GREAT LAKES DEER GROUP

AND

RUFFED GROUSE WORKSHOP

Pidgeon Lake Field Station, Wisconsin

September 30 - October 2, 1986

HABITAT PROGRAM UPDATES:

Manitoba (Herb Goulden): Of a total of 250,000 mi^2, about 70,000 is deer range which is coterminous with agriculture. The vast majority of deer are in agro-Manitoba. If half the land is wooded, we have about 30-35 deer/mi^2 gross land area; if 15-50% cover, 7-10 deer/mi^2. If only 80 acres/section is wooded, only about 0.5 deer/mi^2. Recently, we began a leasing program to preserve wooded cover. Despite losing cover at 4-6% per year, deer herds have been increasing! In northern Manitoba, we have cooperative agreements between Wildlife and Forestry to enhance deer habitat.

Minnesota (Jay Janecek): Habitat program began in 1969, but funding varied greatly. A $1 surcharge was placed on deer licenses and since has been raised to $2. This produces $960,000 per year, of which about 60% goes for salaries of habitat coordinators. Most effort was initially on aspen maintenance, but has shifted to openings as aspen sale specifications improved. They have used a helicopter to reach remote openings for renovation, maintenance, seeding and fertilizing. Reconstruction costs about $280/ac, burning for maintenance $45/ac, seeding and fertilizing $30/ac. Interestingly, Minnesota can burn openings from a helicopter without ground supervision of the fires. Minnesota has a fair amount of program money, but is strapped for operating money. Minnesota Deer Hunters Association is strongly habitat oriented and raises money much like DU. They donate toward work. Minnesota is also getting $1 million for aspen management and about $500,000 from RIM. Tordon herbicide has been the principal herbicide used. In both Ontario and Manitoba, its use is prohibited. DOW apparently discontinued manufacture of 10K pellets this year.

Ontario (Wayne Lintack): No license funds are earmarked for habitat. We have little program money available. Most work occurs through cooperative agreement with timber people. We do some limited browse cutting. Seek to maintain conifer cover and schedule timber sales near yards. Burning is being done on a limited scale to enhance summer range.

Wisconsin (Arlyn Loomans): Program began in 1968 and is focused on the North. Primary thrust is summer range maintenance. About 75% of funding was directed to aspen initially. Later, openings maintenance took preeminence as sale requirements were tightened on aspen. Openings construction began in 1974. About 1,000 openings have been constructed. These can be maintained by mowing every 3-5 years. Deer yard plans are in place to maintain quality cover and regulate the flow of available browse. Funding has decreased from $500,000/yr to about $350,000 because priority work is being completed. We presently have about 2% openings on public lands. P-R is the main source of funds.

Michigan (Joe Vogt): Very little yard work is done in the Northern Lower Penninsula. They seek to maintain the quality of the "green barn" and keep about 1/4 of the yard perimeter in seedlings and saplings with cutting limited to late fall and winter. Major thrust of habitat program is toward spring and fall habitats. Two major concerns are the amount of jackpine being converted to red pine due to bug problems, and the growing amount of private feeding of cull vegetables, etc., in winter by private individuals.

The Northern Penninsula management is shifting toward winter yards. Cedar and hemlock stands are slowly deteriorating. Regeneration is top priority and will be accomplished by subsidizing loggers to do the right types of cutting, scarifying, ditching, or planting of tublings (bought from Mead Corp. for $80/M; 10 to 14" tall). The DRIP (surcharge on deer licenses) provides $1.9 million/yr for statewide work on public land. Aspen maintenance is presently being accomplished silviculturally without much expense; openings already have achieved goals; so, yards are the logical next priority. Outright purchase of critical yards is also being considered.

Sharptail Management-MN (Bill Berg): Minnesota began a burning program that is rather enthusiastically endorsed by forestry/fire personnel. Forestry has also agreed to modify conifer planting to recognize sharptail needs. We have established the economic value of a harvested grouse at $40 each. With a harvest of 100 birds/mi^2, the economics look pretty good. Principal range includes glacial lake bed (bog), tailings basins (brushy), and old reverting farmsteads.

Ruffed Grouse Management-WI (John Kubisiak): Statewide goal is to have about 65 birds/mi^2, or 1.5 million. The 1968 and 1983 forest inventories show significant loss of aspen and gain of northern hardwoods. Conversion to pine remains a major concern, especially on industrial lands. The State maintains about 750 miles of walking trails for hunters. The RGSNA is aggressively establishing demonstration management areas throughout the state, including private land.

INTEGRATING RUFFED GROUSE-TIMBER MANAGEMENT (Gullion): When RG use aspen buds as the primary winter food, populations increase about 30%/yr. When aspen buds are not principal food, populations decline. Rosins in the flower bud may occasionally contain aversive chemicals which cause RG to avoid buds until catkins extend. Fewer than one breeding pair/10 acres indicates habitat deficiency. Male aspen leaves are preferred over female. Nesting and brood ranges do not appear to be limiting. Chick dispersal (first 10 days) is about as dramatic as fall dispersal.

"Hiding" (horizontal) cover favors mammalian predators, not grouse. Dense vertical cover (3,000-8,000 stems/acre) give avian predators difficulty because of their greater wingspan. RG did not cycle for 11 years in best Cloquet cover. RG seldom use aspen younger than 25 years for food.

Five waferboard mills have come on line in Minnesota and have greatly improved aspen regeneration picture. Young aspen may grow 1½ inches per day. About 3/4 of aspen stems will naturally die back by 6-7 years. At Mille Lacs, aspen remains prime habitat for only about 10 years. Cloquet soils are poorer and aspen saplings remain attractive for about 15 years. The cleaner the clearcut after skidding, the better for RG. I would prefer to see strawberry planted rather than clover. Clover is too good a bait and increases RG vulnerability. Don't spend money on openings for RG management.

Once a cutting pattern is established (10-acre blocks), future sales administration is reduced because age-classes of adjacent blocks are distinct. Large clearcuts can be accommodated by leaving small clones of aspen (1 clone/20 acres). Leave-trees need not be quality trees. RG are more likely to use stressed aspen. Clones of aspen usually have mixed sexes in the Midwest. Start cutting patterns from the south so as to minimize the amount of regeneration lost to shading. After 15 years, "maintained" aspen reverts to its original composition (mixed aspen-birch-hardwood). RG do use conifers but they are short lived, and densities are only about 1/10 as dense in conifer habitats as in aspen.

Summer and fall burns are destructive to aspen regeneration. Reentry onto young reproduction can kill it. Spruce and fir are not as bad as predator cover as are pines, but still exclude aspen from the site. I know of no situation where availability of drumming logs was a limiting factor. Hazel may be more important than formerly thought.

RED PINE CONVERSION IN WISCONSIN (Kubisiak): We are beginning a study of how we can best accommodate red pine conversion. Five study blocks with conifers comprising 16 to 75% pine showed fewer deer trails in the piniest blocks. Drumming grouse averaged 1.1/100 ac compared with 1.4-2.6/100 ac on Sandhill and Wood County. Grassy understories seemed to have less deer sign than understories of broadleaved herbs. Converting oak stands with grassy understories may be less of a loss. Most pine stands presently being studied are quite diverse with 20 to 30% of the overstory comprised of deciduous species. These old conversion sites may not be truly representative of stands that may be converted now with better herbicides, etc. Joe Vogt says that Michigan may see 1/2 of their jackpine converted to red pine as a result of bug problems.

THE COST EFFECTIVENESS OF FOREST OPENINGS FOR WHITE-TAILED DEER (Mark S. Lenarz, MN). (Mark was unable to attend the meeting but provided the following abstract.): The creation and maintenance of forest openings is an established practice used to improve the quality of deer habitat. The cost effectiveness of this practice was evaluated using a population simulation model that assumed that openings management increases productivity and winter survival. The net benefit of openings management was the difference in deer harvest between a population with access to openings and a population without access. The cost of openings management/ha was used to calculate the cost/net deer harvested. The value/deer harvested was derived by summing the total expenditures by licensed deer hunters and dividing this sum by the total deer harvest. Openings management was considered to be cost effective if the cost/net deer harvested was less than or equal to the value/deer harvested.

Cost effectiveness is an ambiguous concept when applied to resource management. The determination of whether openings management is cost effective was dependent on which expenditures were included in the calculation of the value/deer harvested. If only license revenues are included, it was difficult to economically justify openings management. If license fees, equipment and logistical costs were included, however, openings management appears to be a cost effective practice. Until it can be demonstrated that openings management increases productivity and/or survival, however, it is impossible to demonstrate the cost effectiveness of this practice.

TOXICS IN DEER (Lintack): Cadmium concentrates in kidneys, liver, bone and muscle in that order. Metal refineries, power combustion, acid precipitation freeing environmental Cd, etc., may be source. Kidneys throughout Ontario may exceed WHO standard (0.5 ppm). Cd seems to bioconcentrate and correlates with age of mammal. A news release was issued to caution hunters about eating kidneys and liver from deer and moose.

Goulden indicated that Manitoba also distributes a Cd fact sheet to hunters. They are collecting jaws, kidneys, and liver samples from moose to determine extent of problem. Meat samples from Ontario were ruled safe, but whole issue is "a loose canon on a deck".

PREVENTING DEER DAMAGE (Goulden): Strategic placement of food can mitigate car-deer crashes and crop damage. Corn, soybeans, peas, etc., have come into traditional grain areas exacerbating damage problems. Thermal cover (aspen bluffs) are limiting factor in agro-Manitoba. This range is 85% privately owned. Canadian grain quota is the greatest threat to wildlife because subsidies are proportional to cultivated acreage. Farmers have traditionally solved deer problems by converting cover to field. About 80% of cattle forage is put up in round bales. Blood meal repellent is placed around hay. Intercept feeder is placed near haystack. Initially bait with hay, but feed pellets. Intercept program costs are offset by savings in habitat and damage payments. Damage costs may run $200,000 to $300,000. Largest individual claims are $3,000-5,000. A deer can be fed for about $30. We have 50-60 feeders in our south. Volunteers are relied upon, and we know of only one case of fraud (feeding domestic stock).

WISCONSIN DAMAGE PROGRAM (Tom Hauge): We paid damages from 1930's up until 1979. Initially administered by wardens. In 1979, $400,000 was allocated for payment, and administrative costs matched payments. New law in 1983 shifted administration to counties (voluntary enrollment---no money if not enrolled) and pays only on deer, bear, and goose damage. Program emphasizes abatement (state buys materials, complainant provides labor), has a $500 deductible and a maximum of $5,000/yr. Public hunting must be allowed. Damage claim must be filed within 14 days of first damage. Funding is from $1 surcharge on all hunting licenses; provides about $1 million/yr. The number of counties enrolled has increased from 18 in 1984 to 41 in 1986. In 1985, $331,000 was paid in abatement, $225,000 for 113 claims and $65,000 in administration.

The single-strand high voltage fence has been fairly successful at about $0.10/ft. We are fairly enthused with the VGS (visible grazing system fence) which is a yellow ribbon containing an energized wire. The Penn State 7-wire works almost as well as a 16-strand 8-foot fence. We will likely be developing a uniform fencing standard. Shooting permits are used but appear to be more of an emotional placebo than a solution. Ag economy is fragile with no turnaround in sight. We need to be sensitive to farmers plight. Landowners are not capturing direct economic benefits from wildlife.

Michigan (Vogt) does not pay damage. Prefer 5-7 wire fence as prevention measure. We do issue shooting permits that may result in killing 1,000 deer statewide.

EMERGENCY WINTER FEEDING

Wisconsin (Keith McCaffery): Following the 1983-84 severe winter, we were ordered by our Natural Resources Board to review our winter feeding policy. We discussed emergency winter feeding at the Bemidji GLDG meeting in 1984 and an overwhelming majority of those present opposed feeding in forested ranges. I subsequently reviewed feeding practices in other northern states and provinces and found that there was increasing resistance to feeding as one moved from West to East. Western deer feeding appeared to grow out of elk feeding. Some eastern states would like to prohibit even private feeding.

Our first revision of our deer management policy cleaned out some archaic ideas but did not make provision for public feeding beyond providing guidance to private individuals. We believe that perhaps only 30% of our herd would be accessible to feeding, about 25-30% might die in a severe winter if not fed, and feeding beginning March 1 might reduce the loss by 50%. The net effect of feeding might be saving less than 5% of the herd.

However, our administration sensed a need for a provision for DNR feeding so a set of criteria (with studied explanations) were developed. The criteria were:

1. Feed only during the second of two consecutive severe winters.
2. Feed only the specially formulated pelleted ration.
3. Feed only if 10% or more of the herd was stressed.
4. Feed only where the population is below goals.
5. Feed concentrations of no fewer than 200 deer.
6. Feed no earlier than March 1.
7. Order feed if WSI 85+ on February 15 of second severe winter.
8. Feeding will begin only on order of the Secretary.
9. Feeding will enlist volunteers to maximum extent possible.

Note: The biological success of feeding in the second winter would be no better than feeding in the first, but the public might think we are somehow humane!

Happily for now, our Natural Resources Board chose not to include the feeding provision in the Deer Management Policy. As written, DNR will provide technical advice on when, where, what, and how to feed if private individuals want guidance. The revised Policy is presently going to public hearings. (Frank Haberland indicates that the hearings did not result in any public demand for feeding.)

Manitoba (Goulden): Emergency feeding requires a special appropriation of General Revenue which must be balanced against other Provincial needs such as hospital beds, etc. This is a pretty good safety valve. Government funds pay only for feed, not transportation or labor.

Minnesota (Janecek): Minnesota has no statewide policy. Feeding or not feeding has been delegated to area managers.

Michigan (Vogt): We actively discourage ineffective feeding practices by citizens and advise individuals on effective feeding. Our only policy is against feeding corn, but don't feel emergency feeding is wise public policy.

CANONTO DEER DATA (David Hussell): The study area was selected in 1953 to be typical of southern Ontario. Limited accessways facilitated collection of data. Analyzing the data (collected by Robin Hepburn) has been "exciting" because of changes in the size of the study area, changes in hunting season, and variable hunting conditions. Dave chose to use kill/unit effort as a means to estimate population trends. By multiple regression techniques, he was able to standardize effects of extrinsic factors such as weather. In later years after selective harvests began, he used buck kill/effort which seemed to work equally well as a population index during the previous either sex hunts. The calculated population curve correlated well with results of deer pellet surveys. After having declined under either sex hunting, the population has recently rebounded under selective hunting to about as high as the population may every have been. Further analysis indicated no evidence of density dependent influences on population change, but buck weights and yearling antler points correlated negatively with WSI when population effects were added to the regression. Dave speculated that perhaps deer can tell us more about WSI than our measurements!

URBAN DEER PROBLEMS (Goulden): The deer herd in Winnepeg has increased to about 500 and is projected to increase to 700 by 1990. Over 100 are killed on city streets each year. We have no problem controlling deer by any method on airports or where humans are endangered by deer. But, it can be controversial elsewhere. A drop net technique was selected for use in neighborhoods with a goal to capture 60-80 antlerless deer/yr. Media are concentrated in the city as are 600,000 of the 1,000,000 people in Manitoba. Managing the media was critical. A covert drop was filmed by Ministry personnel. A subsequent drop was set up for the media. Deer were released at the trapsite to avoid problems with crowd interference. The net is 70 x 70 feet, 20 feet high at the centerpost, and 12 feet high at corners. We captured 114 deer in 13 trapnights. Lost 4 deer to injuries. Translocated deer were supplementally fed in their new setting. Captures began about 4 p.m. after volunteers were available (technique is convenient). Net cost $11,200, used 167 man-days. Total cost including net was about $20,000. Bait and transportation were donated. The drop net could be used efficiently for capturing deer for radio-collaring in a wild setting. Goal is to keep metro deer herd at about 300.

Berg (Minnesota) cautioned that the use of Rompun seemed to cause circulatory difficulties in penned deer--frozen feet.

DEER AND GROUSE HARVEST REPORTS

Wisconsin (McCaffery): 670,000 gun hunters, 215,000 archers, 315,000 deer kill (41,000 by archers). Despite that, we had a pretty good season. We were recently given authority to extend deer seasons if harvests were not achieved. Due in part to a blizzard on the last weekend of the hunt, we exercised that authority. The extention did not accomplish much. After the hassel, most managers are not too eager to exercise it again. We subsequently underwent a review of unit boundaries and goals and have adopted a statewide 9-day hunt (previously had shorter seasons in portions of the south). The smoke has not fully settled, especially regarding adverse effect on availability of "trophy" bucks. Despite a severe 1985-86 winter, the 1986 gun kill is expected to be about 230,000. We are in a herd reduction program. When at goals we expect to provide a combined gun and bow harvest of about 225,000.

(Kubisiak): We have 108 days of hunting in the North and 139 in the South. Wisconsin grouse population fell to all-time low in 1983. It has rebounded by about 15% since. About 200,000 small game hunters hunt RG. Expect about 500,000 as a reported 1986 harvest.

Michigan (Vogt): 706,000 gun hunters took a record 144,000 bucks and 42,000 antlerless. 228,000 archers bagged 23,000 bucks and 16,000 antlerless. 55,000 muzzle-loaders had 8% success. The severe winter took 77,000 in Region I (UP) and 47,000 in Region II (NLP). Low pregnancy rate of 70% in adult does in portions of the UP raise questions. Despite this, we expect little change in UP harvest. About 90% of Region III (SLP) will be open to antlerless harvest. Quotas in Region II are up 18%.

Quota permit application fee of $3 was added this year. Unfortunately, none of the money inures to the wildlife program. A second license is also available to gun and bow hunters for bucks only. Camp permits were discontinued. Second licenses--many women's names will disappear. Applications for Hunters Choice permits appear to be about 300,000 for 1986. Up to 90% of quota in some units is set aside for Landowner Preference. Owners, relatives and leasees of 40+ acres can apply for LO Pref.

In 1985, 565,000 RG were reported harvested by about 156,000 hunters based on the small game questionnaire. RG population is higher in 1986.

Ontario (Lintack): Excessive hunting pressure in southern Ontario caused townships to close hunting in 1970. Beginning in 1979, new controlled hunting was permitted. The record kill was in 1955 when 100,000 hunters took 43,000 deer. About 60% of the kill comes from the Algonquin area. In 1985, 115,000 hunters took 28,000 deer. We have automatic preference for landowners. Deer move up to 60 miles to yard. Herd stabilization is sought. Presently approaching either sex hunting throughout Shield region. We're running out of hunters to control the herd in southern Ontario and may go to a second season to achieve the harvest. About half of hunters use dogs, but their success is no better. Privately owned fallow deer are escaping and may cause problems. Ray Stephanski has traded jobs with Howard Smith.

Manitoba (Goulden): Universal Rule of Deer Management: There is no deer management system that is so complicated that it cannot be made more complicated. At present, we are aiming at greater simplification. In agro-Manitoba, we use a 3+8 split season which divides southern hunters about equally. Northern Manitoba gets about 1/3 of the hunters. License sales run 36,000-48,000 per year. Archery hunting is increasing, especially for elk and moose. Bowhunters have about 15% success. Our muzzle-loader season takes place the week before the regular gun hunt.

Ruffed grouse densities range from a low of 3/km^2 to high of 40/km^2. About 30,000 hunters take 5,000 to 200,000 RG/yr.

Minnesota (Berg): In 1985, 481,000 hunters (a 4% increase) harvested 146,000 deer, a 5% increase and a state record. There is no landowner preference system. We experienced a severe winter in 1985-86. The predicted 1986 harvest will be down 15% but buck harvest will remain the same and quotas will be cut 22%.

Grouse: Statewide season of September 13 through December 31 for RG and September 13 to November 30 for STG. 256,000 small game licenses, 312,000 RG harvested (941,000 in 1980). Predicted kill of 400,0000 RG in 1986, 5,000 STG harvested in 1985, and no change predicted in 1986 (1949-50, 150,000 kill).

White Earth Reservation (Jim Ziegler): The reservation is 1300 mi^2 with 8-12 deer/mi^2. We issued 1,700 permits and killed 600 deer in 1985. Bow, gun, and muzzle-loader hunts are available. Non-tribal hunters get only 8 day season. Tribal hunters for the most part delay their hunt until the State hunt. Hunting parties are commonly tribal and non-tribal mix. State hunters take an additional 600-800 deer on reservation.

Wisconsin Off-Reservation Treaty Hunt (Jon Gilbert): Tribes receive a tribal quota rather than individual permits. This continues an Indian tradition of tribal hunters hunting for an extended family. Permits are issued individually for a 2-week period. Added permits are issued as needed during 85-day season. Tribes have about 1,500 hunters. Registration of kills is required and compliance is believed to be about 95%. Hunters shot 1,380 deer or about 2/successful hunter.

NORTHWEST (WI) DEER HUNT (Bruce Moss): Our NW deer hunt is a winter hunt. We have 30% of the deer herd, but produce only 10% of kill. In 1977, the majority of state hunters favored an earlier 16-day northern hunt, but only 1/3 of the northern hunters so favored. Beginning in 1983, a new initiative studied 2 years and defined a 27-unit area for an early season zone. Goal was to improve recreational aspects of the hunt and better utilize deer without reducing herd. Zoning to control hunter influx would require legislation, so citizen participation was necessary. A 32-page questionnaire was used to survey hunter perceptions in and out of the proposed zone. Over 85% responded including copious notes in the margin indicating intense interest and concern. Subsequently, 35 forums were conducted statewide (weighted to the NW). Over 3,500 attended with about 1,100 making a statement. Top concerns were too few deer, increase in hunters, lack of snow and frozen roads in early hunt, and interference with other activities (especially bowhunting). Based on concerns and solutions suggested, alternative seasons were designed and taken back to public hearings for vote. About 1,700 voted yes and 2,700 voted no. Southern gun hunters and bowhunters were strongly opposed. Thus, a good idea was to be shelved, but our Natural Resources Board said "nuts". Our NRB wants DNR to examine statewide opportunities for improved deer hunting. Latest NW proposal is for smaller zone, modified hunter controls, bucks-only in early portion of 3+9 day split season.

WISCONSIN DEER HUNT ALTERNATIVES COMMITTEE (Loomans): NRB perception of deer management situation and enthusiasm for NW proposal fostered yet another committee to study statewide opportunities for 16-day hunt and other alternatives. The public and Conservation Congress remain quite opposed to change. But, the committee will continue to explore and evaluate alternatives for the NRB. Two subcommittees are presently working on forest and farmland zones and a third is exploring "trophy deer management".

QUOTA SETTING IN LAKE STATES (McCaffery): After being invited to an Ontario workshop on quota setting, I became aware of how little I knew of the details of quota setting in the adjacent states. This despite having been a regular member of GLDG. The setting of antlerless quotas is pivotal to deer herd management and yet I don't recall that we have devoted much time to it. In view of the time constraints (lunch about to be served) and the small representation from guest agencies, perhaps we should defer detailed discussion at this time. But, I would surely like to see us describe our various systems soon and put them in the minutes.

(Lintack) Ontario has 28 districts. Some use Sex-Age ala Euler, population modeling, other. We need a standardized approach even if inputs vary. Presently waiting for results of Canonto and Cooperative Deer studies to give new directions. Population monitoring is difficult because harvest is small cause of mortality. Moose management is more standardized because the population index is uniform.

(Vogt) Michigan district biologists are the key. They analyze crop damage reports, car-deer crashes, pellet group surveys, winter losses, WSI, physical condition, productivity from necropsies, yard inspections, winter habitat conditions, carrying capacity relative to winter range, public opinion, past kill, deer seen per 100 hours, sex-age ratios, consultations with other agencies and DNR personnel. Population goals are by District because unit boundaries change. (Joe submitted a description for the minutes. See p.12).

WISCONSIN NATIONAL FOREST PLANS (Tony Rinaldi and Howard Sheldon): Planning is not new to the National Forests, but comprehensive planning is. This is the first integrated plan with full public involvement. Plans took 6 years to complete. Aspen goals call for increases; red pine, the same or less. Both forests want to encourage some increase in oak. Integrated Resource Management calls for involving other resource agencies in the planning process.

Table 1. Existing and target forest compositions (percent).

Forest Types	Chequamegon (880,000 Ac) Existing	Chequamegon (880,000 Ac) Future	Nicolet (660,000 Ac)* Existing	Nicolet (660,000 Ac)* Future
Aspen	26	28	27	28
Hardwood	38	35	50	50
Upland Conifer	24	22	20	19
Sw. Con. & Hdwd.	11	11		
Openings	3	5	3	3

*Uplands only.

Neither forest plans to do much management on lowlands. Chequamegon has made provision for a study of island biogeography during the first decade of the plan and could potentially involve 140,000 acres. The planning process has elevated wildlife to an equal partner with timber. Most public concern involved wildlife related issues. Appeals to the plans have been received from at least 7 groups including the State of Wisconsin.

SANDHILL UPDATE (Kubisiak): The state-owned inclosure is 9,150 acres within a 9-foot fence. Managed deer hunting occurred beginning in 1963, culminated in a shootout in 1972. Hunting began again in 1976. Deer are monitored by deer trail counts and helicopter counts. Trophy management began by protecting bucks in 1979 and 1980. Since 1981, have had one-day either-sex hunts. Most hunters experiencing a controlling hunt liked it. About 82% of the harvest is adult bucks. Hunt occurs just prior to the regular season and is not a bonus deer. With 10 hunters/mi^2, buck harvest mortality is about 30%. Presently, 45% of Sandhill bucks are 3+ years old.

MAPPING VIA SATELITE (Gilbert): Present study involves 4 Wisconsin deer management units totalling about 1,200 mi^2. Using Thermatic Mapper data which has pixels 30 x 30m and 7 spectral bands. With a supervised classification, 13 habitat type classifications had accuracies ranging from 78 to 99%. Mixed types (conifer-hardwood) and upland and lowland conifers or hardwoods were problems. By lumping types, accuracy was increased. The image was taken in June. An earlier or later image might separate aspen from other hardwood. Cost of data is $3,300/image. Has great potential for a number of uses, especially as multi-season and more cloudfree data becomes available.

MICHIGAN MOOSE RELEASE (Vogt): Initially released 29 moose in 1985. Moose were native to the UP and some remained at the time of transplanting from Algonquin Park. Meningeal worm was found in 68% of our deer, but deer densities on the site were only about 4-5/mi^2. Presently have 49 moose on the area. Three bulls died during the first summer of unknown causes and 4 cows died this spring of meningeal worms. This spring there were 7 adult bulls, 15 cows and 17 yearlings. Seven of 15 cows may be bred and 3 sets of twins were found. Three bulls moved off the site. Hope to obtain additional 15 bulls and 15 cows from Ontario to improve breeding density. Cost of the operation was about $80,000. Much of cost was underwritten by interested groups like the Safari Club. Goal is to have 1,000 moose by 2000 and a limited hunt.

ON DEER CARRYING CAPACITY IN NORTHERN WISCONSIN (McCaffery): (This paper was presented at the 1986 Northeast Deer Technical Committee Meeting in Vermont.) In the forested region of northern Wisconsin, deer carrying capacity appears to vary by management unit from fewer than 15 to 45 deer/mi^2. Deer densities correlate positively with the amount of aspen, oak, jackpine and non-stocked forestland, but not with availability of thermal cover. Conifer cover is increasing while acreage of aspen, oak and openings is decreasing. Threfore, Wisconsin has put over 90% of its habitat management effort into "summer range" maintenance. This habitat program is compatible with and dependent upon commerical forestry operations. An active timber market also provides abundant tops and regrowth for browse during normal winters. Deer density goals range from 10 to 25 deer/mi^2. overwinter and are based on the demonstrated ability of each management unit to produce deer. Direct losses due to severe winters do not appear to be density dependent in the range of densities experienced in the last 25 years. Severe winters occur about once every 3 to 4 years and up to 25% of the herd may die. These occasional winter losses appear to be the normal thing at northern latitudes of deer range. Despite our habitat maintenance program on public lands, carrying capacity is expected to continue to gradually decline as favorable "summer range" types are lost to natural succesison.

FIELD TRIP (Fred Strand and Duane Kick): We were shown two wildlife openings constructed in 1985, one relict frostpocket opening treated with Velpar herbicide, and one relict opening that was burned. We were impressed by the amount of landclearing being done by the U.S. Forest Service on the Moquah Wildlife Area where sharp-tailed grouse and other opening species are being favored.

BUSINESS MEETING: Although not all agencies were represented, those present felt that there was continued value in annual meetings. Ruffed grouse experts expressed interest in meeting jointly with the GLDG on about a 4-year schedule.

It was suggested that host agencies consider inviting an outside guest speaker as areas of special interest emerge (energetics, behavior, modeling, etc.). GLDG has hosted outside people before (Severinghaus, Phil Goodrum, and others) and the effect has been to enrich the meeting. Travel expense of the guest could be covered in part by adding $5 to registration fee.

The Northeast Deer Technical Committee continues to express interest in a joint meeting. If a truly joint meeting were to be held, it would be most feasible in southern Ontario. The current chairman of the NEDTC is Ron Regan (VT Fish & Game, Barre, VT 05641; PH (802)828-2454).

Wayne Lintack indicated that he expected that Ontario will host the 1987 meeting which may occur as early as August.

Appreciation was expressed for the strong representation by U.S. Forest Service personnel at the meeting.

Our thanks to Jon Gilbert of the Great Lakes Indian Fish and Wildlife Commission for chairing this year's meeting.

P.S. To facilitate full and accurate (perhaps shorter) minutes in the future, host agencies might wish to encourage presenters to submit a half page synopsis of their presentations. While some corrections were made by Jon Gilbert and notes from Joe Vogt, errors and omissions are to be blamed on McCaffery.

PROCEDURES FOR THE ESTABLISHMENT OF ANTLERLESS QUOTAS IN MICHIGAN

by J. E. Vogt

The Michigan Natural Resources Commission has statutory authority to establish open seasons for the taking of deer of either sex in specific areas where field investigations and surveys by technically trained personnel of the Wildlife Division of the Department show (1) that there is a shortage of winter food, (2) that deer are doing damage to horticultural or farm crops, or (3) that there is serious danger of collisions between motor vehicles and deer.

Responsibility for the determination of harvestable surplus of antlerless deer resides with field biologists. The district wildlife biologist, in consultation with his habitat biologists and the regional wildlife biologist, proposes the quota of antlerless deer to take and the desired number of permits. The quotas are discussed at a joint meeting of staff and field before transmittal to the Division Chief for final Division approval.

A Commission memo listing the quotas and hunt rules receives Bureau approval before submittal to our Natural Resources Commission for final approval. Their actions give the proposal the force of law.

The field biologists analyze much data and opinion in the preparation of their proposals, including the following:

1. Crop damage complaints
2. Car-deer accidents
3. Deer numbers--spring pellet surveys
4. Overwinter deer losses--dead deer surveys
5. Winter severity indices
6. Physical condition--bio-data collection
7. Productivity estimates--spring deer necropsy
8. Winter deeryard inspections
9. Evaluation of winter habitat conditions
10. Carrying capacity evaluations--winter food
11. Public opinion from meetings and individual contacts
12. Population goals
13. Harvest history
14. Deer observation reports
15. Sex-age ratios
16. Consultation with other agencies--USFS, USFWS, Farm Bureau
17. Consultation with other DNR personnel

The analyses are distilled and entered on Deer Management Forms (DMF) 1, 2, and 3 (see attached).

The Natural Resources Commission acts on the antlerless hunt proposals annually at the August Commission meeting.

DEER MANAGEMENT FORM 1

ANNUAL

FIELD INVESTIGATIONS AND SURVEYS REPORT

MICHIGAN DEPARTMENT OF NATURAL RESOUF 'S
WILDLIFE DIVISION

DISTRICT _Two_
DEER MANAGEMENT UNIT _15___

ASSESSMENT OF WINTER FOOD SUPPLIES	ASSESSMENT OF DEER DAMAGE ON HORTI-CULTURAL OR FARM CROPS	ASSESSMENT OF MOTOR VEHICLE-DEER COLLISION RISK
During normal and easy winters, good habitat in uplands and agricultural residue maintain deer on this unit. Winter range is not capable of supporting more deer than we now have on the unit.	Most agricultural damage is to corn in the unit. Some damage is also taking place on alfalfa crops. We have traditionally had about 10 crop damage farms in this unit. In 1985, we had 6 farm complaints.	Menominee County has had the highest or among the highest car-kill collision rates in the Upper Peninsula. The trend in car/deer collisions in this county has been upward since 1972. This trend has generally followed the deer herd upward. In 1984, Menominee County experienced 665 reported car-deer accidents, 32% of the entire region's car kill for that year. In 1980, the kill figure was 394 deer representing 27% of the region's reported highway losses.

OTHER IMPORTANT CONSIDERATIONS (SOCIAL, BIOLOGICAL, ETC.)

We believe that deer numbers are closer to carrying capacity here than on other similar lands in Menominee County. Our recommendations are conservative for 1986, reflecting this belief. Given the regulations structure at this time, we are probably approaching an optimum sustained yield condition in this unit.

MANAGEMENT RECOMMENDATIONS FOR THE 1986 FIREARM DEER SEASONS:
[ ]BUCKS ONLY [X]HUNTER'S CHOICE

Jim Hamill 06-26-86

DISTRICT WILDLIFE BIOLOGIST DATE

DEER MANAGEMENT FORM 2

DISTRICT Two

QUOTA AND ANTLERLESS HARVEST RECOMMENDATIONS - 1986

DMU	HUNTER-CHOICE DEER LICENSES TO BE MADE AVAILABLE			EXPECTED ANTLERLESS HARVEST		
	Landowner	Regular	Total	Landowner	Regular	Total
215	2000 (48%)	3000 (42%) 2000*(35%)	5000	960	1260 700*	2920 [6.5]
15	700 (32%)	700 (44%)	1400	224	308	532 [2.5]
314	750 (34%)	775 (38%)	1525	255	295	550 [4.0]
		SUBTOTALS		1439	2563	

ANTICIPATED TOTAL HARVEST 4002

* Oversubscription of hunters for regular permits (up to a maximum of 2000 permits) will be given opportunity to hunt for hunter choice deer during December 1-15 period. Unused antlerless permits issued for the regular season will also be valid during this period. For 1985 the oversubscription demand was 1315 permits.

NOTE: Expected permittee antlerless success rate in parenthesis. Expected antlerless take per square mile in brackets following total antlerless harvest figure.

James Hemmell 6-27-86

DISTRICT WILDLIFE SUPERVISOR DATE

DEER MANAGEMENT FORM 3

DISTRICT Two

DMU 314

DESCRIPTION OF DEER MANAGEMENT UNIT

DESCRIPTION OF DMU BOUNDARY:

Beginning at the junction of Highway US-2 and the Soo Line Railroad in Section 2, T38N R27W, then southwesterly to the Menominee River in Section 20, T38N R28W, then up the Menominee River to US-2 in Section 13, T40N R31W, then easterly on US-2 to Highway M-95 in Section 18, T40N R30W, then northerly along M-95 to the Merriman Truck Trail in Section 27, T41N R30W, then easterly along the Merriman Truck Trail to Pine Creek in Section 19, T41N R29W, then southeasterly along Pine Creek to County Road 573 in Section 3, T39N R29W, then southeasterly along 573 to Highway US-2 in Section 18, T39N R28W, then easterly along US-2 to the Waucedah Road (County Road 569) then easterly to Beaver Pete's Road which runs along the north edge of Sections 23 and 24, T39N R28W, then easterly on Beaver Pete's Road to the north-south road in Section 19, T39N R27W, then southerly on that road to US-2, then easterly on US-2 to the point of beginning.

DESCRIPTION OF DMU: (ownership patterns, land forms, access, hunter success, cover types, etc. etc.)

This unit encompasses 135 square miles. Land forms are gently rolling outwash plains to steep and rocky land. Some coporate C.F.R. land exists within the unit. Only five (5) square miles of this unit are state-owned. About 80% of the area is forested, the remainder being farmland and incorporated villages and towns. Aspen, oak and northern hardwood predominate as cover types in the forested areas. Alfalfa, corn and potatoes are the main agricultural crops. Hunter access to private lands is moderately difficult. Hunter success on antlerless deer in 1985 was 38% for regular antlerless permits and 34% for landowner permits.

STATUS OF DEER HABITAT: (deer food quality and quantity, mast production, timber cutting (private and public), cover, yards, etc.)

There are no significant yards in this unit. Upland habitat conditions are good to excellent. The area has a fair amount of oak which produces mast. The combination of farm forage, mast and preferred cover types makes this good to excellent summer-fall deer range. Most deer from this unit winter outside the unit, to the east and northeast.

DISTRICT WILDLIFE SUPERVISOR 06-26-86 DATE

RUFFED GROUSE DRUMMING TRENDS IN MINNESOTA, 1949-1986

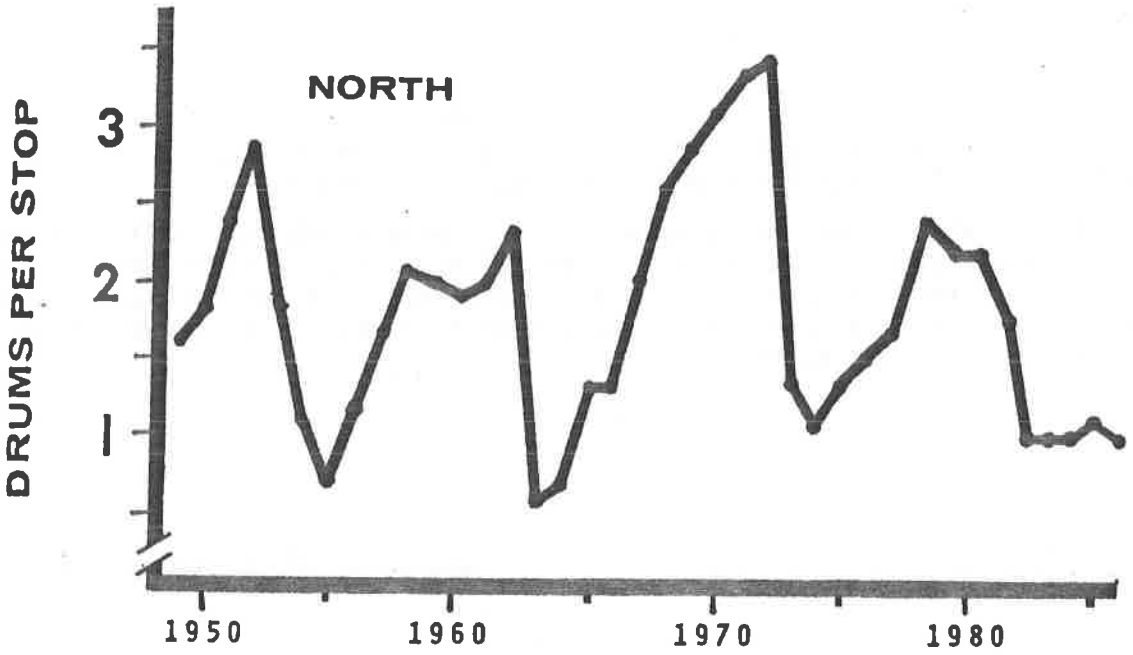
By: William E. Berg, Forest Wildlife Populations and Research Group, MN Department of Natural Resources, Grand Rapids, MN

Ruffed grouse were first censused in Minnesota during the 1930's using strip census routes. Due to high manpower demands these surveys gradually were replaced during the 1940's by experimental drumming routes. In 1949 drumming routes became standardized, and have been expanded and run annually since then.

Minnesota currently has a network of 115 10 mile long drumming routes, distributed throughout the grouse range into five census zones from the extreme northwest to the southeast. Each route has 10 4-minute listening stops at least 1 mile apart. About 40% of the routes are run by non DNR cooperators such as the U. S. Forest Service, U. S. Fish and Wildlife Service, County Land Departments, and Indian Reservations.

Since 1949 drumming trends have approximated a 10 year cycle; these trends have been most pronounced in the North and Northwest Census Zones. The lowest drumming intensity occurs in the Northeast ($x < 1$ drum/stop) whereas the highest is in the Southeast (> 2 drums/stop). Drumming is correlated ($r=0.83$) with the range-wide grouse harvest, and also with grouse flushes and roosts tallied while conducting deer pellet group counts.

From 1985 to 1986 drumming trends in Minnesota increased 143% in the Northwest and 67% in the Southeast, remained stable in the Central Hardwoods, and decreased 8% and 17%, respectively in the North and Northeast Zones. Drums increased 11% range-wide, and should continue to increase for 3-4 years.



Ruffed grouse drumming trends in Minnesota's North Survey Zone, 1949 to 1986.

SHARP-TAILED GROUSE IN MINNESOTA; POPULATIONS AND MANAGEMENT

By: William E. Berg, Forest Wildlife Populations and Research Group, MN Department of Natural Resources, Grand Rapids, MN

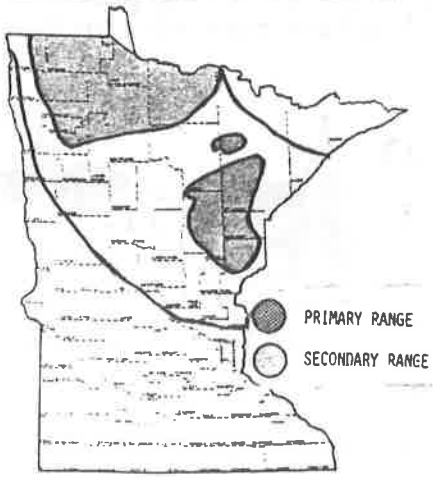
Minnesota's sharp-tailed grouse populations have declined drastically in the last one-half century. In 1949 over 150,000 were harvested, and as recently as 1979-1980, harvests approximated 50,000. Since 1983, harvests have approximated 5,000. From 1981 to 1985 populations declined 62%, while harvests declined 76%. Sharptails have dropped from the number three-ranked upland resident game bird to fifth, behind Hungarian partridge and spruce grouse.

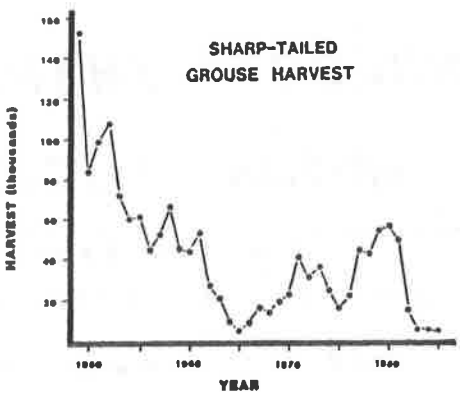
Primary causes have been natural succession (enhanced by efficient wildfire suppression and lack of prescribed burning), intensified agricultural and commercial rice paddy development, and improperly placed conifer plantations. The 1985 Federal Farm Bill, and associated Conservation Reserve Program (CRP) should minimize intensive agriculture's threat to remaining sharptail habitat.

Whereas the sharptail still sits precariously as a game bird in Minnesota, its future seems more secure, for a number of reasons. The DNR Division of Forestry is cooperating with Section of Wildlife in an aggressive prescribed burning effort and improved conifer plantation placement. Long range plans have been written for the management of sharptails and their brushland habitat. The Federal CRP and landmark state Re-Invest In Minnesota (RIM) programs have been responsible for the present and future seeding of cover on hundreds of thousands of marginal agricultural acres. The Critical Habitat donation/matching fund aspect of RIM has stimulated the aquisition of several large sharptail habitat land parcels.

The newly-formed Minnesota Sharp-tailed Grouse Society (MSGS) has aided in publicity, has stimulated increased sharptail management, and has created a state of "sharptail awareness" in Minnesota. MSGS has already worked effectively through the educational and political processes to promote sharptail management, and plans active development projects.

Through accelerated sharptail management, Minnesota hopes to restore the sharptail to its once important game status. In doing so, it also hopes to bolster its sagging small game license sales (1985 sales of 256,000 licenses was 11% below that in 1940) and in turn, stimulate the faltering northern Minnesota economy.





THE MINNESOTA SHARP-TAILED GROUSE SOCIETY

By: William E. Berg, Forest Wildlife Populations and Research Group, MN Department of Natural Resources, Grand Rapids, MN

It appeared that no one cared. Minnesota's sharp-tailed grouse population had declined for four decades. Agricultural and forestry practices and natural succession continued to erode sharptail habitat, and while DNR Section of Wildlife was concerned, it seemed like little emphasis was being placed on saving the sharptail.

During winter 1985-86 some concerned sportsmen reacted to the sharptail's demise, and formed the Minnesota Sharp-tailed Grouse Society (MSGS). With the motto "dedicated to the management and restoration of sharptails in Minnesota for the benefit of hunters and non-hunters", MSGS has, in its first six months of existence, created a sensational state-wide atmosphere of sharp-tailed grouse awareness.

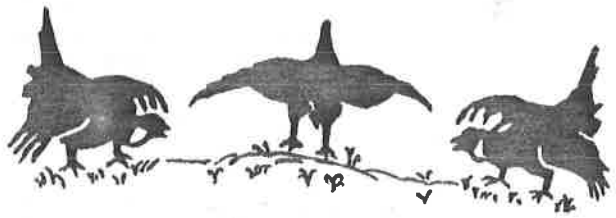
During spring 1986 MSGS was publicized by local, state-wide, and midwest media. An informational brochure was printed, and a letterhead and logo was created. Activities to date have included several informational meetings, a booth at the Anoka Game Fair, a cooperative MSGS-DNR booth at the Minnesota State Fair, the preparation of a video on sharptail hunting and management, the mailing of its first quarterly newsletter, "The Minnesota Sharptailer", and an autumn raffle fund raiser.

The organization is headed by Roche Lally and Mark Chandler, and has Box 3338, Duluth, MN 55803 as its address. Internally, MSGS has bylaws, working committees on publicity, legislation, and fund raising, and talented volunteers. Annual membership is five dollars.

MSGS has initially been active in the legislative and educational arenas, and will evolve into hands-on management demonstration areas. Already, MSGS has been responsible for the appropriation of hundreds of thousands of dollars of Federal Conservation Reserve Program and state Re-Invest in Minnesota funds to be directed towards sharptail management.

As MSGS grows, plans include several fundraisers, and perhaps Michigan and Wisconsin Chapters. With the help of Minnesota DNR's Division of Forestry and Section of Wildlife, other resource agencies, and concerned "sharptailers", MSGS hopes to cooperatively restore the sharptail to it's previous status as the third-ranked resident upland game bird in Minnesota.

MINNESOTA SHARP-TAILED GROUSE SOCIETY



P.O. BOX 3338

DULUTH, MINNESOTA 55803

dedicated to the management and restoration of sharptails in Minnesota for the benefit of hunters and non-hunters

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
LANSING, MICHIGAN

Wildlife Division
Report No. 3036
August 26, 1986

Review of the 1985 Grouse and Woodcock Season with Prospects for 1986

by
John W. Urbain

The 1985 Season in Review

The 1985 small game hunter showed that 564,930 ruffed grouse were taken by 156,590 hunters. Not a record but better than the 26-year average of 156,000. No mail small game hunter survey was completed in 1984, but using the special grouse survey, the kill was estimated to be 507,000. Cooperators and field biologists were in general agreement that the trend of an increasing population was evident in flush rates and hunter satisfaction. Many commented that ruffed grouse were increasing and the "cycle" was on the increase.

Region I (Upper Peninsula) - Ruffed grouse flush rates increased from 1.72 per hour in 1984 to 1.88 in 1985, which is above the 25-year average of 1.37. Woodcock flush rates were down from 1.55 flushes to 1.22, but still above the 23-year average of 1.21 flushes per gun hour.

Region II (Northern Lower Peninsula) - Hunters flushed 2.26 grouse per hour up from 2.20 in 1984. This is above the 25-year average of 2.17. Woodcock flush rates were up from 1.60 in 1984 to 1.74 in 1985. This is well above the 23-year average of 1.21 flushes per gun hour.

Region III (Southern Lower Peninsula) - Ruffed grouse flush rates showed a good increase to 2.04 from 1.80 in 1984 but still well below the 25-year average of 2.19. Woodcock flush rates showed an improvement from 0.51 to 0.62 in 1985. This is slightly below the 23-year average of 0.63. The woodcock harvest in Region III has declined since 1980 when the small game opener for grouse and woodcock was moved up to September 15 from October 20.

Prospects for 1986

Both the ruffed grouse and woodcock population are on the increase. Hunting prospects are good. A good carry-over of adults was again noted by field biologist. Field biologists and other DNR employees generally report an increase in brood sightings. Hatching weather was good except for late May and the first week of June. Brood rearing weather was excellent. A slight improvement in ruffed grouse numbers is expected. Woodcock singing routes showed an increase of 12 percent more males this year. Woodcock banders banded 457 chicks with good brood sizes. This is 27 fewer birds than last year.

Summer rains produced abundant soft wild fruits. Black Cherry, viburnums, dogwoods and berries were abundant. Field biologists reported that oak acorn production was down, especially in white and pin oak. Ruffed grouse and woodcock hunting should be in the "good" category for 1985.

The Status of Ruffed Grouse in Wisconsin

Ruffed Grouse (RG) numbers are monitored annually by various surveys. These include the standard 15-stop statewide roadside drumming count, intensive searches for drummers on selected areas, and the 10-week brood survey using DNR field personnel. These efforts are supplemented by the hunter poll, a statewide sample of 10,000 individuals which provides a measure of hunter effort and grouse kill.

The 1986 spring drumming surveys indicate breeding grouse numbers were up 15-20% above 1985 (Fig. 1). Mean drums/stop was 1.3 in 1986 compared to 1.2 in 1985 and 1.7-2.2 in high grouse years. Results of the 1986 summer brood survey are not available but good weather during hatching and the brood-rearing period provided a favorable impact on brood survival.

Current figures are not available but RG hunters were at 185,000 in 1982. It is expected that grouse hunter numbers have ranged between 185-200,000 since 1982. RG rank second to squirrels in statewide kill and RG hunters comprise about 45-50% of the small game hunters. Total license sales (small game and sportsmen) were 375,000 in 1984. This suggests about 187,000 RG hunters in 1984, assuming 50% hunted RG.

RG harvest estimates suggest 1 million + birds were taken in 1980-81, 653,000 in 1982, and 380,000 in 1983 (Fig. 1). While these figures provide a useful index to trends, they are likely inflated upward. Based on habitat projections (best estimate of drummer densities/100 acres of major habitat types x 38 = fall density/square mile), the long term mean is 65 grouse/square mile in fall, or 1,446,000 birds statewide. Therefore, the statewide RG kill would average 360,000 + birds, assuming a 25% harvest rate. It is expected that RG harvests would range between 175-275,000 birds in low grouse years, and 500-600,000 in high years.

Hunter surveys indicate long term means are 6.3 trips/hunter/season, and 0.4 birds bagged/trip. About 20% the hunters bag all the birds, and only 1% bag 3 or more birds. Less than 10% of the season bag is taken after deer season in the central and northern counties compared to 25 to 30% in parts of the zone where hunting seasons continue through January 31.

Currently, principal concerns focus on obtaining better information on the distribution of hunter effort and grouse kill to assess the impact of late-season (Dec-Jan) hunting. Habitat management which favors RG and other wildlife needs greater emphasis on private lands where 60% of the commercial forest lands and 50% of the aspen resource occurs. Concurrently, natural conversion of aspen and oak

to white pine or hardwoods in the central and southern counties and aspen to balsam fir or hardwoods in the north also continues to cause concern.

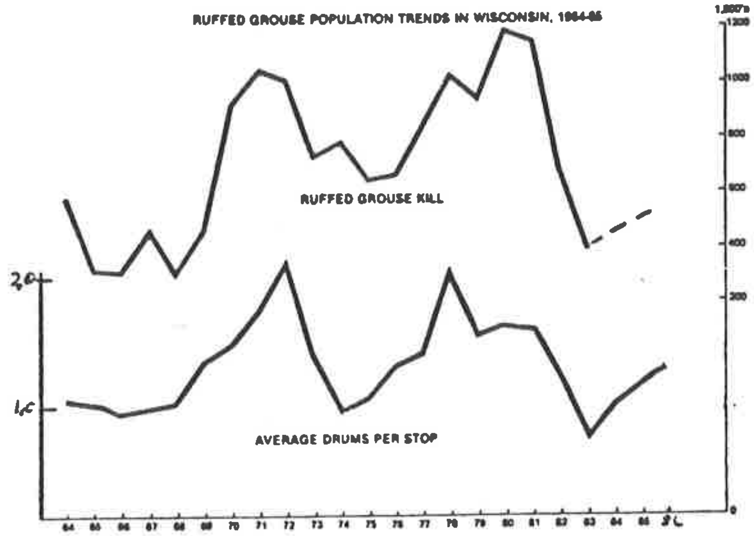


Figure 1. Statewide ruffed grouse harvest index from small game questionnarie and index to breeding populations from roadside drumming counts, 1964-86.

John F. Kubisiak

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JUL 1 2 1986

HARVEST RATES OF RUFFED GROUSE IN NORTHEASTERN WISCONSIN

STEPHEN DeSTEFANO,[1] Wisconsin Cooperative Wildlife Research Unit, University of Wisconsin, Madison, WI 53706
DONALD H. RUSCH, Wisconsin Cooperative Wildlife Research Unit, University of Wisconsin, Madison, WI 53706

Abstract: To estimate the rate, composition, and timing of harvest, we banded 835 ruffed grouse (*Bonasa umbellus*) on the Navarino Wildlife Area (NWA), Wisconsin, in 1978–81 with reward bands inscribed with our address. Recovery rates were 18, 31, 31, and 20% during 1978–81, respectively, for grouse banded ≤10 weeks before the hunting season. These rates were adjusted for preseason mortality in the banded sample (26%), crippling loss (13%), nonreported bands (4%), and band loss (1%) to calculate harvest rates of 29, 50, 50, and 32% during 1978–81. Mean band recovery rate (25%) and mean estimated harvest rate (40%) were higher than reported elsewhere, except for a recent study in central Wisconsin. About 23% of the bands were recovered in December, indicating that late-season hunting was relatively heavy. Band recovery rates were not directly related to age, sex, color phase, or weight of grouse. Movements of juveniles were extensive in fall, and recoveries were distributed widely on NWA. A relatively small proportion of hunters recovered a high proportion of the bands.

J. WILDL. MANAGE. 50(3):361–367

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