4-H Wildlife Project

Unit II

Extension Division
Virginia Polytechnic Institute
and State University

Record Book 71
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How To Use This Project

This project may be done individually or as a group project. Regardless of the method, the section on wildlife ecology must be completed before the section on wildlife management is started. If done as a group, each part of the ecology section may be done as part of a regular 4-H meeting. Group discussion and participation will be helpful in completing those parts. The management section lends itself well to group participation, but activities such as surveying and habitat manipulation will have to be done as part of special meetings out-of-doors. Committees can be appointed to complete different parts of the management section.

As you complete the ecology section, you will find that all of the questions asked are answered somewhere in the manual. Look for these answers. As you complete the management section, try to plan your activities to correspond with the proper seasons. For example, mapping and surveying can be done any time, but plantings and nest box erections should be done in the spring.

Where possible, your management activities may be conducted as part of county game food patch contests, scouting projects, community beautification projects, or other activities.

Sources of plant materials are listed on a special publication in your county extension office or SCS office.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, and September 30, 1977, in cooperation with the U.S. Department of Agriculture. W. R. Van Dresser, Dean, Extension Division, Cooperative Extension Service, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061; M. C. Harding, Sr., Administrator, 1890 Extension Program, Virginia State University, Petersburg, Virginia 23803.

4-H WILDLIFE PROJECT II

How would you like to be an amateur wildlife manager? A good wildlife manager has the ability to watch carefully and understand what he sees. This project will help you to observe and think in just such a manner. The first part of this project will give you practice in making observations and drawing conclusions; the second part will ask you to apply what you learned. Careful observation and interpretation will not only help you complete this project, it will help you understand the world around you.

Wildlife Ecology

Wildlife and Habitat

By now you should be aware of the fact that animals cannot live on air and sunshine alone, but need 3 other essentials to survive. These 3 other requirements are suggested in the picture on the previous page. List them in the following spaces:

1. _____

2. _____

3. _____

Although all animals need these essentials to live, each kind of animal needs a special form or combination of these essentials called habitat. Directly or indirectly, green plants and their combinations create the essential habitat animals need. But plant groups change with time and thus the animals that live in them must also change. For example, think of bare soil. What are the first kinds of plants to grow on bare soil? What other kinds of plants follow? Complete the following chart using this sort of thinking. The picture below the chart will help you.

Type of Habitat	Kinds of Wild Animals
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____

This change in habitat of plant groups is called succession. Thus you can see that the kinds of animals present in an area depends on the stage of succession and that by altering this habitat, the types of animals can be controlled. For example, if rabbits need fresh green vegetation to eat and stiff, tangled vegetation to hide in, what could you do to bare soil if you wanted rabbits?

_____

_____

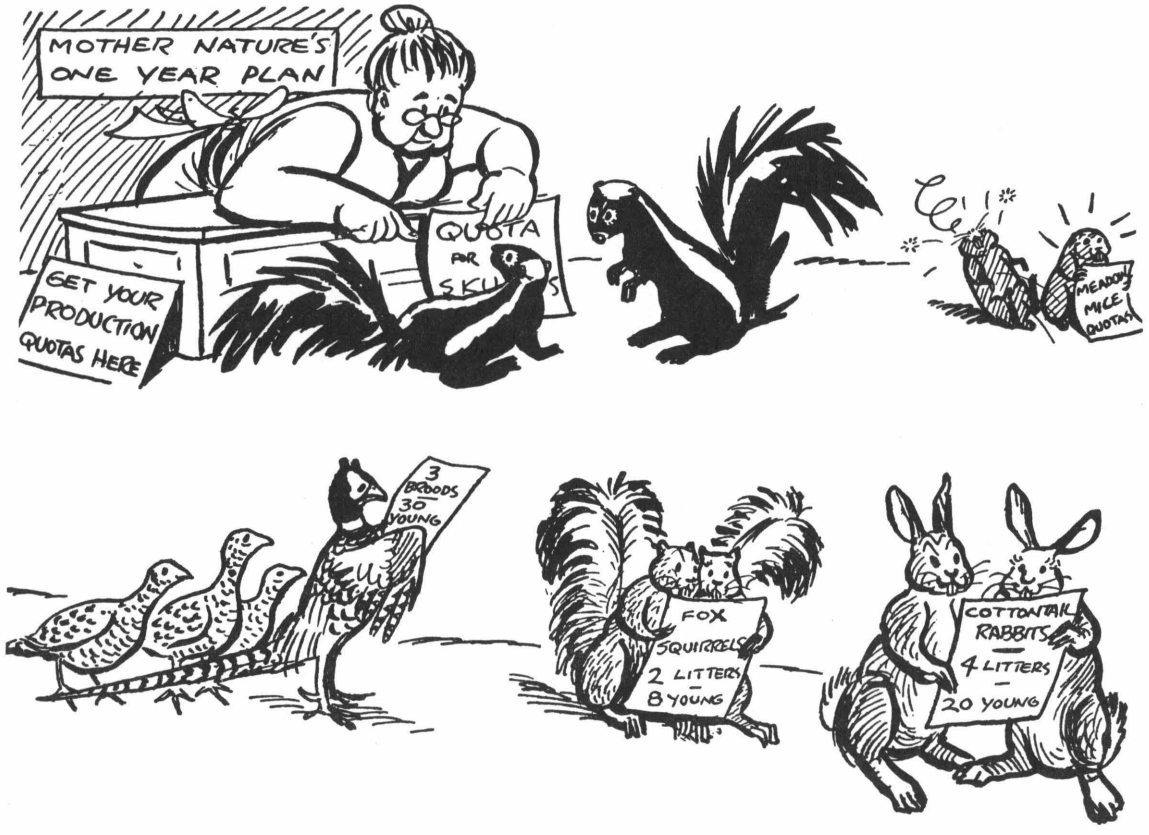
If deer need tender, young twigs to eat and heavy brush to hide in, what could you do to a forest if you wanted more deer?

_____

_____

Numbers of Wildlife

Just as the kind of habitat determines the kinds of animals, the amount of available habitat determines the number of animals present.



In other words, the more food and cover, the more animals; and the less food and cover, the fewer animals. If there is plenty of food and cover, more young animals are produced and more will live to be adults. If there is little food and cover, fewer young animals are produced and fewer live to be adults. Furthermore, wild animals always produce more young than there is room for them to survive. The following example illustrates this: Example: Assume that you have one acre of land (208 ft. x 208 ft.) and two rabbits, one male and one female. Also assume that the female will have 2 litters with 4 young in each litter, although female rabbits can have many more young than that. For simplicity, assume half of the young are females and half males. How many rabbits will you have in 3 years on one acre?

1st year - 1 male + 1 female = 8 young. Total number = 10 rabbits.
2nd year - _ males +_ females = _ young. Total number = ___ rabbits.
3rd year - _ males +_ females = _ young. Total number = ___ rabbits.

Can you imagine that many rabbits on so little space? Of course you cannot because although rabbits can reproduce that fast, most of the young die or are killed. This is true for all wild animals. In general, 1/2 of all wild animals die each year.

What causes the young rabbits or any young animal to die? The following picture will help you. (Hint: one cause of death is predators; do not list different kinds of predators)

1. _____

2. _____

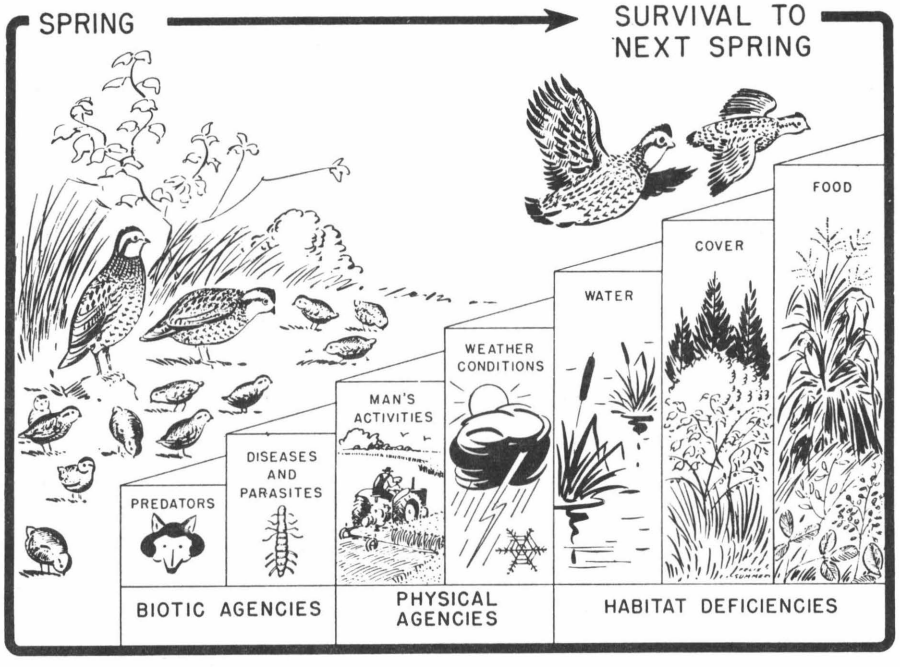
3. _____

4. _____

5. _____

6. _____

7. _____



Factors that hold down wildlife populations are shown as hurdles over which the birds hatched in one spring must fly if they are to survive to the next spring. Only a few of these limiting factors can be controlled by man. The effects of predators may be modified, but with uncertain results. Little can be done about diseases and parasites. Some of man's activities, such as time of plowing, could be changed; others, such as time of mowing meadows, cannot very much. The greatest changes, fortunately, can be made in the most important factors. Success in managing land to produce useful wildlife lies in improving the amount, quality, and distribution of food, cover, and water.

What determines how many young animals die?_____
(For example, you should have listed starvation as a cause of death. Now what determines how many animals starve to death?)

Wildlife, Habitat, and Man

By now you should be able to see that if you want more wild animals, you will have to stop so many young from dying. Death in wild animals is most easily stopped by providing them with adequate food, cover, and water. If animals have plenty of food, they will not starve; if they have plenty of cover, they will be protected from weather and predators; if they have plenty of all 3, they will be strong and healthy.

Almost all of the things that man does changes the amount of food, cover, and water. Complete the following chart by filling in an activity, a specific animal, and whether that activity is helpful or harmful for the animal listed.

	Activity	Animals	Helpful or Harmful
1.	farming (example)	rabbits	helpful
		bears	harmful
2.	cutting trees in forest	squirrels	
3.	construction of buildings & roads	pigeons	
		bears	
4.	draining marshes	ducks	
5.		ducks	helpful
			harmful
6.	hunting		helpful
		hawks	

However, you will recall that wild animals almost always produce more young than can survive. Remember the rabbit example. It is impossible for one acre of ground to produce enough food and cover to support 250 rabbits, no matter how hard people try to make it do so. As a matter of fact, one acre of the best land can support no more than 5 or 6 rabbits. Thus, the extra animals produced are surplus. This is similar to cows on a cattle farm. Think of all the calves produced by the cows on the farm. There is not enough room on the farm for all of them to grow, so the farmer saves only the number for which there is room, and slaughters or sells the rest. The same is true of wild animals. Just as the farmer harvests the surplus cows, the hunter harvests the surplus wild animals. In both cases, there are enough left to produce more for the next year.

With some animals, such as deer, hunters must harvest the surplus. If they do not, the surplus animals will live long enough to eat up all the food and cover. When this happens, almost all the animals will die. What prevents the hunter from taking too many animals?

_____

Because of this, hunting laws must be obeyed. If they are not, the number of wild animals will decrease. However, be sure to note that hunting laws will not result in more wild animals if there is not enough _____, _____, and _____ to support them.

Small productive habitat means small breeding stock and

Small surplus to be taken by hunter and natural factors

Productive cover unchanged

Stocking rabbits means adding to natural mortality

Increased carrying capacity means larger breeding stocks and

Greater surplus
More game in the bag

Sometimes people think they can improve on the natural process and order of wildlife. For example, some people try to add more wild animals to an area simply by releasing new animals into the area. This is called stocking. What do you think happens to these new animals if there is no feed and cover for them?_____

Generally speaking, if there is adequate food and cover in an area, natural reproduction has already added all the animals that areas can hold. Stocking works only if there is adequate food and cover for the animal stocked and if the stocked animal does not already live on the area stocked.

By now, you should be aware of the fact that wild animals need a special kind of habitat to live. You should also be aware of the fact that the number and kinds of animals can be controlled by changing the habitat. The following activities will help you do just that.

Wildlife Management You Can Do

You can make your habitat more interesting by increasing the numbers of wildlife you can see and enjoy. No matter where you live, you will be able to manage for some form of wildlife. Of course, the amount of land available for you to use will determine how much you can do, but you can do something. For example, if you live on a farm and only do one activity, your project will be incomplete, but if you live in a city and do some of the activities, your project will be complete. You will be asked to select a piece of land, map it, survey for wildlife and manage when possible for that wildlife.

As you work on this project, the following people can give you excellent ideas and advice:

1. The Extension Specialist, Wildlife, VPI
2. Your county Extension Agent, Agriculture
3. Your county Soil Conservation Service agent
4. Your county Game Warden, Virginia Commission of Game and Inland Fisheries
5. Your area Biologist, Virginia Commission of Game and Inland Fisheries
6. Your county Forester, Virginia Division of Forestry
7. National Forest Ranger, U. S. Forest Service

Selection of Management Area

Locate an area on which you can conduct your wildlife management activities. If this land does not belong to your family, be sure to obtain permission for your activities from whomever owns the land.

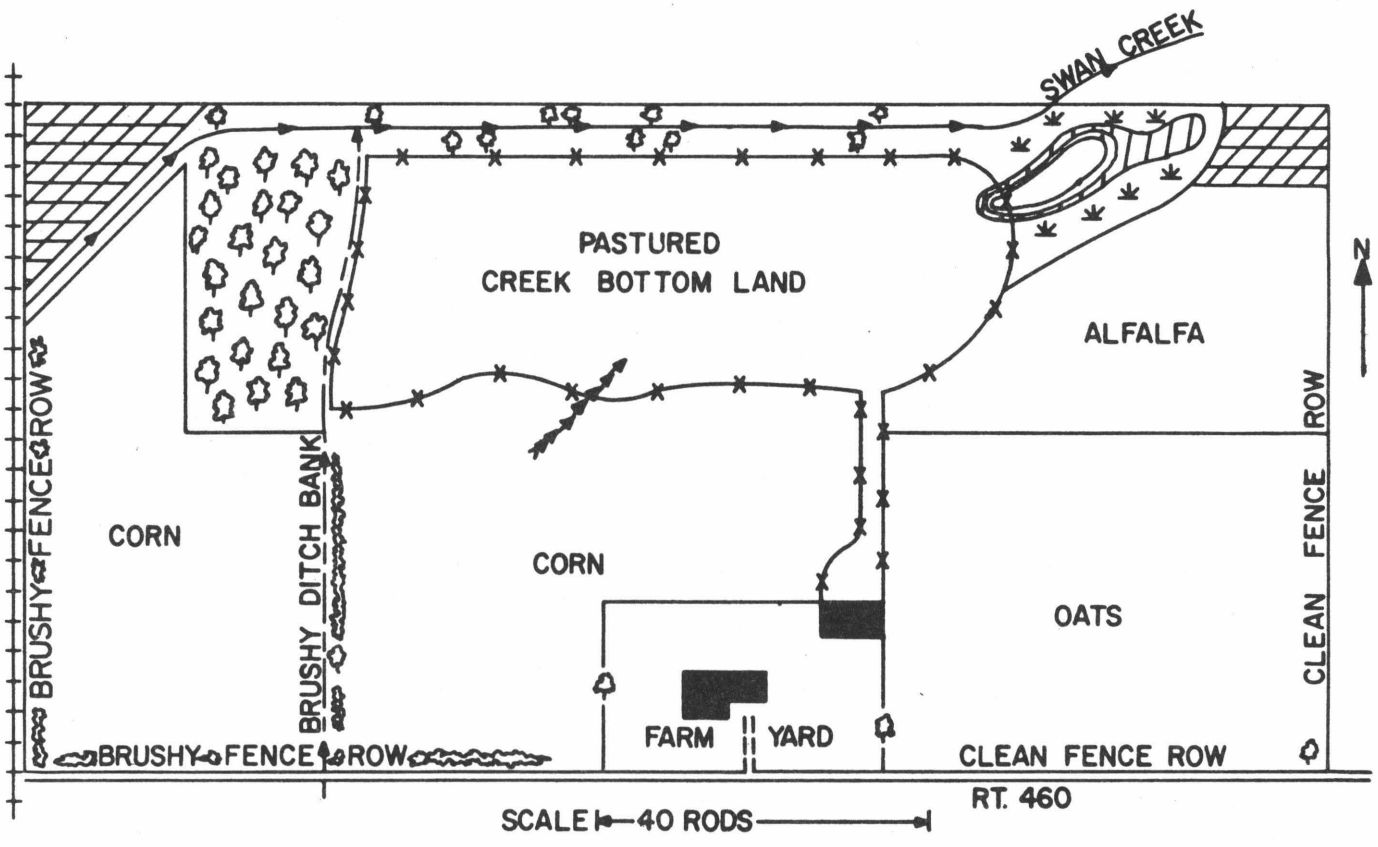
The following are suggestions of places that could be used:

a. your farm
b. a relative or friend's farm
c. your yard
d. your yard and your neighbors' yards (your neighborhood)
e. a school ground
f. a church ground
g. a city or county park
h. a city or county pond
i. a state park or forest
j. a National Park or Forest
k. a Wildlife Management Area
l. a vacant lot
m. the grounds surrounding any public building

Try to select an area as large as practical for you to manage. Remember no area is too small, but size and location will limit the kind of wildlife you manage for. For example, a backyard in a city is useless for deer management, but fine for songbirds and sometimes rabbits.

Mapping the Management Area

Make a map of the area you have selected. Your map should show the location of all the major features of the area, such as buildings, roads, water, types of vegetation, gullies, etc. The sample map on the next page and the list of symbols will help you. Your map should be as accurate as you can make it.



Symbols for Mapping

- Public Roads
- Private Roads and Unfenced Lanes
- Fenced Lanes
- Fences
- Railroads (Two Lines for Double Track)
- Telephone Line (Show Poles in Locations)
- Field Divisions (No Fence)
- Power Line (Show Poles in Locations)
- Buildings
- Rivers
- Streams or Ditches (Continuous)
- Spring or Flowing Well
- Well
- Lakes or Ponds
- Run-off Drain
- Open Ditches
- Intermittent Lake or Pond (Part Year No Water)
- Swamp or Wet Spot
- Stone Pile
- Woodlot (Thick Stand and Thin Stand)
- Single Tree in Field
- Odd Corners or Small Uncultivated or Unpastured Areas
- Gully
- Brush (Hedge Row)

Survey for Wildlife

Survey the wildlife in the area that you have mapped. The survey should be conducted at least 5 times. Use the enclosed survey sheets. The following techniques will assist you in making the survey:

Rabbits: Walk over the area in the early morning or late evening. Take some friends and some dogs along with you if you can. How many rabbits did you flush? _____ After a snow, rabbit tracks and droppings are very obvious.

Squirrels: Sit down at the base of one tree and watch quietly for 1/2 hour for squirrels. Early morning and late afternoon are the best times. How many squirrels did you see? _____ Leaf nests in trees and fragments of cut nuts also indicate the presence of squirrels.

Deer: Deer are most easily seen in the late evening in open fields or around water. Deer may also be seen at night with a spotlight. (Caution: If you use a spotlight, make sure that you and anyone with you does not have a weapon.) If you sit and wait for deer, be sure to be absolutely quiet and down wind from where you expect to see the deer. Deer tracks and droppings are especially evident around water, along dirt roads, or in the snow. How many deer did you see? _____

Quail: Quail may be surveyed just as you surveyed for rabbits. In addition, in early May and June, male quail give their familiar call frequently each morning. How many quail did you see? _____ hear? _____

Ruffed Grouse: Walk quietly through the woods or along a woodland road. How many grouse did you flush? _____ In addition, listen for male grouse drumming (a dull whirring, thumping made by rapid wing beats). How many did you hear? _____ Sunrise is the best time to hear drumming grouse.

Wild Turkey: Walk through the woods and look for large patches of disturbed leaves. These are scratchings made by turkeys looking for food. Scratching can be recognized by the fact that this year's fallen leaves have been scratched away revealing last year's leaves and often bare soil.

Wetlands Wildlife: Walk along the marsh or shore line and look for muskrat, raccoon, beaver, and other mammal tracks. Also look for muskrat burrows and beaver gnawings. How many different sets of tracks and burrows or gnawings did you see? _____ Also estimate the number of ducks and geese you see.

Groundhogs: Groundhogs (woodchucks) are most easily surveyed by looking for their burrows.

Foxes: Foxes are difficult to survey because they are so secretive and wary. Look for their tracks in snow and for their droppings. Also, look for their dens, which are often recognizable by the droppings and bones around them.

Mourning Doves and Songbirds: Doves and songbirds are usually seen easily, but can also be surveyed by listening for their calls or songs.

WILDLIFE SURVEY SHEET

Date_____

Animal	Location	Sound or Sign
cottontail rabbit	e.g. edge of fence row by woodlot	tracks in snow
fox or gray squirrel		
whitetail deer		
muskrat		
oppossum		
raccoon		
beaver		
skunk		
red or gray fox		
groundhog		
bobwhite quail		
ruffed grouse		
mourning dove		
turkey		
hawk		
crow		

Animal	Location	Sound or Sign
vulture		
songbirds (list) a.		
b.		
c.		
d.		
e.		
f.		
ducks (list) a.		
b.		
c.		
fish, frogs, snakes (list)		
a.		
b.		
c.		

WILDLIFE SURVEY SHEET

Date_____

Animal	Location	Sound or Sign
cottontail rabbit		
fox or gray squirrel		
whitetail deer		
muskrat		
oppossum		
raccoon		
beaver		
skunk		
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groundhog		
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crow		

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ducks (list) a.		
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fish, frogs, snakes (list)		
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Date_____

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mourning dove		
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hawk		
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Animal	Location	Sound or Sign
vulture		
songbirds (list) a.		
b.		
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e.		
f.		
ducks (list) a.		
b.		
c.		
fish, frogs, snakes (list)		
a.		
b.		
c.		

WILDLIFE SURVEY SHEET

Date_____

Animal	Location	Sound or Sign
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fox or gray squirrel		
whitetail deer		
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oppossum		
raccoon		
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skunk		
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groundhog		
bobwhite quail		
ruffed grouse		
mourning dove		
turkey		
hawk		
crow		

Animal	Location	Sound or Sign
vulture		
songbirds (list) a.		
b.		
c.		
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ducks (list) a.		
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fish, frogs, snakes (list)		
a.		
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c.		

WILDLIFE SURVEY SHEET

Date_____

Animal	Location	Sound or Sign
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fox or gray squirrel		
whitetail deer		
muskrat		
oppossum		
raccoon		
beaver		
skunk		
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groundhog		
bobwhite quail		
ruffed grouse		
mourning dove		
turkey		
hawk		
crow		

Animal	Location	Sound or Sign
vulture		
songbirds (list) a.		
b.		
c.		
d.		
e.		
f.		
ducks (list) a.		
b.		
c.		
fish, frogs, snakes (list)		
a.		
b.		
c.		

Management Activities

Now that you have selected an area, mapped it, and surveyed the wildlife on it, you will want to begin wildlife management. Review your wildlife surveys and see what wildlife you can manage for. Do not try to manage for any wild animal that is not already present on the area, but manage for as many as you wish that are already on the area. Report your activities on page 27.

Rabbits: Rabbits need undisturbed grass for food and nesting; thickets of brush, shrubs or evergreens for food and cover; and travel lanes of brush to connect these things with each other, especially if they are not close together. It is important that food and cover be as close together as possible. The following activities will provide food and cover for rabbits.

1. Food Patches: Plant red clover, white clover, Kentucky bluegrass, meadow fescue, Kentucky 31 fescue, rescue grass, and/or Hurds grass. If you are working with a large area, the plots should be 1/2 acre in size. If your area is small, plant as much as you can. Fertilize each 1/2 acre plot with one ton of agricultural lime and plow and disc twice before seeding. Seed at the rate of 3 to 6 lbs. per acre and add 225 lbs of 2-12-12 fertilizer per plot when the seed is sown. If the area you are working with is small, you will have to change these directions to suit your situation. Remember, food patches should be located next to cover such as woods borders, fence rows, thickets, brush piles, etc.

2. Brush Piles: Brush piles are made by piling brush around and over a stump, large rock, or old car body in a loose fashion. The "brush" can consist of branches, saplings, old Christmas trees, prunings from apple trees, etc.

3. Hedge Rows: Hedge rows can be created by allowing natural woody vegetation to grow up along fence lines or by planting fence

lines with such plants as autumn olive, bicolor lespedeza, and bush honeysuckle. Old hedge rows can be improved by removing the large trees in them.

4. Evergreen Clumps: Norway spruce or Austrian, Scotch, red, or white pine planted 8' by 8' in groups or strips give good winter cover. A border of Amur privet, Tartarian honeysuckle, or other shrubs greatly improve the cover.

5. Odd Areas: Unused areas, such as rocky spots, gullies, fence corners, wood lots, stream banks, abandoned roads, bare knobs, road banks, etc. will support rabbits if allowed to grow up in natural vegetation by protecting them from fire and grazing. The dense brush and undergrowth that grows on these areas can be improved for rabbits by cutting wide strips through them with a rotary mower.

Quail: Quail need undisturbed grass and weed areas for food and nesting; brush, thickets and clumps of evergreens for cover, fruit-bearing trees and shrubs for food; and travel lanes of brush to connect these things, especially if they are not close together. Remember food and cover for quail.

1. Food Patches: Plant clumps or field borders of bicolor lespedeza. Prepare a firm seed bed, apply 20-12-12 fertilizer at a rate of 400 to 800 lbs. per acre. Cover the seed lightly.

Plant strips 5 to 15' wide of sericea lespedeza. Prepare soil as above and broadcast scarified seed at rate of 25 lbs. per acre. Cover with 1/2" of soil.

Plant patches of "annual game bird mixture" (free from your local game warden). Prepare soil as above, but fertilize at rate of 450 lbs. of complete fertilizer per acre and sow 25 lbs. of mix per acre.

2. Cover: Cover for quail can be obtained by using any of the methods described under the recommendations for rabbits. In addition, strip cropping provides more quail nesting habitat than large blocks of crops.

Grouse and Turkey: Since these birds are woodland birds, the woods will have to be protected from fire and grazing before anything else can be done.

1. Fruit Tree Release: Woodlands often have domestic fruit trees growing wild in them or along their edges. These trees should be released by cutting away all vines, brush, and overhanging trees that threaten to choke out the fruit tree.

2. Grass and Clover Plantings: Plant grass and clover mixtures as described for rabbits in forest clearings, log landings, along woods roads and woods borders.

3. Grape Arbor: Find areas in the woods where grape vines are growing. Near the vines, select a small tree (4" to 8") that appears in poor health (broken top, rotten limbs, scared trunk, crooked bole) and cut it far enough so that it falls over but does not break off. The cut should be made as high as conveniently possible. The grape vines will then grow on this "arbor."

4. Evergreen Clumps: Clumps of evergreens should be permitted to grow in scattered openings throughout the woods. Plantings of such clumps will help if none occur naturally.

Gray Squirrel:

1. Foods: Squirrels can best be helped by protecting woodlands from fire and grazing and by leaving a few large den trees after cutting operations. During severe winters when nuts are scarce, ears of corn attached to tree trunks or along fences will help.

2. Cover: Again, protection from fire and grazing and the preservation of den trees helps squirrels the most. However, where trees are scattered (as in parks) or very young, the construction and erection of squirrel nest boxes will help produce more squirrels. Directions for the boxes are found in VPI Publication # 168, "The Gray Squirrel."

Deer:

1. Grass & Clover Plants as described for grouse, turkey, and rabbits will also benefit deer. However, the best help you can give deer is to protect woodlands from grazing and wildfire.

Doves:

Food and cover recommendations for quail also apply to doves. However, areas can be made exceptionally attractive to doves by these practices:

1. Plant the edges of unpaved roads with millet or milo. Use standard fertilizing and seeding recommendations.

2. Add milo seed to corn seed that is to be planted as part of the normal farm operation. When the corn is harvested, the milo will be shattered to provide food for doves.

Ducks:

Farm ponds and wider streams and lakes are attractive to ducks if they are fenced and protected from grazing. If the far end of a pond is or can be made shallow, it will naturally produce many of the

foods ducks need. In addition, the edges of ponds, streams, or lakes can be cleared of brush if necessary and seeded with plants such as wild rice, Japanese millet, or brown top millet. Around salty water, sago pondweed and widgeon grass can be planted, but these seeds are expensive and difficult to obtain.

Wood ducks can be encouraged to nest along any wooded body of water by constructing and erecting nest boxes. Directions are available in VPI Publication # 26, "Wood Duck Nest Box."

Songbirds:

Songbirds can be attracted to any area by planting the trees and shrubs that provide them food and cover. These plants can be planted singly, in rows, or clumps. Such plants are dogwood, autumn olive, most species of cherry, crabapple, hawthorn, sumac, elders, arrow wood, black haw, holly, barberry, multiflora rose, firethorn, mountain ash, and others.

In addition, artificial feeders, homes, and baths can be constructed and erected to help songbirds through the winter. Remember, however, that a feeder left unfilled after being filled for weeks may cause more harm than good. In other words, feeders should be filled regularly (daily, weekly, or even monthly), or not at all. Plans for feeders, houses, and baths can be obtained from VPI.

The following project sheets will help you organize the activities you choose. Complete one for each activity.

WILDLIFE PROJECT

Management Activity No. _____ Permission granted by _____Date_____

Wildlife to be Managed _____

Area to be Managed and Location _____

_____

Sketch of Area Before Management (in black ink or pencil and wildlife improvements to be made in red ink or red pencil)

List of Wildlife Improvements When Completed

_____

_____

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_____

Materials and Equipment Required

_____

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WILDLIFE PROJECT

Management Activity No. _____ Permission granted by _____Date_____

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Materials and Equipment Required

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List of Wildlife Improvements When Completed

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Materials and Equipment Required

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Materials and Equipment Required

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List of Wildlife Improvements When Completed

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Materials and Equipment Required

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REPORT

Now that you have completed your wildlife management activities, you will want to observe their results. Although some of your activities will produce more wildlife in just one year, others will require several years to yield results. Thus, you will want to continue this report for as long as necessary.

Area No. _____ Date _____

Signs or Wildlife Seen _____

_____

_____

_____

Exact Locations of Signs or Wildlife Seen _____

_____

_____

_____

_____

In your opinion, has your activity increased the numbers of wildlife on your management area?

_____

_____

_____

_____

ADDITIONAL ACTIVITIES

Exhibits: Make an exhibit of this project. Your exhibit may consist of this project book, completed maps, completed project sheets, and report sheets. If possible, include photographs of areas before wildlife improvements, improvements while they are being made, completed improvements, and wildlife using these improvements.

Illustrated Talk or Demonstration: This project is organized in such a manner as to make it easy for you to present what you have done as an illustrated talk or demonstration. The following outline may help you:

I. Introduce Your Subject

- A. State briefly what you will demonstrate.
- B. State briefly the importance of what you will demonstrate.
- C. State briefly the practical application.

II. Demonstration

- A. Tell why you chose the area you did.
- B. Describe how you surveyed the area; use maps, photos, etc.
- C. Tell why you chose the wildlife you managed for.
- D. Describe the activities you undertook; use maps, photos, etc.
- E. Describe results.

III. Conclusion

- A. Review main points.
- B. Invite questions.