

# A PROPOSED FOREST GAME MANAGEMENT COOPERATIVE PLAN

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A number of wildlife clubs have expressed a desire to sponsor some phase of game management work in their county. Many of these organizations have been and are now engaged in purchasing seed or plants for distribution to interested farmers in an effort to improve conditions for upland game. Quail are being pen-reared for liberation on suitable range and other aspects of game management are being conducted by these clubs. Such work is indicative of real interest. The Commission is aware of the value of these undertakings and is anxious to assist in every way possible.

It was recently suggested that a cooperative program be instituted whereby the Commission may assist those clubs that are interested in establishing, developing and maintaining their own forest game management unit. A wildlife club or any other organization that maintains an open membership is qualified to participate in the program. Hunting privileges will be controlled by the membership.

The Commission requests that the club lease the land, post it and bear the cost of development. The state agency will draft the management plan and direct the work. In addition, the Commission will provide the heavy equipment for land clearing on a cost basis.

The State would like to establish and develop a refuge unit in every county in which a suitable location occurs. However, the lack of sufficient funds and personnel precludes the institution of such a vast program. At present, the funds delegated to this type of work are being utilized to develop a number of refuge units. Areas under management are the Orton State Game Refuge in Brunswick County; Uwharrie Game Refuge, Montgomery County; and the Sandhills Unit in Richmond and Scotland counties. Plans are being formulated for the development of a portion of the Soil Conservation Service lands in Caswell County and a part of the territory in the Camp Butner Reservation in Granville County.

When the above mentioned areas have been fully developed and are carrying the maximum population of game, their effect on the over-all hunting conditions in the State will be negligible. These units will only result in increasing the forest game supply in adjacent territories; their principal contribution being demonstration areas. In order to attain a marked increase in the population of forest game, it is necessary that management areas be developed in as many counties as suitable range is available.

As pointed out above, it is impossible for the Commission to finance a management program that is adequate in scope to insure a continued and sufficient yield of forest game that will satisfy the ever-increasing number of sportsmen. However, if the Wildlife Clubs and similar organizations will avail themselves of the opportunity of creating their own managed units, under the cooperative plan presented below, the supply of forest game can be increased materially and maintained.

## A MODEL FOREST GAME MANAGEMENT UNIT

If an area is to be made productive of forest game and yield returns in keeping with the cost, it must possess certain basic characteristics and be managed in a scientific manner. After the initial development work is accomplished, the cost of maintaining a unit in a high state of production is very inexpensive.

If the work is properly planned and directed, it is compatible with good land-use. Forest game management can be practiced on an area that is utilized primarily for the production of timber without damage to the stand and will not interfere with the harvest of the trees.

A few fundamental facts and figures regarding the management unit and its development follow.

### Description of a Suitable Area

An area to be developed for forest game (wild turkey in particular) would include not less than 10,000 acres of land that is well watered and supports a variety of mature timber types that are composed of approximately 50 percent hardwoods — one-half of which is oak. Twenty percent or 2,000 acres in the center of the tract should be developed and maintained as a refuge and the surrounding 8,000 acres utilized as a territory for hunting after the game has increased to a sufficient density on the area as a whole. The amount of game harvested annually should be predetermined and based upon the current surplus.

### Plan and Cost of Developing a 2,000 Acre Refuge for Wild Turkeys

The following plan and cost estimate for the development of a 2,000 acres refuge for wild turkeys is based on the assumption that it will be necessary to clear five percent of the area. As a rule, a considerable portion of any timbered tract is composed of old field sites that can be improved at little cost and with little effort. At least five percent of the refuge unit should be in open fields. The forest clearings should be well distributed within the area and should not contain, as a rule, more than five nor less than one acre. Twenty percent of the openings (20 acres) should be planted to winter crops and 10 percent of the cleared area (10 acres) planted to summer crops. A 2,000 acre refuge, therefore, should include 100 acres of open fields, 20 acres of which should be sown to winter greens and 10 acres to summer growth.

Table 1 presents a recommended plan for developing the refuge and the approximate cost involved for a five-year period.

The only expenditure of any consequence after the fifth year is that of planting 20 acres of winter cereal which costs about \$285.00 per annum. The uncultivated, cleared land requires an occasional burn or mowing which will perpetuate a sod of native grasses and legumes. This maintenance work and predator control can be achieved at very little cost.

At the end of the five-year period, the entire 100 acres will have been cleared and the maximum amount of winter and summer supplemental foods planted. The summer plantings can be discontinued at this time as the native grasses and legumes should be well established on enough of the cleared land, thus providing an ample supply of native warm-weather foods.

Table 1. Cost of developing a 2,000 acre refuge for Wild Turkey.

Activity	Cost (\$)
<b>First Year</b>	
Clear 20 acres	500.00
Plant 5 acres to winter crops and 2.5 acres to summer crops	101.25
Total	601.25
<b>Second Year</b>	
Clear 20 acres	500.00
Plant 7 acres to winter crops and 3.5 acres to summer crops	141.75
Total	641.75
<b>Third Year</b>	
Clear 20 acres	500.00
Plant 10 acres to winter crops and 5 acres to summer crops	202.50
Total	702.50
<b>Fourth Year</b>	
Clear 20 acres	500.00
Plant 15 acres to winter crops and 7.5 acres to summer crops	303.75
Total	803.75
<b>Fifth Year</b>	
Clear 20 acres	500.00
Plant 20 acres to winter crops and 10 acres to summer crops	405.00
Total	905.00
<b>GRAND TOTAL</b>	<b>3654.25</b>

The following is a breakdown of the cost of development:

Cost of Clearing

The estimated cost of clearing and discing an acre ..... \$25.00  
 (The Commission will make available a T.D. 18 International bulldozer and 3,000 pound Bush and Bogue disc for \$7.00 per hour. Average time required to clear and disc an acre — 3½ hours)

Cost of Planting One Acre of Winter Crops

	Cost
Preparation and planting .....	\$ 5.00
Lime (one ton per acre — \$7.00) Effective for five years .....	\$ 1.40
Fertilizer (6-8-6) \$35.00 per ton — 200 pounds per acre .....	\$ 3.50
Seed (Oats-Wheat-Rye) \$3.50 per bushel — 1¼ bu. per acre .....	\$ 4.35
Total	\$14.25

## Cost of Planting One Acre of Summer Crops

Preparation and planting .....	\$ 5.00
Fertilizer (6-8-6) \$35.00 per ton — 200 pounds per acre.....	\$ 3.50
Seed (German millet — 20 lbs. \$2.00 — Chufa — ½ bu. \$5.00 .....	\$ 3.50
	<u>Total \$12.50</u>

The club is expected to handle the purchase of the seed and fertilizer and to engage local labor and equipment to make the plantings.

## What the Sportsmen May Expect

It is only natural that the sportsmen desire to know what they may expect in return for their investment. This can be answered by discussing a few aspects in the life history of the turkey and deer.

Research has disclosed that the maximum density which the wild turkey will tolerate is one bird per 25 acres. Such a population is possible only on intensively managed range of high quality. It follows then, that the refuge unit should carry a population of 80 birds when fully developed. The maximum density on the area surrounding the refuge will probably vary from one bird per 50 acres to one turkey per 100 acres depending on the carrying capacity of the land.

If the population on the unimproved portion of the area is one bird per 80 acres, the entire area should support 180 birds.

Investigation has indicated that the maximal, annual increment to a turkey population on intensively managed range is about 50 percent. Assuming there are ten mature hens on the area to be developed and that enough males are present to effect proper fertilization of the eggs, it follows that the population should increase as follows:

Initial population.....	10 mature hens and 3 gobblers
First breeding season.....	20 birds
Second breeding season.....	40 birds
Third breeding season.....	80 birds
Fourth breeding season.....	160 birds

The sportsmen can harvest by hunting from 40 to 50 gobblers per season after the close of the Fourth breeding season without impairment to the breeding potential of the following spring.

Deer range of fair to excellent quality will support a density of one deer per 100 acres to one animal per 25 acres. A population of one deer per 50 acres is not excessive for most of the timbered lands in North Carolina that are growing primarily to hardwoods, due to the fact that most of the forested areas have been cut-over in recent years and a dense undergrowth is present.

An unimpeded increase in a deer herd results in a 75 percent annual increase. However, allowing for losses due to stray dogs and man, it is well to figure on a 50 percent increment per annum. If there are ten mature does and three bucks on the area, a population of 160 deer or more should be present at the close of the fourth breeding season. Assuming that the 10,000 acre tract will carry 200 deer, it would be safe to remove one-half of the males (40) at the end of the fourth breeding season and 50 bucks per season thereafter.

## SUMMARY

1. A membership of 100 men can finance during a five year period the complete development of a 2,000 acre forest game refuge within a 10,000 acre area at a maximum cost of less than \$37.00 each.

2. Cost of maintaining the unit after the fifth year would amount to approximately \$3.00 per member.

3. Approximately 50 gobblers and 50 bucks can be removed annually from the 8,000 acres surrounding the refuge without lessening the breeding potential.

4. The increase in upland game, as a result of management and protection, will be substantial and is a bi-product achieved at no cost.