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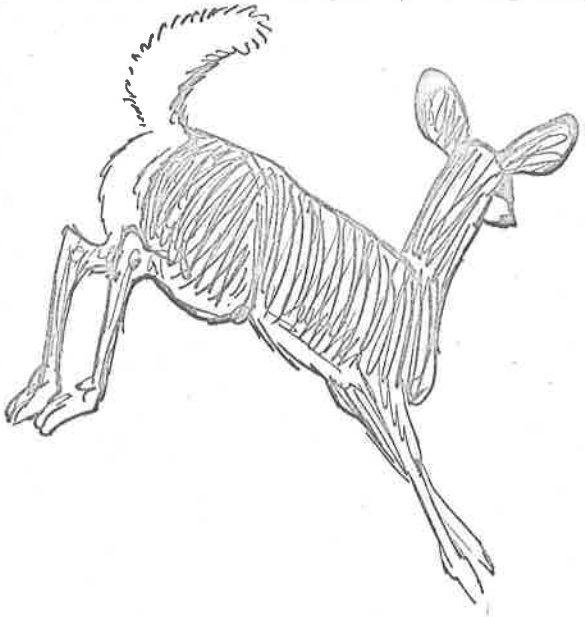
1966

GREAT LAKES DEER GROUP CONFERENCE



FOREST INN
MUNISING, MICHIGAN

SEPTEMBER 19-20-21-22, 1966

Annual Great Lakes Deer Group Conference

(Ontario, Michigan, Wisconsin, and Minnesota) (U.S.F.S. and U.S.F.W.S.)

September 19, 20, 21, 22, 1966
Forest Inn
Munising, Michigan

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The Great Lakes Deer Group

Composed of men in the deer management field from Ontario, Michigan, Wisconsin, and Minnesota, meeting once a year to exchange knowledge of deer range, deer, hunters, hunting, and related information from the Great Lakes Region. Dedicated to improving the management of deer for the optimum benefit of the most people, for the longest period of time.

PROGRAM

MONDAY, September 19

8:00 p.m. D. A. Arnold, Chairman -- Forest Inn
Welcome to Michigan -- Dorias Curry
Manager, Region I, Michigan Department of Conservation, Marquette
"The Program" -- D. A. Arnold
The 1965 Deer Hunting Season AND
Prospects for the 1966 Season
Ontario
Minnesota
Michigan
Wisconsin

TUESDAY, September 20

9:00 a.m. Research Program -- Ralph Blouch, Chairman

Range, Herd, Hunting, Information
Past, Present, Future
Panel Discussion -- With Group Participation
Ontario
Minnesota
Wisconsin
Michigan
U.S.F.W.S.
U.S.F.S.

11:30 a.m. Adjourn

1:00 p.m. Federal Day --field trip-- Krefting, Chairman

Seney National Wildlife Refuge -- Superintendent John Hakala and Staff

8:00 p.m. Evening Session -- Forest Inn -- D. A. Arnold, Chairman

Michigan elk -- Richard Moran -- slides and movies
Elk -- Minnesota -- Milton Stenlund

WEDNESDAY, September 21

9:00 a.m. Management Program -- Milton Stenlund, Chairman

Range, Herd, Hunting
Past, Present, Future

Panel Discussion -- With Group Participation
Ontario
Minnesota
Wisconsin
Michigan
U.S.F.W.S.
U.S.F.S.

11:30 a.m. Adjourn

1:00 p.m. State Day --field trip-- Bailey, Verme, Co-Chairmen
Cusino Wildlife Research Station -- Verme and Staff
Grand Sable State Forest -- Zollner -- Forester
Cusino Swamp Deeryard -- Verme -- Ozoga

Evening Forest Inn -- Ralph Bailey, Chairman
Kenai Moose -- L. W. Krefting
Moose and Caribou -- Ontario
Business Meeting

PROCEEDINGS

Great Lakes Deer Group
Forest Inn, Munising, Michigan

MONDAY, September 19 -- 8:00 p.m. -- David A. Arnold, Chairman

The 1966 annual meeting of the Great Lakes Deer Group was called to order by Chairman David Arnold at 8:00 p.m., September 19, at the Forest Inn in Munising, Michigan. Manager Dorias Curry from the Department of Conservation, Marquette, welcomed the group to Michigan's Upper Peninsula. Curry expresses his pleasure in having the Deer Group meet in this territory. He stated there was much to learn about deer range and the deer herd and that the Michigan Department of Conservation would gladly assist the group in any way possible to obtain their goals for improving deer and range management. Curry mentioned that two new paper mills might soon be established in the Upper Peninsula; one at Escanaba, and one just west of Munising. If these plants were established, it would mean greatly increased cutting and consequently, more reproduction, which would tremendously increase local deer food and the deer carrying capacity of the range.

Chairman Dave Arnold went over the various items on the program for the meeting, and then asked the four states and the Province of Ontario to describe their 1965 deer hunting season and the prospects for the coming fall.

ONTARIO, William Creighton

Creighton reported that most of Ontario had bad hunting weather the first part of the season. Fog and rain cut the kill considerably. The western Ontario deer range,

north of Minnesota was heavily blanketed with snow most of the season, which aided hunters in most areas and hindered them in others. Ontario hunters purchased 140,000 licenses and killed 37,000 deer--bucks, does, and fawns; a success ratio of 26.7 percent. During the following winter, the major snow belts had heavy snows, but deer losses were lights and prospects are good for 1966. Their hunting information is obtained by a mail survey and field checking stations.

MINNESOTA, John Idstrom

Minnesota had a good season in 1965, with 44 percent success. Information was obtained through questionnaires and cards. They have always had a straight any-deer season, with deer and hunter distribution similar to Wisconsin and Michigan--scattered kill in the southern (farming) part of the state, heavy kill in the central part of the state, and light kill in the north. The 290,000 licensees reported killing 127,000 deer. In their major deer territory, they had good tracking snow which resulted in a good kill and a reduced crippling loss. The state is zoned, with the deer season running from one to nine days in various portions. About 75 percent of the kill was made in the first three days. Shotguns only are legal in some of the southern areas. They have had eight mild winters in a row with deer population prospects good for 1966. Twenty-three percent of their kill was fawns of the year in the northern wild country including the Superior National Forest in the northeast part of the state. The deer carrying capacity of the range is decreasing because of maturing timber. This northern territory will always have deer, but in smaller numbers than in the past; it is underhunted because of inaccessibility. Minnesota has initiated what they call an "emergency winter deer feeding program" to satisfy the hunters' demands that they do "something." This is a public cooperative set up whereby Conservation Department people tell the local sportsmen when and where feeding is needed and where they can cut cull timber. Then the local sportsmen's clubs and other organizations go in and cut trees, boughs, or brush in the browsed out areas to help the deer through the winter. This is working out rather well in some places, but has its drawbacks. It is difficult to get volunteers to continue cutting after they have once started. The Department insists that cuttings be continued all winter long rather than trapping large numbers of deer on artificial feed and then having them starve because it is difficult for volunteers to get back into the woods as the snow gets deeper. They have reported that in spite of the artificial feeding by cutting, there was little or no demand that the Department "feed" the deer. Apparently "surplus corn" has not taken hold in Minnesota as it did in Michigan.

WISCONSIN, George Hartman

Hartman reporting for Wisconsin indicated they had a nine-day season in 1965 starting Friday, November 19. They had poor weather on the opening days, but made a good kill--98,400 by gun, and 3,000 by bow. They sold 399,000 deer hunting licenses. Bucks only are legal on their regular deer hunting license, but antlerless deer are taken on a party permit. Wisconsin gets kill information by a compulsory registration where hunters are required to register the deer they kill at registration stations, which are located all over the

state. They too have voluntary biological checking stations and report aging 11,000 deer. This last winter was a little tough, as they estimated that they lost 49,000 deer by starvation. They feel their 1965 kill was good and they expect a similar season in 1966, depending on the weather. In some of their more heavily hunted areas, they feel that they killed 10 deer per square mile. Like Michigan, they have poor hunter distribution; a few in the southern farm country, in a heavy band across the center of the state, and relatively few hunters in the north. They could stand fewer hunters in the central band and many more in the northern part.

MICHIGAN, I. H. Bartlett

In 1965, Michigan had the largest deer hunting army in the history of the state--605,000. The buck kill, of over 63,000, was a little below last year's kill, but still higher than the last ten-year average. About 218,000 permits were issued, resulting in an antlerless kill of 49,600. Archers too were successful with a total of 52,200 licensees killing 2,170 deer. The statewide deer kill of 115,000 is somewhat below the 140,000 deer killed in 1964, but still is nearly 20 percent above the last ten-year average. Some Department people are inclined to blame bad weather for the drop in the kill, but the weather was so varied in different parts of the state, it is doubtful that it is wholly responsible for the drop. Many indicators point towards a smaller herd, but this information is not conclusive. There was a strong reaction that hunting was poor, but it appears that we had a two-day hunting season--a weekend opening--and apparently, some 100,000 of the 600,000 hunters got their deer and went home, leaving the other 500,000 unsuccessful hunters in the woods to complain. When a half-million people start complaining, it makes quite a volume. In spite of the complaints, they still killed over 100,000 deer, which is a good kill. The physical condition of the herd was down somewhat--below 1964, with deer a little lighter and antler beams smaller and carrying fewer points. The past winter was short and light in most of the major deer range, but it took its toll of the deer in the western portion of the Upper Peninsula and certain other portions of the Lake Superior watershed. Other information points to a normal fawn crop in the spring of 1966, and survival should be relatively high, due to the extremely nice weather in June. Deer counts this summer are down slightly, but not alarmingly so.

The 1966 season is set for 16 days beginning Saturday, November 12, in the Upper Peninsula, and running through Sunday, November 27. In the Lower Peninsula, the season opens Saturday, November 19, and runs through Sunday, December 4. Recommended quotas of antlerless permits are below the number issued in 1965. The 143,000 issued this year should harvest about 37,000 antlerless deer. A drop in license sales is anticipated and a comparable drop expected in the buck kill.

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TUESDAY, September 20, 9:00 a.m.

Research Session--Research Panel-- Ralph Blouch, Chairman

Hepburn, Ontario; Gunvalson, Minnesota; McCaffery, Wisconsin; Verme, Michigan; Krefting, U.S. Fish and Wildlife Service; Stearns, U. S. Forest Service. These area representatives were asked to come prepared to discuss deer range and deer herd research in their respective territories, or to arrange for someone in their own group to discuss the different projects.

ONTARIO, Hepburn

Hepburn reported that Ontario had four major research projects.

1. Winter Weather: For a number of years, they have been gathering information on techniques to obtain information on winter weather as it effects deer mortality and distribution. Ontario covers the northern limits of whitetail range in North America, and is in an excellent position to gather this type of information. They have established 130 snow stations where the depth of snow and the deer support factor are recorded. They have found that an average deer exerts 38 pounds of pressure per square inch of hoof surface when traveling through deep snow. Their data gathered to date seems promising, but they need more time before conclusive results can be obtained.
2. Population Ecology: This project was initiated in 1954 to determine the percent of the herd that is harvested under various hunting conditions by known hunting pressures. They are attempting to determine what percent of the harvestable surplus is actually harvested in three study areas.
3. Habitat Manipulation: Ontario deer habitat is deteriorating due to the maturing and growth of both their summer and winter habitat. Under present normal commercial logging and pulping operations, conifers are cut heavier than hardwoods. The result of this type of operation is a decrease in conifer cover and an increase in hardwoods (food). This is desirable in some areas, but in this northern portion of the whitetail range, conifer cover is a necessity for survival. Ontario is now trying to determine optimum percentages of conifer cover and deciduous habitat that will result in good forestry practices as well as maintaining an optimum deer habitat. In their eastern deer range, the major conifer species is pine, while hemlock is the desirable conifer further west. They are experimenting by underplanting hardwood stands with hemlock to produce both food and cover for deer.
4. Effect of deer on Vegetation: At the present time, their research indicates that snowshoe hare have a more important effect on the reproduction of the hardwood stands than deer. In a side study by the big game management people, Ontario is attempting to devise a reliable census method for moose by using infra-red (heat) photography. They are using horses to simulate moose in experiments under natural conditions.

MINNESOTA, Gunvalson

Minnesota recognizes the increased recreational needs of the future. There is much competition within recreational groups for the use of available land. There is little question that programs

instituted by other than wildlife people may have a detrimental effect on deer populations and hunter numbers. Idstrom from Minnesota discussed their accumulation of specific data on the life history and abundance of deer. They have now developed a questionnaire system which seems to be more accurate than postcards. These standard questionnaires are sent to 1,600 people each year with a 94 to 96 percent return. They feel under their system that they are obtaining adequate accuracy. Minnesota is attempting to manipulate the habitat on publicly owned land in the major deer areas through controlled burning in an effort to convert hazel-aspen land to open, grassy areas. It apparently requires three consecutive burns to do this. In another project, they are attempting to develop conifer cover by planting adjacent to cut-over aspen, feeling that through adequate manipulation of range and herd, they can provide conifer cover by planting balsam. They were obtaining abundant cover in these balsam areas. They are short on census techniques and lack the personnel for pellet surveys, and while aerial surveys are used, they feel they are inadequate. They are desperately looking for some other census technique. In connection with their established research on artificial yards, they are conducting a deer movement or behavior study. They feel that the establishment of the extent of home range in connection with establishing deer yards is a necessity. In this line, they have put tagged collars on over 800 deer; to date, they have had about a 25 percent return. They are not sure that this is adequate to give them a reliable basis. Minnesota is still having crop damage trouble. They have used all of the recommended repellents without finding one that is highly satisfactory.

Pat Karns from Minnesota reported on their moose disease study. This information has advanced sufficiently far so that they are relatively certain that the moose disease is caused by a brain worm. Apparently this worm inhabits deer as well as moose, but while it is fatal to moose, it has little effect on deer. The incidence of the brain worm apparently fluctuates with the density of animal populations on the range. In their heavier deer populations, they have found that 80 percent of the deer are infested. Only 30 to 40 percent infestation is found in the lower populated areas. They feel this brain worm is definitely limiting their moose herds. From their recenty accumulated information, they feel sure that this parasite caused the moose die-offs in the 1920's and 1930's. Their moose offspring is now at a low level, but their deer reproduction is high. The same parasite in the state of Georgia has caused heavy losses in deer.

WISCONSIN, McCaffery

Wisconsin recently acquired the Sand Hill Wildlife Area of 9,000 acres and is developing it into a research station. This former private game farm, owned by the famous wildlife biologist, Wallace Grange, is surrounded with a deer-proof fence, and has 39 water control structures. The main cover is oak-aspen. Plans for the area include testing of census techniques, effect of controlled hunting. One of the main items will be an attempt to determine the number of deer per square mile, per year, that can be removed from

this type of area on a sustained basis. Coincident with this work will be vegetation measurements, reaction of deer and hunters to varying hunting pressures, and many associated studies.

On a statewide basis, other research projects center around the inventorying of range and herd conditions in the management units, which now form the basis for Wisconsin's statewide research and management programs. Pellet surveys, sex-age data, and other information is recorded at the compulsory registration stations on a management unit basis. Forty management units have been established in the major deer areas of the state. In addition to the compulsory registration, last year 50 biological checking stations were maintained using 63 men; 11,000 deer were aged. They had a primary target of 100 specimens per management unit. In most areas, they were successful in attaining this goal; the field information obtained during the winter indicated they had lost nearly 50,000 deer form malnutrition and estimated another 28,000 lost through infant mortality. In their summer range inventory, they are attempting to establish a deer-use pattern of openings. They are making pellet and shining counts both spring and fall in these study areas. They have found that areas of five acres or less are heavily used. They have also found a lower population in hardwood areas than in aspen. This fall they hope to determine the use of frost pocket openings for this type of habitat; small openings have preference over others. A pilot project has been set up near Rhinelander; their pellet courses for this survey run about 20 plots per opening. Last October, counts were made on 50 openings, half in aspen, and half in hardwoods. Openings vary in size from one-half acre upwards, depending somewhat on the adjacent forest type. One of their major problems is to maintain these openings in a condition that is attractive to wildlife.

U. S. FOREST SERVICE, Stearns

Stearns reviewed Forest Service research programs being carried on at the present time; an effort to obtain more information on browse production and utilization in various types of habitat. They are somewhat handicapped by a shortage of adequate manpower, and are attempting to develop new methods that will result in satisfactory information. A major item is an inventory of browsing on forest plantations. In a summer range study, they are obtaining information on food production in semi-permanent openings. These openings may be natural, frost pockets, abandoned farm steads, etc. Some of these semi-permanent openings have already lasted 70 to 80 years. Other types of openings include bracken areas, blue grass areas, and other combinations. Another phase of the program includes the determination of micro-climates in various forest openings, varying not necessarily by acreage, but by the diameter of the opening in relation to the height of the adjacent canopy. In this micro-climate study, temperature, humidity, rain fall, barometric pressure, etc., are recorded automatically on field instruments. They have found that there is much more variation in these factors of micro-climate in the openings than in the adjacent areas of solid timber. Small openings seem to have less variation than the larger ones. They have also found that there is a distinct stratification of wind current patterns in the larger openings; they have used smoke to study this factor. Stearns also discussed the use of infra-red scanning (heat sensing) aerial photographic equipment, in an attempt to locate deer and possibly elk and moose in their use of the openings.

MICHIGAN, L. Verme

Verme reported three research stations in the state; Cusino at Shingleton in the Upper Peninsula; Houghton Lake Wildlife Research Station, well centralized at Houghton Lake in the northern part of the Lower Peninsula; and Rose Lake (12 miles NE of Michigan State University) with its wildlife research laboratory in southern Michigan. Lee Queal is working full time on deer out of the Rose Lake Station. His special problems are deer versus agriculture and an increasing deer population. He estimates there are 60,000 to 70,000 deer in this southern farm belt, increasing approximately 15 percent each year. In this territory, there are 120,000 farms and 7,000,000 to 8,000,000 people. With major population centers in this territory, 93,000 hunters take advantage of the local deer herd. The problem here is farm crop and orchard damage, highway kill, and the very delicate problem of harvesting deer surpluses among "no trespassing" signs. There is no food shortage problem here. With the atutomatic collaring device used extensively out of the Cusino Station, but covering most of the state, there were 120 deer collared last year with a 16 percent return. These returns shows a nine-mile average range, while some deer had moved thirty miles. The Cusino Station is now preparing to go into telemetry studies and is only waiting for equipment to be manufactured. The original project will be to study the deer movements in the Cusino Square Mile Enclosure.

From one of McNeils early surveys (a southern Michigan study) it was found that 35 percent of the landowners allowed gun hunting. Recently Queal in a similar survey came up with the fact that 51 percent of the landowners now allow gun hunting. In the heavily urbanized Detroit region (SE) where human population is heavy, it is difficult to obtain permission to hunt. Another southern Michigan project is the installation of mirrors along highways to prevent deer from crossing. So far, these studies have been unsuccessful. There is a movement under way to test the infra-red photography comparable to Stearns experiments, but actual initiation has been delayed because some of the equipment is not yet obtainable. There has been some discussion to test the infra-red photography on the George Reserve (a two square mile fenced area, with a known deer population.) Investigations indicate that such an infra-red aerial census might be expensive, estimated cost--$1,000 per hour. The game laboratory at Rose Lake is working on deer disease studies and aging by tooth wear, eye lense and cross section of the teeth. The lab has also made intensive studies of drugs for handling deer. Sucostrin at the present time seems better than the others, but dosage is still a problem. In cooperation with the lab at Rose Lake, the Houghton Lake Station is working on nutritional requirements of deer. This is augmented by deer blood studies and efforts are being made to determine why different browse species have different nutritional values. Houghton Lake is also studying the protein requirements of fawns and fawn survival. The Station also has research programs on the Beaver Island group in Lake Michigan and on Bois Blanc Island. Deer season checking stations are maintained on these islands each year to develop a background of vital statistics on deer for future use in

deer management studies. The biological checking stations (deer season) on these islands also record physical data on the kill, and range conditions. They are attempting to work out reasons why the physical condition of the deer on Bois Blanc Island deteriorated after the better foods gave out. Is this due to nutrition or to a genetic factor? Testing is being carried on with penned fawns from the islands. The Cusino Wildlife Research Station has programs going on winter range analysis and range patterns as effected by winter weather. Studies on carrying capacities are being made in the square mile deer enclosure. This will be augmented by a telemetry study of deer movements as soon as equipment is available. A general weather severity index study is being carried on all across the U. P. The Lower Peninsula is presently starting this same system. At present, if future studies obtain as much information as early attempts, a means of predicting the winter kill could result. They feel with a little more information, they can predict winter mortality; also in this connection, Cusino is trying to obtain enough information on physical conditions of deer to give an early prediction of not only winter fawn losses, but survival of embryos dropped as fawns in the following summer. Nutritional and breeding studies in the pens at Cusino seem to indicate that does in poor condition produce more male fawns, while does in good condition produce more females. The Cusino automatic collaring studies has placed collars on an estimated 1,500 deer. About 150 useful recoveries have been made; it is hoped that information from this study will assist in later development of management units.

Ryel from Research in the Lansing office reports that the Michigan Conservation Commission a year ago asked for an audit of the Department's statistical procedures in obtaining deer population and kill figures. The Triangle Research Institute from North Carolina was retained to make a survey. Their study resulted in giving the Department a clean bill of health on the methods used in their surveys. This was a much appreciated "pat on the back" after the results had been questioned for a number of years.

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TUESDAY, 1:00 p.m., Field trip to Seney National Wildlife Refuge, Krefting;

The entire group proceeded by car to the Seney National Wildlife Refuge at Seney, a 96,000 acre tract covering what has been known as the Seney Marshes. Around 1900 this area was ditched and drained in an unsuccessful farming project. The streams continued to flow through some of the old ditches, but many were plugged by beaver and debris. In 1935 it was taken over by the U.S. Department of the Interior, Fish and Wildlife Service, and developed for migrating and native waterfowl. Now there are 16 miles of dike which create 20 man-made pools with water covering some 7,000 acres. Pinioned geese were released early and their offspring continue to nest here regularly. Many acres of grain have been provided in the numerous food patches. Thousands and thousands of geese stop here in the spring and fall on their migration, with some new ones stopping over to nest. Over 199 species of birds have been

identified as native to the area or passing through. It is a very popular sight-seeing area frequented much by both local people and transients. A new visitor center has recently been constructed and is heavily used in the summer. The group was taken on a conducted tour of the refuge by Superintendent John Hakala and his staff.

Tuesday, 8:00 p.m., David Arnold, Chairman

During the evening session, Richard Moran, Michigan's elk research biologist discussed Michigan's elk herd, its range, and management, with slides and movies. This herd of 1,000 to 2,000 elk was first established by the planting of eight animals in 1918. They survived, multiplied, and now inhabit 500 to 700 square miles of range in the vicinity of Vanderbilt. Their range includes jack pine-oak, conifer swamp, and hardwood territory in the area east of Highway I-75 from Gaylord to Indian River. It has been found difficult to estimate the exact number of elk, since they occur in bands numbering from three to fifty, covering more than the 700 square miles of range at times, and moving about in singles and bands freely, even through 2½ to 3 feet of snow. This is also good deer country, and elk have caused some apprehension among the deer management people because of their browse habits which are very close to the habits of the white-tailed deer. Elk are generally considered by local residents as interlopers, and feel that these big animals should be controlled in favor of deer. With the herd apparently reaching a ceiling around 1960, it was thought it was time to bring the numbers under control. There was some controversy when the question of management arose, for resort operators in the territory wanted them kept as a tourist attraction. Much publicity has been gathered by the elk herd through their habit of feeding in openings and bugling during the mating season. However, in 1964, the game management people figured things had gone far enough and asked the Legislature for the authority to bring the herd under control through the use of a short, limited hunting season. This request was granted, and a nine-day season with 300 special elk licenses, selected through a randomized drawing from the 23,000 applications, was established; 298 of the 300 license holders hunted, and killed 269 elk (90 percent success). It was anticipated that the calf crop the following year would more than replace the animals taken out, and another season was scheduled in 1965. Again in 1965, 300 permits were issued (30,000 applications) and again 298 of them hunted. This second year, 183 elk were killed for a success ratio of 61 percent. Hunting conditions during the first season (1964) were ideal with tracking snow and cold weather almost the entire season. In 1965, conditions were not so good with a number of rainy, disagreeable days which probably was a strong factor in reducing the kill. Again it was estimated that the calf crop the following spring would more than replace the animals taken. At the present time, elk do not show up for tourists to see; it has been rather difficult to determine if this lack of sighting records is caused by a decrease in the number of elk or if elk are getting wary and just do not show up in the openings. Much research remains to be done and until further information is available, it is anticipated that there will be no more elk hunting seasons. Moran has accumulated much life history data, a lot of which remains to be analyzed before further recommendations can be made.

Stenlund of Minnesota reported on their small elk herd, and there was some discussion regarding both moose and elk in Minnesota and Ontario. * * * * * * *

WEDNESDAY, 9:00 a.m., Deer Management Program, Milt Stenlund, Chairman

Again a panel discussion was used to bring out the progress of deer management in the Great Lakes area; B. Creighton handled the management discussion for Ontario. As a little history, Creighton reported the original deer range covered the southwestern part of Ontario west of Lake Superior and also the southeastern portion of the province. Market hunting in the early days (1860 - 1890) greatly reduced the populations; but in spite of this, with regrowth following logging, the range continued to expand northward. As in other parts of the Great Lakes territory, that portion of Ontario included in deer range in the pine logging days produced adequate food. Forest fires, market hunting, and settlement brought a decrease around 1900, but more recently, they have again increased, with the range and herd hitting their greatest expansion around 1940. The range around the northern reaches of Lake Superior is is not continuous, but broken into small pockets. Many of the northern pockets had disappeared by 1950 and by 1960 few deer remained north of the eleventh base line. In 1910 and 1915, there were few deer in the southern agricultural areas. By 1930, they had again drifted back into their former southeastern range, and by 1960, had reoccupied all of their old range in southern Ontario. At the present time, the highest populations occur in the western part of the province. In this western area, much of the range is characterized by sandy, light, rolling soil, with conifer cover predominating. In the east, the forests are variable depending on site and logging, with hardwoods and conifers intermixed. In the south central region, the forest is relatively evenly aged, with food declining and lumbering much needed. Ontario is now running many research projects covering all the deer range in the province, but somewhat concentrated around Algonquin Park, and the southern research station at Maple. Ontario makes much use of their airplanes in winter aerial surveys of deer yards. They maintain a continuing system of spring pellet surveys, and dead deer counts are made each spring to determine their losses in various areas. Their information indicates that they have 20 to 50 deer per square mile on their winter range in the west and upwards from 38 to 118 deer per square mile in the east. Hunting pressures are generally low, possibly one hunter per square mile in the west, and six per square mile in the east. Last year they aged 4,000 deer at their biological checking stations in various parts of the province. They are conducting research on cutting practices to produce deer browse. Recently, 12,400 acres were cut using a variety of techniques at a cost of $8,500.

WISCONSIN, Hartman

Hartman summarized Wisconsin's management program as follows: Their future looks good; they estimate that they can kill 100,000 deer annually with a possible potential of 140,000 to 160,000. They anticipate a population increase and accordingly an increase in hunters. By 1980,

they expect their hunter numbers to increase 28 to 40 percent above the present figure of nearly 400,000. Another increase of 10 percent is estimated by the year 2000. They have 18 million acres of deer range compared to a total land area of 36 million acres in the entire state; 15 million acres is in commercial forest. They estimate their hunting pressure at about 11 per square mile on their deer range. They believe their hunters could increase to 450,000 or 560,000 with their present deer population and range without overhunting. Their auto losses are "high." In some southern areas, they anticipate that 25 percent of the resident population is killed by cars each year. They have estimated their total fall deer population at nearly 700,000 animals. The state is divided into five major management units. One of their serious problems is an increasing deer population in the southern agricultural areas. At the present rate, they are cutting over their commercial forests once every 30 or 40 years. The use of aspen for pulpwood is increasing tremendously. In their overall, statewide recreational plan, they anticipate that the human population in the state will double by the year 2000. In the central part, they anticipate the human population will remain about the same, but will have a more transient type of hunter with the modernization of their highways. They have 6 million acres of public land in Wisconsin. Most of their range problems at the present time are concerned with the winter range, but they can see evidences of deteriorating summer range which will develop into a major problem in the future.

MICHIGAN, Arnold

Michigan's basic deer management consists of the standard buck season, 3 - inch antlers, plus an area and quota system to harvest recommended numbers of antlerless deer. Practically all of the deer range in the northern two-thirds of the state has been saturated with deer for about 20 years. No one can foresee what percent of saturation has already developed in the southern farming country because at present it is impossible to determine how high the presently increasing herd will go. We have a tremendous human population in southeastern Michigan; these people furnish most of the hunters for the southern Michigan deer and possibly two-thirds of the hunters in the north. This heavy human population is rolling out from the population centers and taking up a lot of the southern Michigan deer range. At the present time, the southern Michigan herd is expanding; but in the heavy human population areas, it is going downhill. Deer hunting pressure in this farming country is already up to 80 percent of that in the Upper Peninsula in certain areas.

In the major deer range, the carrying capacity, which in the last ten years has hovered in the vicinity of 600,000 animals, is steadily declining and dragging the winter herd down with it. The carrying capacity of the range reached its peak probably in the late 1940's, has stayed high for roughly 20 years; and now, as the timber approaches maturity, is falling off. The one major range improvement factor--commercial logging operations--is causing improvement in 12 percent of the range, while the other 88 percent is unimproved. The only major factor that will effect the downward trend in the carrying capacity of

the range--commercial logging operations--will probably improve somewhat in the next few years, but not enough to offset the vast areas where carrying capacities are decreasing. The northern two-thirds of the state, in spite of the terrificly heavy hunting pressure resulting from a half million hunters, needs (if properly distributed) more hunting pressure, especially in the Upper Peninsula. The two new mills mentioned by Regional Manager Curry in his introduction at the start of the meeting could alter the trend, but probably not drastically. The U.P. especially needs more hunters in the western portion, where there are still large, lightly hunted areas, and winter losses from malnutrition is an annual occurrence. About one-third of the antlerless management areas in the Upper Peninsula go undersubscribed each year. We have been talking about following Wisconsin's lead with any-deer on a party permit. At the present time, bucks only are legal for camp deer. If the present trend continues in the future with less hunting ground, higher human populations and less deer, we may even be hunting deer on shooting preserves as we do pheasants and ducks at the present time. In fact, we already have one area--North Manitou Island--where hunters are guaranteed a deer for a fee. This is legal in Michigan under the breeders' license law. Also, it has been suggested that, to get quality bucks, that certain areas be closed to buck hunting to build up a herd of trophy animals, then throw it open to the public.

Byelich: We are troubled in northern lower Michigan with aging cover conditions. It would appear that by 1980, the entire hunting picture could change because of increasing hunters and decreasing deer. At the present time, our range in Region II (northern Lower Peninsula) is more than saturated with deer each year and the logging and pulping operations are approaching the allowable cut. At the present, the pulpwood harvest produces some 170,000 cords a year. On the basis of recent conditions, the north part of the Lower Peninsula is being cut over on a rotation of about 150 years. We need to knock down all the overstory possible to regenerate browse for deer food. The best way to do this, as mentioned above, is under commercial logging, augmented by controlled burns, bulldozers with tree cutter blades, etc. This manual knocking down is expensive, but these costs can be justified. We also have a problem of running into private land in our timber harvesting program; 23 percent of the major deer range is owned by the state, 13 percent, federal (mostly national forest), leaving 64 percent in private hands.

Bartlett: Bartlett showed three charts with reference to deer management that were the culmination of 40 years of work on deer. The first chart showed the major sources of deer information that has led to the present management program. The major sources of information were: embryo counts on highway (and other) kills to determine reproductive potential; the pellet survey for populations; spring dead deer survey for winter losses; year around crop damage surveys; highway kill records; summer deer counts for trends in population; live-deer census drives for population; biological checking stations during the hunting season for age and sex makeup of the kill and physical condition of the herd; experimental hunting area checks (Bois Blanc Island, Beaver Island, Drummond Island, and Rifle River Area); hunter opinion surveys; weather records; and winter browse surveys.

The second chart showed the fluctuation in deer numbers and the reasons for the fluctuations for a typical year. The information on this chart represented in general, the deer situation in Michigan in the early 1960's. It is predicated on an estimated spring herd of 600,000 deer which is also equal to the deer carrying capacity of the range. The major factor that is demonstrated by this graph is the fact that Michigan, now harvesting 100,000 deer annually, is utilizing only 22 percent of the fawn-created surplus. The rest of the surplus goes down the drain; 35 percent of the surplus is wasted through infant mortality, 18 percent through summer losses, and 25 percent, depending on the severity of the winter, lost during the winter after the harvest. It seems that with a herd of 600,000 and a fawn crop of 490,000, we should be able to harvest more than 22 percent of the surplus. Our information is not in sufficient detail to tell us where an increased take of deer should come from. It seems indicated that if the hunting kill was increased, much of the increase would come from deer now wasted rather than from the basic breeding herd.

As indicated by a pie graph, The Disposition of Surplus Deer, 12 percent of the surplus was carried through the winter because of milder than normal weather conditions. This 12 percent and the 13 percent winter loss should have been harvested along with the 22 percent legal kill.

U. S. FISH AND WILDLIFE SERVICE, Aultfather

The major management program of the Fish and Wildlife Service at the present time is inventorying the habitat. The areas are described, classified, and recorded on key-sort cards. Any range improvement that is carried out on these classified areas is recorded on the key-sort cards for reference. This program is experimental at the present time, but has been set up in hopes that a demonstration area can be developed with the habitat classified for easy sorting to determine conditions at later dates.

U. S. FOREST SERVICE, William Irvine

Irvine reported for the Forest Service for Minnesota, Wisconsin, and Michigan. There are two national forests in Minnesota: Superior and Chippewa. The deer carrying capacity in each of these two forests is declining because they are basically wilderness areas. Where cutting is allowed, it is being pushed to provide timber for the commercial market and also because cut-over areas furnish new food for deer. The Forest Service also has two national forests in Wisconsin: the Nicholet and the Chequamegon. These two forests are in the southern part of Wisconsin's northern wild country. In both forests, high hunting pressure is experienced. Here too the major management program is a timber cutting program to produce saw logs and pulpwood and new deer feed. Because of the character of the timber, mainly aspen, these areas can be cut on a short 30-year rotation. In Michigan, there are four national forests: Ottawa and Hiawatha in the U.P.; the Manistee and Huron in the northern part of the Lower Peninsula. The Ottawa in the U.P. is characterized by heavy snow, light hunting pressure, much hardwood cover; hunting here is semi-wilderness type and is greatly enjoyed by hunters. The Hiawatha in

the middle of the eastern U.P, has heavier hunting pressure than the Ottawa because it is more accessible and not quite so far from the population centers. Part of the Hiawatha may be hunted by as many as 30 hunters per square mile, but will average about 9. In both U.P. national forests, the harvesting of merchantable timber is pushed because the timber is maturing and also because young growth is needed for deer feed. The Huron and the Manistee in the northern part of the Lower Peninsula are subject to some of the heaviest deer hunting pressure in the state, many places running 30 to 50 hunters per square mile. Both produce good deer crops. The Forest Service is cooperating very successfully with the Conservation Department biologists in setting up an area and quota system for herd utilization. Here too habitat management, commercial cutting, is being emphasized using the regular Forest Service Management compartments. In both the Upper and Lower Peninsulas, the deer carrying capacity in the forests are declining because of timber maturity. At the present time, investigations on habitat management are being developed as a pilot program on a 70 square mile timber management compartment. Type mapping of the entire forest and the private land included within the boundaries is already under way. Shortly, available browse will be inventoried along with pellet and area surveys, and winter deer use pattern surveys, with the hope that the carrying capacity and the population can be integrated. At present, populations are estimated at 18 to 20 deer per square mile, but in many areas this may vary by 50 percent either way. One part of the program is to determine if such practices are economically feasible. This deer and deer range study is part of a basic use plan for the entire forest. One big change that has been made recently is the curtailing of a program to convert aspen stands to pine. It has been determined that under certain conditions, aspen will produce higher timber values on a short rotation basis than the pine stands that were planted a number of years ago. Strip cutting in conifer deer yards is also under way to determine whether or not such habitat management practices are economically feasible.

MINNESOTA, Stenlund

Minnesota has no large-scale management program in progress. Some management is being carried on in zoned areas where there is little change from year to year. Deer hunting in the southern part of the state has been closed on alternate years and a nine-day season has been basic in the north. The kill has increased during the last ten years in spite of the annual harvest of bucks, does, and fawns. Recently, the annual kill has exceeded 100,000 animals; 127,000 last year, which was a record take. The 290,000 hunters in 1965 are expected to increase by 63 percent by 1975. They expect the deer herd by 1975 to produce 150,000 surplus animals. Like Ontario, Michigan and Wisconsin, Minnesota's northern range is deteriorating because of the maturing of trees. Hunters in the north are decreasing, but are increasing in the central area. The logging operations which maintain the carrying capacity at its present level are now about one-third of the annual allowable cut. Many of the cutting operations are small pulpwood projects, which are well scattered and probably produce an optimum of new food for grouse and deer. There is some concern that the hunting army will increase faster than the herd, and by 1975, under an "any-deer law" will be able to overshoot. They are now considering eliminating party hunting to

spread the available surplus over a larger number of individual hunters. Minnesota does not like Saturday openings because of the tremendous rush to get to the northern hunting grounds and the extremely heavy hunting pressures the first two days of the season. The basic nine-day season could be lengthened in the far north without causing overhunting. In the northern border canoe country, the management people are now trying to up their season from nine to sixteen days.

WEDNESDAY, 1:00 p.m., Field trip, Ralph Bailey and L. Verme, Co-Chairmen

Field Trip: To Cusino Wildlife Experiment Station and to the Petrel Grade Deer Yard. A tour of the Cusino Station was conducted by Louis Verme. The station programs and objectives were outlined and discussed by the group. The group then traveled to the Petrel Grade area where deer yard cutting areas were examined. Cuttings have been made in the mixed conifer swamp to regenerate the stand and restore the deer carrying capacity. The first stage of management has been accomplished experimentally with strip cuttings in which seeding should occur. The group discussed the procedures and viewed the area.

WEDNESDAY, 8:00 p.m., Ralph Bailey, Chairman

Larry Krefting and John Hakala, of the U. S. Fish and Wildlife Service, discussed Krefting's recent trip to check on the moose situation on the Kenai Peninsula in Alaska.

The men from Ontario discussed their moose and caribou herds.

During the business meeting that followed, Wisconsin invited the Group to meet in Wisconsin in 1967. The Group accepted the invitation, and the meeting was adjourned.

I. H. Bartlett

and
D. A. Arnold, Co-Chairmen

John Ozoga, Secretary

IHB:vc
2/10/67

GREAT LAKES DEER GROUP MAILING LIST

MICHIGAN

H. D. Ruhl	Chief, Game Division, Department of Conservation, Lansing, Michigan
Ralph A. MacMullan	Director, Department of Conservation Lansing, Michigan
I. H. Bartlett	Game Division, Department of Conservation, Lansing, Michigan
David H. Jenkins	Chief, Research and Development Division, Department of Conservation, Lansing, Michigan
D. W. Douglass	Game Division, Department of Conservation, Lansing, Michigan
William E. Laycock	Region III Headquarters, Department of Conservation, Lansing, Michigan
Donald Y. McBeath	District Office, Department of Conservation, Box 629, Cadillac, Michigan
David A. Arnold	Game Division, Department of Conservation, Lansing, Michigan
Ralph I. Blouch	Research and Development, Department of Conservation, Lansing, Michigan
Lawrence A. Ryel	Research and Development, Department of Conservation, Lansing, Michigan
Dale McCullough	Wildlife Management, University of Michigan, Ann Arbor, Michigan
Peter I. Tack	3 Natural Science, Michigan State University, East Lansing, Michigan
Gene Hesterberg	Forestry Department, Michigan College of Mining and Technology, Houghton, Michigan
Ralph Bailey	Regional Headquarters, Department of Conservation, Box 190, Marquette, Michigan
John Byelich	Regional Headquarters, Department of Conservation, Box 128, Roscommon, Michigan
Louis Verme	Cusino Wildlife Experiment Station, Department of Conservation, Shingleton, Michigan
Jerry Duvendeck	Houghton Lake Wildlife Exp. Station, Department of Conservation, Box 158 Houghton Lake Heights, Michigan

MINNESOTA

James B. Kimball	Director, Division of Game & Fish 301 Centennial Building, St. Paul 1, Minn.
Forrest B. Lee	Division of Game & Fish, 301 Centennial Building, St. Paul 1, Minnesota
Bernard A. Fashingbauer	Carlos Avery Research Center, Forest Lake, Minnesota
Vernon Gunvalson	2114 Bemidji Avenue, Bemidji, Minnesota
Walter H. Petraborg	1423 Mary Street, Brainerd, Minnesota
Milton Stenlund	111 Golf Course Road, Grand Rapids, Minnesota

ONTARIO

C.H.D. Clarke	Chief, Fish & Wildlife Branch, Department of Lands & Forests, Parliament Buildings, Toronto, Ontario
Harold G. Cumming	Department of Lands & Forests, Southern Research Station, R#2, Maple, Ontario
Rod Stanfield--R.C. Passmore-- & Robin Hepburn.	Department of Lands & Forests, Southern Research Station, R#2, Maple, Ontario
A. DeVos	Assistant Prof., Zoology Department, Ontario Agriculture College, Guelph, Ontario
H. G. Lumsden	Ontario Department of Lands & Forests, Southern Research Station, R#2, Maple, Ontario

U.S. FISH & WILDLIFE SERVICE

L. W. Krefting	Bureau of Sport Fisheries & Wildlife, 204 Green Hall, University of Minnesota, St. Paul 1, Minnesota

U.S. FOREST SERVICE

Herman F. Olson	710 N. 6th Street, Milwaukee 3, Wisconsin
Forest Stearns	Inst. of Forest Genetics, North Central Forest Exp. Sta., Rhinelander, Wisc. 54501
William Irvin	U.S. Forest Service, Ironwood, Michigan
Vern Stricker	U.S. Forest Service, Cadillac, Michigan
William E. Taylor	U.S. Forest Service, Escanaba, Michigan

WISCONSIN

L. P. Voigt	Director, Wisconsin Conservation Department, Box 450, Madison 1, Wisconsin
J. R. Smith	Chief of Game Management, Wisconsin Conservation Department, Box 450, Madison 1, Wisconsin
Frank H. King	Assistant Chief, Game Management, Wisconsin Conservation Department, Box 450, Madison, Wisconsin
Cy Kabot	Chief of Wildlife Research, Nelville State Fish Hatchery, R#3, Madison 5, Wisconsin
James B. Hale	Wisconsin Conservation Department R#2, Madison 11, Wisconsin
William A. Creed	345 Hillondale, Rhinelander, Wisconsin 54501
Art Dahl	Wisconsin Conservation Department, Black River Falls, Wisconsin

ADDITIONS:

Leslie Gysel,	Assoc. Prof., 2F Conservation, Fish and Wildlife, Michigan State University, East Lansing, Michigan
D. Vesall	Supervisor, Game Section, Department of Conservation, St. Paul, Minnesota 55101
John B. Hakala	Seney Wildlife Refuge, Seney, Michigan
Richard J. Moran	Biologist, Houghton Lake Wildlife Research Station, Houghton Lake Heights, Michigan

IHB:vlc
8/15/66

ATTENDANCE
1966 Great Lakes Deer Group Meeting
Munising, Michigan

1.	David A. Arnold	Department of Conservation	Lansing, Michigan
2.	Richard Moran	Department of Conservation	Houghton Lake, Michigan
3.	Ivan Thomson	Department of Conservation	Crystal Falls, Michigan
4.	Dick Aartila	Department of Conservation	Negaunee, Michigan
5.	Bill Irvine	Huron-Manistee Nat'l. Forest	Cadillac, Michigan
6.	Robert D. Wood	Department of Conservation	Baldwin, Michigan
7.	Robert R. Rafferty	Department of Conservation	Baraga, Michigan
8.	Philip Baumgras	Department of Conservation	Mio, Michigan
9.	Robert Strong	Department of Conservation	Sault Ste. Marie, Mich.
10.	Forest Stearns	North Central Forest Exp. Sta.	Rhinelander, Wisconsin
11.	Bernard Hubbard	Department of Conservation	Cusino, Shingleton, Mich.
12.	Norman Sloan	Mich.Tech. University	Houghton, Michigan
13.	Duaine Wenzel	Department of Conservation	Crystal Falls, Michigan
14.	Loyd Schemenauer	Department of Conservation	Newberry, Michigan
15.	Elsworth Harger	Cusino Wildlife Res. Sta.	Shingleton, Michigan
16.	Richard Mackie	University of Minnesota	St.Paul, Minnesota
17.	Pat Karns	Minnesota Conservation Department	Winton, Minnesota
18.	Merle Stitt	Nat'l. Park Service	Washington, D. C.
19.	Jules Pann	Department of Conservation	Wakefield, Michigan
20.	Nels Johnson	Department of Conservation	Lansing, Michigan
21.	Ralph Anderson	Department of Conservation	Grayling, Michigan
22.	Thomas Havard	Department of Conservation	West Branch, Michigan
23.	L. W. Krefting	Bureau of Sport Fish. and Wildl.	St.Paul, Minnesota
24.	Milt Stenlund	Minnesota Game and Fish	Grand Rapids, Minnesota
25.	William Taylor	U. S. Forest Service	Escanaba, Michigan
26.	Walt Palmer	Department of Conservation	East Lansing, Michigan
27.	Robert Payne	Department of Lands and Forests	Sault Ste. Marie, Ontario
28.	Bill Creighton	Department of Lands and Forests	Maple, Ontario
29.	Dale McCullough	University of Michigan	Ann Arbor, Michigan
30.	James B. Hale	Wisconsin Conservation Department	Madison, Wisconsin
31.	Dale Martin	BSF & W -- Federal Aid	Minnesota
32.	Leland Queal	Department of Conservation	East Lansing, Michigan
33.	John Idstrom	Minnesota Department of Conservation	Forest Lake, Minnesota
34.	Vern Gunvalson	Minnesota Department of Conservation	Bemidji, Minnesota
35.	Ralph Blouch	Department of Conservation	Lansing, Michigan
36.	Ralph Bailey	Department of Conservation	Marquette, Michigan
37.	Robert Odom	Department of Conservation	Paris, Michigan
38.	John Kubisian	Wisconsin Conservation Department	Babcock, Wisconsin
39.	George Hartman	Wisconsin Conservation Department	Madison, Wisconsin
40.	Robert Dreis	Wisconsin Conservation Department	Black River Falls, Wisc.
41.	John J. Ozoga	Department of Conservation	Shingleton, Michigan
42.	Lawrence Ryel	Department of Conservation	Lansing, Michigan
43.	Louis Verme	Department of Conservation	Shingleton, Michigan
44.	Joseph Vogt	Department of Conservation	Escanaba, Michigan
45.	Keith McCaffery	Wisconsin Conservation Department	Rhinelander, Wisc.
46.	Robin Hepburn	Ontario Dept. of Lands and Forests	Maple, Ontario
47.	William Aultfather	U.S.Fish and Wildlife Service	Minneapolis, Minnesota
48.	John Byelich	Department of Conservation	Roscommon, Michigan

9/23/66