

# WILDLIFE CONSERVATION

~~ For Fun and Profit



Agriculture Library



UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE  
AGRICULTURAL EXTENSION SERVICE

Columbia, Missouri

## WHY WILDLIFE CONSERVATION?

1. To know, appreciate and enjoy the living things about us.
2. To keep and improve the wildlife in the community in which we live.
3. To make the best use of wildlife as a crop.
4. To understand our relationships with wildlife and land.

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# WILDLIFE CONSERVATION FOR FUN AND PROFIT\*

This circular was prepared for 4-H clubs that have chosen wildlife as their activity.

It is written with the idea that every club has an activity committee of one to three, depending on the size of the club. Each member of this committee is entitled to a copy of the activity circular.

Probably the members most interested in wildlife will be put on this committee.

Those in the Junior Leadership project will have many chances for leadership in this and other activities.

You know the importance of saving and improving our natural resources. In nature wildlife is balanced, but man has disturbed that balance. You, then, are a leader for good conservation practices; for conserving our natural resources and keeping a balance in nature.

## HOW TO DO THE JOB

How can you interest your club and your community in this important work?

There are many ways. The 4-H way is to tackle the job and try to get good information so you can do it well. A boy isn't a skilled herdsman when he buys his first calf for

a baby beef project. He buys a calf. He spends perhaps \$100 to \$150 for it. It is up to him now to learn to feed and care for his calf. That is the 4-H way.

Let's use that method in your activity. Your club has chosen wildlife conservation as an activity. Suppose you suggest to them a job or several jobs they might do that will help conserve wildlife in your community.

That done, you will want to get the program committee of your club to weave into the regular programs some talks, discussions, demonstrations, check sheet reports and the like. These will get more members interested in taking part in the activity.

The November meeting would be the best time to choose the jobs you want to do. Probably the new president will be elected at the October meeting. Even though he is not yet installed, he may put some committees to work. This is one such.

Wildlife, of course, includes all wild animals—mammals, birds, fish, insects—and plants. This circular will deal mainly with *animal* life, plants that provide *food* and *cover* for animal life, and trees. Animal life is used in the broad sense.

\*Prepared by members of the Agricultural Extension Service Staff with the assistance of the Educational Division of the Missouri Conservation Commission and others.



A State Conservation Camp delegation.

### PROVIDE WILDLIFE'S NEEDS

Man's main needs are food, shelter and clothing. Nature has taken care of the clothing for wildlife but other needs are the same as man's—water, food and cover.

Conservation people tell us that wildlife conservation starts with water. Streams, lakes, swamps and ponds support wildlife in many forms. The pond building program in Missouri has been a great help to the development of the wildlife program in the state.

Quail, bass and squirrels need food the same as chickens and pigs. Fortunately, most of the food of quail is insects, weed seeds and juicy fruits; squirrels eat fruit with hard seeds, nuts and acorns. The food for fish consists of water insects, crus-

taceans, other small animals and to a limited extent aquatic plants. Much wildlife food then occurs bountifully in nature. But there are times when man must supply the food if wildlife is to do well.

Quail need shelter cover, escape cover, feeding cover and nesting cover. Squirrels need dens. Cover includes grasses, trees and all plant life in between. Anything that is done to save the soil and soil water on plowed land helps to provide cover. Forests, thickets, Osage orange hedge fences and hollow trees are good cover. The multiflora rose is a good practical living fence that adds beauty to the farm and provides cover for birds. Bird houses provide very necessary nesting cover.

## REWARDS FOR CONSERVATION

We should think of conserving wildlife for use. A pond stocked with the right fish and fertilized may produce as much food for the family in a year as the same land would produce in meat if planted to crops fed to livestock.

Squirrels may become a nuisance if you do not "harvest" them every year.

Fur may be a profitable farm crop.

Trees planted today give us beauty, shade and shelter; and also the Christmas trees and lumber of tomorrow.

And there is the fun of hunting, fishing, trapping, and listening to the song birds and enjoying an outdoors that is teeming with life.

### Some Ways To Help

Many things young people can do to conserve wildlife may be done by members on their own farms. Other things must be done by a group. Once they are interested and have the "know-how," young people will find many things to do entirely on their own. The plans you make yourself are probably the best. The rest of this circular will describe some of the jobs you can do.

To get more information on how to do these jobs go to your school library or to a public library. At the end of this circular is a list of reference books you may find helpful.

### Plantings Provide Food and Cover

There are some things that the 4-H club members can do that not only will add to the beauty of the

farmstead, but will also provide for the wildlife on the farm.

A hedge of multiflora rose may be planted across the road in front of the home and farm buildings. This, in time, will take the place of the present fence, and will be a pleasing sight from the home. It will also protect the wild things that live there.

Bittersweet vines may be brought to the dooryard and planted along the fence to hide the poultry yard, the garden, hog lot, or other ugly views. The vines will be pretty in the summer and fall, and will provide berries as food for the birds.

Then, if it's an average Missouri farm, there will be washes in the fields, draws, or branches, all of which need some plantings which would also provide food for wildlife. Some cedar trees planted at the lower end of the washes and draws, will help stop washing and will provide wildlife shelter. If the cedars are planted along the sides of the branch, they will slow down the water run-off and keep it from cutting deeper. The small, wild things will like these cedars.

If some white clover seed is sown along the fence rows, in too close for the stock to eat it all, it will attract the rabbits and grow them some good food.

Some fragrant sumac, a low-growing shrub found along the roadside and in timber, can be brought in and planted by the outbuildings when a low shrub is best. Some of the larger sumac and elderberry can be planted at the back, along the sides

and diagonally out from the corners of the outbuildings. These will improve the appearance of the buildings and supply food for the birds.

Don't forget the squirrels. They'll like some hazel nut shrubs planted in the back corners of the yards. And in the same corners a mulberry tree, wahoo, swamp holly, haw (black and red), and any other berry-bearing small trees or shrubs may be planted. Some of the commercial shrubs, such as the berried ones, the highbush cranberry, the bush honeysuckle, Japanese barberry, and others will help provide bird food.

A group of cedars along the west or north border of the farmstead will not only act as a windbreak and be an attraction to the home grounds, but also will afford a good nesting place for the birds in the spring and protection for them in winter.

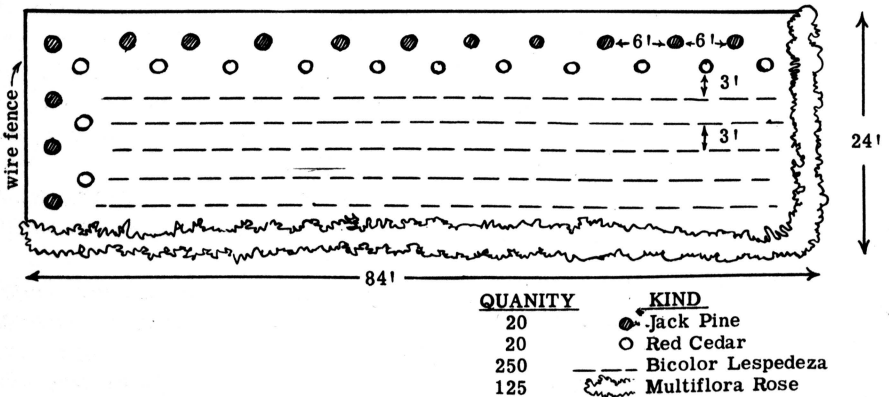
And not to forget the water the birds need, the club members can

make a home-made bird bath. If home-made, it should appear rustic, so look for a small tree with three branches starting at about the same place from the tree trunk. Then cut the tree. And cut it long enough so you can sink it in the ground about 2½ feet and still have the three-branch stubs about 3½ feet from the ground. Decide on the size of the pan before you cut the limbs off, so that they will not be too long or too short for holding the pan, but just right.

A vine and a clump or two of iris planted at the base of the bath will help its look.

**PLANT A QUAIL FOOD PLOT**

The main plant in the food plot will be a new one called lespedeza bicolor. It is the only plant that has done as well in attracting and holding quail as a typical cane food patch in the southeastern United States. This new plant, like other legumes,



Follow this diagram in laying out and planting your quail food plot. Locate it in the northwest corner of the field. (Courtesy of the Missouri Conservation Commission).

helps build the fertility of the soil. It is an attractive plant, and produces many purple flowers and a heavy seed crop. It is also an excellent plant for honeybees.

The plants for this new quail food plot are made up in bundles. Each bundle contains 20 jack pine trees, 20 red cedar trees, 250 lespedeza bicolor plants, and 125 multiflora rose plants. Three pounds of sericea lespedeza seed are included in the bundle. Pine trees are better than red cedars if the plot is planted within one-fourth mile of an orchard.

The food plot covers an area 24 feet by 86 feet, which is about one-twentieth of an acre. This food plot normally will be used by quail some time during the year, *if you plant it next to good quail cover.*

#### How To Plant

When the quail food plot bundles come from the nursery, break them open and heel the plants in at once, or soak the roots in buckets of mud, and plant soon. Do not expose the roots to wind and sun at any time. Use a spade or sharp pointed shovel for planting and be sure to pack the soil firmly around the mud coated roots.

Where you can, plant the food plot as a border along the edge of a wood lot, stream, deep ravine, cultivated field, or pasture.

Fertilize the area to be planted with 80 pounds of 4-12-4 commercial fertilizer. Add barnyard manure, old rotted straw, hay, sawdust, cotton hulls, or other organic material to the fertilizer and disk it into the ground. Then plow and prepare the

ground for planting. Be sure that the organic material and fertilizer is plowed under. This will force the roots to go down deep and help the plants live through dry summer weather. This, of course, should be completed before March 15, if possible. Set the pine and cedar trees on the north and west side of the plot.

Plant the trees in two rows. Space the trees 6 feet apart in each row, and space the rows 3 feet apart. If you stagger the trees in the rows you will have a more compact windbreak.

Next, plant five rows of bicolor lespedeza. The rows should be 3 feet apart with the plants 18 inches apart in each row. If you cannot plant them in rows, set them out at a spacing of 18 by 18 inches. Keep the bicolor plants free of weeds and grass the first year by cultivation. If the plot cannot be cultivated, keep weeds and grass out with a hoe or with a heavy mulch of straw.

Fence the windbreak and bicolor plants with a living fence of multiflora rose, spacing these plants one foot apart. Mulch rose plants with straw, manure, saw dust, or other organic material.

Sow the sericea lespedeza seed around the pine and cedar trees and for a short distance along all fence-rows, ditches, or wooded borders leading to and from the food plot site.

The secret of good luck with these food plots is to plow under organic matter and fertilizer in the fall and to mulch the plants with straw or

similar material when planted in the spring.

### MAKE A GAME REFUGE

On most farms there is some waste land that grows nothing. Boys and girls may make such areas into a game refuge. Just plant some seed and let nature do the rest. A few pounds of kafir, milo or hegari seed planted in the area will furnish food for winter even in time of deep snow. Sweet sorghums will freeze down but the dry sorghums will tend to stay upright.

Reed canary grass planted in the flat gully bottoms will provide both food and cover.

Some of the lespedezas may grow in the area if seeded right. Ask your county agent about growing Korean, sericea or bicolor lespedeza.

If there is no natural cover, you can provide artificial shelters or natural shelters. You will think of other ways of making this waste land a good hunting spot.

### PLANT A WILDLIFE BUNDLE

A wildlife bundle includes 1000 multiflora rose, 5 cedars, 5 Virginia pines, 5 deciduous holly, 5 dogwood, 5 redbud, 5 mulberry, 20 walnut seeds, and 5 pounds of lespedeza sericea seed.

Planting a wildlife bundle is an excellent way to provide additional food and cover for wildlife. Plantings should be made near water, such as a farm pond.

Food, cover and water are the three main needs of wildlife. A wildlife bundle properly planted supplies all three.

### TRY A LIVING FENCE

Multiflora rose is a dense, thorny shrub that grows around seven feet in height and width. It is a low-cost effective living fence without the drawbacks of the Osage orange hedge.

The thorny branches make fine cover for quail, rabbit, songbirds and wildlife of similar habits. The plants grow to make a tunnel beneath the stems, and the out-covering branches make a good, safe travel lane. Songbirds nest safely in the branches. The red berries or "hips" are eaten by birds in winter.

Multiflora rose is fairly new in this state, and your 4-H club can demonstrate its value to the community by planting 1000 plants or more. These might be planted on several farms or all on the farm of an owner who would buy the plants.

If you demonstrate this fence, it is most important that you do a good job with all plantings made. The Missouri Conservation Commission suggests that you prepare the seed bed in the fall.

#### Preparing the Seedbed

Clean off the fence line for width of about 8 feet and disk thoroughly.

Manure the 8-foot strip and scatter 200 pounds of 4-12-4 fertilizer, or other fertilizer recommended for the local soil, to each quarter mile of fence line.

Plow a furrow down the center of the area and back-furrow until you have a bed about 8 feet wide.

Disk the plowed area thoroughly and let it settle until spring.



## Planting the Shrubs

In the spring when your plants come plow a bed furrow down the center of the strip.

Open a bundle of rose and keep the roots in a bucket of thin, "soupy" mud and water.

Hand set the single plants about 12 inches apart against the straight or land side of the bed furrow. (Space only 6 inches for hog-tight fence.)

Set the plants so that the root-collar will be about one inch below the ground level. Pack a handful of dirt against the roots to hold the plant.

Cover the plants by simply plowing the dirt back into the furrow; be sure the soil is not too wet. Cover the plants before setting too many, and be sure the dirt is thrown up over the root-collar.

Pack the dirt by running the rear tractor wheel along each side of the planted strip within one-half inch of the plants.

Sow about 30 pounds per acre of a 50-50 mixture of sericea and Korean lespedeza along the strip. That's about 8 pounds per quarter mile strip.

Mulch the entire site heavily being careful not to cover the plants. Straw, old hay, cane remnants, old sawdust and the like can be used. If you can't get mulching material, keep the weeds out by cultivating regularly. If you cultivate instead of mulch, sow the lespedeza after the last cultivation in the spring of the third or fourth year.

Trim the plants back to within 2 or 3 inches of the ground with pruning or hedge shears.

Keep the planting free of weeds and fence out livestock.

Check for dead plants and put in new plants at once. Probably about 10 per cent should be added to the order for replacement.

If you can't set out the plants at the time they arrive, "heel" them in. Dig a trench about a foot deep and slope one side at an angle of 45 degrees. A trench 10 feet long will hold about 1000 plants. Break open the bundles and spread the plants in a thin layer against the sloped surface with the tops above the ground line. Refill the trench with dirt and tamp thoroughly. Water the bed often enough to keep the soil moist. Put this trench in the shade or build an artificial screen of canvas, burlap, or other material a foot or two above the plants.

Sometimes you have to plant by hand. Make a hole in the prepared bed with a sharp-pointed tiling spade, commonly called sharpshooter, or some other suitable tool. Place a plant in the hole, being careful that no roots are sticking upward. Cover the roots well above the root collar and tamp well to be sure no air pockets are left. Then mulch heavily and cut back.

Your county agent can tell you how to order the plants.

## PLANT A WINDBREAK

Two types of windbreaks do well on Missouri farms. In the south-east corner of the state windbreaks

containing one or two rows of black locust or other broadleaf trees protect thousands of acres of cotton land from the killing force of blowing sand.

In all other sections of the state windbreaks of three or more rows of evergreen trees protect homes and farmsteads from cold, winter winds.

Windbreaks to stop sand and soil from blowing are ordinarily planted around field borders or in rows across large fields to decrease the size of the unprotected areas. These windbreaks should contain at least two rows of black locust, catalpa, Osage orange or ash. Space the trees about  $6\frac{1}{2}$  feet apart in the rows and plant the rows from 6 to 8 feet apart. Trees staggered in the rows give the most protection.

Windbreaks to protect the farmstead should consist of 3 or more rows of evergreen trees. These windbreaks provide the best protection when planted in an L shape along the north and west sides of the farmstead. Plant the trees at least 100 feet from the nearest building.

In northern Missouri, scotch and jack pines are the best trees for such windbreaks. In the south part of the state shortleaf and Virginia pines also can be used. Set the trees about  $6\frac{1}{2}$  feet apart in the rows, and space the rows from  $6\frac{1}{2}$  to 12 feet apart, depending upon the space and the kind of cultivation planned. The trees should be staggered in the rows. Remember, evergreen trees need careful handling and good planting methods if they are to live and do well.

### START A WOODLOT

Forest plantings are usually made to use waste land, to improve woodlands or to grow fence posts. Pine, red cedar, black locust, catalpa, black walnut and white, black and red oaks are good trees for such plantings. Shortleaf pine, red cedar and black locust are best for planting on idle land. Shortleaf pine seedlings and the acorns of white, black and red oaks can be planted in open areas in woodlands. Black locust and catalpa, which are planted for post production, will do best on rich, moist soils. Plant black walnut in good soils along creek banks and on north hillsides.

In open areas trees in forest plantings should be spaced about  $6\frac{1}{2}$  by  $6\frac{1}{2}$  feet. However, when you plant along creek banks and in woodlands, plant each seedling in a spot where it will have the best chance to grow. Don't worry about spacing.

### PLANT AQUATICS

For an average size farm pond three species of aquatics are recommended by the Missouri Conservation Commission, and two others are recommended for use in ponds larger than one acre. In average ponds plant duck millet or Jap millet, spike rush and leafy bulrush. In the larger ponds plant water-willow and calamus.

First, fence out livestock and be sure the pond is about full. Plant aquatics early in June, or better yet, in May. Early planting will give you much better growth the first year and better bank protection with fewer plants.

Find a source or sources of aquatic plants. You can buy millet or collect seed along wet places. All the plants must be transplanted. You can find them in old ponds, along slow moving streams or in sloughs along larger streams. If you are not sure of the plants, get someone from the Conservation Commission to help you or study the pictures in bulletins or books. Don't mistake bog rushes for spike rush, water plantain for arrowhead or cattails for calamus. Don't use mosses, pondweeds or waterlilies or get them mixed in with plants you transplant. These will choke the pond and make fishing difficult.

You will get better growth and lose fewer plants if you dig and reset these aquatic plants the same day and keep the plants moist and in the shade while you move them.

Usually single stems with roots are all you need. Prune back tall plants so that wind and waves will not uproot them.

Plant the calamus in the mud along the dam and the water willow in one foot of water, also along the dam. Plant spike rush and leafy bulrush in shallow water from two to four inches along the remainder of the pond dam. Scatter the seed of the millet at the edge of the water and cover it with a garden rake.

Try to collect enough plants to plant one at least every three feet. Check your work in a month and replant if necessary.

#### FERTILIZE A POND

A pond is practically sterile—nothing grows in it. The water in

it does not have the food fish need to stay in good condition and make normal growth. Before the pond can support plants or produce a good crop of fish, it must be fertilized to replace the good soil stripped from the bottom to form the dam. Fertilizer helps tiny plants and animal organisms to grow. It takes large numbers of these tiny organisms to provide as much food as young fish need. For best fishing you must keep these organisms growing well during the entire growing season, hence the need for regular use of fertilizer.

Estimate the water surface of your pond. Then use 1000 pounds of fertilizer per acre of water surface each year. Put on in ten equal amounts—about 100 pounds per acre at a time.

Use a 4-12-4 fertilizer and put it on on a still day. If your pond is less than three-fourth acre scatter the fertilizer evenly around the edge of the pond as far as it can be thrown easily. If the pond is larger, scatter part of the fertilizer from a boat.

Treat again in 10 days or 2 weeks. Look for a change of water color to a pea green. That shows the fertilizer is doing the right job.

There should be 5 times as much acreage in the watershed as the water surface.

It is not practical to fertilize spring-fed ponds.

#### STOCK A POND

Before planting fish in a pond, be sure the pond is ready. The banks must be completely covered with

grass. Check the water shed to see that dirt is not washing in to muddy the water. Stop this if it is happening. See your county agent about erosion control methods. Clear the water, if silty and murky, with vegetation as directed. Finally, make sure that the pond is nearly spillway full before planting so that the baby fish will have the best possible chance of living.

### **PLANT A THOUSAND NUTS**

Stratified black walnuts planted in good soil will supply trees, nuts and lumber for the future. Stratified nuts will germinate much more quickly than unstratified ones. This lessens the likelihood of squirrels and other rodents digging them up and carrying them off.

Plant to a depth three to four times the diameter of the nut. Plant in early spring.

This is a way of giving back to nature some of the things she has given to you. You will get very little good out of these plantings yourself but you will enjoy the fact that you are helping to maintain one of Missouri's most valuable trees.

### **GROW FEEDING SHELTERS**

Feeding shelters for wild animals and birds should be used only in emergencies. Natural feeding shelters of trees or shrubs will protect the birds against ice and snow and will not allow wild animals to trap the diners. Provide several shelters so birds will not be forced to use a single place.

Evergreen trees such as pine or cedar probably make the best shel-

ters. The trees you use will depend on your location. See or write the extension forester or your county agent, or read bulletins from the Extension Service or the Conservation Commission to find which are best for your area.

Plan to make your plantings early in the spring. Select sites near the winter homes of the birds and animals to be fed. Be sure larger trees will not shade your plantings and kill or stunt them.

Lay out your planting site in the shape of a half moon or open square with the openings to the south. Make the mouth or opening at least 10 feet wide. Use as large trees as you can transplant. Plant your trees close enough so that the limbs almost touch; or make a double line, staggering the trees in the rear line so that they cover the open spaces in the front line.

Never let the roots of evergreens dry out. Plant the same day you dig them, if you can. If you plant in grass, dig out the sod in a two foot square and set the trees in the center of the "scalped" spot. Keep weeds and grass down around the trees and fence livestock out. Replace dead trees the second spring.

### **START A BIRD REFUGE**

Since crops on a farm do better when there are lots of birds, 4-H boys and girls should be interested in bird refuges. The average number of birds in the United States is two birds to the acre, but if you protect and take care of them, you can increase that number where you

want them and need them. Birds eat insects, and the more birds there are the more insects they'll eat.

You can start a refuge on almost any ground if there is plenty of water near. Most 4-H'ers would be interested in a refuge in a farm wood lot, since woods furnish natural food and cover.

Nest boxes will be needed if there are no longer enough decayed trees for natural homes. Also the birds may need extra food. In clearing woodlands, leave a few wildberries. Plant them if they are not present. In winter, birds need extra food such as suet, pork-rinds, seeds and the like.

The three most common enemies of a good bird refuge are fire, livestock and the presence of predators. Be sure none of these keep birds from using the refuge.

#### **CONDUCT A RAT CAMPAIGN**

Those working in conservation will be interested in building up bird life—except sparrows and starlings—fish and many other kinds of game. And they will be interested in cutting down rat numbers. Occupation of the land by man has harmed many forms of wildlife, but the corn crib and grain bin has been a boon to "Mr. Rat." Rat control is as much a part of conservation as is the protection of other wildlife.

A rat campaign conducted by a 4-H club probably would be a community affair in which special efforts would be made by members to rid their home farms of rats and to get other farm operators in the area to do the same.

See your county agent about the best way to get rid of rats.

#### **SET UP A RIFLE RANGE**

Boys and girls interested in the safe and correct use of firearms can improve their skills by practice on a rifle range.

The actual setting up of the range should be done under the supervision of a highway patrolman or a field service agent of the Missouri Conservation Commission.

Shooting on the range should be only at certain times and under the supervision of an adult skilled in the use of firearms.

If members like this kind of recreation, they may form a junior rifle club and qualify for markmanship medals.

#### **MAKE A PELT EXHIBIT**

To make a pelt exhibit you'll need to do a lot of trapping and mount the skins. The exhibit is only the evidence of your work.

Fur is a possible source of income for boys. Muskrat, raccoon, mink, skunk, fox, opossum, and other fur bearers should be harvested to keep them from becoming too plentiful.

Try to locate a good trapper in your community who is willing to teach you how to trap, how to skin and how to mount skins for curing.

After the winter's harvest of pelts is done, an exhibit will give a trapper or fur dealer the opportunity to point out the value of proper care of skins. Twenty to 80 per cent cash value of furs is lost because of wrong handling.

## **GROW A LIVING CHRISTMAS TREE**

A 4-H club will make a good impression in its community if every 4-H home can have one or more living Christmas trees, decorated in the traditional way during the Christmas season.

When you set these trees out keep in mind their use at Christmas time, but try to fit them into the landscape picture the year around.

Living Christmas trees can be planted as a part of the home setting or they can be placed near schools, churches, and club houses. Be sure to place them so they can be lighted at Christmas time.

Any up-right evergreen will make a good Christmas tree. Jack pine or scotch pine is often used.

## **MAKE A BLUEBIRD TRAIL**

You can make a bluebird trail by placing bluebird boxes along fence rows of a county road. A trail can have any number of boxes and may cover many miles.

Place the boxes on solid fence posts facing the south or southeast well away from the house and barn. Bluebirds don't enjoy the competition of sparrows and starlings or the company of cats. Place the boxes 3 or 4 feet above the ground and paint them some dull color such as dirt-brown or blue-gray. They should be placed about half a mile apart.

A simple easy-to-make box with a hinged top to allow for cleaning is best.

## **RAISE GOURDS**

Younger 4-H members can help in wildlife conservation by building wrens' nests from dipper gourds.

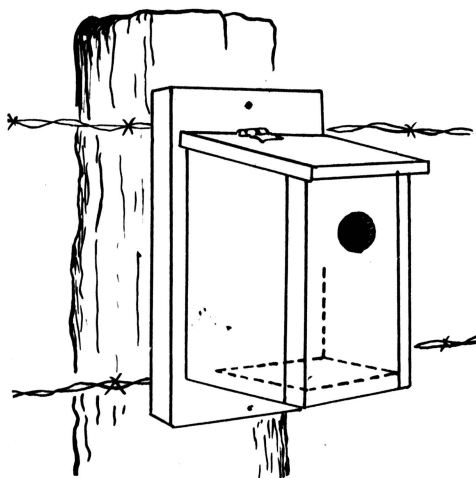
A few gourd seeds planted by the back fence or some other likely place will provide plenty of gourds. After they are harvested and cured, nest boxes can be made by cutting a hole about the size of a quarter just at the base of the neck. A wire can be run through a small hole at the end of the gourd neck and the nest hung in some place not too far from food and water.

Some care will have to be taken in curing the ripened gourds. When they have their growth, pull them and hang them in the shade to dry. A tree with wide spreading branches or a machinery shed is a good place to cure the gourds. Should they start to mold, bathe them in a solution of copper sulphate (Blue stone) or lysol.

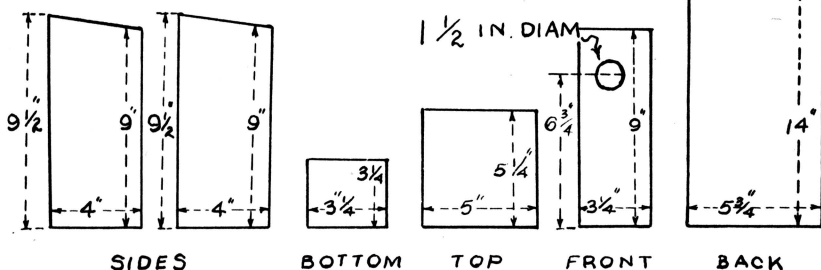
## **BUILD BIRD HOUSES**

You'll get a lot of pleasure and satisfaction by building nest boxes and other home facilities for birds. Too often the natural nesting sites have been destroyed and birds need help in finding a place to nest. If you have not built a nest box, you have missed a very pleasant challenge. Can you build a nest box so that the kind of birds you intended it for will nest in it? Can you? That is the challenge. Plan now to answer that challenge by building and putting up nest boxes.

Fifty or more species of birds have nested in bird boxes. If you



A simple bluebird house is easy to make. Fasten the top on with a hinge to make cleaning easier. Place the house five to 15 feet from the ground in a sunny place along the roadside. You can get a drawing of this house from the Education-Information Division, Missouri Conservation Commission, Jefferson City, Mo. Ask for Chart No. 3 of the bluebird house plans.



Here are the detailed plans of the blue bird house. (Courtesy of the Missouri Conservation Commission.)

want to increase the birds of a certain species around your home you will need to study their life habits and their nesting habits. The design of the bird house, size of entrance, the protection it gives from predators, rain, and coolness and other factors need to be considered when trying to encourage birds to live in your bird box.

Blue birds are among the least particular of bird tenants. Most any type or design will meet their needs when built the right size and well located.

In Table 1 the dimensions and

height above ground are given. This table is taken from Conservation Bulletin 14, "Homes for Birds", by U. S. Department of Interior Fish and Wildlife Service. This bulletin contains a lot of information about several species of birds and their nesting habits. You can get a copy from the Superintendent of Documents, Washington, D. C., for ten cents.

**REMEMBER THE COTTONTAIL**

A 4-H club interested in conservation soon will realize that it can provide some fine recreation in hunting and fishing. So be sure not to

TABLE 1.—Dimensions of nesting boxes for various species of birds that regularly use them, and the height at which they should be placed above the ground

Species	Floor of cavity	Depth of cavity	Entrance above floor	Diameter of entrance	Height above ground <sup>1</sup>
	Inches	Inches	Inches	Inches	Feet
Bluebird	5×5	8	6	1½	5-10
Robin	6×8	8	(2)	(2)	6-15
Chickadee	4×4	8-10	6-8	1½	6-15
Titmouse	4×4	8-10	6-8	1¾	6-15
Nuthatch	4×4	8-10	6-8	1¾	12-20
House wren	4×4	6-8	1-6	1-1¼	6-10
Bewick's wren	4×4	6-8	1-6	1-1¼	6-10
Carolina wren	4×4	6-8	1-6	1½	6-10
Violet-green swallow	5×5	6	1-5	1½	10-15
Tree swallow	5×5	6	1-5	1½	10-15
Barn swallow	6×6	6	(2)	(2)	8-12
Purple martin	6×6	6	1	2½	15-20
Song sparrow	6×6	6	(3)	(3)	1-3
House finch	6×6	6	4	2	8-12
Starling	6×6	16-18	14-16	2	10-25
Phoebe	6×6	6	(2)	(2)	8-12
Crested flycatcher	6×6	8-10	6-8	2	8-20
Flicker	7×7	16-18	14-16	2½	6-20
Golden-fronted woodpecker	6×6	12-15	9-12	2	12-20
Red-headed woodpecker	6×6	12-15	9-12	2	12-20
Downy woodpecker	4×4	8-10	6-8	1¼	6-20
Hairy woodpecker	6×6	12-15	9-12	1½	12-20
Screech owl	8×8	12-15	9-12	3	10-30
Saw-whet owl	6×6	10-12	8-10	2½	12-20
Barn owl	10×18	15-18	4	6	12-18
Sparrow hawk	8×8	12-15	9-12	3	10-30
Wood duck	10×18	10-24	12-16	4	4 10-20

- 1 During the experimental bird-house study boxes at moderate heights mostly within reach of a man on the ground were readily accepted.
- 2 1 or more sides open.
- 3 All sides open.
- 4 Based on experience gained on national wildlife refuges, where approximately 2,500 boxes have been erected for hole-nesting waterfowl.



Simply bury one end of a broken tile in the ground to make Mr. Cottontail an ideal home.

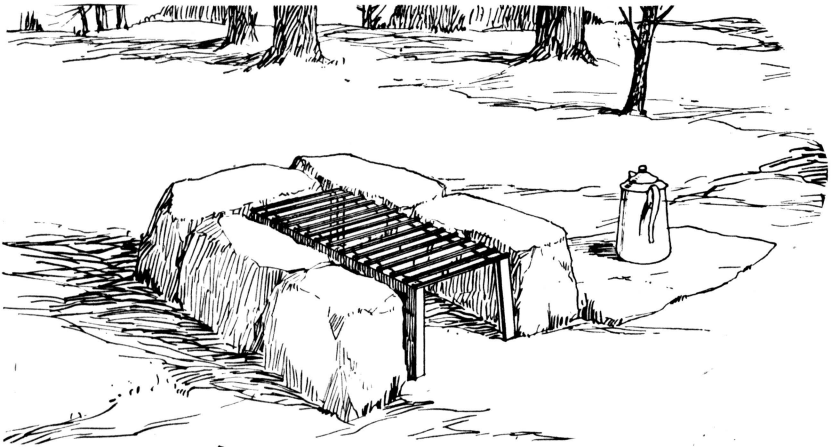
overlook the cottontail rabbit. He may be hunted or he may be trapped, but first let's think of his cover. In

timbered areas, cover is not a problem, but out on the prairies where the rabbit flourishes you may want to provide some burrows.

A simple way is to bury chopped, broken or discarded tile. Bury the tile about a foot deep at the lower end and let the upper end stick out of the ground. Throw some grass or trash over the open tile and wait for bunny to make his home there.

If you like to trap, put your rabbit traps near the burrows.





This rock slab fireplace is easy to build and comes in handy at the picnic area. Dimensions are: grate 14" x 28", side walls 38", end wall 24". You can get these plans from the Forest Service, U. S. Department of Agriculture, Washington, D. C. Ask for the bulletin, "Camp Stoves and Fireplaces." (Drawing courtesy Forest Service, U. S. Department of Agriculture.)

### EQUIP A PICNIC AREA

Is there a good picnic place in your neighborhood where your club can have a "cook out" or where adult picnic groups or family groups can have a meal outdoors? If there isn't, your club could do something about it.

The most needed pieces of equipment for a picnic area are tables and an oven. Most any group of boys can build a good picnic table.

An oven is a bit more of a problem. But you can build a simple grate out of native materials at low cost. Cooking over a grate will reduce the fire hazard of outdoor cookery.

Some 4-H clubs have developed ponds for recreational purposes by making plantings, stocking with fish, fertilizing and the like. Then they have gone a step further and built a grate and a table or two to

make the area into a good picnic site. Imagine the fun they have catching and frying fresh fish on an open grate.

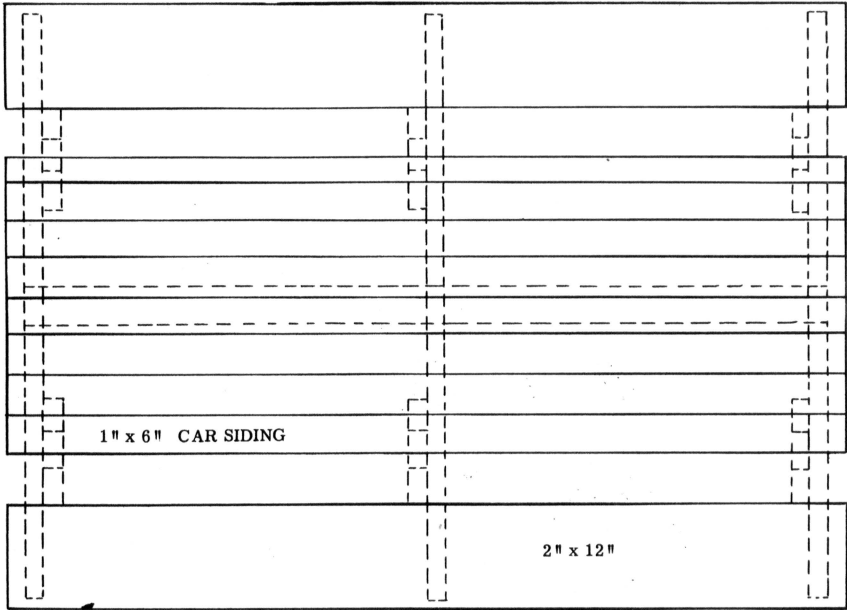
### MAKE COLLECTIONS

Youngsters like to save things—bugs, rocks, woods, and the like. If your club starts a wildlife collection, you'll get lots of fun out of it.

#### Animal Tracks

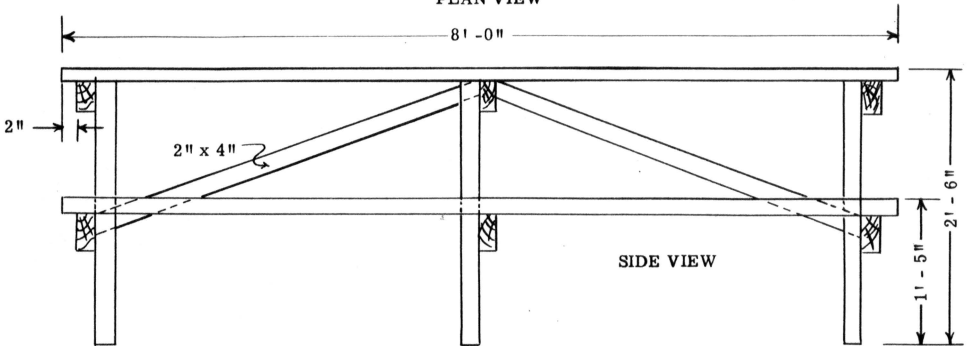
Farm boys and girls enjoy finding fresh animal tracks, making plaster of paris molds of them and finally mounting, identifying and placing them in their wildlife collection.

Here's how you'll usually find fresh tracks while on a nature trail tour just after a rain, along the banks of ponds and streams where the animals have gone for food and water. After an overflow is an

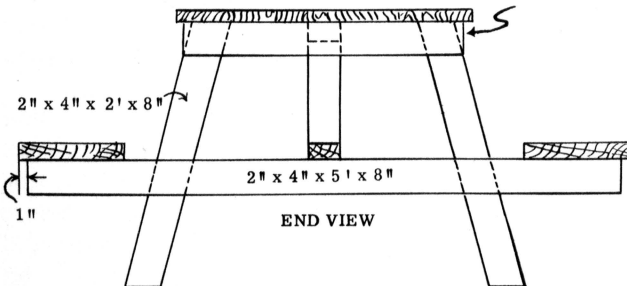


PLAN VIEW

8' - 0"



2" x 4" x 2' x 8"



Bill of Material

Lumber:

- 2 - 2" x 4" x 10' - 0"
- 1 - 2" x 4" x 16' - 0"
- 1 - 2" x 4" x 12' - 0"
- 1 - 2" x 4" x 8' - 0"
- 1 - 2" x 12" x 16' - 0"
- 4 - 1" x 6" x 16' - 0" ~ T & G

Hardware:

- 1 lb. 6d finishing nails
- 3 lb. 20d spikes

Follow these drawings to make your picnic table. (Courtesy of Agricultural Engineering Department, University of Missouri.)

especially good time to look for them.

Set a narrow strip of cardboard down around the track as a mold. Then, pour plaster of paris, mixed with water to a thin paste, into the mold.

After the plaster of paris has hardened for a few minutes take off the mold.

Finally, wash the cast and check the track on an identification table. You can saw, shave and smooth it up for exhibit if you wish.

### Insects

For collecting insects you need a net, which you can make, a killing jar with some ethylacetate and a small jar or bottle in which to store the dead insects until you can mount them.

An old cigar box is a good collection box. Fit it with double-faced corrugated or other thick cardboard, glue, a moth ball, some common pins and a few matches.

Mount the insects as soon as you can, before they dry out and become brittle. Here is the way.

Stick the pin through the body just back of the head. The pin goes through the wing of beetles.

Hold the insect between the thumb and forefinger.

Start the pin into the body from the top side. Then, push it through the corrugated paper and anchor it. Pull the insect up near the head of the pin.

Butterflies usually are placed upon a spreading board until dry and then mounted.

After each insect has been pinned

and identified, fill out the label including the common name, the order of the insect, the place, date and your name and place on the pin under the insect.

### Wood Specimens

Here is a good way to collect and mount wood specimens.

Cut specimens from live trees, taking sections 6-12 inches long from limbs  $1\frac{1}{2}$  or 2 inches in diameter. Take about the same size from the same parts of trees of the same ages. Keep the bark and cut the ends square across. You can collect specimens at any time, but it's best to collect them in winter. They should be marked for complete identification later.

Place the specimen in a vice and split through the heart with a splitting saw, down about  $1\frac{1}{2}$  inches. Then turn it on one side and saw on a bevel to meet the first cut at a 45 degree angle. Cut the bottom off squarely, making all specimens the same length—about 4 inches long.

Season in a cool dry place for a month and smooth the specimens, using a chisel, block plane, wood rasp, broken glass edge or sandpaper. Treat half the smooth surface with two coats of white shellac or spar varnish. This will contrast the "grain" or "figure" of the wood before and after it is varnished or shellaced.

Mount the specimens on a  $\frac{1}{2}$  or  $\frac{3}{8}$  inch dressed board large enough to hold the whole collection. Put a small screweye in the top of each specimen and hang it from a hook

in the board, with varnished surfaces in front. Put the screws in the board in neat rows. Just below each specimen place a small white slip of paper with the name of the tree and a few principal uses of the wood.

### Leaves and Leaf Prints

You can make leaf collections and prints anytime from May until late fall. Use only typical specimens, not the leaves from small seedlings or sprouts.

Spread out the leaves as soon as you collect them and carry them home in a notebook. All compound leaves, such as ash, locust and walnut, should be shown in full, not just one leaflet or part. Press the leaves under weight until dry.

When this is dry and pressed, mount the whole leaf, both the leaf and stem, and hold it in place on paper by strips of gummed or scotch tape. Leave at least two inches at the bottom of the page for the name of the tree and its main uses. It is best to mount two average sized leaves of each kind, one showing the upper surface and the other the lower surface. Glue needle-leaved southern cypress and shortleaf pine to the paper to prevent shattering.

Make leaf-prints from fresh leaves before they are pressed and dried. Press the lower side of the leaf against an ink-soaked blotter or on an ink pad. Gently press the leaf down on the pad, cover with a piece of newspaper and rub it lightly with a circular motion. Lift the leaf from the pad and spread it out with the inked surface touching the paper. Cover it with a newspaper and light-

ly rub it. Experience will help you improve your methods and results.

### MAKE AN EXHIBIT

If you appreciate the need for wildlife conservation you will want to tell others about it. An exhibit is a good way to do this.

A good exhibit attracts the passer-by so he will stop to look at more detail. Then it tells the story tersely and simply.

Suppose the theme of an exhibit is "The Bob White Quail Is the Farmers' Friend." With charts, pictures and other material tell the reasons why. Then suggest some things that will increase quail coveys. If possible have some live birds. Living things always improve an exhibit.

Other good themes are: Cover for Wildlife; Food for Wildlife; Make the Farm Pond a Wildlife Center; The Farmer and the Sportsman Clasp Hands; A Farm Windbreak Has Many Values; A Living Farm Fence (Multiflora Rose); Fur Can Be a Crop; Replace the Cur with a Good Farm Dog; Fish Have To Eat; Let's Have More Songbirds.

You can extend the list on and on. Try to arouse the curiosity of your visitor and then have the answer for him if he looks for it.

### START WILDLIFE MUSEUM

When we say wildlife museum we are not thinking of large, expensive buildings and elaborate displays. We are thinking of a case or two placed in the school building, the public library or some other public place.

Starting a museum is a simple job for those who have made a successful collection. Perhaps the best a 4-H club could do would be to start a permanent display of this sort, find exhibit space and equipment, and get someone to take charge of it. It may grow of its own accord as fast as space is provided. At any rate the public should be urged to help.

### HOLD BOY-DOG FIELD MEET

Field trials for dogs are big events. Sportsmen travel long distances to enter their dogs in such meets. We have in mind nothing so elaborate as this.

It is possible, however, to have all your club members bring their dogs together and put them through tests for farm dogs. The test serves the same purpose in dog training as an exhibit of livestock does to livestock project members. Every club member well knows that it takes a lot of work to get ready to exhibit an animal. In the same way the obedience test high lights the program of selecting and training a good farm dog.

### Farm Dogs

A good farm dog must have one of three qualifications. He must be a good watch dog, a good stock dog or a good hunting dog. It is possible to have a dog that will meet two or even all three of these qualifications. His value in any case will depend upon his breeding and training.

An article by Frank Mathews in the March, 1949, issue of *Successful Farming* classifies good farm dogs as follows:

#### HERD DOGS

Collie (sheep)  
Welsh Corgi (cattle)  
Belgian Sheep dog

#### HUNTING DOGS

Pointer (birds)  
Beagle (rabbits)  
Setter (birds)  
Labrador Retriever (ducks)  
Black and Tan (coon)

#### GUARD DOGS

Rottweiler  
St. Bernard

#### RAT DOGS

Schnauzer  
Cairn Terrier

#### ALL-PURPOSE DOG

German Short Haired Pointer

His article and a later one in the February, 1950, issue of *Successful Farming* on training a dog are excellent material.

Many Missourians would add a shepherd and a border collie to the herd dog list, a foxhound to the hunting list and a smooth-haired or wire-haired terrier to the ratter list.

Davis in *The Modern Dog Encyclopedia* lists 28 breeds as working dogs. The list includes all of the herd dogs mentioned and other well known breeds such as the Boxer, Doberman pinscher, German shepherd, Old English sheep dog and Shetland sheep dog.

The Missouri Library Commission has these books on dogs: (Boy Scout Merit Badge Series) *Dog Care*, W. L. Judy, 1942; *Care of the Dog*, Josef Weber, Judy Publishing Co., 1946; *The Dog in Training*, McGraw, 1939.

Dogs should be trained to respond to the following commands:

**Whoa**—Stop and stay where he is.

**Sit**—Sit down with front feet on the ground and remain in this position.

**Lie down**—Lie down and remain in this position.

**Stay**—Remain where he is, probably is not necessary if the dog responds properly to “whoa”, “sit” and “lie down.” However, men who have well trained dogs use it.

**Heel**—Dog walks at trainer’s heel and is under control. Some command to end the activity of a dog as a result of the above five commands is necessary. “O. K.” is not a recognized command, but it works.

**No**—The word means just what it says and is very useful in teaching a dog good manners especially if he is allowed in the house. Training a dog to fetch is not exactly necessary in an obedience test. However, it would be worthwhile to have it on the list. The dog could be used to bring in the paper and also to retrieve game.

### HUNT AND FISH

Oftentimes in a community there is a man noted for his hunting and fishing, his good sportsmanship and his care in using good hunting or fishing practices. Such a person could add much to the enjoyment and learning of the club in the wildlife activity, but often he is overlooked. He should be recognized and used by the 4-H club whenever possible. If members are old enough, perhaps a float trip or fish-

ing expedition could be carried out under the direction of a skilled fisherman. Since hunting, if done right, is a part of the conservation program, 4-H’ers might enjoy and benefit from a fox, ’coon or ’possum hunt. A local hunter, recognized for his abilities could lead this activity. By using local people whenever possible, a 4-H club cannot only add to their own learning, but can get the interest and aid of people in the community in helping do the job of wildlife conservation.

### CONTROL THE CATS

In well-settled communities the house cat is probably the greatest single enemy of game-bird and song-bird conservation, say Grange and McAteer in U. S. Conservation Bulletin #2. Cats have been known to eat eggs just about to hatch. They capture young songbirds in their nests. They kill incubating quail and prairie chickens on their nests. You can help prevent some of this damage in three ways:

1. Keep the cat supply down, not more than *two* to a farm.
2. Lock those two in a store house at night.
3. Kill stray cats.

Cats do most of their damage at night and early morning. Keeping them up at night and feeding them will help a lot. You are justified in making war on the stray cats.

### TELL THE WILDLIFE STORY

Let the people of your community know about wildlife and what your club is doing to take care of it. Here are some ideas.

### Stage a Hobby Show

One good way to tell your story is to have an exhibit or hobby show at the club's local and county achievement days and community and county fairs. Show some of the things your club is doing in wildlife conservation. Your show can include bird houses, den boxes, wildlife pictures, collections of leaves, wood samples, flies, fish hooks, growth rings, baits, and the like.

### Put on Programs

Here are some suggestions for programs at county councils.

Discussion (Conservational huddle) on wildlife.

Talk and/or movie by field service man of the Missouri Conservation Commission.

Wildlife slides of scenes taken in the county.

Wildlife check sheets.

Wildlife demonstrations.

Here are some suggestions for wildlife numbers on programs at club meetings.

### Indoor Demonstrations

How to make a leaf print.

How to prepare a pelt.

How to make fishing lures.

Mixing poison for rats.

Making casts of tracks.

Making birdhouses, dens, feeding stations.

Making dough bait.

Making a killing jar for insects.

How to mount an insect.

How to handle firearms safely.

How to adjust a farm level.

### Outdoor Demonstrations

Making an artificial winter shelter for quail.

Planting a natural feeding shelter.

Making a burrow with a drain tile.

Planting multiflora rose.

Planting aquatics.

Fertilizing a pond.

How to cast.

How to train a dog.

How to lay off a contour line.

How to set a wolf trap.

How to plant a tree or shrub.

How to do any form of outdoor cookery.

### Talks

How to attract birds.

Farm game as a crop.

Winter feeding of birds.

Planting a farm windbreak.

Making a forest plantation.

Useful farm dogs.

Farmer sportsman relationships.

Cover for quail.

The multiple farm pond.

The multiflora rose.

### Crafts Related To Wildlife

Making bird houses, dens, feeding stations and rabbit traps.

Fly tying.

Gourd crafts.

Basketry.

Mats and hearth brooms from broom sedge.

Spoons from roots.

Wood carving of birds, animals and fish.

Table decorations using leaves, wild fruits and wood.

Ceramics.

Ornaments.

## REFERENCES

You can get more information on some of these projects from publications on this list.

1. Missouri Conservation Commission—"Pond Development for Wildlife."
2. National Rifle Association, Junior Division, 1600 R. I. Ave., Washington, 2, D. C.
3. Missouri Conservation Commission, "Fur As a Crop," Bulletin #3.
4. U. S. Department of Agriculture, "Home Tanning," Farmers Bulletin 1334.
5. Missouri College of Agriculture, "Planting and Care of Forest Trees," Extension Circular 563.
6. Missouri Conservation Commission, "Bluebird Houses," Chart 3.
7. U. S. Department of Interior, Fish and Wildlife Service, "Homes for Birds," Conservation Bulletin 14.
8. Missouri College of Agriculture, "Study of Insects," 4-H Club Circular 50.
9. Missouri College of Agriculture, "Forest Appreciation," 4-H Club Circular 45.
10. *Dog Care* by W. L. Judy, 1942.
11. *Care of the Dog*, by Josef Weber, Judy Publishing Co., 1946.
12. *The Dog in Training*, McGraw, 1939.