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GREAT LAKES DEER GROUP MEETING

1988

TRIP REPORT

Deep Portage Conservation Reserve
Hackensack, Minnesota

MNR Attendees

Dennis Voigt
Ray Stefanski
Bruce Ranta
Wayne Lintack

GREAT LAKES DEER GROUP MEETING - 1988

The 1988 meeting was held 29 August - 1 September at Deep Portage Conservation Reserve in north central Minnesota near Hackensack. Attendees from Ontario were: Ray Stefanski and Dennis Voigt, from the Wildlife Branch; Wayne Lintack from Central Region; and Bruce Ranta from Kenora District. Approximately 35 others attended from Minnesota and Wisconsin. Unfortunately, no representatives from Michigan and Manitoba were able to attend. This report highlights items from the Agenda. Further details are available on specific topics from the attendees.

A. HOW WE COMPARE:

1. Ontario deer program very well structured.
 - . research providing good knowledge for practical adaptation to management
 - . management forefront of deer management, harvest systems, etc.
2. Habitat
 - . small management effort but research providing strong new data for adaptation to management
3. Data information systems
 - . Ontario's so large coordination of data collection, analysis and use is behind the times. Much needs to be done yet.

B. NEWS:

1. Research: the CDS is currently the largest and most comprehensive deer research being conducted in the Great Lakes States and provinces. Results are applicable across the Great Lakes, especially as regards winter feeding and assessing carrying capacity.
 - . Wisconsin have an excellent management workbook - will provide a good model for Ontario's current efforts on that project.
2. Management:
 - . Wisconsin's approach to habitat management, i.e. timber sales distributed in location and time, to produce deer habitat was noted as useful.
 - . Winter concentration areas - no timber cutting until February 1 so deer are not prematurely concentrated.
 - . Deer numbers should be scattered over the range through habitat management - both summer and winter.
 - . Wisconsin deer may not be as migratory as Ontario's and

northern Minnesota's; our approach to management must differ.

C. MEETING AND LOGISTICS:

Meeting was successful and several worthwhile talks were given, exchange of ideas good and informal social discussions valuable. Accommodations were nice - a remote setting, etc. Meeting room too large, too bright and poor acoustics. However, Minnesota staff made everyone feel at home, and extended every hospitable consideration.

Field Trip

Field trip was well organized and informative. Deer habitat and forest management practices were viewed and discussed. Notes on this field trip from Bruce Ranta are attached.

D. MEETING CONTENTS:

1. Hunt Updates - Wisconsin - Keith McCaffery
 - . Harvests - 300,000 animals for past 4 years. 1986 excellent season, 1987 very good, 1988 prospects also very good.
 - . 1988 - starting bag limit of 2 deer per hunter. Licence fees increased from \$13-15.50 in 1987.
 - . 3 zones - northern forest, 15,000 sq. miles, central forest, 2,300 sq. miles and southern area 15,000 sq. miles
 - . Goals have been set for each of 114 deer management units - the goals (targets) vary but north and central zones are 60% of K. Southern goals are below I (40% of K) because farmer intolerance of deer is a significant aspect.
 - . Goals range from 10-25 deer per sq. mile and were initially derived from demonstrated ability of an area to produce deer over a 10 year period. Deer population estimated at 1 million and stable - aspect of management is to hold it there.
 - . With changing forest type (species) more hardwood and conifer (less aspen) will suppress K in northern areas in the near future.
 - . (See later notes on habitat.)
 - . Ray Stefanski asked how party killing (reintroduced 3 years ago) has affected hunter success and quotas.
 - . McCaffery - believes no noticeable difference but management staff are divided. Hunter ethics raised as a concern.
 - . Lenarz - party killing (called party bagging in U.S.) has increased hunter success rates in Minnesota.

2. Hunt Update - Ontario - Ray Stefanski
 - . Deer herd estimated at 250 - 300,000, herd increasing
 - . 1987 licence sales 142,000
 - . Hunters 131,000, harvest 38,000, success 28%
 - . 1988 - new season
 - . analysts quotas 75,000
 - . 85,000 applicants to selective harvest
 - . 65,000 tags issued
 - . prospects are very good.

. Ray described the selective harvest and controlled hunt programs - highlighted hunt statistics since 1980, and aspects of managing deer at the northern limit, changes in hunting seasons, crop damage study, deer management area (DMA) program and planning and management process under deer timeline management concept (see attached report for details).
3. Hunt Update - Minnesota - Leroy Rutske
 - . seasons fairly stable
 - . 1987 harvest 135,000, 415,000 licences sold, success 32%
 - . estimate herd at 350,000
 - . buck harvest in 1987 was high - 58% of bucks.
 - . General discussion on buck kill as a population indicator ensued. Rutske commented that it was not a useful indicator. Voigt commented that if combined with hunter day and area standardization it appears to have been useful in the Canonto Deer Study in Ontario - however, changing antlerless tags, and weather variables confound it. McCaffery commented that the buck kill index works very well for Wisconsin because of stability of effort and seasons for five decades.
 - . Minnesota in 1987 had 68,000 archers with a harvest of 7,700 deer. Dennis and Ray have a detailed Minnesota hunt report if interested in further statistics.
4. Indian Hunt Update - John Gilbert, Wisconsin; Jim Ziegler Minnesota
 - . Brief description of efforts to monitor harvest by Indians (off reservations - Wisconsin; on reservation - Minnesota).
 - . Interesting cooperative program but not significant in state management of deer.
5. Michigan Hunt Update - 1987 - Ed Langenau (in absentia)
 - . in 1987, 740,000 hunters (253,000 archery, 712,000 firearm, and 81,000 muzzleloader hunters)
 - . total deer harvested - 337, 950 (257,000 were harvested by rifle and shotgun alone)
 - . Minnesota projects a 1988 harvest of 400,000 deer.
6. Habitat Update - Minnesota - Leroy Rutske and Jay Janecek

. 1986-1987 large effort being made compared to last year
 . The RIM (Reinvest in Minnesota) program has supplied \$819,000, much of which has gone to evaluation of habitat.
 . \$2 from each licence sale goes to habitat improvement.
 . Minnesota evaluated 1 million acres, and 3,600 acres were improved for browse regeneration. In three northern regions, \$655,000 was spent to create trails and for seeing; openings were treated through mechanical and other means.

7. Habitat Update - Ontario - Ray Stefanski
 . Habitat funds were made available as part of the selective harvest implementation in 1980 but have dwindled, at present little funding. Concern was expressed because if the balance is not made - future problems will surely develop. The entire 1988 deer program budget is \$800,000. By comparison, Minnesota expends that much on habitat management alone. Ontario's efforts are limited to what districts are able to do within the present constraints and priorities - Wayne Lintack, Huronia, described his habitat work in the district.
8. Habitat Update - Wisconsin - Sam Moore
 . State-wide forest wildlife program (including sharp-tailed grouse) totaled \$302,000 mostly from Pitman Robertson funds. In the northwest, the north central work program deals extensively with a) aspen through IRM in which forestry create and maintain, b) openings, c) trails and d) roads. Trails and openings are seeded and fertilized and maintained every 7 years. McCaffery's manual 21-12 provides quantitative codes of composition of habitat and has proved useful - the strategy of keeping deer scattered over the range both summer and winter was espoused.

Research Updates

Wisconsin Research - Keith McCaffery

Eight projects are underway, most of which are surveys:

1. age and antler characteristics of harvested deer - 75/475 stations aged a total of 22,000 deer.
2. summer observational survey for fawn/doe ratios
3. winter severity index.

Note: No pellet group counts have been conducted since 1978. However, in 1986 a deer range survey was completed.

4. state-wide reproduction survey; 1,686 does were checked, fawn production is lowest in the northern forest (3-50% of fawns breed statewide). Average production is 1.65 fawns per reproductive female, more than 80% of does older than 1-1/2 years breed with a sex ratio of 109 male:100 female fawns.

5. a xiphoid fat survey was finished which showed that deer across Wisconsin are in good condition in the fall.

Wisconsin is not planning at the present time to implement further fat surveys.

6. antler beam diameter and number of points and percent of forecorns survey data show all these are correlated. At present Wisconsin does not plan to use beam diameter to refine management.

7. Wisconsin has started a red pine conversion study.

8. McCaffery et al. have worked extensively on a deer data base work book in the last two years. (See notes later.)

Minnesota Update - Mark Lenarz

Minnesota has initiated a study on habitat and impact on deer. They are designing a study comprising five cuts up to 35 acres in size. Sites are randomly selected in a randomized block design for mechanical, Spike, and Roundup treatment. They are assessing both spring and fall deer use of these sites. They are employing a Canon Sheer Shot Auto camera to monitor deer use.

University Research Update by Tim Lewis - Wisconsin

Tim is conducting studies out of the University of Madison in the ~~Shawano~~^{Chippewa} National Forest. His study has been conducted for two winters and two further winters are planned. His hypothesis is that food is limiting deer. He is looking at winter feeding through the use of 89 radio-tagged deer (30 adult does, 26 fawn does, 26 buck fawns, and 7 adult bucks). They have observations at feeding sites, especially of family groups. They are compiling good migration data showing migratory distances of 20-25 miles and dispersals of over 35 miles. They have documented forest cover changes in their study area for the past 130 years. Tim raised \$20,000 through the NRA and Adopt-A-Deer Program to support his research.

Mike Nelson - US Fish and Wildlife Service

He gave an update on his research which has been reported in other years and partially published. Some noteworthy observations are:

- . 77 fawns that were radio-tagged were followed through dispersal
- . 62% of males dispersed as yearlings or 2-1/2 year olds
- . 20% of females dispersed, the remainder remained at home
- . 66% of dispersal was less than 4 km, only 1% went greater than 25 miles
- . Mike Nelson is doing extensive work on the genetic characteristics of populations and his analysis suggests a population of below 500 animals that is self contained can demonstrate genetic drift. An absolute minimum to prevent inbreeding requires a population of 50 deer.

Todd Fuller - Minnesota DNR, Grand Rapids

He gave an update on his field work which involved a large radio-tagged sample in north central Minnesota. His field work was completed about one and a half years ago and he is analyzing data now from a nine township - 324 square mile study area. He has recorded 91 deaths out of 148 radio-collared animals. The following tables illustrate some results from mortality rates and cause studies.

MINNESOTA RADIO-TAGGED DEER % SURVIVAL RATE - 1980-86

	<u>JUN-OCT</u>	<u>NOV</u>	<u>DEC-MAY</u>	<u>ANNUAL</u>
FA	95	84	89	71
FY	93	72	91	60
MA	87	51	100	44
MY	89	55	100	48
Fawns		32	72	23

NOTE: Showed a 17% decline in population during study.

RELATIVE % MORTALITY CAUSES - ADULT MALES

Poaching	18%	Rifle	37%
Wolves	11%	Dogs	5%
Wounding	5%	Muzzleloads	5%
Archery	7%	Unknown	5%
Other	7%		

KILL ESTIMATE (Deer/km²)

	<u>From Radioed Deer</u>	<u>From Hunter Sample</u>
F	.55	.39
M	.58	.61
	1.13	1.00

KILL ESTIMATE (Deer/km²)

	<u>From Radioed Deer</u>	<u>From Hunter Sample</u>
Ad + Y	.25	.30
Fawn	.24	.20
	.49	.50

ANNUAL % MORTALITY CAUSES - ADULT MALES

Rifle	28%
Wolves	9%
Poaching	9%

RELATIVE % FAWN MORTALITY

Summer	79%
Winter	12%
Hunting	9%

Dennis Voigt - Ontario

He gave a deer research update describing the Canonto Analyses (Hepburn/Hussell/Lambert) and Cooperative Deer Studies. Former report on harvest/population trends will be out this fall. Check station data showed body measurements, etc., are density dependent as well as range dependent (Journal ms.). Coop Deer Study is near final. Next 2+ years for analysis and writing. Nine projects and \$200,000 annual budget. Winter feeding, feeding devices, nutritional needs guidebook, deer migration (280 different deer radio-tagged), determining carrying capacity, deer management model for Ontario by hybridizing existing models, mortality and reproduction studies of ratio-tagged deer, assessment of deer condition using many indices, and coordination of deer information systems. Ontario also has Regional and District research/management studies on nonharvest mortality, reproduction, road kill index, deer condition (Lintack).

Infrared Photography for Deer Habitat - Bill Dickey, Dave Befort
- Remote Sensing Unit, Grand Rapids

They demonstrated the use of infrared 35 mm photography using a Nikon F3 to document deer habitat in Minnesota. This was best done in the spring and fall because of the differences among species phenology at that time. Summer IR was less useful for distinguishing timber types. Full coverage at 4" to the mile cost \$300.00 per township.

GIS for Deer Habitat - Lee Westfield, Pro-West and Associates

Minnesota forest inventory includes much more understory and browse type information. They, under private contract, offer a service of GIS information for deer habitat purposes on IBM PC AT's using Arc-info. They have some capability to digitize from

IR photos but most digitizing is done from forest inventory maps. After the data base has been constructed, they can answer questions like what percent of the area in each timber type has particular shrub species, as well as what percent of the area occurs in various timber types. This system is relatively new in Minnesota and is being developed for small areas at the present time but is clearly a technique that will be widely used in the future there as well as, hopefully, here.

Habitat Programs of the Minnesota Deer Hunters Association - Al Sproessig - MDHA and Gary Drotts - Minnesota DNR

The MDHA is a very active group of 13,000 members comprising 47 chapters, 31 of which raise funds. (Note: There are 400,000 deer hunters in Minnesota.) They publish a glossy magazine called "White Tales" 4 times a year. They have raised over \$100,000 annually which is matched by the RIM program (Reinvest in Minnesota) to make a total of \$200,000 targeted for white-tail habitat improvement. Additional local chapter projects in 1988 amounted to \$275,000; they eventually hope to raise 1/2 million dollars for habitat work. This group also conducted the Hides for Habitat program and have a goal of annually processing 25,000 hides. They have one full-time paid person and two half-time secretaries. They spend a considerable amount of money on education and conservation activities. Attached are notes from the MDHA showing their active state-wide involvement.

Winter Feeding of Deer in Ontario - Dennis Voigt MNR

Dennis Voigt gave an update on winter feeding studies of the Cooperative Deer Study. Winter feeding became popular during herd decline in 1970's. Feeding itself was controversial, but so were questions of how, what, when, basic ecology of deer, goals, harvest. Four study areas were chosen from Loring south to accommodate study of physical condition, reproduction, and mortality. Deer spend 60-120 days in the yards in mild and moderate winters, longer in severe winters. Major mortality in Loring is hunting and starvation. In a farm area (Huron), mortality rate was the same but without a dominant cause. Adult doe mortality averages 30%.

Feeding Study: Feed types, foraging strategies, feeding device efficiency, cost/benefit. Food intake goes down to 1 kg/day in mid-winter, but shoots up to 4-5 kg/day by spring. Supplementary feeding (non-emergency) is normally done throughout winter. Our policy is also looking at emergency-only feeding. Part of the research is to provide direction to private organizations and individuals. Feeder size: 300 kg hoppers, 55 gallon barrels, etc., seemed unimportant compared to number of deer feeding spaces. Even large hoppers may only feed 2 deer at a time as do smaller feeders. Recommend several small feeders/site. Need to

provide feeding spaces (place barrels at 20 m). Conventional feed has been 50% corn/50% oats. Cost of building and maintaining barrels proved most efficient, as is food consumed. Have conducted experiments on acceptance by deer and most efficient way of emergency feeding.

The Wisconsin Deer Harvest Management Workbook by Keith McCaffery

This grew from a workshop three years ago with the goals of facilitating communication, orienting managers to a standardized system, and the need for a reference book. This system requires a link with a mainframe. It uses SAS as a operating program and gives the managers a complete history of the harvest in each deer management area as well as techniques for analysis of harvest and biological data. We obtained detailed information on this program for coordination with the development of an Ontario Deer Information System as a part of the Cooperative Deer Study. John Gilbert from Wisconsin described how he modified the Wisconsin workbook for the Great Lakes Indian Fish and Wildlife Commission. His program used Dbase 3+ and Lotus 123 templates.

Panel Discussion on Habitat Management

Representatives: Ontario - Dennis Voigt, Wisconsin - Keith McCaffery, Minnesota - Mark Lenarz

Questions posed to the panel:

1. What philosophy is behind habitat management? Is geared to winter, spring, summer, fall, to please hunters, to increase deer?
2. How are priorities set?
3. What is the system of management used?

Wisconsin

McCaffrey gave a review of Wisconsin habitat and habitat management. Carrying capacity for Wisconsin ranges from 15-45 deer per sq. mile. Density of deer in the forested land areas is correlated with the occurrence of aspen, oak and jack pine, highest densities occurring where those forests types are most prevalent. Routine forestry practices produce high amounts of browse. Their programs have concentrated on spring and the fall range. Their winter range program involves basically the acquisition of yarding areas; it does not include feeding of deer and very little if any browse cutting. Because of changes in the forestry in Wisconsin, the increase of hardwoods and conifers and the decrease of aspen, Wisconsin believes that the carrying capacity has been declining over the past twenty years. The purpose of their current habitat program is to slow the loss of K. They had an annual budget of \$302,000 in 1988. The major winter range problem they have documented is the inability to

regenerate cedar and hemlock under high deer densities. Sam Moore from Wisconsin DNR also described habitat management in his area. He suggests, 1) summer range must be good to bring deer into the winter in healthy condition, 2) timber sales are favoured on summer range to produce habitat that will keep deer in summer range as long as possible, 3) in winter yards there should be no timber cutting until February 1 so as not to prematurely congregate deer, 4) habitat management should be geared to scattering deer over large areas rather than concentrating at high densities in yards.

Ontario

Dennis Voigt reviewed the differences between Wisconsin and Ontario. Most current deer habitat work is done through ongoing forestry practices (IRM) but there are deer range improvement activities in specific yards and historically these have been in many parts of the central deer range. In the southwest, conservation authority and MNR agreements with landowners can be used under the Woodland Improvement Act. In much of the central deer range, selective (high grade cutting) has not produced large amounts of browse. Much of the area used by deer in the winter is on private land. Ontario has standards and guidelines for the ranking and management of habitat but these guidelines do not describe the measurement of carrying capacity and the measurement of forage production. Most efforts in Ontario are directed at protecting winter range and relatively little summer range management is done. One of the major problems of protecting conifer has been the lack of regeneration under high crown closure coniferous areas. In some areas cedar regeneration is good except that deer suppress it; in other areas of small cuts, the cedar has not regenerated. There is relatively little funding for yard work. Yard work that has been done to improve habitat has mostly centered on creation of browse plots either through the use of bulldozers or hand cutting. One study in the North Bay District indicated that hand cutting produced more pounds per acre. In the future we hope to implement some of the results of the Cooperative Deer Study which has given us a much better understanding of deer migration, allowing us to estimate when deer arrive and leave winter yards. Generally deer move to the yards when about 20 cm of snow occurs and persists and they leave when only a few cm of snow are left. The periphery and edges of yards are used both when deer arrive and leave and are used for fat deposition in the fall and replenishing after the winter in the spring. The amount of concentration within yards depends on severity of winter and duration in yards varies from 60 to over 120 days depending on winter severity. The fall appears to be the critical time when deer put on fat reserves and high quality fall range is thus important. In comparison to Minnesota and Wisconsin, aspen is not a large component of much of our deer range with the exception of the northwest. Deer declined and increased in the last two decades in areas where

aspen was and was not prevalent. In much of our range, forest canopy is as high as 80-95% which our recent studies have shown, limit browse production greatly. In parts of Ontario where we have recently experienced gypsy moth outbreaks and maple dieback, canopy closure has been opened. In areas where aspen is prevalent, even if canopy closure is fairly high, a large amount of light coming through the canopy gives large quantities of herbaceous deer food and browse. Surprisingly in some of our best yards such as Loring that showed the least ups and downs in deer populations, the percent of conifer was as low as 15-20%. These conifer species were pines, spruces, fir and hemlock which occurred in an ideal interspersion. But overall density of conifer and crown closure was not high. These areas support about 20 deer per km². Dennis reviewed the importance of herbaceous material such as the cool season legumes and grasses which provide food during the critical spring and fall periods.

Minnesota

Mark Lenarz described a situation where deer were migratory like in Ontario in northern areas and southern areas that were more similar to Wisconsin. They have an active habitat program, parts of which are now being funded by the MDHA as described earlier. They have initiated a computerized system of habitat inventory which is able to identify and prioritize areas for treatment. Emphasis is, as in Wisconsin, placed on a spring and fall habitat.

Summary

There was a good discussion on habitat management in the Great Lakes States area which indicated that evaluation and quantitative assessment of habitat management programs was generally a weakness in most areas. The view was expressed that the bottom line was the annual production of deer is high when habitat is in good condition. Minnesota, Michigan and Wisconsin have all demonstrated continued high annual yields from the deer herd. A general philosophy of winter vs summer range management was expressed by Sam Moore who indicated that there was no point in stock piling deer in the winter if you could not grow them in the summer. He summed this up by saying feed them grass in the summer and lead in the fall; this is a blunt way of indicating the importance of cool season forages to allow deer to develop adequate fat reserves for the winter and replenish themselves after difficult winters.

Carrying Capacity Study - Ontario - Dennis Voigt

Migratory deer complicate carrying capacity concept. Carrying capacity is the number of deer that can be maintained in the long-term without damaging forage base. Many managers believe "K" is the desired goal! hard to clip and weight food as estimate of c.c., especially in summer. Now Ontario is looking at means of estimating winter c.c. Deer weight, production, survival, antlers, and recruitment are all density dependent.

We have been testing Moen's K model. His model indicates understory browse production (pounds/acre) can be predicted by stand structure (not type). Regn (100), Sedl (200), Sapl (70), Poles (30), Saw (40). using this with forest inventory, it gave a reasonable approximation of carrying capacity of county-sized areas. Plant annual growth (primary production) determines "K". Only 20-60% can be used without damage, e.g. 20 lb/ac = 12,800/mi², 1 deer for 100 days needs 440 lbs or 29 deer/mi² of winter range. Moen has determined that maximum primary production is about 500 lb/ac. If 50% of area is covered by browse plants and annual growth is only about 50% of maximum known, then determine percent access (physical, snow, etc.) and amount already eaten, then assign percent you will allocate to deer. Observers appear to be able to estimate this to within 5% after training with "UKEY". Studied 6 forest types, 450 plots. Estimated ocularly, then clipped. Results appear to be well correlated.

Business Meeting

One suggestion was to merge with Midwest Deer and Turkey Group or broaden concern to all forest wildlife: Basic premise of groups is to keep it small and informal (Rutske). Bear people have their workshops (Lenarz) as do moose people. Voigt thinks Ontario has better ties to GLDG than Midwest Deer and Turkey Group; attendance by turkey people complicates travel authorization; Ontario maybe would go to NEDTC. Alternate year meetings: Lenarz thinks attendance may be better. Voigt says annual budgets don't help in off years. Nick Goulden: Bigger meeting would likely relegate us to large places in big cities at higher costs. Michigan is scheduled to host the meeting in 1989. All 1989 presenters should be encouraged to prepare 1/2 page abstract for minutes. No formal minutes are planned for this 1989 meeting (Lenarz).