

## UNIVERSITY OF IDAHO

COLLEGE OF AGRICULTURE

EXTENSION DIVISION

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## TREE APPRECIATION

4-H Forestry Project Divisions I and II

*By*

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COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS  
OF THE STATE OF IDAHO UNIVERSITY OF IDAHO COLLEGE OF  
AGRICULTURE AND UNITED STATES DEPARTMENT  
OF AGRICULTURE COOPERATING

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# TREE APPRECIATION

VERNON F. RAVENSCROFT\*

## 4-H Forestry Handbook

FORESTRY work is included as a 4-H club project to assist farm youth in developing an appreciation of forestry, also to teach them forestry methods and principles that can be practiced on the farm. Like other 4-H Club work, this is accomplished by organizing boys and girls in the same community, between the ages of 10 and 20 years, inclusive, into groups to study and practice forestry methods. The forestry project is divided into 4 phases: Tree Appreciation; Timber Production; Range, Recreation and Wildlife Appreciation; and Farm Forestry. Each phase is so planned as to constitute one year's work. Each year's work is referred to as a "Division." Requirements and subject matter for Divisions I and II are included in this handbook. Materials for Divisions III and IV are contained in a separate handbook.

### Requirements

Forestry club members are not required to own any special material to be eligible for this project. The only requirement is an interest in forestry and a willingness to cooperate with the other club members on all club problems. Each member must individually complete requirements of the division of work for which he qualifies.

### Help for Leaders

A section giving suggestions to 4-H Forestry Club Leaders has been included in the back of this bulletin. This section includes suggestions for organization of 4-H Forestry Clubs, programs for different seasons during the year, and similar materials of interest to club leaders.

County Extension Agents and other Extension personnel frequently help club leaders with problems of organizing and conducting club work. The Extension Forester plans each year to have time available to assist 4-H Forestry Clubs with technical matters and to accompany them on plant collection tours and similar club activities.

\*Acting Extension Forester.

## DIVISION I

### Tree Appreciation

**T**REES are familiar to everyone, whether he dwells in the city or open country. People in all walks of life see and enjoy them. Many people who live in forested lands grow so accustomed to the sight of a tree that



4-H foresters watch a fish planting. Many such interesting operations are observed by 4-H foresters while on their field trips into the mountains.

they fail to appreciate its many deep and interesting features. Then there are people living in the prairie regions, where trees are none too plentiful, who feel that the few trees about their farms are their most-prized possessions. In recent years many people, including 4-H Club members, have been taking the time to study trees and really understand the many interesting things about them.

In beginning the study of trees confine yourself to the use of well-established facts. It is necessary to know first of all, the approved common names used in identifying trees. When these are mastered, progress will be faster as one interesting and useful fact after another is learned.

#### Requirements

1. Learn how a tree grows and answer the questions in the Record Book concerning this subject matter.
2. Make a standard size wooden plant press for pressing specimens of leaves, flowers, grasses, and herbs.
3. Learn the approved common names and be able to identify at least 25 trees that you find locally. If 25 different trees are not available, include the more common shrubs.
4. Collect and mount leaves and twigs from 10 of these trees.
5. Complete any three problems that are listed under "Optionals."
6. Exhibit your club work at a club fair or community exhibit and compete in the tree identification contest.
7. Keep your record book complete.

**Requirement No. 1:** Learn how a tree grows and answer the questions in the Record Book concerning this subject matter.

**Instructions:** Study carefully the following drawing and become familiar with the common parts of a tree and the function of each part in the growth processes.

# HOW A TREE GROWS

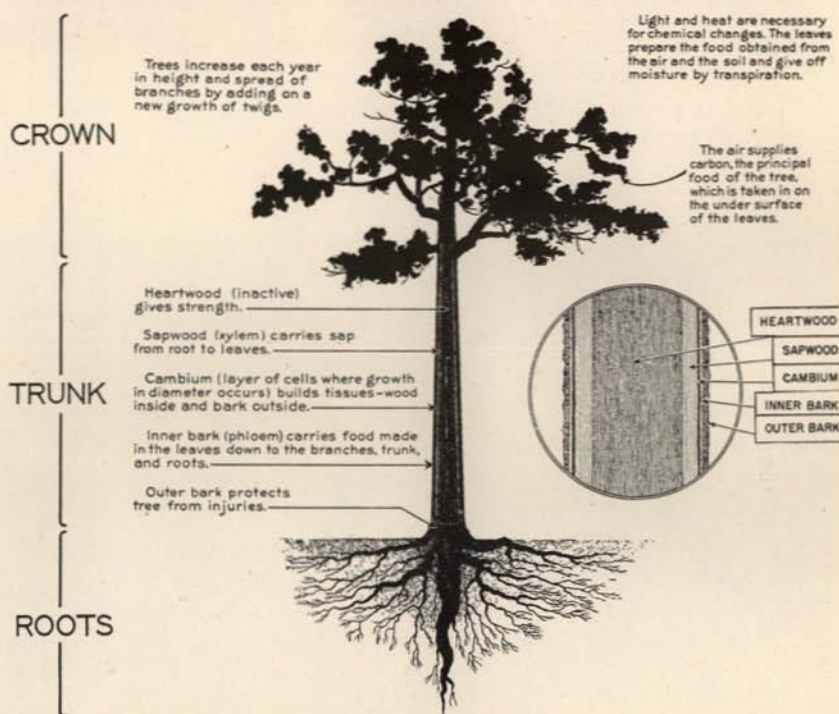


Figure 1. How a tree grows. The buds, root tips, and cambium layer are the growing parts of the tree. Height and spread growth is confined to the buds. Similar growth underground is limited to the root tips. The Cambium provides only for diameter growth of the trunk. There is no height growth on a tree trunk.

Water containing a small quantity of minerals in solution is absorbed by the roots, carried up through the sapwood to the leaves, and there combined with carbon from the air to make food. This food is carried by the inner bark to all growing parts of the trees, even down to the root-tips.

Natural forest soil is loose and mellow. It is permeated by rodent burrows and angleworm and insect passages. These allow air and moisture ready access to the feeding roots. Fire and over grazing destroy this natural healthy growth condition.

**Requirement No. 2:** *Make a standard-size wooden plant press for pressing specimens of leaves, flowers, grasses, and herbs.*

**Instructions:** A substantial wooden plant press of the standard size (12" x 18") may easily be constructed from strips of wood cut out of an apple box or any similar wooden box. The following list of material is necessary:

1. Cut four pieces of wood 18" long, 1½" wide, and about ¾" thick.
2. Cut 16 pieces of wood 12" long, 1" wide, and about ¼" thick.
3. Obtain 32 small nails or small ½" screws.
4. You will also need a hammer, screw driver, and a square for assembling.

Then use one-half of the material for making each of two press frames and assemble so as to appear like the following drawing:

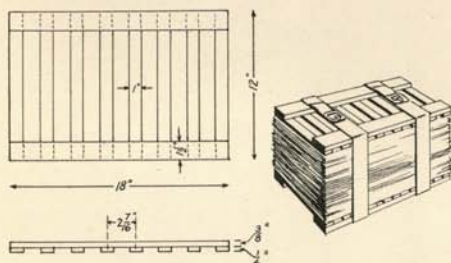


Figure 2. Plant Press.

To complete the press for field use, obtain the following:

1. Two straps or ropes about 4 feet long.
2. About 20 ordinary sheets of newspaper for holding specimens.
3. Two or four pieces of cardboard 12" x 18" in size.



4-H Foresters collecting plant specimens while on a field trip.

**Instruction No. 3:** *Learn the approved common names and be able to identify at least 25 trees that you find locally. If 25 different trees are not available, include the more common shrubs.*

**Instructions:** The key to native trees will give you a means of individually determining the native trees found in your community. Explanatory drawings of some of the technical terms used follow the keys. Many of the trees planted in the State are not native to this region; because of this, a list of the trees commonly planted in Idaho is given (see page 12). Personal assistance from your club leader, County Extension Agent, Forest Ranger, or Extension Forester will be of help to you in learning the names of the trees in your community. As you identify the trees of your area, enter their approved common name in your Record Book. Check your identification with your club leader and have him certify your identification in the space for certification in the Record Book.

### Key to Idaho Trees

Keys are for identifying unknown trees. They give brief descriptions of each species and include outstanding distinguishing characteristics. The alternatives are always presented; either a characteristic is or is not present and these are the only choices possible for the trees included. The alternatives are followed through other characteristics down to the tree sought.

To gain an understanding of what keys are, how they are made, and how they are used, let us take an example. Suppose you wish to describe five of your friends, so that another person meeting any one of the five will know him on sight. Bill has black hair and is tall. Jim also has black hair but is short. Pete resembles Jim in these respects but Pete has blue eyes while Jim's are brown. Two other of your five friends have blond hair; but one, Henry, is fat while the other, Jack, is thin. For simplicity these descriptions can be organized in key form as follows:

#### I. Black Hair

Tall ..... Bill

Short

Brown eyes ..... Jim

Blue eyes ..... Pete

#### II. Blond Hair

Fat ..... Henry

Thin ..... Jack

Tree keys are made up in much the same manner. We see, then, that they are simply a systematic arrangement of distinguishing characteristics.

## Key to Conifers

## I. Leaves needle-like:

## A. Fruit a woody cone

## 1. Leaves in bundles

## a. Leaves, evergreen

- 1) Leaves in bundles of 2 ..... LODGEPOLE PINE (*Pinus contorta*)
- 2) Leaves mostly in bundles of 3.. PONDEROSA PINE (*Pinus ponderosa*)
- 3) Leaves in bundles of 5
  - a) Cones Cylindrical 6-10" long ..... WESTERN WHITE PINE (*Pinus monticola*)
  - b) Cones egg-shaped
    - (1) Cones 1½-3" long, remain compact at maturity  
..... WHITEBARK PINE (*Pinus albicaulis*)
    - (2) Cones 3-6" long, open widely at maturity  
..... LIMBER PINE (*Pinus flexilis*)

## b. Leaves, deciduous

- 1) Twigs densely hairy ..... ALPINE LARCH (*Larix lyalli*)
- 2) Twigs sparsely hairy ..... WESTERN LARCH (*Larix occidentalis*)

## 2. Leaves solitary

## a. Leaves raised on small but prominent cushions which remain on the twigs after removal of leaves

- 1) Leaves stiff, sharp-pointed
  - a) Leaves green or bluish, slightly rigid; cones 2½" long.  
..... ENGELMANN SPRUCE (*Picea engelmanni*)
  - b) Leaves bluish, very rigid; cones 3½" long  
..... BLUE SPRUCE (*Picea pungens*)
- 2) Leaves soft, blunt-tipped
  - a) Cones egg-shaped, ½-1" long ..... WESTERN HEMLOCK (*Tsuga heterophylla*)
  - b) Cones cylindrical, 1-3" long ..... MOUNTAIN HEMLOCK (*Tsuga mertensiana*)

## b. Leaves not raised on cushions

- 1) Cones pointing downward..... DOUGLAS FIR (*Pseudotsuga taxifolia*)
- 2) Cones pointing upward
  - a) Cones green; needles in two rows along stem  
..... GRAND FIR (*Abies grandis*)
  - b) Cones yellow-green, or purple; needles not in rows
    - (1) Cones purple; needles 1" long and tree with sharp spire-like crown  
..... ALPINE FIR (*Abies lasiocarpa*)
    - (2) Cones yellow-green; needles 2-3" long, dull light green; crown not spire like  
..... WHITE FIR (*Abies concolor*)

## B. Fruit berry-like

1. Blue ..... DWARF JUNIPER (*Juniperus communis*)
2. Red ..... PACIFIC YEW (*Taxus brevifolia*)

## II. Leaves scale-like

A. Fruit a woody cone ..... WESTERN RED CEDAR (*Thuja plicata*)

## B. Fruit berry-like

1. Berry one-seeded ..... UTAH JUNIPER (*Juniperus utahensis*)
2. Berry 2-3 seeded
  - a. Berries large, oblong, dark blue..... WESTERN JUNIPER (*Juniperus occidentalis*)
  - b. Berries small, globose, bright blue .... ROCKY MOUNTAIN JUNIPER (*Juniperus scopulorum*)



Examples of Terms in Key to Conifers

PONDEROSA PINE  
(*Pinus ponderosa*)

WESTERN LARCH  
(*Larix occidentalis*)

ENGLEMANN SPRUCE  
(*Picea engelmanni*)

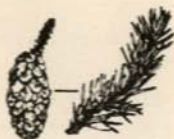
DOUGLAS FIR  
(*Pseudotsuga taxifolia*)



Leaves: Needle-like, in bundles, and evergreen.  
Fruit: A woody cone.



Leaves: Needle-like, in bundles, and deciduous.  
Fruit: A woody cone.



Leaves: Needle-like, solitary, raised on cushions.  
Fruit: A woody cone.



Leaves: Needle-like, solitary, not raised on cushions.  
Fruit: A woody cone, pointing downward.

ALPINE FIR  
(*Abies lasiocarpa*)

PACIFIC YEW  
(*Taxus brevifolia*)

ROCKY MOUNTAIN  
(*Juniperus scopulorum*)



Leaves: Needle-like, solitary, not on cushions.  
Fruit: A woody cone, pointing upward.



Leaves: Needle-like.  
Fruit: Berry-like.



Leaves: Scale-like.  
Fruit: Berry-like.

### Key to Broadleaf Trees

- I. Leaves evergreen,  $\frac{1}{2}$ -1" long, remain on tree two years  
 .....MOUNTAIN MAHOGANY (*Cercocarpus ledifolius*)
- II. Leaves deciduous (drop each year), simple and alternate:
- A. Fruit in catkins or aments, male and female flowers on different trees
1. Winter buds with a single scale; leaves narrow and pointed, with toothed edges and short stems ..... WILLOW (*Salix species*):  
 Numerous species common in Idaho. Do not try to differentiate between them.
  2. Winter buds with several scales; leaves roundish with slender, long, flat-tended stems.
    - a. Bark white and smooth ..... ASPEN (*Populus tremuloides aurea*)
    - b. Bark dark and furrowed on trunks, yellowish-green on young branches  
 ..... COTTONWOOD:  
 NARROW-LEAF COTTONWOOD (*Populus angustifolia*)  
 BALSAM POPLAR (*Populus balsamifera*)  
 FREMONT COTTONWOOD (*Populus fremontii*)  
 NORTHERN BLACK COTTONWOOD (*Populus trichocarpa*)
- B. Fruit in catkins or aments; male and female flowers on same tree. Twigs without terminal buds; leaves thin, saw-toothed; bark dark bronze or papery color, shiny and marked with small, corky growths ..... BIRCH:  
 PAPER BIRCH (*Betula papyrifera*)  
 WATER BIRCH (*Betula fontinalis*)
- C. Fruit a woody cone, about  $\frac{1}{2}$ " long; leaves coarse; bark thin, ashy gray to reddish brown ..... ALDER:  
 WHITE ALDER (*Alnus rhombifolia*)  
 THINLEAF ALDER (*Alnus tenuifolia*)
- D. Fruit a small apple about  $\frac{1}{3}$ " in diameter
1. Branches spiney ..... THORNAPPLE (*Crataegus douglasii*)
  2. Branches not spiny ..... SERVICE BERRY (*Amelanchier alnifolia*)
- E. Fruit berry-like
1. Fruit with two or three stones ..... CASCARA (*Rhamnus purshiana*)
  2. Fruit with a single stone
    - a. Fruit fleshy, borne in long clusters; bark smooth ..... CHERRY  
 WESTERN CHOKECHERRY (*Prunus virginiana demissa*)  
 BITTERCHERRY (*Prunus emarginata*)
    - b. Fruit flesh thin, borne singly in axils of leaves; bark with corky warts or ridges ..... HACKBERRY (*Celtis douglasii*)
- III. Leaves deciduous, simple, opposite:
- A. Leaves three or five lobed. Fruit a samara ..... MAPLE:  
 DWARF MAPLE (*Acer glabrum*)
- B. Leaves not lobed; fruit berry-like ..... DOGWOOD:  
 RED-STEMMED DOGWOOD (*Cornus stolonifera*)  
 PACIFIC DOGWOOD (*Cornus nuttallii*)
- IV. Leaves deciduous, compound, opposite ..... INLAND BOXELDER  
 (*Acer negundo interius*)

Example of Terms Used in Broadleaf Key

**MOUNTAIN MAHOGANY**  
(*Cercocarpus ledifolius*)



Leaves: Evergreen, simple.

**WATER BIRCH**  
(*Betula fontinalis*)



Leaves: Simple, alternate, deciduous (drop each year).  
Fruit: A catkin or ament.

**MOUNTAIN ALDER**  
(*Alnus tenuifolia*)



Leaves: Simple, alternate, deciduous.  
Fruit: A woody cone.

**THORNAPPLE**  
(*Crataegus douglasii*)



Leaves: Simple, alternate, deciduous.  
Fruit: A small apple.

**WESTERN CHOKECHERRY**  
(*Prunus virginiana demissa*)



Leaves: Simple, alternate, deciduous.  
Fruit: Berry-like and in clusters.

**DWARF MAPLE**  
(*Acer glabrum*)



Leaves: Simple, opposite, deciduous.  
Fruit: a samara (a winged nut).

**BLACK LOCUST**  
(*Robinia pseudoacacia*)



Leaves: Compound (several leaflets on one leaf stem), deciduous.  
Fruit: A pod.

## TREES COMMONLY PLANTED IN IDAHO

### Windbreak and Woodlot Plantings

#### Broadleaf Trees

BLACK LOCUST ( <i>Robinia pseudoacacia</i> )	SIBERIAN ELM ( <i>Ulmus pumila</i> )
RUSSIAN OLIVE ( <i>Eleagnus angustifolia</i> )	GREEN ASH ( <i>Fraxinus lanceolata</i> )
RUSSIAN MULBERRY ( <i>Morus tatarica</i> )	HONEYLOCUST—THORNLESS ( <i>Gleditsia triacanthos inermis</i> )
SIBERIAN PEA ( <i>Caragana arborescens</i> )	GOLDEN WILLOW ( <i>Salix alba vitellina</i> )

#### Conifers

AUSTRIAN PINE ( <i>Pinus nigra</i> )	DOUGLAS FIR ( <i>Pseudotsuga taxifolia</i> )
LODGEPOLE PINE ( <i>Pinus contorta</i> )	ROCKY MOUNTAIN JUNIPER ( <i>Juniperus scopulorum</i> )
PONDEROSA PINE ( <i>Pinus ponderosa</i> )	VIRGINIA JUNIPER ( <i>Juniperus virginiana</i> )
BLUE SPRUCE ( <i>Picea pungens</i> )	ORIENTAL ARBORVITAE ( <i>Thuja orientalis</i> )
NORWAY SPRUCE ( <i>Picea excelsa</i> )	WESTERN WHITE PINE ( <i>Pinus monticola</i> )
SCOTCH PINE ( <i>Pinus sylvestris</i> )	

#### Shade Tree Plantings

GREEN ASH ( <i>Fraxinus lanceolata</i> )	NORWAY MAPLE ( <i>Acer platanoides</i> )
BLUE ASH ( <i>Fraxinus quadrangulata</i> )	CUTLEAF WEEPING BIRCH ( <i>Betula pendula</i> )
HONEYLOCUST ( <i>Gleditsia triacanthos</i> )	EUROPEAN MOUNTAIN ASH ( <i>Sorbus aucuparia</i> )
BASSWOOD ( <i>Tilia glabra</i> )	TREE OF HEAVEN ( <i>Ailanthus altissima</i> )
SYCAMORE ( <i>Platanus occidentalis</i> )	

#### Others Sometimes Found

WHITE ASH ( <i>Fraxinus pennsylvanica</i> )	CANADIAN POPLAR ( <i>Populus spp.</i> )
BLACK WALNUT ( <i>Juglans nigra</i> )	SILVER POPLAR ( <i>Populus alba</i> )
KENTUCKY COFFEE TREE ( <i>Gymnocladus dioica</i> )	AMERICAN ELM ( <i>Ulmus americana</i> )
LOMBARDY POPLAR ( <i>Populus spp.</i> )	SILVER MAPLE ( <i>Acer saccharinum</i> )
CAROLINA POPLAR ( <i>Populus spp.</i> )	SYCAMORE MAPLE ( <i>Acer pseudoplatanus</i> )
WHITE FIR ( <i>Abies concolor</i> )	BOX-ELDER MAPLE ( <i>Acer negundo</i> )
ENGELMANN SPRUCE ( <i>Picea engelmanni</i> )	SUGAR MAPLE ( <i>Acer saccharum</i> )
WESTERN RED CEDAR ( <i>Thuja plicata</i> )	BLACK WILLOW ( <i>Salix nigra</i> )
CORK ELM ( <i>Ulmus racemosa</i> )	BOLLEANA POPLAR ( <i>Populus bolleana</i> )

#### Explanation

The trees listed in the shade tree classification and under the heading of "Others Sometimes Found in Idaho Plantings" do not necessarily represent recommended trees for use in all Idaho communities. The windbreak and woodlot trees do in general represent recommended species, but these recommendations would vary from area to area within the State.

Woods, C. N., Regional Forester. NATIVE TREES OF THE INTERMOUNTAIN REGION. How to know the Trees of the Intermountain Region, Forest Service Region Four, U. S. Department of Agriculture, Ogden, Utah.

U. S. D. A. NATIVE TREES OF MONTANA AND NORTHERN IDAHO. Forest Service Region One, Missoula, Montana, May, 1940.

Doll, Gilbert B. WINDBREAKS FOR IDAHO FARMS. Idaho Agr. Ext. Div., Bul. 140, 1942.

**Requirement No. 4:** *Collect and mount leaves and twigs from 10 trees.*

**Instructions:** Collect specimens of leaves and twigs of 10 trees studied in requirement No. 3. After collection, place the specimens in the plant press and leave for about 10 days, or until dry. Then mount on the standard mounting cards which will be provided. Be sure to fill in the correct information on each card. Complete by placing in folder ready to exhibit. Also record these trees by name and tell the uses for the wood of each in your Record Book. Read how to make mounts from the following material.

Be sure to get good average specimens by selecting from the tree parts that appear fully developed and of average form and size. Do not gather specimens from small seedlings or new growth because it is often not of normal condition for the particular tree. Then place the leaves or material between folds of newspaper sheets. Place these in the plant press for about 10 days, or until dry. It is wise to examine the specimens once or twice during the time they are being pressed. If they show any tendency to

mold you should immediately change them to new dry paper. Then when thoroughly pressed, mount specimens on cards furnished by your leader in a manner similar to the following drawing:

Use scotch tape or gummed paper to fasten leaf or twigs on sheet. Cut cones or large fruits, such as fleshy berries, in half and then paste flat side on card. For smaller seeds mount a small quantity in a cellophane envelope and then paste envelope on card. At the time each specimen is collected in the field you should record

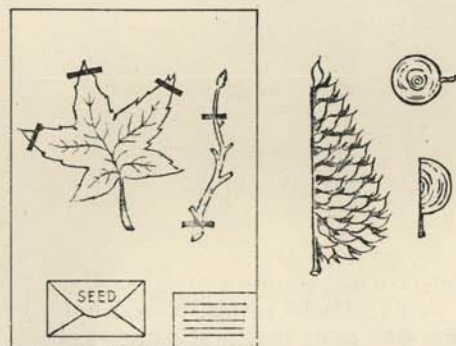


Figure 3. How to mount specimens. Cut cones and pulpy fruits in half to mount.

the name, place and date. After the material has been mounted, fill in this date on the small printed form in the lower right hand corner of each mount card. This should include name, county, local area where collected, commercial uses of the wood and the date of collection. Then place all mounts in a folder with the name, club and year of membership printed on the outside folder.

**Requirement No. 5:** *Complete any three problems that are listed under "optionals."*

**Instructions:** Optionals are listed in the back of this handbook. It is entirely up to the 4-H Forester to select his own optional work and to obtain extra material not given in this handbook for completing that work.

**Requirement No. 6:** *Exhibit your Club work at a Club fair or community exhibit and compete in the tree identification contest.*

### Instructions for Identification Contest:

The following form (with rules) for the tree identification contest will be supplied by the Extension Forestry Department. In this contest credit for knowing the scientific names is purposely minimized. It is felt that for 4-H Foresters an ability to identify trees is more important than the ability to quote scientific names. However, some credit must be given to the forester who can give the scientific name as well as correctly identify any particular tree.

SAMPLE FORM:

### Tree Identification Contest

.....	.....	.....	.....
Contestant's Name	Club	Year in Forestry	
Approved Common Name	Scientific Name	Score	
	Genus	Species	
1.....			
2.....			
(Numbers 3 through 28 omitted for brevity)			
29.....			
30 (Example) Black Locust	Robinia	pseudoacacia	5
			TOTAL SCORE .....

### RULES:

#### First Year Members

1. Common name counts 4; scientific name counts 1.
2. Deduct 1 point if descriptive part ("Black" in locust—example) of common name is missing. Give no credit if actual name (Locust) is not given.
3. Give  $\frac{1}{2}$  credit if only  $\frac{1}{2}$  of scientific name is correctly given.
4. Give sufficient trees including duplicates to fill all 30 spaces.

#### Second Year Members

1. Same as above except common name counts 3 and genus and species name count 1 each.

#### Third and Fourth Year Members

1. Advanced members have their display contest. They should not compete in the Identification Contest, but may participate for fun only if they so desire.

**Instructions for Exhibit:** This exhibit should consist of: 1. Completed Record Book. 2. Leaf and twig mounts. 3. Transportable optional material.

**Requirement No. 7:** *Keep your Record Book complete. Standard record books will be provided.*

## DIVISION II

### Timber Production

OUT of our study and use of forests we have come to know that forests are made up of many items in addition to trees. Small plants, birds, game animals, fish and other forms of life; creeks and rivers, rocks and minerals and other resources are all found in our forests. The many crops from wild-lands are too varied to permit their combined study. For this reason Division II will be limited to the study of timber production. This second year's project is designed to acquaint the 4-H Forester with our various native Idaho trees and the type and amount of timber products that are being, or may be, harvested from them.

The State of Idaho is divided into two quite different regions when considered from a timber production viewpoint. The northern part of the state is abundantly supplied with extensive stands of timber, including the largest stand of white pine in the world. Forests support a major portion of the population of this section. The southern part of the state is quite the opposite; forest growth is found mainly in the higher mountains. The local supply of forest products is limited. Demands of farmers for wood are large.

### Requirements

1. Learn the accepted common names and be able to identify 10 trees that are native to the State of Idaho.
2. Collect and mount leaves and twigs of 10 native trees (should not be duplicates of first year's specimens); also collect and mount wood specimens from 10 native trees.
3. Study the summary of forest resources in the State of Idaho that is given in this handbook. Also read and understand the forestry laws of Idaho. Answer questions in the Record Book.
4. Complete 4 problems listed under "Optionals."
5. Exhibit your work at a Club fair or community exhibit and compete in the Tree Identification contest.
6. Keep your Record Book complete.

**Requirement No. 1:** *Learn the approved common names and be able to identify 10 trees that are native to the state of Idaho.*

**Instructions:** This requirement will consist of work similar to that done in completing work for Requirement No. 3 in the first-year division. The tree keys given in that requirement will also be of assistance in working on this requirement.

**Requirement No. 2:** *Collect and mount leaves and twigs of 10 native trees (should not be duplicates of first year's specimens); also collect and mount wood specimens from ten native trees.*

**Instructions:** Leaves and twigs—see Req. No. 4, page 13. Wood specimens are to be from the more important commercial trees. The blocks of wood should be 2 to 3 inches in diameter and 6 inches long with ends sawed square. Allow the wood to season for several weeks before cutting. Take a block of wood about 6 inches long and about 2½ inches in diameter—saw off one end at an angle of 45°. (See diagram cut A.) Next make a similar cut parallel to the first one, 1¾ inches farther back on the specimen (cut B), but cut only to the heart of the wood. Chip out this section to expose the heart wood and

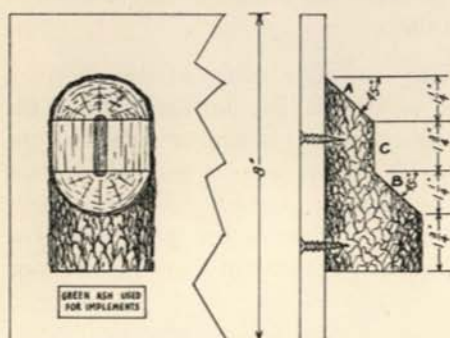


Figure 4. How to cut and mount wood blocks.

the straight grain of the wood (C). All cut surfaces should then be sanded and varnished before mounting. Place all 10 blocks on a board about 7 inches wide and 40 inches long. Specimens can best be fastened with screws from the back side of the board. A label card bearing the name and use of the wood should be placed beneath each specimen. It will assist in displaying the mounts if provision (hook-eyes or holes) is made to hang the mount board from the wall.

**Requirement No. 3:** *Study the following summary of forest resources in the state of Idaho. Also read and understand the forestry laws of Idaho. Answer questions in the Record Book.*

**Instructions:** Information as to Idaho Forestry laws can best be obtained by writing to the Idaho State Forestry Department, Capitol Boulevard, Boise, Idaho. Request from them a copy of their latest publication listing Idaho Forestry laws.

### Extent of Idaho Forests

Forty-one percent of Idaho's total area is forest land—22 million acres. Sixty-two percent of the forests (12½ million acres) are capable of producing major forest products. Thirty-eight percent of the forested land (8½ million acres) does not have such capabilities, yet this land is of immense value for other uses, such as watershed protection, recreation, and a home for wild life. A majority of the farm woodlands of the state—692,000 acres—are capable of producing commercial products.

The commercial timber lands carry a stand of more than 70 billion board feet of saw timber which is 37 percent white and ponderosa pine. The commercial area consists of 6½ million acres of log stands, 5½ million acres immature stands, and 1 million acres non-restocked areas.



### **Drain on Timber Resources**

The commercial timber is rapidly being used up by cutting; and by fire, insects, and disease losses. All forms of timber products use about 700 million board feet of timber annually. Cutting, however, has been very heavy in white and ponderosa pine, the choice species. Other species have not been used to any great extent.

Fire, insects, and diseases take a constant toll. Although fire control is becoming increasingly more effective, the risk persists, and an average annual loss of 175 million feet can be expected from fire. A substantial loss from insects and diseases further reduces mature stands and retards production of the growing stands.

The average annual drain from cutting, fire, insects, and disease is 940 million board feet.

### **Growth of Timber Resources**

On the other page of the timber-production ledger is the item of growth. It is estimated that 444 million cubic feet of wood material is the annual addition to Idaho's timber stock. (For rough conversion, assuming the growth is on trees of a sawlog size, 1 cubic foot of wood growth equals a merchantable volume of about 4 bd. feet) Only a small part of the current growth is of sawlog size, and much of it is in inaccessible locations. Furthermore, this annual addition is of all species of trees; some of which are now merchantable only in part.

### **Balance Between Growth and Drain**

Significant is the balance between the annual growth and the annual drain. A favorable balance is essential for a continued supply of timber.

The figures above seem to indicate that the balance is nearly satisfactory. Actually, the situation is unbalanced because 85 percent of the cut is made up of two species—white pine and ponderosa pine, which represent only 35-40 percent of the present stand and annual increase. For instance the normal cut of white pine has been 365 million board feet and the growth each year 165 million board feet. The cut of ponderosa pine has been 105 million board feet against a growth of 93 million.\*

**Requirement No. 4:** *Complete four problems listed under optionals.*

**Requirement No. 5:** *Exhibit your work at a Club fair or community exhibit and compete in the Tree Identification contest.*

**Instructions:** Exhibit should consist of (1) complete record book, (2) your leaf and wood mounts, (3) transportable items that you have prepared in completing optional requirements.

**Requirement No. 6:** *Keep your Record Book complete.*

\*Reference: University of Idaho Agricultural Experiment Station Circular No. 99 Postwar Program for Idaho, TIMBER PRODUCTION ON THE FOREST LANDS.

### Optional Requirements

4-H Foresters will be expected each year to select and complete a designated number of optional projects from the following list of requirements.

#### Optional Requirement No. 1: *Make and use a hypsometer.*

**Instructions:** Complete a hypsometer as explained in the following instructions. Test the accuracy of your hypsometer on some known height. Then measure the height of 10 trees and record measurements.

#### How to Make and Use a Hypsometer

A hypsometer is an instrument used for measuring the height of trees or other vertical distances. The height measurement of trees are needed in computing their contents in board or cubic feet of lumber and also in studying the growth of trees.

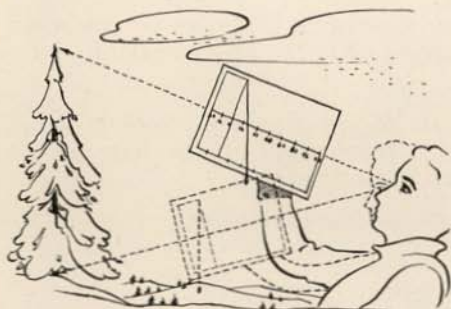
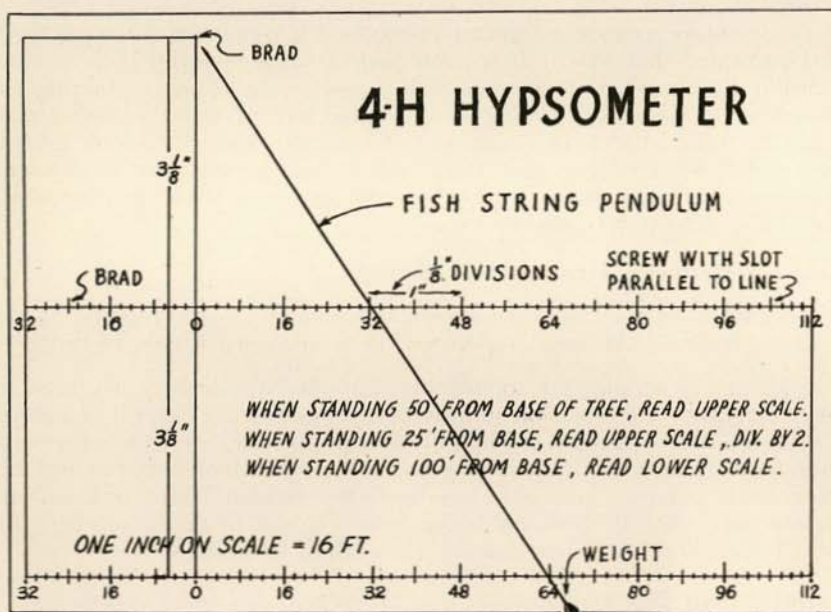


Figure 6. How to make and use a hypsometer.

### Materials Needed for Construction

1. One piece of  $\frac{1}{2}$ " plywood or other satisfactory unwarped board 8" by 10" in size.
2. One  $\frac{3}{4}$ " screw and two  $\frac{3}{4}$ " brads or finishing nails.
3. A 12" length of heavy thread or strong light string.
4. A pencil, hammer, carpenter's square, ruler, screw driver, and shellac or varnish.
5. A lead sinker or similar weight.

### Instructions for Making Hypsometer

The dimensions needed for making the hypsometer are given on the accompanying drawing. Use great care and accuracy in laying off right angles, making scales, and measuring all distances because the accuracy of your instrument depends on this work. Mark the scales with pencil (ink will blur) and varnish or shellac. Attach the string to the upper brad and the lead weight or sinker to the other end of the string.

### How to Use Your Hypsometer

First adjust the brads on the center scale so that they are both centered. Also adjust the string so that it pulls from the center of the brad or nail. These adjustments are necessary for accurate readings.

Now for the actual use of your hypsometer; measure back 25, 50 or 100 feet from the center of any straight tree. Stand directly over this point and sight first at the base of the tree through the groove of the screw at the brad and the base of the tree. Allow the weighted string pendulum to swing free. If your eye line is above the base of the tree the pendulum will swing to the left of the "0" line. In this case add this reading to the height reading of the tree. If your eye line is below the base of the tree, the pendulum will swing to the right of the "0" line. In this case subtract this reading from the height reading of the tree. Then from this same position sight the top of the tree in the same manner and the pendulum will give you the height reading. This height reading plus or minus the base reading is the true height of the tree.

### Optional Requirement No. 2: *Make and post a tree identification sign.*

**Instructions:** This requirement can be most satisfactorily completed if several members make similar signs. Care must be used in painting a neat and legible sign. Post the sign near a tree.

In many communities 4-H Club members can do a great deal of good by making signs with the correct names of trees and posting them in the city park. However, in this plan care should be used to name correctly each tree and to post signs in such a way that they will not injure trees. The accompanying drawing gives desirable dimensions for a sign. Green paint is desirable for the stake and back-

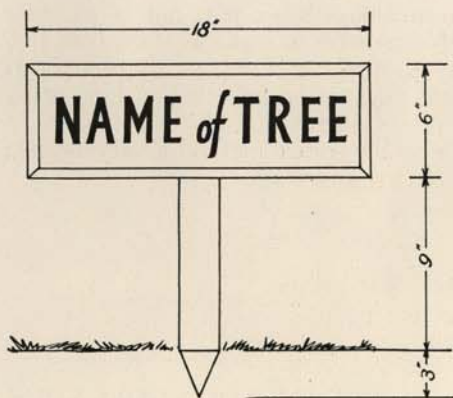


Figure 7. Tree identification sign.

ground color of the sign. The name should be painted in white. These colors will blend nicely with plant surroundings.

**Optional Requirement No. 3:** *Make a 4-H Club sign to promote forest and range fire protection.*

**Instructions:** It is suggested that this requirement be undertaken as a Club problem in which each member assists. A sign built according to instructions and then posted fulfills this requirement.

### **Instructions for Making and Posting Sign**

A 4-H Forestry Club can do its part in helping to prevent forest and range fires by making the public conscious of these hazards. An easy way for a club to accomplish this is to make, post and maintain a fire protection sign. A suggested type of sign that is easily read at a distance of 75 feet is as follows:

Sign Dimensions:

Size —3 feet high and 4 feet wide

Letters —2½ inches wide and 3½ inches high

Wording:—PREVENT FOREST or PREVENT RANGE  
FIRES! FIRES!

Material:

Sign of fiberboard, plywood or other suitable material.

Paint: Colors of black and white, green and white, brown and orange, etc.

Place 4-H insignia or club name on the sign but in smaller letters than the other wording.

**Optional Requirement No. 4:** *Make a fair display of leaf prints.*

**Instructions:** Complete five leaf prints on paper or cloth material for your fair exhibit. Use either the smoke, blueprint, or outline tracing method. Prints may be in black and white or colored if you desire. List your prints in the record book.

### **How to Make Leaf Prints**

In the fall of the year and on stormy days when it is not so pleasant to be outside, many 4-H boys and girls may wish to make leaf prints of tree leaves. This is a very desirable way to make a collection of tree forms that can easily be kept for a long time. Girls often find this an interesting method to use for transferring leaf prints on table cloths, handkerchiefs, etc. When transferring prints to cloth by the smoke method a very limited supply of grease should be used so as to prevent staining.

### **The Smoke Method**

#### **Equipment needed:**

1. Sheets of paper or cloth for final leaf prints.
2. Sufficient quantity of soft "scratch paper."
3. A regular large size wax candle.
4. Small quantity of lard.

HAVE ALL EQUIPMENT HANDY BEFORE YOU START YOUR WORK.

Spread a small quantity of lard about the size of a pea over the surface of a piece of the scratch paper large enough to more than cover the leaf to be used. Then light the candle. Grasp the oiled sheet of paper by two corners with the greased side down and rotate it slowly in a circular motion about an inch above the candle. This partially smothers the candle and causes it to smoke. The heat melts the grease and the soot from the smoke mixes and adheres to this grease. Keep up this process until the greased paper is entirely covered with soot. Be careful that the paper does not catch fire. The surface should then appear black and powdery. Grease should not be evident, because excess grease will cause prints to smudge.

Now place paper, sooty side up, on the table. Take the leaf for printing (leaf surface must be clean and dry) and place face-down on the sooted surface. Place a piece of newspaper over the leaf. Hold the leaf firmly with one hand so that it will not move around, and rub the leaf evenly so as to press the sooty mixture on the leaf surface. After the leaf has been thoroughly and evenly covered with soot, pick it up by the stem and place it on the sheet of paper for the final print. Cover the leaf with a clean sheet of newspaper and hold it firmly so it will not move (a blurred print will result if it moves). Rub in a similar manner to that done previously. By following this method and with a little practice a clean print in gray and white will result. When dry, the print will not rub, blur or smudge. If it blurs try using less grease. If it is pale, use more grease.

After the leaf print is finished it may be left or colored with crayons or water colors. Exhibit these at your club fair.

### Other Methods

Several other methods may be used. One of these is the outline method in which the leaf print is made by tracing the leaf pattern with pencil, crayons, etc. Where equipment is available, blue prints may be made of leaves.

### Optional Requirement No. 5: *Make transplant plantings of native trees and shrubs.*

**Instructions:** Read instructions carefully. Then transplant five native shrubs or trees. This should be done in early spring or late fall, so plan ahead. Keep a record of your work and your success.

There are many uses on the farm for transplanted plants from local areas. These may be for erosion control, wildlife food or shelter, farm protection, beautification, etc. The first consideration is what kind of plants are needed, such as large or small, tall or bushy, fast or slow growing for the particular problem in mind. An idea of the considerations in landscaping can be learned from reading Farmers' Bulletin No. 1037, "Beautifying the Farmstead."

When you have planned the type of plants that you need for your particular job, then it is time to look for plants. There are many things to consider in selecting native plants for transplanting. First, consider the growing conditions (moisture, exposure, soil, frosting, etc.) of the situation where you wish to plant each shrub you are seeking. If it is to be planted in a moist, shaded spot on the northeast side of the building, then

if possible look for a plant growing under similar conditions. If you follow this method you will have better success.

### When to Transplant

**In general, plants should be dormant when transplanted. Early spring planting is best,** but as is the case in many sections of Idaho, plants you desire are located in the high mountains and cannot be reached in the spring. Consequently, some fall planting is necessary. When planting in the fall, observe the following precautions: (1) Wait until the plants are relatively dormant (After fall frosts have started and fall rains have wet down the ground); (2) Always avoid planting in cold or frozen soil; and (3) Take as much of the native soil with the plant as possible.

### Transplanting

One factor that is very important is the root-to-top ratio. When digging up a plant, much of the root is lost because of the awkwardness in moving large masses of soil with a plant. Therefore, the top branches should be pruned off equally as much. In the case of deciduous shrubs or trees it is desirable to prune the top branches to even a greater degree than the roots. This cannot be practiced on coniferous trees without hurting their appearance; therefore, care must be used to take more roots of these trees. It is desirable to protect trees from excessive moisture losses by shading and sheltering them from the sun and wind. Spraying the tops with water or wax will decrease the water loss from the plant.

In the actual moving of plants care must be used not to injure them and to see that the roots do not become dry. The shorter the period the plant is out of the ground between digging and planting, the more likely it is to survive.

The care following planting is very important. (1) All weed competition must be eliminated by constant weeding. (2) The plant must have abundant, but not excessive moisture. (3) Protection from extreme conditions of sun, and wind which tend to dry up tops of trees is desirable.

Tools needed for transplanting are: pruning shears, shovel, axe, sacks or boxes, water and rope.

**Optional Requirement No. 6:** *Make a complete study of one outstanding tree in your locality.*

**Instructions:** Gather all the data necessary about an outstanding tree in your locality and record this in the Record Book. Also take a picture of the tree and paste a copy in your Record Book.

Is there an interesting tree in your locality that is particularly outstanding because of its size, (diameter or height), peculiar growth, history, usefulness, rareness, fruit, seed, or some other character? If you know of such a tree, make a close study of it. In your study you should include its height (estimate), accurate measure of circumference  $4\frac{1}{2}$  feet above ground, its common and scientific names, and its location.

**Optional Requirement No. 7:** *Make a key to distinguish the difference between 10 trees which you have collected; leaf mounts, prints, etc.*

**Instructions:** After you have collected and mounted specimens from 10 trees you are eligible for this requirement. Examine the specimens following your collection and construct a key by which you can distinguish each tree from the others. Read the instructions carefully. Enclose a copy of your tree key in the record book.

The study of trees by 4-H Forestry Club members can often be made more impressive and understandable if the various characteristics used to identify each tree are grouped in what is called a key. This encourages the student to make the comparison of the tree characters. Then after a key system of study is once understood it will be found to be an easy way to learn and remember such material. However, before you can set up a key you must know the identifying characteristics of the trees with which you are to deal.

Some of the most useful parts of a tree used in making a key to trees are: the leaf, stem, bud, flower, wood, fruit, and growth characteristics.

Most good keys are so arranged that characteristics are compared two at a time. Major differences are used as much as possible.

Refer to the keys on pages 7, 8 and 10 of this handbook for an illustration of the type of key required.

**Optional Requirement No. 8:** *Learn, collect, press and mount specimens from 10 additional trees.*

**Instructions:** Complete specimen mounts, correctly labeled, in your mount book of 10 different trees. Complete this work as explained in the first-year instructions.

**Optional Requirement No. 9:** *Visit and report on the operation of a fire lookout station.*

**Instructions:** Visit a fire lookout station. Talk to the lookout and find out all information necessary to write a short essay relative to fire detection and the part the lookout plays in this work.

**Optional Requirement No. 10:** *Demonstrate the correct methods of building and extinguishing a campfire.*

**Instructions:** Practice the two ways you are instructed to build a campfire. Be sure to answer questions on each step you perform. On your club field trip you should be prepared to demonstrate these methods.

Every boy or girl who goes into the woods should learn how to build and extinguish a campfire so there will be least danger of the fire escaping. During the critical season, get a campfire permit from your nearest fire warden or forest ranger before starting the fire.

The first precaution for all campers is to have a hand axe, shovel and bucket on all camping trips. With these tools a safe fire can always be built, and, if the fire should accidentally escape you have good tools with which to fight it. A level place near your camp site that is protected from the wind is the place to build the fire. With the shovel clean all leaf and wood material (litter) within a 5-foot circle down to mineral soil. Your fire should be "laid" in the center of this cleared circle. Another small

pile of mineral soil (damp, if possible) should be kept for putting the fire out. A good supply of convenient-sized wood should now be cut and piled close to the cleared circle. Everything is now ready for laying the fire.

There are two common types of fires which are easy to build and which make A-1 camp fires. The most common is the tepee type, in which the shavings or ignition fuel is arranged in a small pile, then kindling-sized fuel is laid over this in tepee style. Increase the size of the wood sticks as you build.

The log cabin style of fire is not so commonly used, but is often preferred by woodsmen, especially where damp or wet wood is to be used. Again shavings or other suitable ignition fuel is prepared in a pile. Around this four large sticks are laid in a square. Additional layers of smaller-sized wood are then added. About every 3 or 4 layers, cross strips of kindling are laid to provide more ignition fuel. Some users of this type of fire prefer to slope the four outside layers of kindling toward the center. This causes the fuel to burn quickly and form ashes for dutch-oven cooking.

In each type of fire the match should touch off the fire at the lowest point so that a good updraft of air is started.

Where kettles and various cooking utensils having loop handles are to be used, a crotch-sling should be made for hanging support. Where rocks are available they may also be used, but they often limit the fire to a small fuel capacity.

After the fire has served its purpose and whenever your camp is left unattended, be sure that your fire is completely out. Where water is available it is the best extinguishing agent, otherwise mineral earth should be used. In the use of earth or water you should thoroughly mix the earth or moist ashes until all signs of fire are out. Be sure no sparks are left.

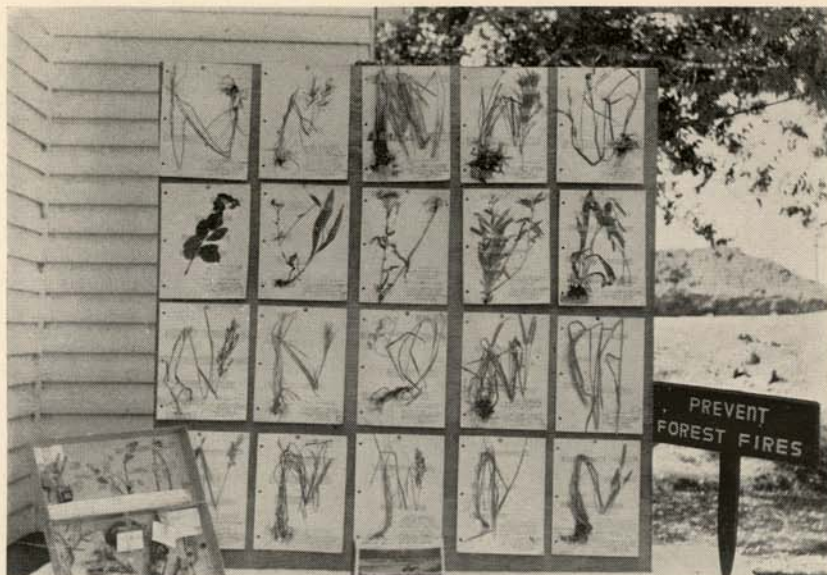
**Optional Requirement No. 11:** *Write a short essay on fire fighting.*

**Instructions:** Write an essay of 300 to 500 words on any of the suggested topics. If possible obtain your information from a talk with a forest ranger or fire warden.

Explain to the ranger or warden that you are a 4-H Club member. You will find these men most helpful in explaining fire fighting information. Check with them on the following items:

1. How fires are located.
  - Lookouts
  - Fire wardens
  - Smoke chasers
  - Cooperating farmers
2. Tools for fighting fires.
  - Pulaski    Saw
  - Shovel    Others
  - Axe
3. Food for fire fighters.
  - K rations
  - 10, 20, and 50 man ration outfits
  - Airplane supplies
4. Fighting a fire.
  - Initial attack
  - Small fires (duff and ground fires)
  - Large fires and crown fires
  - Suppression and "mop up"
5. Important Idaho fires
  - How were they caused?
  - What damage did they do?





Optionals on range plants, fire prevention sign, and tree diseases completed by Roger Humberger of Idaho Falls.

**Optional Requirement No. 12:** *Make a fire protection sign.*

**Instructions:** Refer to Optional Requirements Nos. 2 and 3.

**Optional Requirement No. 13:** *Learn, collect, press and mount five poisonous range plants.*

**Instructions:** Collect and mount specimens of five poisonous plants found in your locality. On the mounting card give the names and poisonous conditions of the plant. Include the class of livestock poisoned, the season of the year the plant is most poisonous.

In range work it is always desirable to know of the most important poisonous range plants. In this requirement the collection, pressing and mounting of plants should be practiced in the same way specimens were handled in other tree and plant collecting work. Also, an effort should be made to collect the parts of each plant that are most poisonous as well as the identifying parts of the plant. The Range Plants Handbook (your County Extension Agent should have a copy) will assist you with this work.

**Optional Requirement No. 14:** *Learn, collect, press and mount ten range plants.*

**Instructions:** Collect, press and mount ten range plants. Complete this collection according to the standards given in the first division for preparing tree mounts. The third and fourth year 4-H Forestry Handbook will contain range plant identification material.

**Optional Requirement No. 15:** *Build and mount a bird house. Keep notes of the success of your work in your record book. Make particular note as to the type of bird house built, the manner and site in which it is mounted, and the use that birds make of it.*

**Instructions:** The table given below lists dimensions most practical for use by birds in your area. The table also gives mounting specifications. Do not exhibit your bird house at the County Fair or 4-H Club display. Instead, put it to use and keep notes in your Record Book as to the success of your bird house project.

**Table 1.—Nesting box dimensions for various birds**

Bird	Floor of cavity	Depth of cavity	Entrance above floor	Diameter of entrance	Height above ground	Placement of box
(All figures given in inches except height above ground which is given in ft.)						
Barn Owl	10x18	18	4	6	12-18	
Barn Swallow	6x6	6	1 or more sides open		8-12	
Blue Bird	5x5	8	6	1½	5-10	Open wood
Chickadee	4x4	10	8	1¾	6-15	
Dipper	6x6	6	1	3	1-3	
Downy Woodpecker	4x4	10	8	1¾	6-20	Woods
Flicker	7x7	18	16	2½	6-20	
Hairy Woodpecker	6x6	12-15	12	1½	12-20	Woods
House Finch	6x6	6	4	2	8-12	
Nuthatches	4x4	10	8	1¾	12-20	
Robin	6x8	8	1 or more sides open		6-15	Orchard
Screech Owl	8x8	12-15	12	3	10-30	
Song Sparrow	6x8	—	All sides open		10-30	
Sparrow Hawk	8x8	15	12	3	10-30	
Titmice	4x4	8	8	1¾	6-15	
Tree Swallow	5x5	6	3	1½	10-15	
Violet-green Swallow	6x6	6	3	1½	10-15	
Wrens	4x4	8	4	*1	6-10	

\*Rectangular slot for opening instead of round hole.

### Bird House and Feeding Station

4-H Club members will find in bird study an interesting and useful hobby. Birds are important in reducing the numbers of injurious insects; they also feed on weed seeds. Because of this birds are welcomed tenants in any forested or farm area. Some study should be made, however, to be sure that the birds you attract are useful. Sparrows, magpies, and certain other birds are pests.

It is definitely known that the best way to attract birds vary with the species of bird and with the surroundings. Trees themselves are a means of attracting birds. By merely increasing the number and kinds of trees about your farm the number of birds will also increase. Although many birds like trees for resting and feeding, they often prefer other places safer from predators for building their nests. Probably the most desired place is a bird house mounted on a straight pole. This pole should be placed where it is shaded by trees. A tin strip should be placed around the pole so cats cannot climb it.

The actual needs of hole-nesting birds are few and can be met with a small amount of time and work. However, to make the nest-facilities safer, certain principles of construction should be observed. A well-built bird house should be durable, rainproof, cool and readily accessible for cleaning. A neat bird house will add to the attractiveness of the yard.

Wood is the best building material. Paint is not objectionable where a rustic or natural finish is not desired. Roofs should be made with a pitch so as to shed water and with eaves to protect the entrance hole from rain. The opening hole may be bored at an upward slant to aid in keeping water out. Some water may get inside the house. To protect against this, bore a few small holes in the bottom. Holes near the top will increase air circulation. Entrance holes for bird houses in most cases are placed near the top of the box.

In mounting the bird house it should be kept in mind that they should be placed fairly low, should not be put in dense woods and are more acceptable on poles than in trees. If possible, the opening should be placed away from prevailing winds. Do not place too many houses in a limited area, especially those to attract the same species. Most birds insist on territorial rights. Tree swallows and purple martins, however, band together and will live in groups.

**Optional Requirement No. 16:** *Learn the names, habits and calls of five birds.*

**Instructions:** This requirement calls for a field study of five birds in your locality to learn their habits and calls.

**Optional Requirement No. 17:** *Forest products study of the United States.*

**Instructions:** On a map of the United States print the names of the most important forest products produced by the Northeast, Southeast, Northwest, Rocky Mountain and Pacific Coast regions. Refer to any geography or general forestry book in your town or school library.

**Optional Requirement No. 18:** *Forest industry study.*

**Instructions:** Study about any forest industry that interests you. Refer to your local library for books, magazines or bulletins. Prepare a report concerning the industry which you choose and include it in your record book.

**Optional Requirement No. 19:** *Learn names and characteristics of Idaho's tree, flower and bird.*

**Instructions:** If possible collect a specimen of the state tree and flower and a picture of the state bird.

### State Tree

WESTERN WHITE PINE (*Pinus monticola*) has been suitably chosen as the state tree of Idaho. It grows in forested sections north of the Salmon River. It is so important to the northern section of the state that millions of dollars have been spent to protect it from fire, insects and white pine blister rust disease. Refer to the coniferous key for its characteristics.

### State Flower

SYRINGA (*Philadelphus lewisii*) is a large and beautiful white-flowered shrub which grows throughout the state. Some call it Mock Orange but Syringa is the approved common name. It is one of the most beautiful of our native plants and is frequently used as a landscape plant about homes and gardens. It can readily be distinguished by its opposite leaves and its large, showy four- to five-petaled flowers. During the late fall and winter dry brownish seed pods hang on and serve as an excellent identifying characteristic.

### State Bird

ROCKY MOUNTAIN BLUEBIRD (*Sialia currucoides*) is seen throughout the state in early spring. The beautiful light blue males are much more colorful and pretty than the dull blue females which also have a touch of rust color on their breasts. In the summer the bluebirds are usually found in the higher mountain areas.

### Leader Assistance Material

#### Organization of 4-H Forestry Club

A 4-H Forestry Club can be organized at any time of the year, but preferably in the winter or early spring. This then allows members to complete the preparation of collecting equipment as well as some study of the project before the summer field season. Enrollment blanks and instructions for organizing a club may be obtained from the County or District Extension Agent. After the club is organized, the leader, upon request, will be supplied with material for carrying on the club work. This material should include (1) this handbook, (2) Record Books, and (3), mounting cards for each member; also, miscellaneous publications for leader's use such as Paul Bunyan readers, National 4-H Forestry bulletins, and the third and fourth year forestry handbook.

The club leader can be any local individual, either man or woman, with an interest in forestry and boys and girls. He is especially important in guiding the club members and assisting them in their club project work.

Forestry is a science which is inherently very broad. Most students in the field devote their time and study to specific problems within the broad field of forestry. It is not expected that any leader should have a guiding knowledge in all the branches of forestry.

The leader should keep in close contact with the County or District Extension Agent during the program year as well as attend all meetings of the club and assist members during the instruction period. Whenever assistance is needed on any of the many requirements, the leader should feel free to request aid from the County or District Extension Agent, Extension Forester or from Forest Service personnel. The following reference list will assist the club leader:

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**4-H Forestry**

Mattoon and Shinn.

1941. FORESTRY FOR 4-H CLUBS. U. S. Dept. of Agr. Misc. Pub. 395.

Warren, Gertrude L.

1938. ORGANIZATION OF 4-H CLUB WORK, A GUIDE FOR LOCAL LEADERS. U. S. Dept. of Agr. Misc. Pub. 320.

**Idaho 4-H Forestry Publications**

Ravencroft, Vernon F.

1945. HANDBOOK FOR DIVISIONS I AND II. U. of I. Ex. Ser., Moscow, Ida.

Burlison, Vernon H.

1946. HANDBOOK FOR DIVISIONS III AND IV. U. of I. Ex. Ser., Moscow, Ida.

Extension Service.

1946. FORESTRY RECORD BOOK FOR DIVISIONS I, II, III, AND IV. U. of I. Ex. Ser., Moscow, Ida.

Extension Service.

PAUL BUNYAN AND HIS BIG BLUE OX, Supplement to Idaho 4-H Forestry Projects. U. of I. Ex. Ser., Moscow, Ida. From Red River Lumber Co. Booklet. (Good for some fun at forestry meetings.)

## The Following Manuals Have Been Prepared to Assist With Optional Work

- Extension Service.  
1930. FARM FOREST PLANTING. Supplement to U. of I. Extension Bul. 161, Moscow, Ida.
- Extension Service.  
1930. WOODLOT IMPROVEMENT PROJECT. Supplement to U. of I. Extension Bul. 161, Moscow, Ida.
- Extension Service.  
TREE APPRECIATION. U. of I. Ex. Ser., Moscow, Ida.
- Pierson, R. K., and Howard, C. G.  
DEVELOPING A FARM WOODLOT. U. of I. Ex. Ser., Moscow, Ida.
- Extension Service.  
TREE NURSERY PRACTICE. U. of I. Ex. Ser., Moscow, Ida.
- Pierson, R. K.  
1938. 4-H WILDLIFE CONSERVATION ACTIVITY. U. of I. Extension Circ. 63, Moscow, Ida.
- Handbooks and Record Books are available through County or District Extension Agent Offices. Unless otherwise indicated, all other bulletins are available through the Extension Forestry office, Moscow.

### Program Suggestions

The following suggestions are given only as a guide to the program development of 4-H Forestry clubs. They should be freely changed to meet the conditions and interests of clubs in each locality of Idaho.

ORGANIZATION MEETING: The club leader or Extension Agent should plan to discuss the following subjects with the interested people to inform them of the purpose, program and other facts about the forestry club so that they will understand fully what they are expected to do in this project.

- I. 4-H Forestry and what it deals with:
  1. Tree Appreciation
  2. Timber Production
  3. Range Appreciation
  4. Farm Forestry
- II. 4-H Club work—its purpose and benefits:
  1. Requirements for a standard club.
  2. Duties of club members and officers.
  3. Awards that are possible to outstanding members.
- III. Club Organization:
 

Club leader or Extension Agent should preside for the entire first meeting.

  1. Elect club officers from among club members.  
Either of these two sets of names for officers may be used:
 

President	Forester
Vice-President	Associate-Forester
Secretary	Ranger
Song or Yell Leader	Smoke Chaser
Reporter	Lookout
  2. Select a club name.
  3. Adopt a constitution.
  4. Decide on the time, date, and place for meetings.
  5. Appoint committees, such as social committee, etc.
  6. Arrange for next meeting.

Matters of club organization are standard for all 4-H clubs (Beef, Sewing, Forestry, etc.). This information is given in the Idaho 4-H club Leader's manual. County or District Agents should be consulted relative to organization procedure.

**SUGGESTED PROCEDURE FOR REGULAR MEETINGS.** It is suggested that each regular club meeting be well planned in advance so that the greatest accomplishments may be made by the club and its members. The following outline will give some ideas on planning forestry club meetings:

- I. Business
  - A. Club president in charge
    1. Club business such as roll call, dues, committee reports, committee appointments, special arrangements or other new or old business matters. This part of the meeting should be carried on in a formal fashion. Instructions may be found in the Idaho 4-H Club-leaders manual.
- II. Instruction
  - A. Club leader in charge
    1. Instruction by club leader on specific requirements. This part of the meeting should be well planned by the club leader and the members in advance.
      - a. In the first meeting of division I members, instruction as to how a tree grows (Requirement No. 1) should be given. Then in the following meeting similar instruction should be given to the club members on the various requirements and "optional requirements." During good weather many meetings may be held on field trips for collection purposes. Plant presses should be completed during the second or third meetings so as to facilitate these collection trips.
    2. It may often be desirable for the club leader to invite a forest ranger or some other person to give educational information to the club. Motion pictures dealing with forestry may also be used.
- III. Recreation
  - A. Social Committee in charge
    1. Refreshments or a picnic, games or any other program arranged by the social committee.

#### **State Awards Available for Forestry Club and Club Members**

Civic groups and commercial concerns interested in forestry conservation have contributed scholarships and prizes for the recognition of outstanding 4-H forestry work. State awards usually include a plaque for the best forestry club in the state, medals for the outstanding boy and the outstanding girl, and both college and 4-H Short Course scholarships. These awards are set up on a continuing basis. However, changes and additions may occasionally be made, so forestry leaders should check with their County Agent, or refer to the Idaho 4-H Club Leaders' Manual, for specific information concerning these awards.

All State awards are based upon the evaluation by qualified judges of the contestants' 4-H Club work (completeness, accuracy, neatness, and originality), their record in school, and their interest in forestry conservation.



Mature Stand of Western White Pine  
"Idaho State Tree"