

This document is made available electronically by the Minnesota Legislative Reference Library as part of an ongoing digital archiving project. <u>http://www.leg.state.mn.us/lrl/lrl.asp</u>

(Funding for document digitization was provided, in part, by a grant from the Minnesota Historical & Cultural Heritage Program.)

A DEER MANAGEMENT PROGRAM

FOR MINNESOTA ---

26

No date.



(lojp,

MINNESOTA CONSERVATION DEPARTMENT DIVISION OF GAME AND FISH LEGISEATIVE REFERENCE LIBRARY

STATE OF MINNESOTA

QL 737 .U55 D33 1968

A DEER MANAGEMENT PROGRAM FOR MINNESOTA

Introduction

The white-tailed deer is the most important big game animal in Minnesota and the Nation. With an estimated value of \$100 per head, a harvest of 100,000 animals in Minnesota is worth ten million dollars annually. To date most work has been concerned with regulating the yearly harvest to conform with the productivity of the available habitat. During the period 1958-64, northern Minnesota experienced seven consecutive winters with below normal snowfall. As a result the deer herd increased, as did hunting license sales and harvest. In 1965, a total of 127,000 deer were harvested by 290,000 hunters, a record for the State. Since that time we have experienced two severe winters and one average winter. As a result the harvest and success dropped.

To maintain or to increase the present population, it is imperative that a major management effort be expended.

Justification

The whitetail, although found throughout Minnesota, is primarily an animal of the young hardwood forest where food and cover conditions are optimum. Usually, January through March is the critical period for deer because of increased pressure on the available food supply.

Removal of much of the original conifer forest in northern Minnesota during the period 1890-1920, and the subsequent fires, produced optimum conditions for deer and the herd reached peak numbers during the 1920's and 1930's. During these years deer harvests were relatively light due largely to the scarcity of hunters, closed seasons some years and large game refuges. These excess populations reduced the carrying capacity of the winter range to the point that major losses from starvation were sustained in 1933, 1936 and 1939. Losses at a somewhat reduced level also occurred in 1943, 1948, 1950, and 1956 despite annual hunting seasons and harvests that reached 70,000 deer in 1956.

In addition to reduced carrying capacity of the range due to overbrowsing, much of the northern forest was reaching maturity in the late 1950's and early 1960's. The aging forest has produced a closed crown canopy of leaves which shades out desirable plants and shrubs below.

Aspen is the most abundant tree species in the northern forest making up one-third of the forest cover or 5,400,000 acres. Aspen stands under 30 years old are best for deer. In 1964, 68% of the aspen was over 30 years old. By 1972, 71% will be over 30 years old and by 1982, 86% will be over 30 years old unless it is cut or removed by other means. At present only about one-third of the allowable cut of aspen is being made, mainly because of economics and distance from market. It is clear then, that any improvement program for deer must be directed mainly at aspen.

> LEGISLATIVE REFERENCE LIBRARY STATE OF MINNESOTA

A30.8 13084 In addition to a maturing forest, we are also faced with natural plant succession toward a spruce-fir forest in many of the northern counties. Spruce-fir, the climax forest in this region, is poor habitat for deer. It is gradually replacing many of the former aspen-birch areas. This natural succession toward evergreens is already far advanced in Cook, Lake, St. Louis, Koochiching, Itasca, and Lake of the Woods counties. Young spruce and fir are also evident in other areas where aspen is now the predominant species.

Along with the natural succession toward evergreens, forestry agencies have as a major goal, the conversion of many present hardwood sites into conifer stands of spruce and pine. In some cases these plantations will provide needed cover but in most cases, large, uniform conifer plantations will reduce the number of deer in the area due to their suppressing effect on essential browse species. The use of herbicides to release conifers in the early years of a plantation hastens this effect.

At present the area logged annually in Minnesota is about 200,000 acres or one percent of the forested area. This is a rotation rate of 100 years. Since aspen dies and regenerates or is replaced by other species at about 60 years, the cutting rate should be doubled in order to reduce the rotation period by one-half.

If commercial logging harvests cannot be increased, and it does not appear that they will be in time to save deer habitat, a major effort will have to be expended on improving the forest primarily for the deer resource itself.

Michigan now spends \$80,000 per year on deer habitat improvement projects which include commercial timber sales near deer wintering areas, logging on low quality areas by hired game management crews, and land clearing with the use of bulldozers equipped with shearing blades. Work is concentrated on key deer winter concentration areas and about 8,000 acres are worked over each year. Even with the program only one to two percent of the desirable areas are touched whereas the goal is three to five percent. The Province of Ontario has plans to spend \$250,000 annually on a deer habitat improvement program.

Because of the maturing forest in Minnesota and the apparent continued increase in sales of deer hunting licenses, we are also faced with the fact that Minnesota hunters must accept decreasing harvests and success in coming years unless an extensive habitat improvement program is initiated immediately.

If habitat is not improved and license sales continue to increase (more than 300,000 were sold in 1967 for the first time) we can expect a gradual decrease in hunting success even though the annual deer harvest approximates 100,000. It is also likely that increased pressures in the southern counties of the northern deer range will necessitate further restrictions and more refined methods of regulating the harvest. Restricting the harvest here will then add hunting pressure to northern counties.

The over-all objective of a deer management program is to provide a harvest of surplus animals commensurate with the existing population and

the carrying capacity of the range and, secondly, to provide the maximum amount of recreation for the public.

At present we have two directions in which the program can move. The first involves a habitat management program.

<u>Present Program</u>. It is likely that we can continue to harvest approximately 100,000 deer annually for the next five to ten years. Following a series of mild winters, this harvest could exceed 100,000 and following severe winters it could be less. A continuing increase in license sales could add enough pressure to temporarily increase the kill over 100,000 even with a declining herd. Under these conditions, in readily accessible areas, we could overshoot the herd. It would then be necessary to begin restricting the harvest. This might best be accomplished by dividing the State into management units in order to regulate harvest and hunter distribution. As the habitat continues to deteriorate, harvest and hunter distribution will necessarily become even more restricted.

Expanded Program. If a habitat improvement program were begun immediately it is likely that a harvest of 125,000 deer annually could be realized by 300,000 to 400,000 hunters. This program would be aimed at improving winter cover and winter food supplies. The actual number of acres to be improved on an annual basis in order to provide benefits remains unknown at the present time. It will depend upon the number and size of winter concentration areas needing improvement (determined by the aerial and ground surveys) and the amount of cutting actually taking place at present and its distribution.

Studies in Michigan have shown that maintaining a population of 21 to 30 deer per square mile requires cutting on approximately 40 acres per section every three to five years.

Deer Habitat Improvement Program

A. Winter Concentrations Survey (Deer Yards)

An extensive aerial and ground survey is needed to locate winter deer concentrations. Changes in deer use of traditional yards has occurred during the past fifteen years due to conifer regeneration on upland sites which are now providing winter cover for deer. In the most northerly counties, conifer cover is so extensive that well defined "yards" no longer exist and deer regularly use the innumerable small conifer stands which are near a food supply.

Aerial surveys of all the major deer counties should be made when sufficient snowfall has caused deer to move into wintering areas. Test flights should be made in northern St. Louis County to determine if major concentrations can be located in heavy conifer cover.

In the southern part of the main deer range surveys should be made from Township 40 north (St. Croix Park) to Township 50 north (Duluth) and west to Range 32 west (Long Prairie). In the north the area from Township 50 N to Township 70 N and west to Range 40 W should be covered.

In counties of high hunting pressure and harvest, the aerial survey should be more detailed than in the northern, lightly hunted areas.

Flying can be done by Department planes and personnel and by rental of private planes when necessary.

If snow conditions are suitable it may be possible to use aerial photography to locate wintering areas. This technique should be tried experimentally.

Upon completion of the aerial survey, maps will be completed showing the location of the wintering areas. These will be surveyed on the ground to secure data on condition of the yard, browse species available for habitat management, acres to be managed, and type of management needed.

B. Winter Habitat Improvement

1. Commercial Timber Sales

When winter concentration areas have been located, land ownership will be determined and the area mapped and checked by ground surveys. Landowners will be contacted and encouraged to make timber sales preferably within one quarter mile of the concentration, or within one half mile, if necessary. If possible, cutting should be done during the winter. Sales should also be made so that cutting is done at least once every three years. Post-sale management of the cutover area should be included as part of the requirements of the sale. This should include slash removal to permit free movement in the area by deer. Plantations of conifers should be limited or prohibited if conifer cover present in the wintering area is already adequate. Small stands of natural conifers should be preserved in areas where good cover is sparse.

2. Improvement of Non-Commercial or Inaccessible Stands

Where off-site or low quality stands cannot be sold, agreements will be made with agencies concerned so that game management crews can cut within one quarter of a mile of wintering areas to promote subsequent sprouting from roots and stumps and provide immediate browse.

In certain areas bulldozers equipped with Rome KG blades, discs, or rollers will be used to clear trees. This technique is recommended for use in commercial stands that cannot be sold but which have matured to the point where they are no longer producing quantities of high value browse.

3. Rejuvenation of Existing Areas

In many deer yards, some species of shrubs and trees have grown out of reach of deer. In such cases, game management crews using hand tools or bulldozers will cut or bulldoze stems of desirable species to provide immediate browse and to stimulate sprouting from roots and stumps. Species which lend themselves to this type of improvement are red and mountain maple, dogwoods, elderberry, sumac, willows and off-site birch and aspen. Under certain conditions it has been found that aerial or ground applications of herbicides will kill overstories of trees with little effect on low growing plants such as mountain maple, an excellent deer browse. Thus, use of herbicides for deer habitat improvement will be tried.

4. Prescribed Burns

Forestry agencies will be contacted and prescribed burning encouraged in slash left after timber sales near deer wintering areas. Cuttings and burns should be planned so that one or the other takes place near the yard at least once every three years.

In addition, prescribed burns should be encouraged on upland sites to improve general deer range.

5. Designated Deer Yards

Selected high quality or critical wintering areas should be declared "designated deer yards" similar to the plan in use in Michigan. In these areas deer habitat management would have first priority in land use planning.

6. Cover Planting

In some areas large, uniform stands of hardwoods support small deer populations due to the lack of adequate winter cover. In these areas a program of planting conifers for winter cover should be initiated. It may be necessary to remove existing hardwood stands to provide planting sites.

In other instances, particularly in the northwestern counties of Roseau, Kittson, Marshall, and Pennington, large, uniform stands of brush rather than hardwoods are present and winter cover is lacking. In these counties, planting of conifer cover near existing winter feeding areas would be recommended.

The establishment of cover plantings and food plots on state owned lands in the agricultural part of the state may be necessary to reduce depredation on private lands.

Deer Harvest Management

A. Population and Harvest Statistics

More exact figures must be obtained on the number of deer available, distribution of hunting pressure, and the harvest per square mile on a county basis. Present sampling systems give data on harvests only on a zone basis. These should be expanded, to begin with, to obtain harvest data on a county basis for St. Louis, Itasca, Aitkin, Pine, Cass, and Beltrami counties initially and eventually this should be done for all counties.

In addition, since pellet group counts are the best available method for determining populations, these should be made in the same counties listed above.

B. Harvest Regulations

A habitat improvement program which will maintain deer numbers at least at present levels will require harvest restrictions in some areas because of increased hunting pressure. However, these restrictions will not be as severe as would be required without a habitat improvement program.

It is also desirable to increase harvests in areas that are underharvested at the present time and will continue to be underharvested because of inaccessibility.

Control of hunter densities, regulation of snowmobiles and other off the road vehicles and other measures necessary to maintain quality hunting will be carried out as necessary.

- 1. Methods for restricting harvest.
 - a. Refinement of the present zoning system.
 - b. Reduction of season length.
 - c. Repeal of law permitting "party" hunting and passing law permitting deer hunting and assisting only when in possession of an unused seal.
 - d. Buck law and modifications of the buck law.
 - e. Closed seasons by management units.
 - f. Hunting by permit only in designated zones.
 - g. Reduction of access
- 2. Methods for increasing harvest.
 - a. Pass legislation to allow firearms season between October 1 and December 15, dates and limits to be set by Commissioner.

- b. Allow October hunting season in the Boundary Waters Canoe Area.
- c. Allow more liberal seasons in parts of Cook, Lake, northern St. Louis, Koochiching and Lake of the Woods counties.
- d. Allow a two deer bag limit in remote areas.
- e. Provide access to certain inaccessible areas through construction of timber - hunter access roads (or snow vehicle access trails) in cooperation with forestry agencies. These areas should be selected carefully so that some wilderness type of hunting is preserved. With the advent of the snow vehicle. areas needing more access have been greatly reduced.
- c. Deer Management by Units

The ultimate in intensive management of the herd would require division of the state into deer management units based on:

- 1. Number of deer present
- 2. Hunting pressure
- 3. Type of vegetation present for food and cover
- 4. Physical condition of the animal
- 5. Weather conditions and winter severity.

Hunting regulations within the units would be based on:

- 1. Population estimates and the surplus available
- 2. Known winter losses and physical condition of the animals
- 3. Accessibility of the animals due to presence or lack of roads and trails
- 4. Sex and age structure of the herd based on data from hunter surveys and check stations.

Improvement of Deer Management Techniques

Ways to improve present deer management techniques and development of new methods will continue to be a top priority research function.

General Recommendations

The harvest of mature timber by forestry agencies provides an extensive and inexpensive deer habitat improvement program. However, only about one-third of the annual increment is now being cut. Wood using industries should be encouraged within the State with special emphasis placed on those utilizing hardwoods.

Renewable resource agencies and resources managers should be made aware of the importance of deer as a product of the land --- in some cases deer may be primary value. In such cases, management plans should recognize this.

STAFF AND FUNDING

Staff

At the present time, game managers spend only a small part of their time on deer management due to lack of personnel, equipment, and priority of other work. Efforts now consist mainly of public education, gathering data on general herd and range conditions and general harvest data on a local basis. Some habitat improvement work has been accomplished in the past under several "work relief" projects sponsored by state and federal agencies. However, project funds have not been available for sound habitat improvement on a continuing basis.

To begin a management program four additional game managers are needed in Region V, four in Region IV, one in Region III, and one in Region I. Present staffing plans will provide for all but four of these positions. A big game specialist is also needed to direct the deer management program statewide.

With this staff, the present work load of other jobs could be reduced so that game managers could begin the program proposed here. It would permit personnel to begin local work as consultants and planners with forestry agencies and to accompany foresters in the field.

Funding

Deer Habitat Improvement Program

A. Winter Concentration Surveys

The field surveys of wintering areas would be completed by present personnel and the additional staff requested.

The proposal for 130 hours of flying time for aerial surveys would cost approximately \$3,250 if rental planes were used.

- B. Winter Habitat Improvement
 - 1. Commercial Timber Sales

Consultation with forestry agencies will be handled by present and additional staff requested.

2. Improvement of Non-Commercial or Inaccessible Stands

Each game manager will begin with a two man cutting crew that will cut deer browse in the vicinity of winter concentration areas beginning in December and ending in April. Cost per crew will be about \$800 per month.

According to information from Wisconsin, a bulldozer and Rome KG blade is equal to a ten man crew. However, this equipment cannot

be used in all areas. In Wisconsin the cost with this equipment was \$8.50 per acre and an average of two acres per hour was leveled. The tractor used was a D6 or TD-15 or equivalent and the cost of the vehicle estimated at \$25,000 with blade. To begin with one such tractor should be purchased. In addition consideration should be given to equipping present tractors with a KG blade and moving them into winter habitat improvement areas for the period January through March.

3. Rejuvenation of Existing Areas

The cutting crew employed for non-commercial stands could work on these areas. If additional help is warranted, two man crews should be hired at \$800 per month.

4. Prescribed Burns

Because conditions for burning for wildlife habitat improvement are not as crucial as for timber management, prescribed burns could be made during most of the summer. Each game manager could supervise a crew of five at a cost of \$2,100 per month, with one man as foreman. Areas to be burned would include cutover lands, slash areas, and standing timber near areas designated as critical for deer.

Deer Harvest Management

A. Population and Harvest Statistics

Costs would be largely related to increased clerical help and computer rental and programming. Two clerks for two months would be needed at a cost of \$600 per month plus \$500 for computer rental and programming.

B. Methods for Increasing Harvests

Timber harvest and hunter access roads and snow vehicle trails should be constructed. The number of miles needed and location would depend upon recommendations of game managers and land agencies. Increased emphasis is being placed on quality recreation. Quality recreation includes esthetic values, fewer contacts with other persons, and challenges offered by areas which are not easily accessible. New accesses must take all factors into consideration before they are approved.