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## Nebraska 4-H Farm Forestry First Year : Extension Circular 17-01-2

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EXTENSION  
CIRCULAR  
17-01-2



*Nebraska*  
**4H FARM FORESTRY**  
FIRST YEAR

THE UNIVERSITY OF  
NEBRASKA AGRICULTURAL  
COLLEGE EXTENSION SERVICE  
LINCOLN, NEBRASKA



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EXTENSION CIRCULAR 17-01-2

FEBRUARY, 1941

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*The 4-H Forestry project offers boys and girls an opportunity to learn the names of trees, shrubs, and other plants, and something of their uses. The members learn to plant and care for trees and shrubs. Through this project boys and girls may take a very definite part in Nebraska's reforestation and conservation program.*

Extension Service of the University of Nebraska College of Agriculture  
 United States Department of Agriculture Cooperating  
 W. H. Brokaw, Director, Agricultural Extension Service  
 Lincoln, Nebraska

# Nebraska

## 4-H Farm Forestry

EARL G. MAXWELL <sup>1</sup>

**F**ARM FORESTRY is an important part of the study of the general subject of forestry. It has to do with the growing of trees, establishing woodlots and other types of farm tree plantings, their care and utilization.

The 4-H Forestry Club project affords boys and girls an opportunity to study and learn to know many trees and shrubs and something of their uses. Members will plant and care for trees and shrubs for windbreaks, woodlots, erosion control, and to improve the habitat for wildlife. The project affords a fine activity for boys and girls who are interested in the wildlife conservation and restoration program.

There will be three years of club work devoted to the Farm Forestry project. During the first year, club members will plant and care for trees and shrubs and study five problems.

### FIRST-YEAR PROBLEMS

- I. Planting Trees and Shrubs.
- II. Broadleaf Trees for Nebraska.
- III. Evergreen Trees for Nebraska.
- IV. Shrubs for Nebraska.
- V. Observation Tours.

### SECOND-YEAR PROBLEMS

- VI. Propagation of Trees and Shrubs.
- VII. Farm Windbreaks.
- VIII. Trees and Shrubs for Erosion Control.
- IX. Trees and Shrubs for Wildlife.
- X. Fence Posts for the Farm.

### THIRD-YEAR PROBLEMS

- XI. Wild Flowers of the Woods.
- XII. Wild Flowers of the Prairie.
- XIII. Insects and Diseases of Trees and Shrubs.
- XIV. Protection and Care of Trees.
- XV. Products of the Forest.

### First-Year Requirements

Each member will:

1. Learn to identify trees and shrubs of the locality.
2. Choose one of following three—*a*, *b*, or *c*.

<sup>1</sup> The author expresses thanks to E. H. Hoppert, Extension Horticulturist of the University of Nebraska, for reading the manuscript and offering valuable counsel and suggestions in the preparation of this circular. Use has been made of publications written by members of the University of Nebraska staff and also "The Book of Trees" and "The Book of Shrubs" by Alfred C. Hottes, "Hill's Book of Evergreens" by L. L. Kumlien (D. Hill Nursery Co., Dundee, Ill.), "Manual of Cultivated Trees and Shrubs," by Alfred Rehder, "Flora of the Prairies and Plains of Central North America" by Per Axel Rydberg.

- a. Plant and care for at least 25 broadleaf seedlings or evergreen transplants for windbreak, woodlot, erosion control, or improving the habitat for wildlife.
  - b. Assist parents or others with planting and caring for 100 broadleaf seedlings or evergreen transplants.
  - c. Fallow or otherwise prepare ground on which to plant the trees the following spring.
3. Collect and mount in scrap book or on cards the winter twigs, leaves, and seeds from at least ten trees or shrubs.

The collecting, handling, and mounting of twigs, leaves, and seeds of trees and shrubs will help club members become familiar with their distinguishing characteristics. Collection of various specimens will have to be made at different seasons, and will afford an opportunity to study the plants in different stages of development.

Twigs should be secured during winter or early spring and before the buds open. Choose a twig four or five inches long on the end of a branch that is average of those on the entire tree. Use a sharp knife and cut slanting across the twig to clearly show the pith. Label each twig and place in a cool dry place until ready for mounting.

Choose leaves after they are fully grown and before they have been damaged by insects. Secure several leaves which are representative and press them carefully between blotters or several thicknesses of newspaper, being careful to have them free from folds or wrinkles. Some pressure should be applied while the leaves are being pressed to insure best results.

Gather seeds when they are mature; then clean and dry them. Seed from the Silver Maple, Cottonwood, and American and Chinese Elm mature in the spring; many others mature their seed in the fall. Some seeds that ripen in the fall persist on the trees and may be gathered any time during the winter.

Mount the material from each tree or shrub on a separate sheet or card. Each mount should contain a winter twig, two leaves (one showing the upper surface and one the lower surface), and a few seeds. Seed may be mounted in a transparent bag. Label each mount with the common name, and if possible the scientific name. Print your name and address on the back of each mount.

### Exhibits

While exhibits are not required in this project, they are recognized as being effective in creating interest in club work and furthering the interest in farm forestry by calling attention to its importance and possible results. These suggestions are given for preparing exhibits at achievement days, fairs, and other places.

Each exhibit should be planned with the idea of teaching a specific lesson, and only the things necessary to develop that one idea should be included in the exhibit. Adopt a short and catchy title and develop one idea.

Some of the ideas which may be developed in exhibits are: farmstead

windbreaks; windbreaks for protecting feedlots; garden windbreaks; rural school windbreaks; hedges for protecting the lawn area; trees and shrubs for erosion control; trees and shrubs for benefit of wildlife; how to succeed with evergreens; and "Nebraska, the Tree Planters' State," honoring J. Sterling Morton as originator of Arbor Day.

Awards are offered for forestry club exhibits at many county fairs and for county exhibits at the State Fair. Your county agricultural agent can give you information about these exhibits and will be glad to offer suggestions.

### Judging

Tree planting and tree study are the main considerations in forestry club work. Some judging, however, is required of all 4-H clubs in order to meet all six goals of a standard club. Forestry club members are eligible for crops judging.

There are several things which can be judged by forestry clubs, such as small trees, according to their quality, condition, and suitability for a certain type of planting; the preparation and mounting of material (twigs, leaves, and seeds); ground preparation; and planting and the care and condition of tree plantings or of naturally timbered areas. Judging of tree plantings according to the score card below is suggested.

Score Card for Tree Plantings

	Credits	Planting No. 1	Planting No. 2	Planting No. 3	Planting No. 4
CHOICE OF SITE, GROUND PREPARATION AND SPACING	30				
PLANTING AND PROTECTION	20				
CULTURAL PRACTICES	50				
TOTAL	100				

Club Member's Name..... Date.....

### Problem I—Planting Trees and Shrubs

THE ULTIMATE SUCCESS with tree planting in Nebraska is dependent primarily upon the preparation of the ground and upon the manner in which the trees are handled and planted and their care for some years after planting.

Ground where trees are to be planted should be in a good state of cultivation. Fall plowing or listing leaves the ground receptive to winter and early spring moisture. On rolling land the plowing or listing should

be on the contour rather than up and down slopes in order to decrease runoff and save as much moisture as possible. In the drier sections one year of summer fallow prior to planting is recommended.

On sandy land, spring-plow or list two or three furrows for each tree row and then keep this strip in clean cultivation. Single- or double-row field belts are being successfully established on sandy land by leaving three listed rows blank for each row of trees.

In preparing to replant an old grove or start trees where alfalfa has been growing, some methods of rebuilding soil moisture must be employed. At least one year of clean fallow is recommended and if possible the diversion of runoff water to the tree area.

Early spring is considered the best time for planting trees in Nebraska. The ground should be put in condition as soon as weather will permit.

When the seedling trees arrive from the nursery, open the bundle and place the roots in a bucket of water or thin mud, and allow them to stand a few hours or overnight. Carry the bucket of trees to the place where they are to be planted and take one tree out at a time and plant it.

If it is necessary to hold the trees for more than a day, they should be heeled in until ready to plant. A trench or heel-in bed is dug in a location protected from drying winds. The south bank (if the trench runs east and west) or the west bank (if the trench runs north and south) is cut off at an angle of 45 degrees. Then the trees are spread out along the trench with roots in the bottom and the tops against the sloping bank. Then the roots and most of the tops are covered with moist soil. The wrapping paper may be thrown over the exposed tops to keep them from drying out.

The uses of trees and shrubs on the farm, including kinds of trees and spacing for different types of plantings, are discussed more fully in the problems for second-year forestry work. Inasmuch as some tree planting will be done the first year, the discussion on locating a tree windbreak, and the arrangement and spacing of trees is included here.

### Locating the Windbreak

A windbreak of from three to five rows of the proper types of trees, at least 100 feet from the buildings on the north and west, is probably the most valuable farm planting. Protection against the damaging effect of hot south winds is next in importance. A single or double row of trees or a dense hedge on the south side of the entire yard will pay for its space and care during the spring and summer months. One day of severe hot wind may seriously damage garden crops, small fruits, and flowers.

If the ground around the buildings has more than three per cent slope, plantings should be made on the contour or the planted area terraced.

### Arrangement and Spacing

The number of rows of trees used in the farmstead windbreak and also the kind of trees will vary with different situations. A low-growing tree or shrub which forms a dense growth near the ground to check surface

winds and holds leaves and litter for ground cover, is recommended for an outside row. Caragana, Russian Olive, Russian Mulberry, Lilac, Chokecherry, Tamarix, and Wild Plum are suitable for planting this outside row. Taller-growing trees such as Chinese Elm, Cottonwood, Boxelder, Hackberry, and Honey Locust, should be planted in the center with one or more rows of evergreens such as Austrian Pine, Ponderosa (Yellow) Pine, or Red Cedar planted on the inside of the windbreak. (Red Cedar should not be planted where apple growing is important.)

Loss of trees during dry years indicates that trees should not be too closely planted. During dry years, trees draw heavily upon the subsoil for their supply of moisture. The greater the number of trees on a given area, the sooner the available moisture will be used. A wider spacing for trees than that commonly used seems highly desirable in view of heavy losses in comparatively new windbreaks when close planting has been followed.

Tree rows should be far enough apart to permit permanent cultivation, in central and western Nebraska, and for at least three or four years in the extreme eastern part of the state, with commonly used farm equipment. Spacing in the row should be wide enough to eliminate the danger of early root competition. Spacing must be governed by the amount of available moisture that can reasonably be expected.

Following are spacings recommended for farm windbreaks in Nebraska: rows 16 to 24 feet apart with spacing in the row 6 to 8 feet for an outside hedge row, 12 to 16 feet for interior broadleaf trees, and 12 to 24 feet for evergreens. Variation within these spacings will be governed by the individual site and its soil moisture possibilities. The above applies to a windbreak of three or more rows. For a single- or double-row windbreak, the spacing within the row may be reduced somewhat.

In no case should the row of evergreens be planted closer than 20 feet to the taller-growing broadleaf trees. If the windbreak is to be near older broadleaf trees, the newly planted trees should have a clearance of at least 30 feet.

### Planting the Trees

When ready to plant, carry the trees to the field wrapped in wet burlap or with the roots immersed in a bucket of water or thin mud.

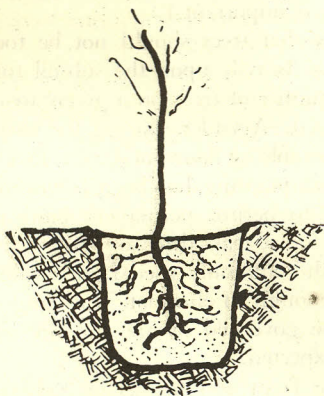
Plant the trees about the same depth or a little deeper than they stood in the nursery. In planting, spread the roots out in a natural position in the hole. The dirt should be worked in around the roots and packed solidly with the fist or heel as the hole is being filled. Sod and trash should not be placed in contact with the roots. Before putting in the last shovel of dirt, water the tree well. When the water has completely settled away, add some loose dirt and leave the surface loose and slightly cupped to catch rainfall. Planting small trees, particularly once-transplanted evergreens, in deep depressions, especially on hard land, is inadvisable because they may be buried by soil during heavy rains.

### Cultivation

There seems to be no substitute for clean cultivation of trees. The purpose is to keep weeds and grass from taking soil moisture, to keep the surface of the ground loose, and to prevent its cracking. Cultivation often enough to keep the ground clean is recommended. Even on light sandy soil, a strip six feet wide containing the trees should be kept free from weeds and grass.

### Watering

Small trees do not require a great amount of moisture. They can be grown successfully without artificial watering provided there is a good supply of soil moisture at planting time. Artificial watering is usually unnecessary for field plantings of trees where good soil preparation and regular cultivation methods are employed. If watering is done, it should be applied at regular intervals and a sufficient quantity used to soak the soil down around the roots. If the soil is dry in the fall, a good soaking of the ground is advisable. This should be done late, preferably just before the ground freezes after frost has killed the leaves.



*Tree properly planted—roots spread in a natural position. Dirt well packed and cupped to catch rainfall.*

### Transplanting Evergreens

Once-transplanted evergreens such as those distributed by the Agricultural Extension Service through provision of the Clarke-McNary Act, if planted in nursery rows, should in most cases be transplanted to their permanent location after two years. The trees that make little growth during this time may be allowed to grow another year before being moved. To allow them to grow longer than this may result in a greater loss in transplanting.

In transplanting evergreens it is necessary to prevent the roots from drying out, so it is important that they be dug and moved with a ball of earth. Balling them the usual way is often quite difficult. Some use the following method, however, with a large degree of success. For moving small evergreens, cut out the bottom of a five-gallon paint bucket, place the bucket over the tree to be transplanted, and push it down as far as it will go. Dig the dirt around the bucket and gradually work it down to about its own depth. Dig underneath, tip the bucket, and cut off roots that may be below with the shovel or spade. The tree can then be lifted out in the bucket and moved to its new location. The holes should be dug for the trees before they are taken up so that the trees will not be out of the ground any longer than necessary. Set the bucket with

the tree in the hole and fill in some loose dirt, and pour enough water into the bucket to moisten the dirt around the sides so that the bucket may be removed. Fill the hole almost full, packing the dirt firmly as it is being filled in, and then water the tree well. When the water has completely settled away, some loose dirt should be added, leaving the surface slightly cupped to catch rainfall.

Protect newly transplanted evergreens from drying winds the first season. Strips of burlap on stakes, or shingles, serve well for this purpose. Frequent watering for the first week or so, including spraying the foliage, will be beneficial. Spray only in the evening or on cloudy days.

## Problem II—Broadleaf Trees for Nebraska

**E**VERY TREE has its own characteristics just as does every person. You recognize the members of your family and many friends by the way they stand and sit and carry their heads and swing their arms while walking. You do not always need to see their faces. You can learn to know trees and shrubs in that way also. Their characteristics seem to come out more sharply when they have no soft drapery of leaves to hide them.

There are two main groups of trees: the deciduous, such as the oaks, maples, and elms, which shed their leaves annually and are commonly called broadleaf; and the evergreens, such as the pines, junipers, spruce, and firs, that hold their leaves through the entire year.

### Large Trees

The oak looks as if its shape were wrought of iron. There are many kinds of oaks and no two are alike, but all have a stout and rugged appearance. They have a stubborn look. The oak leaf is usually irregular in shape. It is a long oval or pear-shaped leaf, usually narrowest at the stem, and in most cases deeply notched and lobed. It is strong and tough, glossy above and rough underneath, with woody veins standing out like a network of cords. The Bur Oak, common in Nebraska, has leaves with five or seven broad rounded lobes and narrow partings.

The oak trees have two kinds of flowers. One kind, a dwarf catkin, has several double pockets full of gold dust or pollen. The other, or egg flower, is a tiny pink knob sitting well out on the end of the twig in a scaly cup. These tiny knobs are the seeds which develop into acorns. The acorns and their scaly cups from different kinds of oaks are quite different and help us to tell the names of the oaks on which they grow. The Bur Oak has a very large round acorn with a cup that covers two-thirds of the acorn and has a mossy fringe around the top, and it is called "Mossy Cup Oak" for that reason. The Red Oak, common in southeastern Nebraska, bears large acorns with large shallow smooth cups.

In autumn the oaks show no yellow and the leaves are of a strong solid color. They range through all the reds from scarlet to wine, and then add warm browns and bronze greens.

The elm tree's dark trunk, with the bark in deep vertical ridges, often springs many feet into the air as straight as a pine, before it branches. Then the long limbs sweep from the top like plumes from a vase. A certain type of elm is sold by nurserymen as Vase Elm. Another very upright, narrow-crown type of elm is sold under the name of Moline elm.



*American Elm*

The elm has an oval or egg-shaped leaf about three inches long, narrowest at the tip and just a little pointed. The elm leaf grows singly, on opposite sides of twigs, each a little advanced beyond the last, making a neat feathery spray.

It is strong, saw-notched, short-stemmed, and firmly set, smooth above, rough underneath. The leaves and also the twigs of the Red or "Slippery" Elm are covered with stiff hairs and are quite rough on this account. The bark of the American or White Elm contains thin white corky layers, while that of the Red Elm is of solid reddish color without these corky white layers.

From the midrib of the leaves the veins slant upward, making evenly spread broad V's about a quarter of an inch apart from the stem to the tip. It appears as if the veins were laid out with a ruler. In autumn the elms are in russet yellows, the birches and poplars pure gold, the nut trees yellow.

No one can mistake the Chinese Elm with its characteristic grouping of fine lateral branches lined on two sides with almost spherical, very dark colored buds, which look like so many beads. The leaves come out early in the spring and are much smaller than those of the White and Red elms and they remain on the trees until late in the fall. This elm is a native of China where it has lived for centuries, sometimes under adverse weather conditions, making it able to thrive in the drier sections of Nebraska. Sometimes, however, Chinese Elm seed is brought from the warmer sections of China and trees grown from seed from such areas are apt to winterkill in colder portions of this country.

The maples are graceful trees used very extensively as shade trees because their foliage is dense and beautiful. The autumn coloring of red, yellow, and orange is especially brilliant. There are a large number of species, easily identified by their broad leaves and winged fruits, somewhat resembling a thumbscrew.

It is interesting to know that only three families of our large trees have opposite leaves. If the leaves (or in winter, the buds) and leaf-scars stand opposite, the tree (if it is of large size), belongs to the maple, ash, or horsechestnut family. The Boxelder, sometimes called Ash-Leaved Maple, belongs to the family of maples. The twigs of the maples are

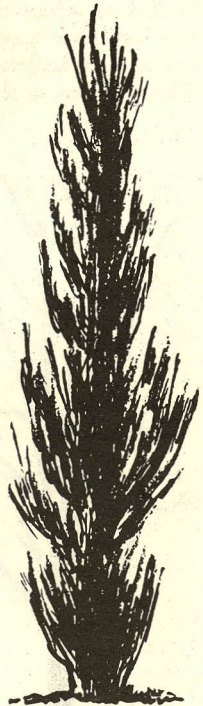
reddish or green, often covered with a bloom which easily rubs off. The leaf-scars entirely encircle the twig and meet at a sharp angle. The flowers are yellowish-green, they appear in April before the leaves, and are grouped in pendulous clusters.

Silver Maple, so called because of the silvery color of the leaves and branches, is also known as Soft Maple because of its soft wood. The leaves are silvery white beneath and green above and they turn yellow in autumn. The bark flakes, exposing a reddish inner bark.

Poplars are generally large trees of rapid growth. Because of the flattened portion of the stem, the leaves of many of the species tremble with the slightest breeze. The Quaking Aspen and several varieties of cottonwood belong to this class. The leaves appear early in the spring and in the first part of June the tiny seeds begin to fall from the feathery catkins, covering the ground with soft delicate cotton in which they are enclosed. The cottonwood is so called because of the snowstorm of downy seed it lets loose. The seed-bearing catkins, and pollen-bearing catkins occur on separate trees. The male trees, which bear only pollen-bearing flowers, will not shed the "cotton" and so are preferred as shade trees about the home. The leaves are heart-shaped and turn yellow in the fall.

All of the catkin-bearing trees, the willows, alders, birches, and poplars, have feathery seeds. All of the common willows have long slender leaves. Each leaf is a narrow, thin, delicately veined blade that grows by itself alternating along a slender stem, making a sort of feathered branch. The Pussy Willow leaves are bright green. The Black Willow leaf is broader and saw-notched and tapers to both stem and tip like a canoe. It is bright green above and silvery beneath. The leaf of the White Willow is gray-green lined with silver, and it droops from the stems. The Weeping Willow has long yellowish drooping branches with long slender gray leaves.

The Hackberry is a shapely, strongly built tree that may attain a height of 120 feet. Its bark is roughened by uniformly narrow ridges made up of distinct layers. The bark on the trunk sometimes presents a warty appearance. The twigs are smooth, somewhat zigzag with a finely chambered pith. The fruit is smaller than a pea, and is orange to dark purple in color. The tree is often attacked by a mite and a fungus which cause the production of numerous twigs at the point of attack, resulting in the formation of so-called "witches' brooms."



*Lombardy Poplar*

The Honey Locust trees have large, picturesque, broad crowns covered with a mass of airy leaves, dark green above and yellowish-green beneath, which turn a clear yellow in the fall. The twigs are zigzag, smooth, and glossy. The long, three-pointed thorns found on some trees make them very objectionable. There is a thornless variety that is much preferred. It is quite hardy and very attractive.

Black Locust is often mistaken for Honey Locust, no doubt mainly because of its sweet-scented, showy flowers. The yellowish-green flowers of Honey Locust are quite inconspicuous while those of Black Locust occur in showy, creamy white clusters. It should be remembered that it is the Black Locust that bears the large white bloom.

Ash trees are noble trees with tall trunks if grown under favorable conditions where they have plenty of room. There are several species, all of which have leaves that are opposite on the twigs, and which have from five to nine leaflets that turn purplish to yellow in the fall. Three species, White, Green, and Red Ash, occur in Nebraska.



*Kentucky Coffee Tree*

The Kentucky Coffee Tree is rather distinctive in appearance. It is devoid of small twigs and in winter is skeletonlike in appearance. The bark of the trunk is curiously ridged and bears thin, scaly, horny flakes attached at the side. The pith in the twigs is large, salmon to brown in color. The large, flat, black, hard-coated seed are borne in flat, pulpy pods three to five inches long which hang on the trees throughout the winter.

The Black Walnut is a stately tree grown more for its lumber and nuts than for ornament. Its bark is deeply furrowed and brown. The young twigs are hairy, later becoming smooth. The pith is light-brown and chambered. The leaves contain 15 to 25 leaflets, pointed at the tip and rounded at the base.

The Plane Tree, commonly called Sycamore, is a large and beautiful tree with very distinctive, smooth white bark that peels off in thin, light-brown plates. In winter its white color is quite conspicuous, and the large number found growing on the banks of White River in Indiana were responsible for that river's

name. The leaves are quite large and resemble those of the maple, but the base of each leaf stem is hollow, cone shaped, and fits over the newly formed pointed bud.

The trees mentioned above often grow to be large trees. Now let us consider a few of the small trees that are useful in decorative plantings.

### Small Trees

One of the most interesting small trees is the Redbud or Judas Tree. It is sometimes called Love Tree because of its heart-shaped leaves. The trees form broad, rounded heads. The buds are usually in clusters one above another. Its rosy-purple pealike flowers, nestling close to the twigs and even the trunk, are produced before the leaves in April. The pith of the twigs has red streaks and the wood is rich, dark brown tinged with red. The seeds are borne in small flat pods similar to those of Black Locust.

The ornamental crabapples are some of the most useful trees for decorative planting. They are small trees; the branches are often wreathed with bloom so thick that the leaves cannot be seen. The fruits of some are also quite attractive.

While there are several varieties of the flowering crabs handled by nurserymen, Bechtel Crab and Hopa Crab are those most generally recommended for planting in Nebraska. Bechtel Crab produces a profusion of double pink, roselike flowers that are always attractive. The Japanese Flowering Crab is a small, round-topped tree with single flowers, borne in great profusion. The red fruits the size of a pea are very attractive.

The hawthorns are attractive for their flowers and for their fruit. They are usually spiny-branched with alternate leaves, various in shape, sometimes almost entire but generally deeply notched or lobed. The flowers are white and the fruit is red, resembling small apples. There are several hundred varieties native in North America, but probably not more than two varieties



*Hawthorn*

may be found here. Native haws are found in the extreme eastern part of the state, along the Dismal river in the sand hills, and in Hackberry Canyon in Banner county.

### Problem III—Evergreen Trees for Nebraska

THERE IS AN OLD STORY about the origin of evergreens in which I think everyone will be interested. It is told by Alfred Hottes in his "Book of Trees," and is as follows:

"A tiny bird with a broken wing fluttered through the woods, trying to get assistance from the trees. But the Oaks were too busy with their acorns; the Birches were too proud to speak to any one, and the Willows were too laden with their own grief to listen to other people's troubles. But the Fir said, 'You may live in my branches.' The Pine added, 'If you do that I will protect the Fir from the cold winds,' and the Juniper promised bright berries for food.

"By and by Winter came, and the North Wind asked if it might take the leaves from the trees, but Mother Nature answered, 'You may take all the leaves except those that sheltered the poor injured bird.' So that is one explanation of why we have evergreens."

Evergreens are of great importance to Nebraska and more of them should be grown. Generally speaking, they are quite drouth resistant and long lived. Since evergreens have their foliage the year round, they give maximum protection both winter and summer. They are, therefore, splendid for windbreak planting and are useful in beautification. Evergreens bring the freshness and beauty of summer into the dreariness of winter. The junipers and the pines, particularly the Austrian and Ponderosa (Yellow) have proved themselves very desirable for planting in Nebraska.

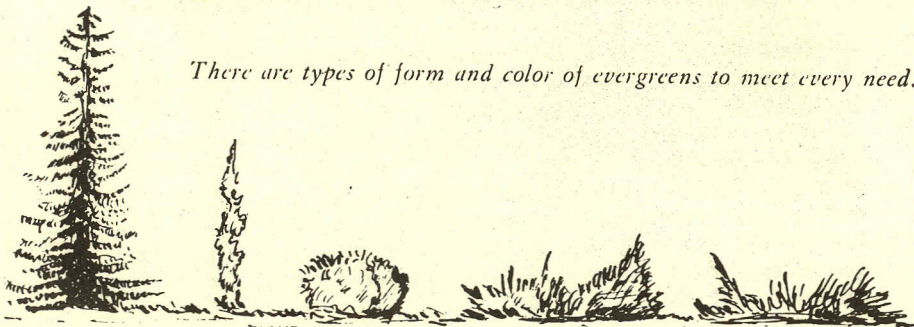
In most of the conifers, the leaves are very different from those found on the trees which shed their leaves when winter comes. The pines have long, stiff, needlelike leaves that grow in clusters of from two to five, bound together at the base with a papery sheath. The clusters grow so close together that they spread in fanlike sprays. Spruce have inch-long needles that are square and sharp and they bristle all around the stem. In the firs, the needles are flat and blunt and appear to grow on two sides of the stem, but actually are distributed over the whole surface.

### Pines

The pine which unquestionably stands in greatest favor in Nebraska is the Austrian. It grows to be a large symmetrical tree with dark-green foliage. It has such a rich, deep-green color that it is known in some parts of Europe as the Black Pine. The needles are two in a sheath, straight and rather sharp pointed and four to five inches long. The winter bud is usually sharp-pointed and light in color.

Ponderosa (Western Yellow, Bull) Pine is similar to Austrian Pine in type of growth. The foliage is generally lighter in color, the needles are usually more blunt and twisted and occur two and three in a cluster. Winter buds are reddish-brown in color and usually more cylindrical in shape than those of Austrian Pines.

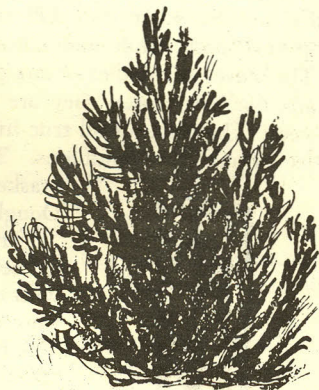
*There are types of form and color of evergreens to meet every need.*



Scotch Pine is less hardy in Nebraska but a good many were planted here in years past. It grows rapidly and as a young tree is usually compact and formal in outline. The older trees become more open and the bark on the trunk and the larger limbs takes on a distinct cinnamon-brown color, a characteristic which helps to distinguish it from other pines. The leaves occur two in a cluster and are about three inches long.

Jack Pines are grown extensively in the sandhill area of Nebraska, and are better adapted to that region than for hard land. It is a two-needle pine with leaves usually about  $1\frac{1}{2}$  inches long. It is a small tree in this region, rather scraggly, and of little importance except for the light-soil areas of the state.

White Pine is a very graceful fast-growing evergreen. It is not adapted however, except in the extreme eastern part of the state. It has very slender soft, pale green leaves that are borne in clusters of five.



*Austrian Pine*

### Spruces

Spruce are often difficult to distinguish one from another, but it is not difficult, however, to identify spruce from other kinds of evergreens. Their inch-long needles are borne singly and bristle all around the stems. The needles are more or less four-sided, stiff and sharp.

They are attached to the branches and twigs by raised woody projections that leave the twigs rough when the leaves fall. Spruce needles drop rather quickly after the tree is cut.

The odor of the leaves when crushed is strong and unpleasant, while that of firs gives a pleasant fragrance. The cones are oval or cylindrical and generally hang downward.



*Blue Spruce*

The Colorado Blue Spruce is the most popular of all the spruces. It is very hardy and has withstood drouth and high temperatures the best of any of the spruces. The leaves are rigid, 1 to  $1\frac{1}{4}$  inches long, sharp pointed, and ranging from bright green to bluish green in color.

Black Hills Spruce is a very compact symmetrical tree with foliage which varies from green to a bluish tint. The leaves are slightly shorter than those of the Colorado Blue Spruce.



*Spruce Twig showing projections remaining after the needles have fallen.*

### Firs

Firs resemble spruce more than they do other forms of evergreens. The foliage of the firs is soft to the touch and the leaves are flat and blunt. Fir needles when they fall or are pulled from the twig, leave the bark quite smooth, while with spruce the twig is left rough when the leaves fall. The leaves or needles of firs persist for a long time after the trees are cut and for this reason they are given preference over spruce for Christmas trees. The cones of all true firs stand erect on the branches, while those of the spruce are pendulous. The two firs grown to any extent in Nebraska are White Fir (Silver, Concolor) and the Douglas Fir.



*Fir Twig showing circular depression and smooth bark after the needles have fallen.*

The White Fir is by far the most outstanding fir because of its great beauty and its ability to withstand heat and drouth. The twigs are yellowish-green, and the buds are round and resinous. The bark is smooth and light in color. The leaves are irregularly arranged,  $1\frac{1}{2}$  to  $2\frac{1}{4}$  inches long and bluish-green in color.

The Douglas Fir is not really a true fir, but is usually recognized as such. The cones of true firs stand upright on the twigs, while those of the Douglas Fir hang down like those of spruce. The cones are very distinctive. They have a bristly appearance from the numerous three-lobed bracts with sharp points which extend beyond the scales.

### Junipers

The family of junipers includes a large number of trees of different habits of growth. Some are very narrow and upright, others are low or globular in form, and others sprawl on the ground and are called creepers. The color of the foliage also varies a great deal, ranging from very dark green to light silvery, and even pinkish and lavender.

Junipers are characterized by having either scalelike or awl-shaped leaves. Sometimes both kinds are found on the same tree. This is true of many of our common Red Cedar. The common Eastern Red Cedar found growing in canyons, along the streams, and scattered through the groves is one of the hardiest of trees. Several different types such as Cannatt Red Cedar, Silver Red Cedar, Koster Red Cedar, Hill Dundee Juniper, and others were developed from the common cedar.

The juniper found so abundantly in the Rocky Mountain states is known as the Western or *Scopulorum* Juniper. It is so much like our common Red Cedar that it is often difficult to distinguish between the two. The Western Juniper, however, is usually more silvery in color, and the foliage is softer and not so spiny as red cedar. Many different types, such as Pathfinder, Blue Moon, Colorado Silver Cedar, Moffeti, and Marshalli have been developed by nurserymen from this species.

Two dwarf junipers used a great deal in landscape planting are the Pfitzer and Savin. Both are well adapted to foundation plantings. The foliage of Pfitzer is green with a slight tinge of blue, some strains being decidedly bluish in color. It makes a low bushy growth ideal for use in foundation plantings. The branches of Savin Juniper are spreading, dense, clothed with short, straight tufted branchlets with dark green foliage.

Then there are the creepers, which are gaining in popularity. They grow close to the ground, forming a dense mat ideal for grave mats and for covering low banks. Andorra and Waukegan are two very popular varieties. The foliage of both of these takes on an attractive color during the winter.

The foliage of Andorra Juniper is grayish-green in summer and in winter it takes on a reddish-purple color. Waukegan Juniper in summer is also grayish-green but with a pinkish tinge in winter.

### Arbovitae

The leaves of Arborvitae which are yellowish-green are scale-like, resembling those of the Junipers rather than those of the spruce, fir, or pines. Their leaves, one-eighth of an inch long are flattened and arranged in four vertical rows along the fine twigs. The twigs are arranged more or less fan shaped and often the leaves and twigs are fern-like in appearance. The American Indians called the arbovitae "Featherleaf," a term descriptive of the lacy, feathery twig and leaf formation.

Arbovitae seed are borne in small reddish-brown cones about one-half inch long which are made up of eight to twelve loose scales.

The two species of arbovitae used to any appreciable extent in Nebraska are the American and Chinese. Trees which are grown from seed from either of these are quite variable. There are a good many varieties of both the Chinese and American species which range from round, compact forms to those which are pyramidal in shape. The twigs of the Chinese species are generally finer than those of the American. The flat formations of the twigs of the Chinese species usually stand erect and edgewise to the outside as compared with the American Arborvitae in which the twigs are twisted and irregular.

The leaves of the arbovitae commonly turn brown in the wintertime and in some cases they become brownish even in the summer.

### Yew

The yews are attractive but few are grown here. They are mostly treelike, but when found here are rather small. The foliage is very dark green and waxy. The twigs are usually the same color as the leaves. The leaves are spirally arranged but form a flat spray. The fruit is a soft cup-shaped red berry, open at the top, containing one seed. The upright Japanese Yew and Dwarf Japanese Yew are the two varieties most commonly grown here. Yews are best adapted for shaded locations which are protected from hot winds.

## Problem IV—Shrubs for Nebraska

**S**HRUBS are plants ordinarily distinguished from herbs in having woody stems that do not die to the ground in winter, and differing from trees in that they generally have several stems from the same root. They comprise a group of plants, many of which are very useful for planting to beautify our home surroundings, for the protection of gardens, and erosion control, and to provide conditions favorable for wildlife.

Shrubs add variety to landscape plantings. Their moisture requirement is less than that of trees and in certain locations they are more suitable than large trees. This is especially true in the case of plantings for the protection of gardens and lawns.

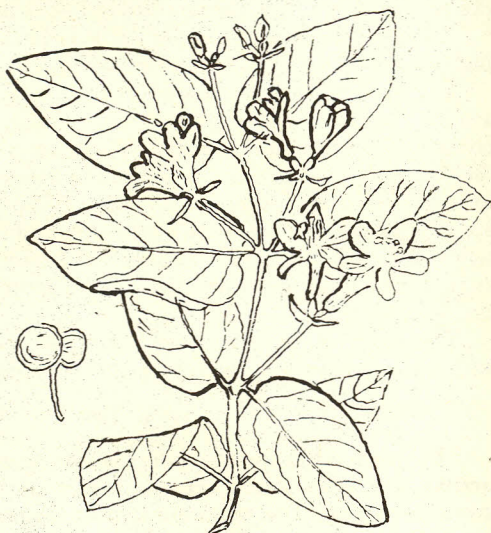
### Tall Shrubs

Lilacs are ever popular shrubs because of their beautiful blossoms and bright green foliage, and also because of their hardiness. They are well suited for hedge planting.

The heart-shaped, opposite dark-green leaves, the large clusters of lavender sweet-scented flowers, and the prolific sprouting habit of the Common Lilac are familiar to everyone. The Persian Lilac is a more desirable hedge plant because it has less tendency to sprout. The leaves are smaller than those of the Common Lilac, being long and narrow. The branches are slightly drooping and willowy and the flower clusters are two or three inches long, lavender or white. Flowers occur on very young plants. It grows about eight feet tall.

The Tatarian Honeysuckle is one of the most commonly planted honeysuckles. It is very hardy and attains a height of 10 feet. The young twigs are often a little hairy, the old branches are grayer in landscape effect than most shrubs. The flowers are white or pink and the fruit is red. A variety of this sort produces yellow fruit.

The viburnums constitute a large group of very



*Honeysuckle (Lonicera tatarica)*

<sup>2</sup> Drawings for Honeysuckle, Viburnum Lantana, Skunk Bush, Wahoo, Sandcherry, and Bittersweet are reproduced from "Illustrated Flora of the Northern States and Canada" by Britton and Brown.

desirable shrubs. Some do well in dry places, others require wet conditions; some produce red fruits, others produce black fruits some of which are edible. Highbush Cranberry and Wayfaring Tree are two species of viburnums which are most frequently planted. The leaves of the cranberry bush are two to four inches long, three to five lobed. One form of this is the common snowball. Scarlet berries are produced on upright stems in the fall and these hang on the bush throughout the winter as they are too sour to be eaten by birds.

Wayfaring Tree (*Viburnum lantana*) is an upright shrub with very stout branches which often grows 15 feet tall. The leaves are two to five inches long, wrinkled, rough, coarsely toothed, hairy beneath sometimes heart-shaped at the base. The flowers are white, produced in flat-topped clusters. The fruit ripens in July and August and is red changing to black.

Caragana or Siberian Pea Tree is an upright, almost treelike shrub which often attains a height of 15 or 20 feet if it is left untrimmed. The branches are smooth and are somewhat spiny. It produces small yellow, pealike flowers in June which are borne singly along the branches. The leaves are once-pinnate, made up of four to six pair of oval leaflets rounded at the tip. In early spring the foliage presents a very pleasing effect, appearing soft and light green in color. Later the color is a bright green.

The cotoneasters are rapidly gaining in popularity as decorative plants and for hedges. There are many different varieties, some producing black and some red fruits. One of the hardiest and the one now grown to some extent in this state is the Peking Cotoneaster. It is one which produces small black fruits usually in abundance, which hang on the bushes until late in the fall. The shrub is erect, slightly spreading, and produces a very pleasing appearance. The leaves are dark, shiny, two inches long, lighter green beneath, slightly hairy while young. The foliage is very bright and



Wayfaring Tree (*Viburnum lantana*)

shiny early in the spring; in the fall the leaves turn red and persist on the bushes until quite late.

A native sumac which offers considerable possibilities for decorative planting is the Skunk Bush or *Rhus trilobata*. It grows about six feet high but always broader than high. The leaves are three-parted, shiny green in color, hairy when young, and have a peculiar odor when crushed. The pollen-bearing catkinlike flowers are about an inch long and somewhat conspicuous. Clusters of reddish, hairy fruits, borne on short stems, are noticeable in the fall.

Wahoo or Burning Bush is also a native shrub that should be grown for its natural beauty. Wahoo is the name given to this shrub by the Indians, who used the wood for making arrows. It is an upright growing shrub sometimes eight feet high with small four-petal flowers, reddish purple in color. The single flowers are not attractive. The fruit is a three- and four-parted capsule borne on a slender stem three or four inches long.



Skunk Bush (*Rhus trilobata*)



Wahoo (*Euonymus atropurpurea*)

east is sometimes treelike, attaining a height of 25 feet. The form in western Nebraska is low and shrubby. It is one of the first shrubs to bloom in the spring and the name Shadblow is given these shrubs in eastern

Here and there throughout the extreme eastern part of the state an attractive shrub known as Juneberry or Shadbush may occasionally be found scattered throughout the timber. A different form of Juneberry, known as Saskatoon, grows in the extreme western part of the state. The variety in the east is sometimes treelike, attaining a height of 25 feet. The form in western Nebraska is low and shrubby. It is one of the first shrubs to bloom in the spring and the name Shadblow is given these shrubs in eastern

states because they are supposed to bloom when the shad fish leave the sea and come to the rivers to spawn. The flowers appear before the leaves are fully formed. The flowers are white, the petals long and narrow, and the bloom presents a rather wilted appearance. Winter buds are long and sharp pointed. The fruit is a maroon-purple that is fine for jams.

Beauty Bush or *Kolkwitzia* is a graceful shrub of extreme hardiness which covers itself in June with clusters of small, tubular pink flowers of the honeysuckle type, borne in great profusion. It grows six to eight feet tall and is an arching shrub with the center always quite upright.



Juneberry (*Amelanchier canadensis*)

The flowers are somewhat lipped and bell-shaped, pale pink, with orange veins in the throat. The leaves are opposite, softly hairy above and below. The leaves at the ends of the branches are reddish in color. The young twigs are very woolly, the older twigs brown and flaky barked.

#### Low Shrubs

Almost everyone is familiar with one or more of the large group of spireas. No other shrub has been so widely used as the Van Houttii, except possibly Japanese barberry. Everyone is familiar with its wonderful fountain of white bloom in May. It grows five to six feet high and is valuable for hedges, specimen clumps, and foundation plantings.

Thunbergi Spirea is a bushy, slender branched, tiny-leaved shrub, about three feet high, which is used often for foundation planting. The leaves are about one inch long and very narrow, pointed, toothed, and yellow-

green in color. The flowers are white, borne in three-to-five-flowered clusters appearing in March or April.

Spiraea Anthony Waterer is a very popular low shrub with crimson-lavender flowers in flat-topped clusters and rather narrow leaves. The stems of the new growth are light in color and branches are angled.

Russian Artemisia or "Old Man" is one of the hardiest of shrubs and will make a three or four foot hedge in a very short time. It has feathery branches covered with grayish-green foliage. When the leaves are crushed, there is emitted a pleasant pungent odor like that of sagebrush. The

branches die back each winter, but new shoots spring up quickly in the spring. It is a good low hedge plant for the drier and more difficult sites in central and western Nebraska.

Japanese Barberry is a valuable shrub for ornamental planting. It has a close compact habit of growth and will make a dense hedge three feet high. It has brilliant red fruits in autumn. The Japanese Barberry has numerous sharp single spines about one-half inch long. The Common Barberry, which harbors grain

eradicated, has three-parted spines.

One form of the Japanese Barberry has red leaves making a glowing red mass of foliage.

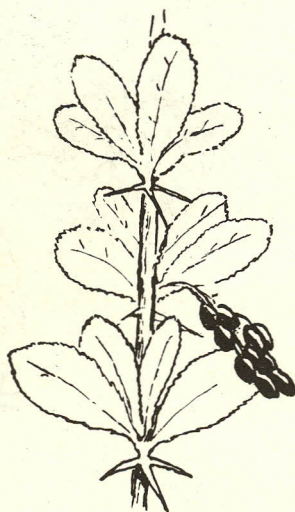
Another very hardy shrub which may often be used to good effect is the common Coralberry or "Indian Currant," often called Buckbrush. It is often found in pastures and is usually thought of as a weed but is attractive when given a good chance. The leaves are gray-green, opposite on the twig and hairy beneath. The flowers are not showy but large clusters of purplish-red fruits borne in the axils of the leaves are very attractive.

Snowberry is very similar to the common Coralberry, but bears round white fruits that are somewhat larger than those of the Coralberry. The pink flowers are not very conspicuous but are quite dainty.

Wax Currant is an attractive shrub, native to the western part of Nebraska. It is a much branched, upright shrub, two to four feet high. Its



*Japanese Barberry*



*Common Barberry*

pale grayish-green foliage and pinkish tubular flowers and later the bright red fruits make it a desirable ornamental.

The Western Sandcherry, native throughout the sandhills region, is worthy of general cultivation as an ornamental shrub. In the wild it is a rather prostrate sort, but an improved variety known as Hansen's Improved Sandcherry is a somewhat taller shrub. The Sandcherry will attain a height of three to four feet, and has gray glossy leaves about two inches long and one-half to three-fourths of an inch wide. White flowers are produced in abundance and the small black cherries are fine for pies and jams. The leaves turn red in the fall. It is particularly well adapted for central and western Nebraska.

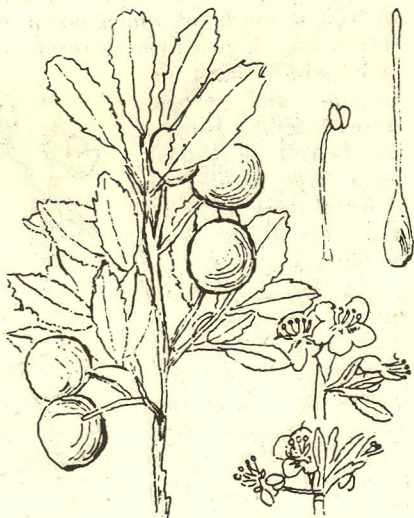
Shrubby Cinquefoil is a very hardy and attractive small shrub. It is a low, much branched bush three feet high, with grayish-green silky compound leaves. The bright golden-yellow flowers appear all summer, beginning late in May or early in June.

The flowers are similar in form to strawberry blossoms. The leaves are three- or seven-parted, silky hairy above, and silky gray hairy beneath. The bark is shreddy.

There are several hardy roses that are very ornamental which should be mentioned. The Red Leaf Rose is unusual, having leaves which are purplish, tinged bluish-green. The flowers are single, pink but small and inconspicuous. The foliage is not brilliant red and is quite pleasing in contrast with other foliage.

Hugonis Rose or Rose of China is very hardy and very attractive both for its clean fresh foliage and the abundance of single yellow flowers. It grows to a height of seven feet with an arching habit of growth and each branch is usually crowded full of the single yellow blooms, about two inches across, for a short time in the early spring.

Two very satisfactory Austrian briar roses which are available in the nursery trade are the Austrian Copper and Austrian Yellow. They attain a height of about seven feet and bear a profusion of single flowers 2 to 2½ inches across. The petals of the Austrian Copper are coppery-red inside and orange on the outside. The Austrian Yellow flowers are deep yellow, a deeper yellow than those of Hugonis. It occasionally happens that yellow blossoms occur on one or more branches of the Austrian Copper rose. It is



*Sandcherry (Prunus Besseyi)*

from these that the Austrian Yellow was developed. These two and the Red Leaf Rose will grow on alkaline soils where tea roses and rugosa roses turn yellow.

American Bittersweet or Waxwork is an ornamental plant that should be cultivated to a greater extent. It is a climbing vine native over a wide area and was very plentiful along the streams and in the edge of timbered areas years ago. It has been pulled from the trees and bushes and stripped of its fruit so much for winter bouquets in recent years that it is becoming very scarce. It is a twining shrub with many sprouts and orange-yellow pods which burst in autumn and expose scarlet fleshy berries. The berries are relished by a large number of different species of birds, and if for no other reason bittersweet should be grown more under cultivation. Its value as a source of food for birds is enhanced because the berries are high off the ground, and also they cling to the vines throughout the winter. For these reasons the berries are available when snows are deep and other food is scarce.



*Bittersweet (Celastrus scandens)*

Bittersweet needs a rich soil and plenty of moisture in order to thrive and fruit abundantly. It is easily propagated by seed sown in the fall. Some plants, when grown from seed may contain pistillate flowers which produce fruit, while other plants may contain staminate flowers which produce only pollen. Some plants may produce both kinds of flowers, and in order to be sure of having vines that will produce berries, one should transplant sprouts which come from bearing plants. They may also be started from plants that produce fruit by layering or from root cuttings.

### Problem V—Observation Tours

**E**ACH CLUB should plan to hold at least two meetings in some timbered area if possible where there is a variety of trees, shrubs, and wild flowers that may be studied. In some sections of Nebraska it may not be easy to find a very great variety of trees and shrubs but there is no section of the state where there is not a great wealth of native plant life.

An early report of Dr. Chas. E. Bessey, for many years professor of botany at the University of Nebraska, listed 67 species of trees native to

Nebraska. He showed that trees and other plants migrate to some extent, and that the flora of the country is ever-changing. Of our trees, 56 or 57, according to Dr. Bessey, came in from the forests to the east and 10 species came into the state from the Rocky Mountain region.

It is suggested that club members make a survey of their vicinity and try to find and identify as many different kinds of trees and shrubs as possible. Note the conditions under which the different kinds seem to thrive best, whether in bottoms or upland, and whether in the shade of other trees or in full sun. Practice making a mental picture of the general habit of growth of each kind, the color of the foliage, branching habit, etc., so that in time you will be able to identify many varieties merely from these characteristics.

What one will see in studying trees and shrubs will vary somewhat from season to season. In early spring the air is warmer than the ground and often before the snow goes away, the blossoms of the maples add a degree of color to the landscape. The flowers are so small and so bunched in little tufts on the sides of twigs you may think them only the first leaves. On some of the maples the leaves and flowers come together. The Silver or Soft Maple, common in Nebraska, flowers early. Its blossoms are in thick short tufts of greenish white, much the color of the leaves. The flowers of all the maples grow on the sides of the twigs. It takes two kinds of flowers, both male and female, to make the winged seed of the maple, and they both grow on the same tree.

The blossoms on a number of trees are quite inconspicuous, and many people do not know that they do bloom at all. As a matter of fact some people go through life blind to the curious and beautiful things all about them. If you will study the trees and examine the blossoms of the different ones as they appear and then watch the development of the fruit to maturity, it will prove to be very fascinating.

The pollen-making blossoms of the elms are like little bells having yellow-tipped clappers which are the pollen-bearing parts. Some of the blossoms have no clappers, but have hairy arms that reach for pollen. These are the flowers that are fertilized and produce the seed which is usually developed in vast quantities on the elms. The blossom appears before the leaves on the elms, as is the case with a number of trees and shrubs.

Club members should learn to distinguish between Poison Ivy, which is poisonous to the touch and causes severe inflammation and intense itching, and its harmless relative, the five-leaf ivy or Virginia Creeper. Their appearance and habits of growth are quite similar but Poison Ivy may easily be distinguished by its three leaves while the Virginia Creeper has five. "You can shake hands with the five-fingered leaf of the Virginia Creeper but poison ivy permits no familiarity."

In different members of the plant family there is a resemblance, as in a human family. You can learn to call each one by its "given name" as well as by its "family name" by looking out for the differences. By close observation it will be only a short time until you will be able to distinguish

a maple, an oak, or a poplar by the general shape and characteristics of its leaves.

Summer is the leafy season. On nearly all trees the leaves come as soon as the blossoms fall.

Autumn is the colorful season in the forest. The maples are usually the first to show a change from green to yellow, flame red, and crimson even well before frost. A touch of frost, however, seems to intensify and hasten the coloration. The leaves of the poplars take on a yellow color while those of the oaks are never yellow, but are of a strong, solid color, ranging through all the reds from scarlet to wine, and then add warm browns and bronze greens. October is the time to study the forest-tree fruits. Acorns lie thick under the oak trees. They will tell you the names of the parent trees. They may all look alike to you but in time you will learn to distinguish the species of trees by the fruits they produce.

The fruits of all the maples help to identify them. They have two thin flat green wings, like a thumbscrew, an inch or more across.

The seeds of most of the elms mature early and drop to the ground and by fall, if conditions are favorable, they have grown into seedling trees several inches high. One species of the elm, however, matures its seeds in October and November.

By the time the leaves are all off the trees, the new leaves and branches and blossoms for next year are tucked up snugly in tiny brown buds all over the tree. They can be found just above the scaly marks left by the leaves that have fallen. The size, shape, and make-up vary with different species. If one becomes familiar with the winter buds it will help in identifying the different species when not in leaf.

Winter may not seem a suitable time to study trees and shrubs but this is a mistake. Every tree has characteristics of its own, just as has every person. It is in winter that these general habits of growth show up to best advantage.

Winter is the best time to study the conifers or cone-bearing trees. Spruce have certain characteristics peculiar to this group. The pines have long, needlelike leaves that grow in clusters of from two to five, while the junipers and firs have certain characteristics that help to group them in their respective classes.

A study of the grasses of our state, and particularly of the sandhill area, is an interesting one. In the sandhills alone there are well over one hundred different species, according to Dr. Bessey, who made numerous reports on the flora of that region.

The importance of grasses as forage plants and the part they play in binding the soil and preventing wind and water erosion justifies study of at least those common in the area in which we live.

The wild flowers of the prairie and the woodland have contributed greatly to the beauty of our state. The woodlands of the eastern part of the state contain a large number of species common to the eastern states, while the greater portion of Nebraska abounds in beautiful ones peculiar

to the prairie, and the western part contains many which are associated with those of the Rocky Mountain region.

With the first signs of spring and on through summer and until late in the fall almost everyone has the urge to spend some time among the trees. If the entire club can be gathered together and can spend a few days on a well-organized camping trip in some state or national forest, the leader and members will find it very enjoyable and will derive a great deal of practical benefit.

4-H club district and conservation camps also offer members and leaders a fine opportunity for the study of trees and other forms of plant life.

One of the very first lessons to be learned by those who picnic or camp anywhere in the great out-of-doors is the conservation or preservation of nature's beauty. Have you ever been out on a picnic and come upon a delightful, cool, shady place for a picnic or camp to find on stopping that some party had used this particular spot as a picnic grounds only a short time before, and instead of leaving it as they found it—clean and inviting—had left it strewn with paper, chicken bones, egg shells, tin cans, and other refuse? And, likely as not a pile of wilted wild flowers is found nearby which had been carelessly pulled and then discarded when their freshness was gone.

The reckless pulling of wild flowers, which prevents their reseeding and which many times injures their roots, has caused many kinds to decrease in number and some to become very rare if not entirely extinct. Let us learn to enjoy the beauty of the flowers without pulling them and help to preserve them so that others may enjoy them also. If you want to remove a certain plant to your own garden for naturalizing, do not take the last one but always select a plant where there are several of the same kind. You should observe the conditions under which the plant grew and attempt to give the plant as nearly the same conditions in your garden as possible.

It is the custom of a great number of thoughtless people to carve their names wherever it is possible to do so. Objects of beauty are often ruined by such vandalism. Trees are often injured seriously in this way. These are not the signs of good campers nor of good citizens. Club members should set a good example and help to preserve the things which are beautiful and which give others pleasure.

We all would do well to follow the rules given in the "Outdoor Code" by the National Wild Flower Preservation Society which are as follows:

*Help save the trees and wild flowers.*

*Protect the birds and game.*

*Keep the highways beautiful.*

*Pick up the picnic rubbish.*

*Put out your fire; then bury it.*