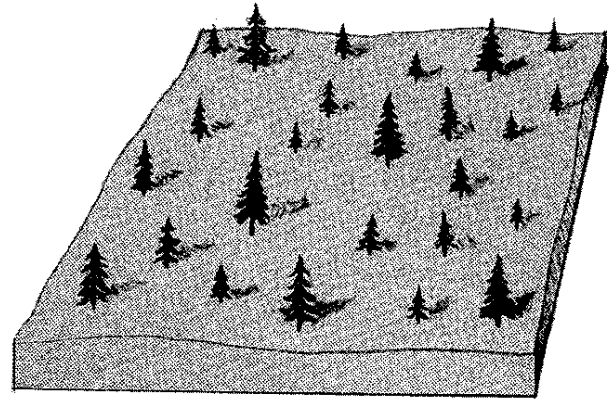
Shelterwood regeneration is like seedtree regeneration, but allows more trees to stand to reseed the area and to protect the new seedlings. It still takes a long time to reforest an area with this method, because two or more cuttings are needed.

Planting and Seeding

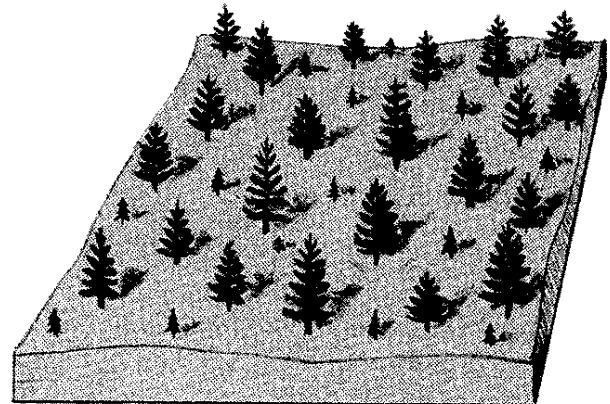
Tree seedlings may be *planted* by machine or by hand. The advantage of this method is that the most desirable species will be present and will have proper spacing to allow the best growth conditions. Forests areas can also be *seeded*, either by hand, machine or aircraft.

Seeding is used often in areas that are too rough to machine-plant. This is a good method when large areas need to be reforested quickly, such as after large forest fires. Genetically improved seeds that are resistant to harmful insects and diseases may be used to give better growth. Seeding costs more than direct planting, but the results are often worth the extra expense. But with this method the number of trees growing in the same area cannot be controlled as easily.

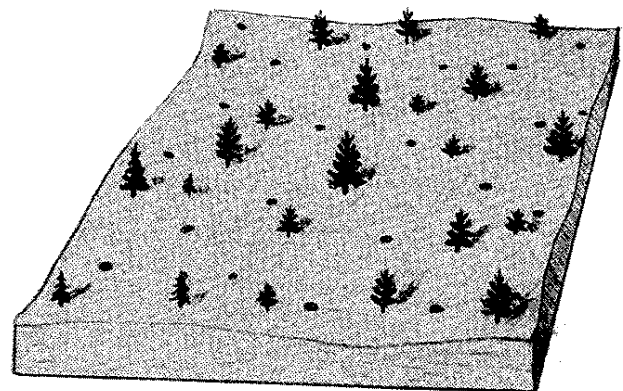
Seed-Tree Method



*A Large Area is Cleared,
Leaving Seed Trees Spaced Evenly for Seed-drop.*



Seed Trees Provide Seed for New Growth.

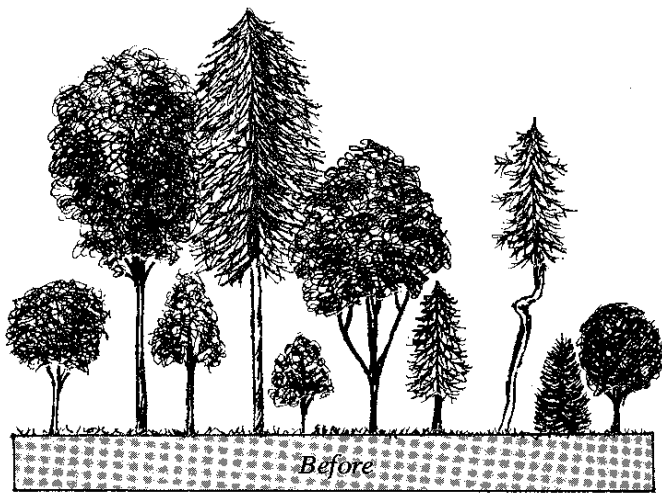


*Seed Trees and Deformed Trees
Thinned Out in One or Two Cuttings.*

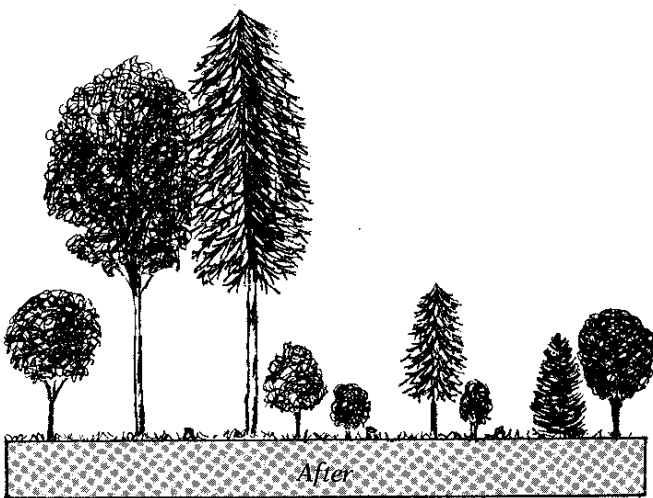
Thinning

Forest managers can increase growth in young timber stands by thinning. They remove the poor quality and slow-growing trees and allow the most desirable trees more space for their crowns and roots to grow. This improves the quality of the stand and reduces crowding. The remaining trees become stronger, produce more usable wood fiber and are less likely to be damaged by insects or diseases.

A Stand Of Trees Before and After Thinning



*Overstory Trees Of Poor Quality
and Suppressed Trees In Need of Thinning.*



*Undesirable Trees Thinned From Below;
Dominant Trees Left Standing.*

Things You Can Do

Select one or more forest management practices, such as clearcutting or thinning, and find out as much as you can about it. If possible, visit one or more areas that have received this treatment and make your own observations. Report your findings to your 4-H group. Be sure to include disadvantages as well as advantages. Tell under what conditions the practice should be used and under which conditions it should not.

2. Management objectives. Select a forest area or a park and interview the manager of the area to find out

a. what objectives and practices are followed and
b. if people disagree on proper management practices.

You may wish to mail a questionnaire to the manager if you cannot arrange an interview in person. When you have gathered the information, prepare a report on the results.

3. Make a model section of the forest out of sticks or twigs. Label them with the names of different trees. Make a plan for multiple use of the forest, including recreation, watershed protection and timber harvesting.

4. Make an exhibit on the history of advances in logging technology, or on the various stages involved in making lumber in a modern sawmill.

B-5 The Dollar Value of Forests

Meeting 10 Forests Employ People

Not every member of the 4-H Forestry Program will be able to manage a whole forest in the future. However, there are millions of people in the United States who have forest-related work. Besides those that manage and protect our forest, there are many others who either harvest or sell forest crops or who manufacture wood products. Thousands of communities are directly dependent on our forests to provide jobs for their citizens. They rely upon forest industries and forest recreation to earn a living.

Find out if your community has any of the businesses or other locations listed below. Then add to the list other places that you may know about. Consider touring at least one of these businesses either as an individual or as a group.

Cabinet shop	Logging operation
City watershed	Lumber yard
Certified tree farm	Paper plant
Office of Public Forestry Agency	Pole treating plant
Christmas tree farm	Plywood plant
Fence posts plant	Pulpmill
Fiberboard plant	Sawmill
Forest nursery	Shingle or shake plant
Furniture factory	Veneer plant
Greenery plant	Wood building supply store
House under construction	Wood novelties factory
Laminated wood products plant	Wooden toys factory

Things You Can Do

1. Identify five people in your community who make a living from the care, management and/ or harvest of trees. What are their titles and what kind of work does each do?

2. Visit one or more forest-based places of work with your parent or club leader. Write in your notebook what you learned about product values, salary, jobs and why trees are important to those people and to the community.

3. Using an almanac or encyclopedia, select five countries and make a list of each country's products. Indicate which of these products come from trees and forests. How many did you find? Next, prepare an exhibit that compares our country's wood products with those of another country. Display your exhibit in a public place.

4. If you are interested in carpentry, build a lumber framework house display to show how the home building industry depends upon trees. Obtain some scrap lumber from a nearby lumber yard to use as the wood.

Meeting 11

Earning Money from the Forest

If you live near a forest area, you can have fun and earn extra money by working with and selling forest products. Remember to ask the property owner or manager before you take any products out of the forest. Meanwhile, consider these ways of making money for yourself or for your group:

1. **Cones or Seeds** During good seed-producing years, forest cones or tree seeds are often in demand. Nurseries need seeds for production of tree seedlings.

2. **Floral Greenery** Commercial florists will often pay you to harvest floral greenery in certain parts of the forest. Greenery may be sold with Christmas trees.

3. **Christmas Trees** If you have good quality trees and a good display area you can sell them at Christmas time.

4. **Decorative Wreaths** Decorative wreaths made from evergreen trees are often used during the Christmas holidays. Small corsages fashioned from cones, wood and artificial red berries sometimes can be sold all year-round.

5. **Firewood** People with stoves and fireplaces will buy forest thinnings or logs from dying trees. The biggest demand is during cold weather, so stockpile the dry wood in pleasant weather for fall and winter.

6. **Kindling Bundles** Sawmill or trimmings provide bundles of kindling for people who have fire places in their homes.

7. **Birdhouses** You can use sawmill trimmings or slabs to make bird houses.

8. **Moss** Sometimes florists buy moss for floral displays. People sometimes pack things with moss, too.

9. **Shrubs And Ferns** Homeowners value different species for landscape plantings. Take plants only with the landowner's permission and only from abundant areas. Always leave an ample supply of plants for continued growth. Note that the U.S. Fish and Wildlife Services has placed 800 plants in the continental United States on the endangered species list. Individual states sometimes have their own list of endangered species. If in doubt whether or not a plant is on the list, check with a local botanist or forester for guidance.

10. **Seedlings Raised From Collected Seeds** Seedlings are always needed by persons reforesting the land and by homeowners wanting tree seedlings.

11. **Wild Berries** Huckleberries, blackberries and others can be sold during the season.

12. **Medicinal Products** The drug trade seeks to purchase a number of forest products, including certain barks, seeds, roots and herbs. Cascara bark is an example. In the Northwest, it is best harvested in May and June when the bark is "slipping". Herbs and many medicinal plants come from forests. Check with a local forester about other possible products in your area that may have a market value.

13. Forest Novelties or Souvenirs Wooden knick-knacks, cypress "knees", table centerpieces, decorative yule logs, pine owls, candle holders and other novelties may be made from materials that can be gathered in many forested areas. If they are finished with a good level of handicraft skill, such items will enjoy a high market demand at a fair price.

14. Maple Syrup Many people extract sap to make maple syrup, especially in the northeastern United States and Great Lakes states. The sugar maple species is the best producer of sap.

Things You Can Do

1. Try to list all the things you have touched or used today that came from trees.

2. Listed below are products that are used in the United States. Which kinds of trees in your forest could be used for one or more of these purposes? The products are

- a. brown paper bags
- b. construction plywood
- c. fence posts
- d. industrial charcoal
- e. railroad ties
- f. siding on homes

Would you be in favor of growing trees in your forest for these purposes? Why or why not?

3. Consider planting a tree on the next "4-H Tree Farm Day" in cooperation with a local garden club or community organization, or with your local park board. Also, help "Clean up America" by picking up litter and improving a recreation area or park.

4. Organize a "Big Tree Contest" in your community. Do you have a big tree around where you live? Persons may nominate trees for the American Forestry Association's National Register of Big Trees by sending the tree's measurements along with the name of the owner, date the tree was measured and a photograph of the specimen to:

National Register of Big Trees
American Forestry Association
1319 18th Street N.W.
Washington D.C. 20036

Trees may also be nominated for state lists of "Big Tree Champions".

5. Hold a "Forestry Fair" where you can hold various forestry competitions or a poster contest. Display your exhibits and crafts items, and sell some of your forest items!

Conclusion

Congratulations upon completing Program B! By this time you should be well into the 4-H Forestry Program. You now know some important things about trees not only as individual species, but also as part of a forest ecosystem. You learned why forests are valuable, what forests do, and what things affect where and how well forests grow. You found out that forests grow old just like other living things, and that we have many different types of forest land in our country.

You can now speak with some authority on important things to consider in managing a forest, and how you can actually earn money for yourself or your club with forest products.

That's a lot of activity for one manual! But there's more to come. During the course of Unit B you may have become involved with an activity that particularly interests you. No matter what your interest is, chances are that one of the subunits of Unit C will be covering it. Here are the eight separate subject areas planned for Unit C.

- ! Tree Farming
- ! Water, Wildlife and Forage Management
- ! Careers in Forestry
- ! Timber Harvesting
- ! Forest Recreation
- ! Urban Forests and the Environment
- ! The Dollar Value of Forestry
- ! Great Plains Forestry

Glossary

Forest scientists and managers must learn new terms. When you use new words in talking about the forest, you are actually learning a new language. Below are some terms listed for quick reference. Don't try to memorize these words or their meanings. Look at each word and its meaning. Look at the word again when you want to use it.

CARNIVORES - flesh-eating animals
CLIMATE - all air and weather, such as temperature, moisture, wind and evaporation
CLIMAX FOREST - the final stage of a tree and plant/community which has stabilized its population; this stays the same as long as the climate and soil remain unchanged by nature or people
CRUISE - information about timber volume, growth and other factors used to make decisions about the forest
CYCLE - a period of time in which regularly recurring events are completed
DOMINANT - a tree species that grows better and taller than any other in the forest; dominant trees rise above the canopy level and grow in full sunlight
DECOMPOSERS - very small bacteria, fungi and micro-organisms that live in the soil and help break down dead plants and animals
ELEVATION - height above sea level; temperatures at higher elevations are generally colder than temperatures at lower elevations
EVAPORATION - water vapor passing back into the atmosphere
FOOD CHAIN - the energy cycle where one species feeds on another, fixing or releasing energy in the process
GRAZING FOOD CHAIN - the process of one organism feeding upon another organism
HERBIVORES - animals that feed only on plants
HORMONE - a substance that is formed in a living cell and that influences the activity of other cells
INTOLERANT - said of trees that need full sunlight to grow well and which cannot live in full shade
LARVA - the feeding form of an immature insect which upon hatching from its egg finally emerges into adult form
LATITUDE - a measure of distance north and south of the Equator

LICHEN - any of a number of plants made up of algae and fungus growing together on a solid surface, such as a rock
MICRO-ORGANISMS - microscopic (very small) animals that often live in the soil as decomposers
MULTIPLE USE - the practice of land management that serves two or more forest values
OMNIVORE - an animal that feeds on both plants and animals
PIONEER SPECIES - the first trees to grow on bare soil
POROUS - said of a substance that allows water or other liquids to flow through it
PRESCRIBED BURNING - the management practice of setting controlled fires in selected forests in order to reduce fire hazard, prepare seedbeds, control hardwood growth and fight disease
PREDATOR - a species that feeds on another species
REGENERATION - the beginning of a new tree's life cycle
RUNOFF - the portion of water from rain, snow and fog that flows over land and eventually reaches streams
SAWTIMBER - those trees large enough to saw into boards (usually pine over 10 inches in diameter and hardwoods over 12 inches in diameter)
SILVICULTURE - the study of developing and caring for forests
SOIL - a natural body developed from weathered minerals and decaying organic matter covering the earth in a thin layer; a natural medium on the surface of the earth in which plants may grow
SPECIES - a grouping of similar plants or animals
STAND - a group of trees in the same area
SUBCLIMAX SPECIES - a species in a temporary stage in nature's movement toward climax
SUCCESSION - the progressive growth from pioneer plants to a climax forest
TEMPERATE ZONE - either of two climatic zones (the north or south temperate zone) between the tropics and the polar circles
TOPOGRAPHY - the shape or form of the land surface, such as flat lands, hills and mountains
WATERSHED - a funnel-like area bounded on the outside by water parting and draining to a particular body of water