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RESEARCH

REPORT 118

November 1983

ATTITUDES TOWARD GRAY PARTRIDGE AND THEIR MANAGEMENT IN EAST CENTRAL WISCONSIN

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ABSTRACT

Gray partridge are an underutilized game bird in Wisconsin. The current partridge harvest rate is only 10%, although the biological harvest rate is approximately 20%. Recently, there has been renewed interest in promoting gray partridge as an important game species because of the bird's ability to adapt to both intensively farmed areas and severe winters. The objective of this study was to determine how partridge are perceived by hunters and landowners living within the better partridge range in east central Wisconsin. Parallel questionnaires were mailed to a sample of hunters and landowners to assess opinions on (1) the value of partridge as a game bird, (2) the availability and abundance of partridge, (3) the condition and management of partridge habitat, and (4) the relationship between hunters and landowners. The response rate was 65% for the hunter questionnaire (408 usable returns out of 625) and 49% for the landowner questionnaire (530 returns out of 1,086).

Hunters viewed partridge as a worthwhile game bird, although most (77%) would prefer to hunt pheasant. Landowners generally rated partridge populations as stable, with the birds occurring on 83% of the farms. Most landowners (75%) believed that upland game bird habitat on their farms was stable; however, hunters considered the gray partridge habitat as slightly less than satisfactory. Hunters believed that cultivation was the primary factor adversely affecting wildlife habitat. The majority of landowners (76%) indicated they were not planning to remove fencerows within the next 5 years.

Landowners generally opposed practices that would restrict current farming operations in order to improve wildlife habitat. Current activities by landowners to improve game bird populations are essentially normal farming practices. Monetary incentives to improve wildlife habitat were favored by hunters but were only slightly acceptable to landowners. Direct hunter participation in habitat improvement projects was generally favored by hunters and landowners. Both groups also expressed an interest to receive more information on wildlife populations and habitat management.

Hunters and landowners rated the farmers' attitude toward hunters as slightly negative, with landowners generally feeling hunters have "no respect" for their property. However, most landowners (54%) will allow hunting on their property with permission. Eighty-nine percent of the hunters and 75% of the landowners were in favor of stricter enforcement of game laws. Hunter education and safety courses were also considered a good idea by hunters (97%) and landowners (84%). Project Respect could help improve the relationship between hunters and landowners; however, the majority of landowners (74%) and hunters (58%) were not familiar with the program. More than 70% of the landowners and hunters were not familiar with Acres for Wildlife, either. Both groups felt current efforts by the Wisconsin Department of Natural Resources (DNR) have little effect on improving game bird populations. Increased provision of information by the DNR to the public may help improve awareness of available programs and create a more cooperative relationship between hunters and landowners.

INTRODUCTION

The gray (Hungarian) partridge (Perdix perdix) was first introduced in Wisconsin in a series of releases by Colonel Gustav Pabst from 1908 to 1929 (Leopold 1940). Following Pabst's initial releases in Waukesha County, subsequent releases were made by private individuals and the Wisconsin Conservation Department. By 1954, partridge were established in the east central counties of the state (Besadny 1965). The counties of Brown, Kewaunee, Calumet, and Manitowoc are currently regarded as having the highest partridge densities in Wisconsin (Dumke 1977). (See Fig. 1.)

The "huntable" population of 74,000 partridge is considered underutilized, with a harvest rate of only 10% in 1977 and 1978 (Wisconsin DNR 1979a). In comparison, the present harvest level for ring-necked pheasant (Phasianus colchicus) is currently maintained by intensive stocking programs; approximately 30% of the harvestable population is stocked (105,000 birds annually). The number of pheasants observed per farm has shown a long-term decline (Wisconsin DNR 1979b). This abatement can be attributed primarily to habitat loss due to more intensified agricultural practices (Kabat 1978). The decline in pheasants has spurred renewed interest in promoting gray partridge as an important game bird species because of the partridge's ability to adapt to intensively cropped areas and to withstand severe winters (McCabe and Hawkins 1946, Dumke 1977, Dumke et al. 1980, Church 1980, Weigand 1982).

A first step in promoting partridge, and the major objective of this study, is to determine how hunters and landowners living within the better partridge range of Wisconsin perceive partridge. Parallel questionnaires were mailed to accomplish this objective. The questionnaires were developed to assess opinions on (1) the value of partridge as a game bird, (2) the availability and abundance of partridge, (3) the relationship between hunters and farmers, and (4) the condition and management of partridge habitat.

METHODS

Questionnaire Design

Questionnaires were designed to assess the general attitudes of landowners and small game hunters toward gray partridge in east central Wisconsin. Each questionnaire had four major sections composed of close-ended questions and partially close-ended questions (Dillman 1978). Questions with rating responses were scaled from 1 to 7, with 1 representing a very bad or low rating, 4 representing no effect or okay, and 7 a very good or high rating (Appends. I, II).

Individuals in each sample group were mailed an envelope containing a cover letter explaining the project, a questionnaire, and a stamped return envelope. Nonrespondents received two follow-up mailings -- the first was a postcard reminder, and the second was another questionnaire. The allotted response time was 6 months. The answers were summarized with the aid of the SPSS computer program (Nie et al. 1975). A calculation of response rates for individual questions did not include respondents who failed to answer the question. A detailed examination of nonrespondents was not attempted, so an evaluation of nonresponse bias was not possible.

Hunter Sample and Questionnaire

The hunter sample was randomly selected by the Wisconsin Department of Natural Resources (DNR) from individuals who purchased small game licenses in Brown, Calumet, Kewaunee and Manitowoc counties. These same individuals were used in the 1979 DNR Small Game Survey (E. Lange, DNR, pers. comm. 1983). The questionnaire was mailed in mid-February 1981, with the first follow-up in mid-March and the final reminder mailed in mid-April. The last response was returned 1 June 1981.

Section I of the hunter questionnaire (Append. I) provided a list of items for the hunter to rate with respect to the effect of each on the "quality" of the hunting experience. The purpose of Section II was to establish a profile of an upland game bird hunter in east central Wisconsin. Section III contained questions which pertained to hunters' attitudes on activities which would promote game bird populations and lead to better bird hunting. The final section dealt with harvest mechanisms of gray partridge and hunters' attitudes toward partridge as a game species.

Landowner Sample and Questionnaire

The landowner-farmer sample was randomly selected by the Wisconsin Agricultural Reporting Service from land operators who owned or operated 100 acres or more land in 1979 (C. D. Spencer, Wis. Agric. Rep. Serv., pers. comm. 1979). The same number of landowner/operators (henceforth "landowners" in this

report) were selected from Brown, Calumet, Kewaunee and Manitowoc counties (Fig. 1.). The questionnaire was mailed in October 1981, followed by a postcard reminder in mid-November, and the second copy of the questionnaire was mailed in January 1982. Responses received after 1 April 1982 were not tabulated.

The first of the four sections on the landowner questionnaire (Append. II) provided information about the farmers and their farming operations, and an evaluation of wildlife habitat on the respondents' farms. The next section helped determine landowners' attitudes toward hunting and wildlife management on their property. Section III contained a list of practices intended to improve wildlife resources on private lands that respondents could rate, and the last section helped establish the current status of gray partridge and ring-necked pheasant on the landowners' farms.

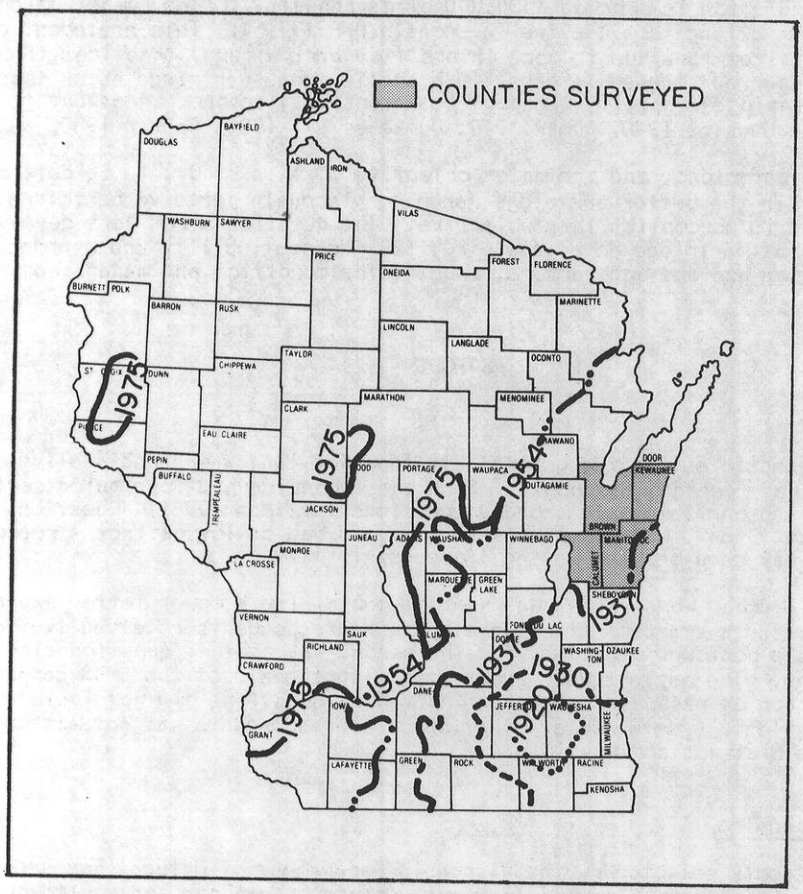

FIGURE 1. Changes in gray partridge distribution, 1920-1975 (Dumke 1977), and 1981 hunter-landowner survey area.

RESULTS AND DISCUSSION

Questionnaire Response

Factors which affect the response rate to a survey include questionnaire construction, timing of survey, economic and social condition and the relationship of the people sampled to the subject of the questionnaire. Dillman (1978) suggested the way a survey is communicated to a respondent will determine the maximum response rate. This includes design techniques as well as how the prospective respondent is perceived. Design includes the shape, size, and color of the questionnaire, the questionnaire's content and length, and the time of mailing. The size of the questionnaire in this study was reduced 65% (5.5 inches x 8.5 inches) and mailed in booklet form. The color of the landowner

questionnaire was pale yellow and the hunter questionnaire was pale green. Dillman (1978) suggests the best color to use is white or off-white. The hunter questionnaire was 11 pages long, and the landowner questionnaire contained 9 pages (Appends. I, II). One landowner did state that the print was too small to read and other respondents felt that the questionnaire was too long. The small print and length of Section III of the landowner questionnaire may have contributed to a 20% lower response rate for that section than the overall response to the questionnaire (Append. II).

Questionnaire response rates for this study were somewhat lower than other related surveys (Table 1). The response rate for the hunter questionnaire was 65% (408 questionnaires returned out of 625), with Calumet and Manitowoc counties having the highest return rates (Table 2). The landowner return rate was 27% after the first mailing in October (297 questionnaires out of 1,086). Another 7% were returned following the postcard reminder in November, and an additional 162 questionnaires (15%) were returned after the January mailing. This resulted in a final response rate of 49% (530 questionnaires out of 1,086). No data were collected on landowner residence. The poor response on the landowner questionnaire may be attributed to a general lack of interest by the landowner and poor timing of the mailing. The October mailing was during peak harvest operations, while the mailing in January coincided with the filing of tax returns. Also at this time, the U.S. Department of Agriculture cut milk price supports and, as the majority of those surveyed were dairy farmers, this action may have contributed to the low return.

TABLE 1. A comparison of questionnaire response rates from related studies of hunter and landowner attitudes.

Questionnaire Type	No. Mailed	No. Returned	Response Rate (%)
Hunter questionnaire			
Eisele (1970)	665	505	76
Klessig and Hale (1972)	1,500	1,035	69
Bjornn and Dalke (1975)	9,841	6,271	64
Shaw (1975)	600	463	77
DNR (1979)	10,000	4,200	42
Present Study	625	408	65
Landowner questionnaire			
Sheriff et al. (1981)	9,834	6,071	62
Henry and Grau (1981)	5,292	3,457	65
Present Study	1,086	530	49

TABLE 2. Comparison of response rates/county from 1979 DNR small game survey and present study.

County	DNR Small Game Survey	Present Survey
Brown	37%	50%
Manitowoc	74	70
Calumet	52	52
Kewaunee	41	71

Farmer Profile

Eighty-five percent of the land in Wisconsin is privately owned, with family farming operations constituting the major use of private land (Wis. Agric. Rep. Serv. 1981). In this survey, the typical farm in east central Wisconsin had been operated by the same family for 46 years (2.4 generations), and the average age of the responding farmer was 50. The average age of respondents in this survey was comparable to landowners surveyed in Missouri (Kirby et al. 1981) and Ohio (Henry and Grau 1981), who had an average age of 51 years. However, Wisconsin landowners surveyed had operated their farms longer than Missouri landowners (who averaged 26 years) (Kirby et al. 1981) and Ohio landowners (who averaged 21 years)(Henry and Grau 1981). This suggests that the respondents to this survey may have more traditional farming values than those in the other two states surveyed.

The number of farms in Wisconsin has generally declined each year since 1947 (Wis. Agric. Rep. Serv. 1981). Twenty-four million acres were farmed in 1942, but by 1981, 5 million acres had been removed from agricultural use. As farm numbers declined, the average farm size increased from 113 acres in 1925 to 200 acres in 1981. The average farm size for the four counties surveyed was 156 acres in 1980 (Table 3)(Wis. Agric. Rep. Serv. 1981). Respondents to the landowner questionnaire reported an average farm size of 175 acres owned and an additional 99 acres for those who rented land. This larger average farm size may be due to response bias. The majority of farmers raised dairy cattle with an average herd of 80 animals. Farmers cropped an average of 181 acres (ranging from 18 acres to 1,000 acres), with the major crops being corn, alfalfa and oats (89%). Minor crops included peas (29%) or a combination of peas and beans (25%).

TABLE 3. Comparison of average farm size in surveyed counties, 1980.*

County	No. Farms	Average Farm Size (acres)
Brown	1,670	156
Calumet	1,240	150
Kewaunee	1,260	157
Manitowoc	1,980	160
	$\bar{x}$=1,538	$\bar{x}$=156

*Wisconsin Agricultural Reporting Service 1981.

Fencerow Removal

As farm size increases, so do farming expenses. Farm production expenses have tripled in the past 10 years (Wis. Agric. Rep. Serv. 1981). Higher operational costs have led to more intensive land use to meet economic needs (Long 1976, Gottschalk 1977, Mackey and Ponder 1982, Nat. Resour. Counc. 1982). Advances in technology have produced larger equipment which have enabled farmers to cultivate larger fields. Thus, more intensive farming has generally led to the removal of idle areas and fencerows, and this trend is expected to continue.

Fencerows and idle areas provide valuable habitat for many wildlife species. In Wisconsin, such areas are the preferred nesting sites for gray partridge (McCabe and Hawkins 1946, Gates 1973, Church 1980). It is important, therefore, to determine the amount and condition of fencerows.

Landowners surveyed had an average fencerow length of 3.5 miles on their property, ranging from 0.1 mile to 20 miles. Almost all landowners (99%) normally did not burn along fencerows or rights-of-way. The most important reasons for not burning were that it was too dangerous (38%) and that burning would disturb wildlife (23%). During the last 5 years, most landowners (59%) did not remove any fencerows from their property nor were they planning to remove any fencerows in the next 5 years (76%). Landowners were not removing fencerows because there was no need for removal (20%), they needed the fencerows in the farming system (11%), or they felt that the fencerows were a good place for wildlife

(4%). Fencerows were removed mainly to make larger fields (45%), or the fences were unused and regarded as a nuisance (20%). While most landowners did not intend to remove any more fencerows, the small proportion of farmers that looked upon fencerows as valuable wildlife habitat is a cause for concern.

Wildlife and Habitat Quality

How much farmers value wildlife and their land as wildlife habitat can have a great effect on the existence and abundance of wildlife on farm lands. A lack of wildlife did not seem evident in the survey area. Most of the common mammals and game birds were reported on the majority of farms (Table 4). Commonly found wildlife included rabbits (97%), gray partridge (83%), deer (82%), raccoon (78%), squirrels (73%), and pheasants (65%). The abundance of wildlife on the landowner farms surveyed was rated as typical ($\bar{x}$=3.7) when compared to surrounding farms. Poor to moderate wildlife abundance was attributed to early hay mowing (29%) and intensified use of agricultural lands (28%)(Table 5).

Landowners also felt that upland game bird habitat on their property was typical of other farms in the surrounding area (50% rated their upland game bird habitat as "okay"). Most farmers (75%) felt that the quality of upland game bird habitat had remained stable over the past 5 years. Likewise, Missouri landowners generally believed that wildlife habitat on their land was quite good, even though wildlife professionals thought otherwise (Sheriff et al. 1981).

Some of the practices to improve wildlife habitat proposed in Section III involve restricting current farming procedures (Table 6). The majority of landowners rated most restrictions negatively. Restricting burning along fencerows or rights-of-way did, however, have a mixed response (23% rating the restriction "very bad", 26% rating it "okay", and 20% rating it "very good" ($\bar{x}$=3.9)).

Wisconsin landowners felt that their activities had little impact on game bird populations (41% stated "no effect"). Landowners most frequently cited less or no burning (52%), maintaining existing habitat (47%), or winter manure spreading (47%) as activities they were doing to maintain or increase game bird populations on their farms. Such activities tend to be a part of normal farming practices. Wildlife practices that are known to effectively benefit wildlife habitat -- such as leaving areas fallow (13%) or delaying hay mowing (7%) -- received little support (Table 7). Previous studies demonstrated that farmers tend to have only limited interest in wildlife (Kellert 1976, Kellert and Berry 1980). It seems that farmers have little interest in improving wildlife habitat and game animal populations because they believe habitat conditions are already stable and do not require extra effort for improvement.

Any effort which benefits wildlife populations on private lands must first be cost effective (Hamor 1968). Conservation tillage practices offer substantial potential benefits to wildlife (Horvath 1976, Farris and Cole 1981). By definition, conservation tillage includes a variety of farming practices that (1) use some tool other than the moldboard plow to prepare a seed bed, (2) leave enough crop residue on the soil surface to significantly reduce soil erosion, and (3) rely less on cultivation and more on herbicides to control weeds than conventional tillage (Crossen 1982). Increased residue on the soil surface can provide desirable food and cover for partridge during the winter months; however, greater use of pesticides may reduce insect populations that partridge chicks depend heavily upon during their first 3 weeks of life (McCabe and Hawkins 1946, Weigand 1982). Although the questionnaire asked no direct questions dealing with conservation tillage, the Natural Resource Council (1982) estimates 50% to 60% of the nation's farmers will adopt such tillage practices by 2010 because of a 5% to 10% reduction in production costs per acre.

Questions dealing with the adoption of certain wildlife practices that included economic incentives (e.g., cost sharing, tax credits, cash payments) were moderately received by the respondents (means varied from 3.2 to 4.0). It appears that landowners may adopt wildlife practices if such practices provide an economic return. Since a direct economic return from wildlife will not compete with conventional returns to the landowner, conservation tillage practices may bridge the money gap. Increased populations of gray partridge and other wildlife can become important by-products of conservation tillage practices.

TABLE 4. Wildlife found on sampled farms.

Wildlife Species	Percent of Farms
Game birds	
Gray partridge	83
Pheasant	65
Ruffed grouse	40
Waterfowl	34
Woodcock	18
Bobwhite quail	7
Mammals	
Rabbit	97
Deer	83
Raccoon	78
Squirrel	75
Gophers	71
Fox	64

TABLE 5. Reasons indicated by landowners for low to medium wildlife abundance.

Reason	Percent Response
Early hay mowing	29
Intensifying agricultural land use	28
Not enough stocking	25
Increased hunting	23
High predation	15

TABLE 6. Landowners' rating of farming restrictions to improve wildlife habitat.*

Restriction	Response Mean
Requiring percentage of farm be managed for wildlife	1.9
Limiting insecticide use	2.9
Limiting herbicide use	2.7
Restricting mowing along fencerows or rights-of-way	2.8
Restricting burning along fencerows or rights-of-way	3.9

*Based on 7-point rating scale, with 1 being "very bad" and 7 "very good".

TABLE 7. Current efforts by landowner to maintain or increase game bird populations.

Effort	Percent Response
Less or no burning	52
Winter manure spreading	47
Maintaining existing habitat	47
Nothing	26
Allowing hunting	21
Not hunting	16
Leaving areas fallow	13
Removing predators	12
Grazing woodlands or creek bottoms	8
Delaying early mowing	7
Restocking	4

Gray Partridge and Pheasant Populations

The number of partridge coveys observed by farmers during January 1981 averaged 3 coveys/farm and ranged from 0 coveys/farm to 9 coveys/farm. The estimated number of partridge ranged from 6 to 25 per farm (6-10 partridge/farm, 18%; 11-15 partridge/farm, 19%; 16-20 partridge/farm, 16%; and 21-25 partridge/farm, 13%).

It appears that landowners have exceptionally high estimates of partridge numbers on their lands. Church (unpubl. data) estimated 15 partridge/mile^2 during January for the best partridge range in Wisconsin. Assuming covey size at 6 birds, Church's estimates would yield 2.5 coveys/mile^2 as compared to 11.0 coveys/mile^2 as a mean estimate by responding farmers. The landowners' estimates of partridge abundance may be biased high due to partridges' use of fencerows forming boundaries with adjacent farms. Unquestionably, landowners' estimates of partridge abundance are biased high.

Most coveys were observed in corn stubble, near farmsteads or along fencerows (Table 8). More than half of the landowners (55%) estimated the current partridge populations as stable and indicated that they saw the same number of partridge each year. Potential management strategies for partridge received minor consideration by the landowners (Table 9). Respondents generally favored improving wild partridge populations (31%) or a more restrictive hunting season (30%), but no suggestions were provided by the landowners on how to improve wild populations or restrict hunting. Landowners rated increasing game bird stocking as "okay" (33%).

Landowners were also asked to estimate the number of pheasants on their farms at the start of the 1980 hunting season. While one-third were unable to estimate the number of pheasants, 249 respondents reported an average of 7 cocks and 8 hens/farm. Pre-hunt cock pheasant populations would be 26 cocks/mile^2. A post-season estimate by 25% of the respondents was 11 cocks/mile^2. Harvest rates estimated by landowners (58%) correspond to rates cited by the Wisconsin DNR (55%)(Wis. DNR 1979b). Opinions on the amount of stocked pheasants were: all were stocked birds (22%), no birds were stocked (26%), and no idea (34%). Pheasants are only stocked on private land by sportsmen organizations participating in the day-old chick program or as a legal requirement of licensed shooting preserves. Neither program is believed to play a prominent role in the study area.

The four counties surveyed are considered poor pheasant range (harvest estimates = 1-14 cocks/mile^2)(L.R. Petersen, Wis. DNR, unpubl. data 1982). Landowners (58%) felt that the wild pheasant population had declined on their farms in the last 5 years ($\bar{x}$=2.7). Yet, while the decline in pheasant has been attributed primarily to the loss of habitat (Kabat 1978), landowners did not seem to associate habitat losses with the decline on their farms. Most landowners (77%) rated the overall habitat for upland game birds on their farms as "okay" to "excellent". Low ratings for wildlife abundance were attributed to the effect of early hay mowing and intensified land use. This demonstrates the necessity for more information on wildlife requirements being made available to landowners.

TABLE 8. Location of partridge coveys during January 1981.

Location	Percent Response
Corn stubble	44
Near farmsteads	40
Fencerows	33
Manure piles	27
Corn cribs	21
Ditches	19
Fenced roadsides	13
Railroad tracks	4

TABLE 9. Landowner preferences for suggested methods to improve partridge populations.

Method	Percent Response
Improving wild partridge populations	31
More restrictive hunting season	30
Renew stocking of partridge	26
DNR encouragement of farmer interest in partridge	18
Increased management of partridge	17
Less DNR encouragement of hunter interest in partridge	13
Increased research on partridge	12
DNR encouragement of hunter interest in partridge	12
Less DNR encouragement of farmer interest in partridge	11
Less restrictive hunting season	6

Value of Gray Partridge

Partridge were considered to be "very worthwhile" as a game bird by 31% of the hunters ($\bar{x}$=5.1). However, under ideal conditions and bag limits, 77% would prefer to hunt pheasants, compared with 20% preferring to hunt partridge. Hunters preferring pheasants felt that pheasants were larger and better birds, while hunters preferring partridge felt that these birds provided more challenge to the hunter.

Hunter responses were divided into subfiles according to their species preference (Table 10). Overall, there was little difference between groups in their responses on the survey. Both groups rated current partridge numbers and habitat conditions as marginally "okay"; however, the reasons for the rating differed. The majority (47%) of partridge hunters stated increased cultivation has adversely affected habitat, while pheasant hunters (36%) considered the habitat still good. Another conflicting response was noted in extending the length of the partridge hunting season into January. Pheasant hunters (51%) generally considered the present season as too long, while partridge hunters (48%) stated that extending the season could provide more hunting opportunities. The partridge hunters' response seems to contradict their response not to increase the daily bag limit from 3 to 5 partridge because the population was too small. These responses raise questions as to what are the most important aspects of hunting to potential hunters.

TABLE 10. Comparison of pheasant hunters and partridge hunters' opinions with respect to partridge hunting efforts and regulations.*

Parameters		Hunters Preferring Pheasant	Hunters Preferring Partridge
Partridge as game target*		4.8	6.3
Current partridge population*		3.2	3.3
Current partridge habitat*		3.6	3.3
"Why" - increased cultivation		30%	47%
- habitat still good		36%	23%
Present bag limit of 3 gray partridge*		3.9	3.8
Increasing gray partridge bag limit to 5*		3.4	3.2
"Why" - present population too small		63%	72%
Current length of gray partridge season*		3.5	3.1
Extending length of season into January*		3.9	4.4
"Why" - present season too long		51%	42%
- more hunting opportunities		32%	48%
Number of coveys encountered on average hunting day		2	2
Percent of coveys flushing within gun range		40%	40%
Pursue coveys for additional flushes-yes		69%	83%
"Why"-good chance of hitting		67%	71%
Number of shots at partridge on average hunting day		3.0	4.6
Number of gray partridge bagged last season	0	43%	24%
	1-5	38%	44%
	6-10	12%	23%
Number of trips to hunt primarily gray partridge	0	45%	27%
	1-5	44%	44%
	6-10	7%	23%

*Mean based on 7-point rating scale; 1 is lowest rating, 7 is highest rating.

Upland Game Bird Hunter Profile

Hunters have been a prime subject for many studies on attitudes, behaviors, and preferences (Schole 1973, Bjornn and Dalke 1975, Wis. DNR 1978). They have been spied on in the field, their car windshields covered with inquiries, subjected to phone contacts, and mailed questionnaires. Hunters in Wisconsin have received attention as hunters in general, as deer hunters, as waterfowl hunters, and as pheasant hunters (Eisele 1970, Kiessig and Hale 1972, Heberlein 1978, Jackson 1978, Jackson and Norton 1979, Jackson and Anderson 1982, Heberlein et al. 1982).

A profile of an upland game bird hunter from east central Wisconsin was derived from questions in Section II (Append. I) A typical hunter tended to spend approximately 5 hours/day and an average of 15 days hunting/year. An average of 4 shots were taken at the primary target on a typical hunt, with a harvest rate of 1.7 birds. The game bird species bagged most frequently were ruffed grouse (30%), pheasant (21%), and partridge (13%). In an average year, 54% of the hunters spent 30 hours or less on activities related to hunting--such as dog training, scouting, or trip preparation.

High gasoline prices were examined for their effect on hunting. Gasoline prices were approximately $1.40/gallon during the time of the survey. Fifty percent of the hunters stated that fuel prices would not cause them to limit the number of hunting trips they took in an average year. However, about 50% said that the current gasoline price would cause them to hunt closer to home. Thirty-two percent stated that they would travel 10 miles or less one way to hunt, with 69% travelling 30 miles or less to get to their hunting area. Nearly 50% stated they would travel 40 miles or less for a good chance to bag their daily limit of pheasant and 20 miles or less for their daily limit of partridge.

With 85% of Wisconsin land in private ownership, those areas available for public hunting can not support the demands of all licensed hunters in the state. Hunters must then rely on private landowner cooperation for a place to hunt. Sixty-eight percent of the hunters spent 50% or more of their hunting time on privately owned areas. Land owned by the hunter or by the hunter's immediate family, and public hunting areas were used 20% or less of the time by 56% of the respondents. The hunters' interest in having different areas to hunt and being able to hunt privately owned areas emphasizes the group's dependence on the landowner for areas to hunt and the importance of a good relationship between these groups.

Several items pertaining to hunting areas were rated for their effect on the quality of the hunting experience (Table 11). The presence of other hunters using the same area at the same time has been found to affect a hunting experience and hunter satisfaction. Herberlein et al. (1982) found that 57% of deer hunters surveyed preferred to see 5 or fewer other hunters while 82% preferred to see 10 or fewer. In east central Wisconsin, a hunting experience was also enhanced by the presence of few other hunters ($\bar{x}$=5.3). Most hunters (75%) encountered 5 or fewer other hunters on an average hunt. However, respondents considered hunting with friends as a positive factor in the hunting experience ($\bar{x}$=5.6). The importance of companionship to hunting experiences was found to provide equal or greater enjoyment than the actual hunting in a study reviewed by Schole (1973). Klessig and Hale (1972) found that only 13% of upland bird hunters hunted alone. Hunters apparently prefer to hunt with a small group of friends or relatives.

Getting outdoors to enjoy nature and a challenge with the animal are generally considered the main reasons for hunting (Klessig and Hale 1972, Schole 1973). Hunters in east central Wisconsin also rated these values as highly attractive to a quality hunting experience (Table 12). Bagging a lot of game, bagging more game than your hunting pals, or bagging your limit were less valued aspects of a quality hunting experience. Apparently, consumptive hunting values play only a secondary role in the overall value of a hunting experience.

TABLE 11. A rating of factors that affect the quality of a hunting experience.*

Factors	Response Mean
Hunting privately owned areas with permission	5.1
Being asked to leave an area by landowner	1.9
Finding newly posted land	2.2
Hunting several different areas	5.3
Hunting a few traditional areas	4.4
Hunting public areas	4.3

* Based on 7-point rating scale, with 1 representing "highly detracts" and 7 "highly adds".

TABLE 12: Items that contribute greatly to a "quality' hunting experience.*

Item	Response Mean
Getting close to nature	6.3
Just getting outdoors	6.3
Making a tough shot	6.3
Being respected as a skilled hunter	6.3
Knowing and learning about game habits	6.2
Being safety conscious while hunting	6.2
Getting away from civilization	6.1
Outsmarting game	6.1
Seeing a lot of game	6.0

*Based on 7-point rating scale, with 1 representing "highly detracts" and 7 "highly adds".

Landowner Attitudes Toward Hunting and Hunters

Wisconsin landowners are required to purchase hunting licenses the same as any other hunter in the state. Missouri has adopted a policy allowing landowners to hunt on their own property without purchasing a hunting permit, which has apparently contributed to a high interest in hunting by landowners (Sheriff et al. 1981). Only 6% of Wisconsin landowners surveyed often hunted on their farms, compared to 57% of Missouri landowners (Table 13). The majority (55%) of Wisconsin landowners surveyed did not hunt on their own farms at all, while an additional 32% hunted occasionally. Whether or not a landowner will open land for public hunting if permission is asked differs between Missouri and Wisconsin landowner groups. Fifty-four percent of the Wisconsin landowners would allow hunting with permission compared to only 30% of Missouri landowners (Table 13).

A poor relationship between hunters and landowners has been noted as a major problem in hunter access to private land (Heberlein 1978, Jackson 1978, Decker et al. 1979, Jackson and Norton 1979, Henry and Grau 1981, Sheriff et al. 1981). Landowners' response to others hunting on their land depends in part on their past experience with hunters. The landowners rated hunter attitudes toward their property as having "no effect" ($\bar{x}$=3.8). Respondents providing reasons cited "no respect for property" (65%), and "show respect and ask permission" (34%). In this survey, both hunters and landowners considered the farmers' present attitudes toward hunters and allowing hunter access to their property to be slightly less than neutral ($\bar{x}$=3.5). Landowners considered deer hunters to be the most troublesome (49%). Fifty-three percent of the landowners cited "no respect" as their reason for this opinion. Some of the examples cited by landowners included: shooting of buildings, equipment and animals, cutting fences to gain access, driving across plowed fields, and disturbing livestock. Apparently, it is important that landowners know the names of people who hunt on their lands and prefer that hunters ask permission prior to hunting on their property.

TABLE 13. A comparison of Wisconsin and Missouri landowners toward hunting on their farms.

Hunting Characteristics	Wisconsin Mean (%)	Missouri* Mean (%)
Hunt often on own farm	6	57
Hunt occasionally on own farm	32	35
Allow public to hunt with permission	54	30
Allow only family and friends to hunt on own farm	57	59

*Sheriff et al. 1981

Hunter Safety, Education and Game Law Enforcement

Hunters and landowners alike are disturbed by game law violations and trespassing on posted land (Jackson 1978, Jackson and Norton 1979, Jackson and Anderson 1982). Hunters rated items representing unethical or careless behavior in terms of their effect on the quality of hunting experience (Table 14). Eighty-nine percent of the hunters ($\bar{x}$ = 5.2) and 75% of the landowners ($\bar{x}$ = 4.5) were in favor of stricter enforcement of game laws. Additionally, landowners expressed concern over the amount of out-of-season hunting and trespassing on posted land. In a study conducted by Jackson and Norton (1979), hunting behavior in the field was observed from a distance. Of those hunters observed, 20% violated a game law and 30% did something unethical; however, 55% of the hunters demonstrated good sportsmanship. One landowner's suggestion to decrease violations was to open all small mammal and game bird hunting seasons simultaneously.

A partial solution to the violations and unethical behavior could be improved hunter education and safety classes. In Wisconsin, no safety course is required prior to the purchase of a hunting license, but a voluntary program is available for youngsters between the ages of 14 and 16 who wish to hunt unaccompanied by a parent or guardian. About 95% of the hunters surveyed ($\bar{x}$ = 5.5) considered hunter education and safety courses as a good technique for promoting better bird hunting. Even experienced hunters considered safety courses as a positive factor in their hunting experience ($\bar{x}$ = 5.3). Being safety conscious was important to 97% of the hunters ($\bar{x}$ = 6.2). The majority of landowners (84%, $\bar{x}$ = 5.0) also considered hunter education and safety courses as a good technique to encourage sportsmanship. Some landowners suggested teaching hunters to respect landowners and their property. Jackson and Anderson (1982) indicated that although hunters realize the need for private land for hunting, they fail to recognize the landowners' position. Improved communication between hunters and landowners through an expanded hunter education program may aid in resolving existing differences.

TABLE 14. Hunters' evaluations of the effect of unethical or careless hunting behavior on the hunting experience.*

Behavior	Response Mean
Being careless while hunting	1.3
Seeing other hunters behave carelessly	1.4
Seeing other hunters violate common courtesy	1.4
Seeing other hunters break game laws	1.5
Someone in your party being careless or discourteous	1.5
Seeing hunters use alcohol before or while hunting	1.7
Shouting at a hunting dog	2.4
Having license checked by DNR official	3.7

*Based on a 7-point rating scale, with 1 representing "highly detracts" and 7 "highly adds".

Project Respect

Project Respect is a program sponsored by the Wisconsin DNR to promote a better relationship between landowners and hunters by (1) encouraging hunters to ask permission to hunt on privately owned lands, (2) assisting landowners in controlling hunters on their property, and (3) identifying landowners who are receptive to allowing respectful hunters on their lands. A participating landowner can obtain technical assistance and free wildlife habitat planting materials upon request. Once a hunter signs a Project Respect hunting permit, the hunter releases the landowner from any accident liability and is liable for any property damage (Dumke and Frank 1982).

In 1977 a pilot program for Project Respect was initiated in three Wisconsin counties. Due to the interest shown in the pilot program, Project Respect expanded to encompass seven counties including Brown, Kewaunee, and Manitowoc counties. To date, no action has been taken by DNR personnel in Calumet County on the program.

Fifty-eight percent of the hunters and 74% of the landowners surveyed were not familiar with Project Respect (Table 15). Hunters may have been more familiar with the program than landowners because the majority of responding hunters were from Brown County -- a county with this program. Information and pamphlets on Project Respect were distributed by DNR personnel to the Agricultural Stabilization and Conservation Service (ASCS), the Soil Conservation Service (SCS), and the University of Wisconsin-Extension (UW-Extension) office in Brown County (M. Opgenorth and D. Olson, DNR, pers. comm. 1983). Articles about Project Respect were also published in the Brown County Soil and Water Conservation District Newsletter. Possibly if the same publicity approaches had been taken in the other counties, familiarity with the program would have been higher.

In addition, most landowners participating in Project Respect were enrolled through personal contacts by DNR personnel. Landowners may not voluntarily open their land to public hunting without personal persuasion. A program such as Project Respect involves a cooperative effort on the part of landowners, hunters, and DNR managers.

TABLE 15. Hunter and landowner familiarity with and attitudes about Project Respect and Acres for Wildlife.

	Project Respect				Acres for Wildlife			
	Familiar (%)	Favor (%)	Against (%)	Undecided (%)	Familiar (%)	Favor (%)	Against (%)	Undecided (%)
Hunters	42	40	3	57	29	33	2	65
Landowners	26	23	3	--	28	19	9	--

Acres for Wildlife

Acres for Wildlife is a statewide program designed to create an awareness that land use decisions affect the quality and quantity of wildlife habitat on private lands. In Wisconsin, this program is an interagency effort involving the DNR, the Cooperative Extension Service, and the Department of Public Instruction (Dumke and Frank 1982). Although this is a statewide program, emphasis on the program differs by DNR districts. DNR personnel in Brown, Kewaunee, and Manitowoc counties are not actively involved in promoting Acres for Wildlife because of greater involvement in Project Respect. However, Calumet County has taken a more active role in promoting Acres for Wildlife by placing articles in the newsletter of the Soil and Water Conservation District (D. Evenson, DNR, pers. comm. 1983). A moderate amount of personal contact by DNR personnel has been made, but it was not known how most of the participants learned about the program.

Seventy-two percent of the landowners and 71% of the hunters surveyed were not familiar with Acres for Wildlife (Table 15). Hunters may not have been familiar with the program because it is directed toward landowners. Landowners may have lacked information on the project or may not have been interested in setting aside the required minimum of 1 acre for wildlife habitat.

Present Efforts to Maintain Game Bird Populations

Landowners rated the current efforts of landowners, hunters, and the Wisconsin DNR as having little effect on promoting sufficient game bird populations (Table 16). Most landowners cited a lack of knowledge of current efforts and many farmers felt that there was no reason to maintain wildlife for hunters (Append. 11). The hunter response tended to be spread more evenly over the rating scale, although the average response was still "no effect". No space was allotted for hunter comments.

Unless substantial changes occur in a game bird population, it is difficult for nonprofessionals to notice the effect of most management efforts. The efforts themselves should be better publicized. Karbon and Trent (1977) attempted to determine ways of improving the Wisconsin DNR's communication with the public. They pointed out that the Wisconsin DNR should improve performance, encourage more interpersonal dialogue with the public, and improve department use of mass media. Personal contact proved necessary in the enrollment process of Project Respect, thus more visibility on the part of the Wisconsin DNR and its programs for private lands could encourage landowners to seek advice and technical assistance.

TABLE 16. Evaluation of current efforts to maintain or improve game bird populations.

	Hunter Rating		Landowner Rating	
Group	"No Effect" (%)	Mean*	"No Effect" (%)	Mean
Farmers	29	3.5	46	3.6
Hunters	26	3.9	41	3.4
DNR managers	19	4.0	44	3.5

*Based on 7-point rating scale, with 1 being "very poor" and 7 being "very good".

Habitat Projects Involving Hunter Participation

One way to improve wildlife habitat would be to let farmers do their own habitat and hunter management. Only 30% of the landowners rated this suggestion "okay", with the remaining responses divided ($\bar{x}$ = 4.0). Another possibility would be increased hunter involvement in habitat development projects. Hunters could reduce the amount of landowner labor on a habitat improvement project and assist in building hunter-landowner cooperation. Both hunters and landowners could also learn more about wildlife-habitat relationships with the assistance of a state or federal agency.

Most hunters (93%) rated habitat projects in which they can participate as a good activity for promoting better bird hunting. Thirty-eight percent of the landowners rated more management help from hunters in spring or winter as "okay", and the remaining responses were divided as to whether hunter assistance was a possible incentive for improving wildlife habitat ($\bar{x}$ = 4.0). Landowners were also asked their opinions about establishing habitat projects on private and public lands with the help of hunters. Landowners tended to favor wildlife habitat projects on public lands ($\bar{x}$ = 4.5) rather than hunter participation in projects on private lands ($\bar{x}$=3.7). Project Respect could be expanded to encourage hunter assistance on private lands in activities such as planting wildlife shrubs, selective cutting of shrubs along roadsides and fencerows, and marking safety zones. With minor modifications and greater support and encouragement from the Wisconsin DNR, Project Respect could have a larger impact.

Incentives for Improving Wildlife Management

An economic return for a product of the land has long been considered the universal incentive for developing the product; however, a satisfactory dollar value for farm wildlife is difficult to determine. Landowners and hunters were provided with potential monetary incentives for improving wildlife conditions on private lands (Table 17). Overall, landowners tended to rate most incentives as negative, although some interest was expressed for cash payments to leave portions of crops unharvested for wildlife use. The exact reason for disapproval of these incentives is not known. Monetary incentives may not be the type of incentives landowners desired or needed.

Hunters tended to favor all suggested incentives except those for either new fencing or maintenance of existing fencelines. Their disapproval of fenceline incentives may be due to a lack of knowledge on the importance of fencerows to wildlife. Hunters' greater interest in tax credits rather than cash payments suggests that they are interested in improving wildlife habitat but, if given a choice, would prefer not to pay for it directly.

Wisconsin DNR technical advice and planning was listed as another incentive for improving wildlife habitat. Most of the landowners and the hunters rated this "okay" (39% for both). Missouri landowners were asked a similar question (Kirby et al. 1981), with the majority (53%) not interested in any professional wildlife assistance, 41% welcoming assistance, and the remainder undecided. The type of assistance Missouri landowners preferred most was seed for food plots (27%) and technical advice (25%); monetary assistance in the form of tax credits and cash payments were listed fourth and fifth as preferences. Again, monetary incentives did not seem to encourage landowners to improve wildlife habitat.

A plan to encourage private land hunting leases produced a divided response among hunters (Table 17). Over the years, hunters have expressed concern because of conflict developing between free-access hunting and payment-for-access hunting (Bolle and Taber 1962). Free-access hunting can continue in Wisconsin with the success of programs like Project Respect.

TABLE 17. Evaluation of monetary incentives to improve wildlife management.*

Incentive	Hunter Response Mean	Landowner Response Mean
Acreage left idle for wildlife		
Tax credit	5.4	3.6
Cash payment	4.5	3.1
Crop portion left unharvested		
Tax credit	5.4	3.6
Cash payment	4.5	4.0
New fencing or maintenance on existing fencelines		
Tax credit	3.9	3.3
Cash payment	3.4	3.1
Encouragement of private land leasing		
Individuals	4.1	3.5
Hunting clubs	4.0	3.6

*Based on 7-point rating scale, with 1 being "very bad" and 7 being "very good".

Public Information Needs

Considerable information is available to the public through agencies such as the Wisconsin DNR, UW-Extension, the SCS and the ASCS. Unfortunately, many individuals do not realize this information is available. The problem is how to let the public know what is available and where to find the information. Hunters responded favorably (88%) to having more biological studies on game bird populations. They also felt that knowing and learning about game habits would add to the quality of their hunting experience (81%). Landowners rated favorably (83%) receiving better public information on managing wildlife populations more effectively. The suggestion was made in another study of a greater use of the mass media by the Wisconsin DNR (Karbon and Trent 1977). Perhaps using mass media to describe what is available and where it can be obtained would be a good starting point.

SUMMARY

The purpose of this study was to investigate how gray partridge are perceived by hunters and landowners in east central Wisconsin. The four-county study area of Brown, Calumet, Kewaunee, and Manitowoc counties has been regarded as the best gray partridge range in Wisconsin (Dumke 1977). Parallel questionnaires were mailed to hunters and landowners to assess their opinions on (1) the value of gray partridge as a game bird, (2) the availability and abundance of partridge, (3) the relationship between hunters and farmers, and (4) the condition and management of partridge habitat.

Hunters surveyed appeared to have only a moderate interest in partridge. Partridge were utilized as a secondary game bird with a harvest rate of only 10% (Wis. DNR 1979a). Most hunters responding to the questionnaire (77%) preferred to hunt pheasants, although partridge were regarded as a worthwhile game

bird ($\bar{x}$ = 5.1). The present harvest level of pheasants is maintained by a stocking program in east central Wisconsin where wild populations have declined primarily because of intensive farming. Partridge, on the other hand, are better adapted to the intensively farmed areas and are able to withstand the severe winter weather. If partridge populations are maintained or increased, hunter interest could evolve toward partridge.

Landowners believed that partridge populations were stable in their areas. Eighty-three percent of the landowners surveyed had partridge on their farms, with a January average of 3 coveys/farm. The landowners (77%) also considered partridge habitat conditions as satisfactory to excellent; however, responses of low habitat ratings were attributed to early hay mowing and intensified land use. Potential management strategies for improving partridge populations received marginal consideration by landowners. Because partridge numbers are stable in their areas, landowners may feel it is not necessary to manage for this bird. The hunters, on the other hand, rated current partridge numbers and habitat conditions as slightly less than satisfactory. Increased cultivation was believed to be the primary factor adversely affecting wildlife habitat. The small proportion of respondents who acknowledged the effect of intensified land use on partridge and other wildlife is cause for concern. An effort needs to be made to provide better information on the relationship between wildlife and agricultural practices.

Gray partridge are found predominantly on agricultural land. If hunters are going to increasingly utilize partridge as a game bird, they will need access to private land. Few landowners (6%) hunted on their farms, yet the majority (54%) would allow others to hunt on their land with permission. Both hunters and landowners felt the landowners' attitudes toward hunting and hunters were less than satisfactory ($\bar{x}$ = 3.5). Landowners generally felt that hunters had no respect for their property. Possibilities to improve landowner-hunter relationships could be programs such as Project Respect, improved hunter education, and stricter game law enforcement.

Both hunters and landowners disliked irresponsible acts of game law violations and trespassing. Eighty-nine percent of the hunters and 75% of the landowners favored stricter enforcement of game laws. Landowners suggested opening the small game hunting seasons simultaneously to reduce out-of-season violations. Hunters overwhelmingly (95%) felt hunter safety and education courses added to a quality hunting experience. Most landowners (84%) also considered hunter education courses a good idea. Courses sponsored by the Wisconsin DNR could reduce irresponsible acts by hunters and alleviate a major source of conflict existing between the two groups. In addition, greater emphasis on Project Respect is needed. This program encourages hunters to ask permission to hunt and allows the landowners some control over the number of hunters using their property. Unfortunately, the majority of both groups (58% and 74% of hunters and landowners, respectively) were not familiar with Project Respect.

The Wisconsin DNR distributed information on Project Respect to farmer-oriented agencies such as ASCA, SCS, and the UW-Extension, however most of the landowners enrolled in Project Respect were due to personal contact with Wisconsin DNR personnel. If Project Respect or similar programs are to be effective, an improved method of informing potential users must be established. It has been demonstrated that hunters and landowners often lack knowledge of Wisconsin DNR activities. Better department visibility could encourage landowners and hunters to seek advice and technical assistance and, in general, create a more cooperative relationship. Landowners (83%) expressed interest in receiving more information on managing wildlife populations. Likewise, hunters (81%) were interested in learning more about the habits of game animals. Hunter participation in habitat improvement projects could accomplish this. By actually working to improve habitat for wildlife, hunters could learn firsthand the needs of game animals. Both landowners and hunters considered projects with hunter involvement useful, although landowners preferred that the projects be on public land. Incorporating hunter involvement in Project Respect could improve habitat conditions, provide a learning experience, and promote better cooperation among hunters, landowners, and the Wisconsin DNR.

Monetary incentives to improve wildlife habitat were only slightly acceptable to landowners. Hunters, on the other hand, tended to favor monetary incentives, although they preferred tax credits to cash payments. Thus, hunters appeared to have an interest in improving wildlife habitat but did not want to pay for it directly.

Overall, hunters and landowners in east central Wisconsin possessed little knowledge of, and little interest in, gray partridge. To fully utilize partridge as a game bird, the present hunter-landowner relationship needs improvement. Modifying Project Respect to include hunter participation in habitat projects is a good starting point, but hunters need to understand landowner attitudes and rights. In addition, a repertoire of landowner incentives must be developed to improve wildlife habitat on private lands. Intensive land use is currently eliminating valuable wildlife habitat. Landowners need to be encouraged to use conservation practices that reduce production costs but still produce wildlife as a by-product. A more cooperative relationship among the Wisconsin DNR, hunters, and landowners must be created if huntable partridge populations are expected to be developed to their potential.

APPENDIX I: Summary of the Hunter Questionnaire.

WISCONSIN
UPLAND GAME BIRD
HUNTER SURVEY
1980

IT IS IMPORTANT THAT THIS QUESTIONNAIRE BE COMPLETED BY THE PERSON TO WHOM IT WAS ADDRESSED!

Please answer all the questions since a single missing answer will decrease the value of all your answers. Answer what you really feel is true for you. Answers that truly reflect what you did and what you believe are best. Your answers will be confidential.

SECTION I: YOUR HUNTING EXPERIENCES AS A SMALL GAME OR AN UPLAND BIRD HUNTER -- GENERAL

Which items added or detracted, this past hunting season, in making your small game or upland bird hunting experiences "quality" experiences? (CIRCLE ONE NUMBER FOR EACH ITEM.)

	Highly Detracts			Neither Adds nor Detracts			Highly Adds		
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(N)	($\bar{x}$)
Hunting privately owned areas with permission	1 (4)	2 (4)	3 (6)	4(28)	5(11)	6(18)	7(29)	392	5.1
Hunting only a few traditional areas	1 (3)	2 (8)	3(11)	4(37)	5(14)	6(15)	7(11)	387	4.4
Hunting at least several different areas	1 (1)	2 (2)	3 (6)	4(21)	5(18)	6(28)	7(24)	391	5.3
Being asked by a landowner to leave an area	1(59)	2(15)	3 (6)	4(16)	5 (2)	6 (1)	7 (1)	384	1.9
Getting close to nature	1 (1)	2 (0)	3 (1)	4 (5)	5 (9)	6(22)	7(62)	392	6.3
Just getting outdoors	1 (0)	2 (1)	3 (1)	4 (5)	5(10)	6(24)	7(59)	390	6.3
Getting away from civilization	1 (0)	2 (1)	3 (2)	4(10)	5(14)	6(21)	7(51)	391	6.1
Getting away from home and family pressures	1 (1)	2 (2)	3 (3)	4(28)	5(17)	6(20)	7(29)	389	5.3
Getting away from other problems	1 (1)	2 (2)	3 (4)	4(24)	5(15)	6(22)	7(32)	389	5.5
Seeing game species only	1 (2)	2 (2)	3 (7)	4(39)	5(21)	6(16)	7(13)	390	4.7
Seeing nongame species also	1 (3)	2 (4)	3 (5)	4(22)	5(17)	6(23)	7(27)	393	5.2
Seeing at least some game	1 (0)	2 (1)	3 (3)	4(10)	5(19)	6(34)	7(33)	391	5.8
Seeing a lot of game	1 (1)	2 (1)	3 (2)	4(14)	5(10)	6(19)	7(54)	387	6.0
Seeing a lot of your favorite target game only	1 (2)	2 (2)	3 (3)	4(27)	5(20)	6(22)	7(25)	387	5.3
Seeing a lot of different game targets	1 (2)	2 (1)	3 (3)	4(10)	5(15)	6(27)	7(43)	389	5.9
Seeing no game	1(49)	2(18)	3(13)	4(17)	5 (2)	6 (1)	7 (1)	387	2.1
Having your license checked by a DNR official	1(15)	2 (5)	3 (9)	4(55)	5 (6)	6 (3)	7 (7)	390	3.7
Finding newly posted hunting land	1(49)	2(21)	3(11)	4(10)	5 (3)	6 (4)	7 (3)	392	2.2
Seeing other hunters break the game laws	1(77)	2(13)	3 (4)	4 (3)	5 (1)	6 (1)	7 (2)	392	1.5
Seeing other hunters violate common courtesy	1(77)	2(15)	3 (4)	4 (1)	5 (1)	6 (1)	7 (1)	391	1.4
Seeing other hunters behave carelessly	1(80)	2(13)	3 (3)	4 (1)	5 (1)	6 (1)	7 (1)	391	1.4
Seeing hunters use alcohol before or while hunting	1(67)	2(16)	3 (8)	4 (6)	5 (1)	6 (1)	7 (1)	388	1.7
Seeing very few other hunters in the field	1 (1)	2 (3)	3 (4)	4(29)	5(14)	6(21)	7(30)	391	5.3
Being with your hunting buddies	1 (1)	2 (0)	3 (3)	4(20)	5(20)	6(27)	7(30)	391	5.6
Shooting your gun	1 (1)	2 (1)	3 (4)	4(41)	5(20)	6(16)	7(18)	389	5.0
Hunting public areas	1 (6)	2 (4)	3(10)	4(43)	5(18)	6 (9)	7(11)	391	4.3
At least getting some shots at game	1 (1)	2 (1)	3 (1)	4(13)	5(25)	6(26)	7(34)	392	5.7

	Highly Detracts (%)	(%)	(%)	Neither Adds nor Detracts (%)	(%)	(%)	Highly Adds (%)	(N)	($\bar{x}$)
Making a tough shot	1 (1)	2 (1)	3 (1)	4 (6)	5 (7)	6(23)	7(60)	392	6.3
Losing crippled birds	1(63)	2(23)	3 (7)	4 (4)	5 (1)	6 (1)	7 (1)	390	1.6
Bagging a lot of game	1 (1)	2 (3)	3 (5)	4(40)	5(18)	6(16)	7(18)	388	4.9
Bagging at least some game	1 (1)	2 (1)	3 (1)	4(15)	5(24)	6(33)	7(26)	389	5.6
Bagging more game than your hunting pals	1 (2)	2 (1)	3 (6)	4(52)	5(14)	6(13)	7(14)	388	4.7
Bagging your limit	1 (2)	2 (0)	3 (3)	4(30)	5(17)	6(19)	7(30)	389	5.4
Bagging your limit at least occasionally	1 (0)	2 (1)	3 (2)	4(13)	5(22)	6(23)	7(39)	390	5.8
Stalking game	1 (1)	2 (1)	3 (3)	4(13)	5(16)	6(30)	7(36)	390	5.7
Outsmarting game	1 (1)	2 (1)	3 (2)	4 (8)	5(12)	6(27)	7(50)	390	6.1
Knowing and learning about game habits	1 (1)	2 (0)	3 (0)	4 (6)	5(13)	6(32)	7(49)	390	6.2
Your party at least bagging some game	1 (1)	2 (1)	3 (2)	4(11)	5(26)	6(32)	7(28)	387	5.7
Not seeing any game	1(43)	2(22)	3(14)	4(17)	5 (3)	6 (1)	7 (1)	388	2.2
Your party bagging more than other parties	1 (2)	2 (3)	3 (6)	4(53)	5(16)	6(13)	7 (8)	385	4.5
Someone in your party being careless or discourteous	1(70)	2(21)	3 (5)	4 (2)	5 (1)	6 (1)	7 (0)	391	1.5
Being careless while hunting	1(79)	2(16)	3 (2)	4 (2)	5 (0)	6 (1)	7 (0)	388	1.3
Being safety conscious while hunting	1 (1)	2 (1)	3 (2)	4 (5)	5(11)	6(23)	7(58)	392	6.2
Teaching someone else to hunt	1 (1)	2 (0)	3 (3)	4(10)	5(17)	6(29)	7(40)	393	5.9
Being respected as a skilled hunter	1 (0)	2 (0)	3 (1)	4 (7)	5(12)	6(26)	7(54)	392	6.3
Reading hunter magazines or books	1 (2)	2 (0)	3 (3)	4(24)	5(22)	6(25)	7(24)	390	5.4
Reading wildlife or nature magazines or books	1 (1)	2 (0)	3 (3)	4(23)	5(23)	6(24)	7(26)	392	5.4
Seeing hunter shows on T.V.	1 (2)	2 (2)	3 (4)	4(25)	5(21)	6(21)	7(26)	392	5.3
Not seeing hunter shows on T.V.	1(17)	2 (8)	3(18)	4(48)	5 (3)	6 (2)	7 (3)	386	3.3
Seeing wildlife or nature shows on T.V.	1 (1)	2 (1)	3 (3)	4(17)	5(23)	6(25)	7(31)	388	5.6
Swapping hunting stories with others	1 (0)	2 (1)	3 (1)	4(15)	5(24)	6(34)	7(26)	391	5.7
Showing bagged game to family or friends	1 (0)	2 (1)	3 (2)	4(24)	5(26)	6(23)	7(25)	390	5.4
Cooking or preparing game for family or friends	1 (2)	2 (1)	3 (3)	4(21)	5(22)	6(27)	7(24)	390	5.4
Displaying mounted game	1 (3)	2 (3)	3 (8)	4(32)	5(16)	6(19)	7(20)	391	4.9
Having the best hunting equipment	1 (1)	2 (2)	3 (5)	4(42)	5(22)	6(13)	7(16)	392	4.8
Being well equipped for hunting	1 (0)	2 (1)	3 (2)	4(13)	5(25)	6(34)	7(25)	389	5.7
Not having well maintained, clean hunting equipment	1(47)	2(28)	3(11)	4 (6)	5 (1)	6 (3)	7 (3)	390	2.1
Collecting guns	1 (5)	2 (5)	3 (6)	4(46)	5(13)	6(13)	7(13)	389	4.5
Displaying your guns	1 (4)	2 (1)	3 (6)	4(48)	5(16)	6(11)	7(14)	391	4.6

	Highly Detracts (%)			Neither Adds nor Detracts (%)			Highly Adds (%)	(N)	($\bar{x}$)
Having to be cautious about displaying your guns	1 (8)	2 (9)	3 (9)	4(42)	5 (9)	6(10)	7(14)	390	4.2
Collecting other hunting equipment	1 (1)	2 (3)	3 (4)	4(49)	5(21)	6(14)	7 (8)	391	4.6
Loading your own shells	1 (6)	2 (4)	3 (6)	4(51)	5(11)	6(10)	7(12)	391	4.3
Comparing equipment with others	1 (3)	2 (2)	3 (6)	4(44)	5(23)	6(13)	7 (9)	388	4.6
Hunting with your dog	1 (3)	2 (1)	3 (3)	4(22)	5 (9)	6(19)	7(43)	389	5.6
Training your dog	1 (4)	2 (1)	3 (3)	4(24)	5(13)	6(21)	7(34)	389	5.4
Hunting with anyone's dog	1 (7)	2 (3)	3 (9)	4(31)	5(17)	6(20)	7(13)	388	4.6
Not hunting with a dog	1(22)	2(14)	3(20)	4(31)	5 (6)	6 (5)	7 (3)	386	3.1
Shouting at a hunting dog	1(39)	2(19)	3(15)	4(21)	5 (2)	6 (3)	7 (2)	387	2.4
Taking a hunter safety course	1 (3)	2 (2)	3 (3)	4(29)	5(12)	6(19)	7(33)	385	5.3
Helping make habitat or crop changes to improve hunting	1 (2)	2 (0)	3 (1)	4(13)	5(17)	6(30)	7(37)	390	5.8
Shooting trap or skeet	1 (3)	2 (4)	3 (3)	4(30)	5(18)	6(19)	7(24)	390	5.1

IF YOU NEVER HUNT UPLAND GAME BIRDS PLEASE STOP HERE AND RETURN THIS QUESTIONNAIRE AS INDICATED. IF YOU DO HUNT UPLAND GAME BIRDS PLEASE CONTINUE.

SECTION II. WISCONSIN UPLAND BIRD HUNTER
CHECK ONLY THE BEST ANSWER FOR EACH OF THE FOLLOWING QUESTIONS:

1. I hunted ring-necked pheasants ? % of the time. N=365

5%	0%	14%	30%	5%	60%	2%	90%
22%	10%	9%	40%	1%	70%	2%	100%
16%	20%	12%	50%	7%	80%	4%	Incidentally

2. I hunted ruffed grouse (woodland "partridge") ? % of the time. N=365

7%	0%	11%	30%	6%	60%	4%	90%
22%	10%	6%	40%	7%	70%	3%	100%
12%	20%	11%	50%	10%	80%	2%	Incidentally

3. I hunted gray (Hungarian) partridge ? % of the time. N=365

29%	0%	7%	30%	2%	60%	2%	90%
26%	10%	4%	40%	1%	70%	2%	100%
12%	20%	7%	50%	2%	80%	7%	Incidentally

4. I hunted woodcock (Timberdoodles) ? % of the time. N=364

47%	0%	6%	30%	1%	60%	1%	90%
18%	10%	2%	40%	0%	70%	1%	100%
10%	20%	4%	50%	1%	80%	10%	Incidentally

5. I hunted sharp-tailed grouse ? % of the time. N=363

67%	0%	2%	30%	2%	60%	0%	90%
11%	10%	2%	40%	0%	70%	1%	100%
6%	20%	3%	50%	0%	80%	7%	Incidentally

6. I hunted bobwhite quail ? % of the time. N=361

88%	0%	1%	30%	0%	60%	0%	90%
4%	10%	1%	40%	0%	70%	0%	100%
2%	20%	1%	50%	0%	80%	3%	Incidentally

7. I hunted waterfowl ? % of the time. N=363

44%	0%	6%	30%	3%	60%	4%	90%
13%	10%	5%	40%	3%	70%	2%	100%
6%	20%	8%	50%	4%	80%	1%	Incidentally

8. I hunted small game mammals ? % of the time. N=365

12%	0%	7%	30%	6%	60%	8%	90%
11%	10%	10%	40%	6%	70%	5%	100%
7%	20%	14%	50%	12%	80%	4%	Incidentally

9. I hunted on public hunting areas ? % of the time. N=363

22%	0%	13%	30%	2%	60%	5%	90%
23%	10%	6%	40%	2%	70%	2%	100%
11%	20%	9%	50%	5%	80%	2%	Incidentally

10. I hunted privately owned areas ? % of the time. N=364

4%	0%	5%	30%	6%	60%	13%	90%
9%	10%	6%	40%	9%	70%	13%	100%
9%	20%	16%	50%	11%	80%	0%	Incidentally

11. I hunted land owned by myself or by immediate family relatives ? % of the time. N=365

36%	0%	3%	30%	4%	60%	4%	90%
11%	10%	7%	40%	3%	70%	4%	100%
9%	20%	12%	50%	7%	80%	1%	Incidentally

12. I hunted upland game birds with the aid of a dog ? % of the time. N=365

33%	0%	7%	30%	2%	60%	5%	90%
11%	10%	4%	40%	2%	70%	16%	100%
9%	20%	7%	50%	4%	80%	2%	Incidentally

THE FOLLOWING QUESTIONS WILL COMPLETE YOUR GENERAL PROFILE AS A WISCONSIN UPLAND GAME BIRD HUNTER. PLEASE COMPLET EACH QUESTION AS DIRECTED!

13. How many shots at your primary game target do you take on an average day's hunt? (CIRCLE ONE) N=364, $\bar{x}$=3.8

0 (0%) 1 (5%) 2(27%) 3(20%) 4(15%) 5(16%) 6 (6%) 7 (3%) 8 (5%) 9 (1%) 10 (2%)

14. How many shots at your primary game target do you take on a good day's hunt? (CIRCLE ONE) N=362, $\bar{x}$=6.4

0 (0%) 1(12%) 2 (9%) 3 (3%) 4 (7%) 5(12%) 6(14%) 7 (7%) 8(14%) 9 (3%) 10(11%)

If more than 10, specify how many: _____ shots. 12 (2%) 15 (4%) 20 (2%) 25 (1%)

15. How many game birds do you bag on an average day's hunt? (CIRCLE ONE) N=361, $\bar{x}$=1.7

0 (6%) 1(41%) 2(35%) 3(13%) 4 (3%) 5 (1%) 6 (%) 7 (%) 8 (%) 9 (%) 10 (%)

List which species you usually bag: N=274 30% grouse, 21% pheasant, 13% gray partridge

16. In the past hunting season, how many days or portions of different days did you spend in the field hunting? (CIRCLE ONE) N=363, $\bar{x}$=15, range=0-90

0 (1%) 1 (0%) 2 (3%) 3 (3%) 4 (6%) 5 (7%) 6 (3%) 7 (3%) 8(11%) 9 (4%) 10(16%)

If more than 10, specify how many: _____ days 15 (6%) 20 (9%) 25 (5%) 30 (7%)

17. About how many hours per day or portion of a day do you spend in the field hunting? (CIRCLE ONE) N=365, $\bar{x}$=5

0 (0%) 1 (1%) 2 (5%) 3(20%) 4(27%) 5(22%) 6(15%) 7 (3%) 8 (5%) 9 (2%) 10 (1%)

If more than 10, specify how many: _____ hours.

8. About how many hours do you spend in an average year doing things related to hunting like dog training, loading shells, or scouting areas? (CHECK ONE) N=363

25%	1-10	11%	21-30	6%	51-60
10%	11-15	8%	31-40	4%	61-70
8%	16-20	8%	41-50	9%	71-80

If greater than 80 hours, specify how many: _____ hours. 100 (4%).
List activities: N=126; 28% scouting and trip preparation; 17% scouting, trip preparation and dog training

9. How many miles, on the average, do you travel one way to get to your hunting areas? (CHECK ONE) N=365

32%	1-10	12%	21-30	4%	51-60
16%	11-15	7%	31-40	4%	61-70
9%	16-20	6%	41-50	4%	71-80

If greater than 80 miles, specify how many: _____ miles. 90-200 (7%)

20. When do you hunt mostly? (CHECK ONE) N=365

6% Opening day (or weekend)
6% The first 2 weeks of the season
17% The first half of the season
3% The last half of the season
69% Evenly throughout the entire season

21. What price would gasoline have to be before you would limit the number of hunting trips that you make in an average year? (CHECK ONE) N=362

10%	$1.25/gal	15%	$2.00/gal	50% price would make no difference
11%	$1.50	3%	$2.50	
10%	$1.75	3%	$3.00	

22. Has the current price of gas caused you to hunt closer to home more frequently? (CHECK ONE) N=364

50% Yes 50% No

23. How many miles would you travel to get a good chance of bagging a daily bag limit of 2 ring-necked pheasants per hunter? (CHECK ONE) N=364

10%	1-5	9%	16-20	14%	41-50	3%	71-80
8%	6-10	14%	21-30	9%	51-60	1%	81-90
6%	11-15	12%	31-40	4%	61-70	6%	91-100

If more than 100 miles, specify how many: _____ miles.

24. How many miles would you travel to get a good chance of bagging a daily limit of 3 gray (Hungarian) partridge per hunter? (CHECK ONE) N=361

16%	1-5	13%	16-20	10%	41-50	3%	71-80
15%	6-10	14%	21-30	6%	51-60	1%	81-90
6%	11-15	10%	31-40	3%	61-70	3%	91-100

If more than 100 miles, specify how many: _____ miles.

25. How many other hunters or parties of hunters do you or your party encounter on an average hunting day? (CHECK ONE) N=360

						INDICATE: N=172	
75%	1-5	3%	16-20	1%	31-40	79%	hunters
16%	6-10	1%	21-25	0%	41-45	10%	hunting parties
4%	11-15	0%	26-30	0%	46-50	12%	both

If greater than 50, specify how many: _____ hunters/hunting parties

26. Rate the number of other hunters using the same areas that you hunt. (CIRCLE ONE) N=361, $\bar{x}$=4.1

1(10%)	2(10%)	3(11%)	4(32%)	5(14%)	6(11%)	7(13%)
Very Few			Okay			Too Many

SECTION III: MANAGEMENT

THE FOLLOWING QUESTIONS WILL DEMONSTRATE YOUR CONCERN FOR CURRENT AND FUTURE GAME BIRD MANAGEMENT.

27. How would you rate what farmers are now doing to promote game bird populations? (CIRCLE ONE) N=361, $\bar{x}$ = 3.5

1(18%)	2(14%)	3(11%)	4(29%)	5(18%)	6 (7%)	7 (3%)
Very Poor			No Effect			Very Good

28. How would you rate farmers' present general attitudes toward hunters and toward allowing hunters access to their property? (CIRCLE ONE) N=364, $\bar{x}$=3.5

1(15%)	2(18%)	3(17%)	4(25%)	5(12%)	6 (9%)	7 (5%)
Very Poor			Neutral			Very Good

29. How would you rate what DNR wildlife managers are now doing to promote game bird populations? (CIRCLE ONE) N=361, $\bar{x}$=4.0

1(11%)	2 (9%)	3(12%)	4(19%)	5(31%)	6(12%)	7 (5%)
Very Poor			No Effect			Very Good

30. Are you familiar with Project Respect? (CHECK ONE) N=364

42% Yes 58% No

31. Are you familiar with the Acres for Wildlife Project? (CHECK ONE) N=363

29% Yes 71% No

32. Are you in favor of Project Respect? (CHECK ONE) N=347

40% Yes
3% No
58% Undecided

33. Are you in favor of the Acres for Wildlife Project? (CHECK ONE) N=347

33% Yes
2% No
65% Undecided

34. How would you rate what hunters do now to promote game bird populations? (CIRCLE ONE) N=360, $\bar{x}$=3.9

1(10%)	2 (9%)	3(15%)	4(26%)	5(27%)	6 (8%)	7 (4%)
Very Poor			No Effect			Very Good

35. Rate the following incentives that could be used in promoting better bird hunting. (CIRCLE ONE FOR EACH INCENTIVE)

	Very Bad (%)	(%)	(%)	Okay (%)	(%)	(%)	Very Good (%)	(N)	($\bar{x}$)
DNR wildlife managers' advice and planning only	1 (9)	2(12)	3(21)	4(38)	5(13)	6 (4)	7 (2)	359	3.9
Tax breaks for acreage left idle for wildlife use	1 (3)	2 (4)	3 (6)	4(17)	5(18)	6(20)	7(33)	363	5.4

Cash payments made by DNR for acreage left idle for wildlife use	1 (6)	2 (8)	3(11)	4(26)	5(18)	6(12)	7(19)	360	4.5
Tax breaks for crop portions left unharvested for wildlife use	1 (3)	2 (3)	3 (7)	4(16)	5(21)	6(16)	7(35)	361	5.4
Cash payments made by DNR for crop portions left unharvested for wildlife use	1 (8)	2 (8)	3(13)	4(22)	5(17)	6(11)	7(20)	359	4.5
Tax breaks for new fencing or for maintenance of existing fencelines	1(12)	2(11)	3(14)	4(33)	5(12)	6 (7)	7(11)	357	3.9
Cash payments made by DNR for new fence or for maintenance of existing fencelines	1(17)	2(17)	3(18)	4(27)	5 (8)	6 (6)	7 (7)	357	3.4
Increase of game bird stocking programs	1 (2)	2 (4)	3 (4)	4(13)	5(14)	6(25)	7(39)	361	5.6
Project Respect	1 (4)	2 (2)	3 (3)	4(46)	5(10)	6(16)	7(21)	325	4.9
Acres for Wildlife Project	1 (4)	2 (2)	3 (2)	4(44)	5(12)	6(18)	7(19)	329	4.9
Encouragement of private land leasing agreements by individuals	1(15)	2 (7)	3 (8)	4(31)	5(14)	6(12)	7(15)	359	4.1
Encouragement of private land leasing agreements by clubs or hunting coops	1(19)	2 (8)	3 (8)	4(28)	5(12)	6(12)	7(13)	361	4.0
Stricter enforcement of game laws	1 (4)	2 (3)	3 (5)	4(26)	5(15)	6(16)	7(32)	358	5.2
More hunter questionnaires	1 (6)	2 (5)	3 (6)	4(42)	5(16)	6 (8)	7(18)	358	4.5
Establishing habitat projects in which hunters can participate	1 (2)	2 (1)	3 (5)	4(26)	5(21)	6(18)	7(28)	361	5.3
Hunter education and safety classes	1 (1)	2 (1)	3 (3)	4(24)	5(16)	6(20)	7(35)	361	5.5
Biological studies of game bird species populations	1 (3)	2 (3)	3 (7)	4(27)	5(17)	6(17)	7(27)	360	5.1

SECTION IV: GRAY (HUNGARIAN) PARTRIDGE

THIS FINAL SECTION CONCERNS THE CONTINUED SUCCESS OF THE GRAY (HUNGARIAN) PARTRIDGE IN WISCONSIN'S AGRICULTURAL AREAS IN RECENT YEARS. PLEASE ANSWER CAREFULLY!

36. How would you rate the current population numbers of gray (hungarian) partridge? (CIRCLE ONE) N=351, $\bar{x}$=3.2

1(14%)	2(17%)	3(22%)	4(34%)	5(11%)	6 (3%)	7 (0%)
Too Few			Okay			Too Many

37. How would you rate the present daily bag limit of 3 gray (Hungarian) partridge per hunter? (CIRCLE ONE) N=349, $\bar{x}$=3.9

1 (5%)	2 (7%)	3 (7%)	4(67%)	5 (7%)	6 (3%)	7 (4%)
Too Few			Okay			Too Many

38. How would you rate the current length of the gray (Hungarian) partridge season from Oct. 25 to Dec. 7? (CIRCLE ONE) N=349, $\bar{x}$=3.4

1(13%)	2(10%)	3(11%)	4(57%)	5 (5%)	6 (2%)	7 (2%)
Too Short			Okay			Too Long

39. Would you be in favor of increasing the daily bag limit to 5 gray partridge per hunter? N=349, $\bar{x}$=3.4

1(24%) Very Much Against | 2(17%) | 3(11%) | 4(26%) Don't Care | 5 (5%) | 6 (7%) | 7(11%) Very Much in Favor

Briefly state why N=237; 65% present population too small, 25% present population good

40. Would you be in favor of extending the length of the gray (Hungarian) partridge season into January? N=347, $\bar{x}$=4.0

1(18%) Very Much Against | 2(10%) | 3(9%) | 4(24%) Don't Care | 5 (10%) | 6 (10%) | 7(18%) Very Much in Favor

Briefly state why N=219; 48% present season too long, 36% more hunting opportunities

41. About how many separate coveys or groups of 2 or more gray (Hungarian) partridge do you encounter in an average day's hunting? (CIRCLE ONE) N=345, $\bar{x}$=2.1

0(14%) 1(24%) 2(30%) 3(15%) 4 (8%) 5 (4%) 6 (2%) 7 (1%) 8 (1%) 9 (0%) 10 (0%)

If other, specify how many: _____ coveys.

42. Of these groups or coveys about ? % flush within gun range on the first encounter. (CHECK ONE) N=336

27% 10%	10% 40%	4% 70%	3% 100%
11% 20%	17% 50%	6% 80%	
13% 30%	7% 60%	2% 90%	

43. Do you pursue these groups or coveys for additional flushes? (CHECK ONE) N=339

73% Yes
27% No

Briefly state why N=243 68% good chance of hitting

44. Of the coveys or groups pursued about ? % flush within gun range on subsequent flushes. (CHECK ONE) N=328

34% 10%	10% 40%	2% 70%	2% 100%
17% 20%	13% 50%	2% 80%	
17% 30%	2% 60%	1% 90%	

45. How many shots do you take at gray (Hungarian) partridge in an average hunting day? (CIRCLE ONE) N=344, $\bar{x}$=3.3

0(17%) 1(11%) 2(17%) 3(18%) 4(14%) 5 (8%) 6 (6%) 7 (2%) 8 (4%) 9 (0%) 10 (2%)

If more than 10, specify how many: _____ shots.

46. How many gray (Hungarian) partridge did you bag last season? (CHECK ONE) N=351

40% 0	5% 11-15	1% 26-30
39% 1-5	2% 16-20	0% 31-35
13% 6-10	0% 21-25	0% 36-40

If more than 40, specify how many: _____ Huns.

47. How many trips did you make last season to hunt primarily gray (Hungarian) partridge? (CHECK ONE) N=349

42% 0 — 3% 11-15

43% 1-5 — 1% 16-20

10% 6-10

If other specify, how many: _____ trips.

48. How would you rate current gray (Hungarian) partridge habitat (cover)? N=339

1(16%) Declining 2(13%) 3(13%) 4(37%) No Change 5 (9%) 6 (7%) 7 (4%) Improving

Briefly state why N=213; 35% increased cultivation and urbanization; 34% habitat still good

49. With ideal conditions and bag limits would you rather hunt Huns or pheasants? (CHECK ONE) N=353

20% Huns (gray partridge)

3% Both

77% Ring-necked pheasants

Briefly state why N=292; 52% prefer pheasant because larger, better, etc.; 29% prefer Hun because more challenge

50. Rate the gray (Hungarian) partridge as a worthwhile game bird target. (CIRCLE ONE) N=350, $\bar{x}$=5.1

1 (3%) Not Very Worthwhile 2 (3%) 3 (6%) 4(28%) Okay 5(15%) 6(15%) 7(31%) Very Worthwhile

PLEASE CHECK OVER YOUR QUESTIONNAIRE TO MAKE SURE THAT ALL THE QUESTIONS ARE ANSWERED.

THANK YOU FOR GIVING US YOUR OPINIONS -- WHICH DO COUNT!

YOUR TIME SPENT ANSWERING THE QUESTIONS CAREFULLY AND HONESTLY WILL BE REPAID IN SOUND MANAGEMENT DECISIONS!

AS A FELLOW UPLAND BIRD HUNTER, LET ME SAY THANK YOU AND GOOD HUNTING.

Joseph A. Brue
B.S. - Wildlife Biologist

APPENDIX II: Summary of the Landowner Questionnaire.

WISCONSIN
LANDOWNER/OPERATOR
FARM WILDLIFE MANAGEMENT
QUESTIONNAIRE 1981

IT IS IMPORTANT THAT THIS QUESTIONNAIRE BE COMPLETED BY THE PERSON TO WHOM IT WAS ADDRESSED!

Please answer all the questions since a single missing answer will decrease the value of all your answers. Answers that reflect what you did and what you really believe to be true are best. Your answers will be confidential.

THIS FIRST SECTION WILL TELL US SOMETHING ABOUT YOUR ACREAGE AS HABITAT FOR DIFFERENT WILDLIFE SPECIES.

1. How many years have you or your family been operating a farm in Wisconsin? (FILL IN THE BLANK)

   A) $\bar{x}$=46 Years N=507, range = 1-150

   B) (Your age is? $\bar{x}$=50 years old) N=507, range = 21-82

2. How many generations has your family been operating this farm? (FILL IN THE BLANK) N=482, range = 1-10

   $\bar{x}$=2.4 Generations

3. How many total acres of farmland do you own or operate? (FILL IN THE BLANK)

   A) $\bar{x}$=175 Acres owned N=516, range = 20-1,000

   B) $\bar{x}$=99 Acres rented, sharecropped, etc. N=286, range = 5-700

4. Of your total acreage approximately how many acres are: (FILL IN THE BLANK)

   A) $\bar{x}$ = 181 Acres cropped N=518, range = 18-1,000

   B) $\bar{x}$ = 16 Acres of permanent pasture (grassland) N=310, range = 1-100

   C) $\bar{x}$ = 14 Acres fallow (idle cropland) N=107, range = 1-180

   D) $\bar{x}$ = 26 Acres woodlot N=419, range = 1-300

   E) $\bar{x}$ = 12 Acres wetland (marsh) N=202, range = 1-100

   F) $\bar{x}$ = 3 Acres open water (pond) N=68, range = 1-20

5. List your three major field crops. (FILL IN THE BLANK) N=523

   corn

   hay (alfalfa) 89%

   grain (oats)

   A) Briefly list other minor crops you grow: N=98; 29% peas, 25% peas and beans

6. Approximately how many miles of hedgerow or fencerow lie on your property or make a shared property line? (Include fenced roadside, railroad tracks or ditches. 40 acre side = 1/4 mile) (FILL IN THE BLANK)

   $\bar{x}$=3.5 Miles N=470, range = 0.1-20

7. How many head of cattle do you feed on your acreage? (FILL IN THE BLANK)

   A) $\bar{x}$ = 20 Head of beef cattle N=147, range = 1-150

   B) $\bar{x}$ = 80 Head of dairy cattle N=445, range = 3-450

   C) _____ None (not computer coded)

   D) $\bar{x}$ = 59 Other animals, specify: pigs (37%) N=127, range = 1-800

8. Do you normally burn along rights-of-way or fencerows each year? (CHECK ONE) N=523

   1) 1% Yes 2) 99% No

   A) Briefly state why: N=129; 38% too dangerous; 23% bothers wildlife

   B) And what month: insufficient response

9. Within the next 5 years do you intend to remove any fencerows or hedgerows? (CHECK ONE) N=518

1) 24% Yes 2) 76% No

A) Briefly state why: N=185; 27% make larger fields

10. Within the last 5 years have you removed any fencerows or hedgerows? (CHECK ONE) N=520

1) 41% Yes 2) 59% No

A) Briefly state why: N=207; 45% make larger fields; 20% no need to remove; 20% nuisance, unused fence

11. Rate the abundance of wildlife found on your farm? (CIRCLE ONE) N=521, $\bar{x}$=3.7

1(11%) Very Low 2 (9%) 3(13%) 4(44%) Medium 5(14%) 6 (5%) 7 (4%) Very High

If low to medium, what accounts for this abundance? (CHECK THOSE THAT APPLY)

A) 29% Early hay mowing N=156

B) 15% High predation N=78

C) 23% Increased hunting N=124

D) 25% Not enough stocking N=133

E) 28% Intensifying Ag-land use N=149

F) _____ Other, specify: N=19; varied

12. Has the amount of wildlife found on your farm changed over the years? (CHECK ONE) N=518

1) 20% Increased 2) 18% Decreased 3) 62% Remained about the same

13. Which game birds usually are found on your farm? (CHECK THOSE THAT ARE)

A) 34% Waterfowl N=178

B) 18% Woodcock (timberdoodles) N=94

C) 40% Ruffed grouse (woodland partridge) N=214

D) 65% Ring-necked pheasant N=345

E) 9% Sharp-tailed grouse N=46

F) 7% Bobwhite quail N=39

G) 83% Gray (Hungarian) partridge N=440

14. Which mammal species usually are found on your farm? (CHECK THOSE THAT ARE)

A) 97% Rabbit N=513 B) 75% Squirrel N=397 C) 78% Raccoon N=411 D) 64% Fox N=340

E) 83% Deer N=442 F) 71% Gophers (ground squirrels) N=374 G) Others: N=54; 39% skunks

15. Rate the overall habitat (cover) for the upland game birds on your farm relative to other farms in your area. (CIRCLE ONE) N=511, x=4.0

1 (8%) Poor 2 (7%) 3 (8%) 4(50%) Okay 5(16%) 6 (5%) 7 (6%) Excellent

A) Briefly state why: N=295; 44% good cover and food

B) How has the habitat quality changed in the past 5 years? (CHECK ONE) N=512

1) 11% Declining 2) 75% Remaining the same 3) 14% Improving

C) Briefly state why: N=184; 34% farming is farming

16. How would you rate current populations of predators like foxes, hawks, skunks, owls, or raccoons on your farm? (CIRCLE ONE) N=514, $\bar{x}$=3.9

1(12%)	2 (9%)	3(14%)	4(34%)	5(15%)	6 (9%)	7 (8%)
Low			Okay			High

17. Overall, are such predators increasing or decreasing? (CHECK ONE) N=512

1) 26% Increasing 2) 11% Decreasing 3) 63% No change

THIS NEXT SECTION WILL HELP DETERMINE ATTITUDES TOWARD HUNTING AND WILDLIFE MANAGEMENT ON YOUR PROPERTY.

18. Do you hunt on your farm? (CHECK ONE) N=522

1) 55% No 3) 32% Occasionally

2) 7% Once, not anymore 4) 6% Often

19. Do any members of your family or other relatives hunt on your farmland? (CHECK ONE) N=520

1) 43% No 2) 57% Yes A) If so, how many? $\bar{x}$ = 4 N=259, range = 1-30

20. Do you allow people other than relatives to hunt on your farmland? (CHECK ONE) N=509

1) 13% No 3) 54% Only if they ask permission

2) 14% Only if I already know them 4) 19% Anybody, no permission needed

21. How many hunters used your property for hunting game birds during the 1980 hunting season? (CHECK ONE) N=510

1) 15% 0 4) 12% 11-20 7) 1% 31-40

2) 43% 1-5 5) 6% 21-25 8) 2% 41-50

3) 19% 6-10 6) 2% 26-30

22. Do the hunters of some kinds of game cause more trouble than others. (CHECK THOSE THAT DO)

1) 49% Deer N=261 3) 8% Pheasant N=41 5) 2% Fox N=13

2) 6% Waterfowl N=19 4) 8% Raccoon N=43 6) _____ Other: _____

23. How would you rate hunters' attitudes toward your property? (CIRCLE ONE) N=508, $\bar{x}$=3.8

1(16%)	2(11%)	3(13%)	4(27%)	5(12%)	6 (8%)	7(13%)
Very Poor			No Effect			Very Good

A) Briefly state why: N=328; 65% no respect for property; 34% respect, ask permission

24. How would you rate present attitudes of farmers toward hunters and toward allowing hunter access to their property? (CIRCLE ONE) N=501, $\bar{x}$=3.5

1(15%)	2(12%)	3(21%)	4(28%)	5(12%)	6 (3%)	7 (8%)
Very Poor			No Effect			Very Good

A) Briefly state why: N=330; 53% no respect for hunters; 23% hunters ask permission

25. How would you rate what hunters themselves are now doing to help manage farmland for game bird populations: (CIRCLE ONE) N=487, $\bar{x}$=3.4

1 (22%)	2 (9%)	3 (9%)	4 (41%)	5 (12%)	6 (3%)	7 (4%)
Very Poor			No Effect			Very Good

A) Briefly state why: N=218; 49% not aware of anything being done; 18% stocking or releasing birds

26. How would you rate what farmers are now doing to maintain or increase game bird populations? (CIRCLE ONE) N=482, $\bar{x}$=3.6

1 (15%)	2 (8%)	3 (10%)	4 (46%)	5 (14%)	6 (2%)	7 (5%)
Very Poor			No Effect			Very Good

A) Briefly state why: N=230; 53% no reason to maintain (for hunters); 17% everything helps

27. What are you doing to maintain or increase game bird populations?

1) 26% Nothing N=136

2) 47% Maintaining existing habitat N=248

3) 21% Allowing hunting N=110

4) 16% Not hunting N=85

5) 7% Delaying early mowing N=38

6) 12% Removing predators N=64

7) 4% Restocking N=19

8) 13% Leaving areas fallow N=67

9) 52% Less or no burning N=276

10) 47% Winter manure spreading N=251

11) 8% Grazing woodlands or creek bottoms N=48

12) ____ Others: N=55; varied

28. Do you favor the Acres for Wildlife Project? (CHECK ONE) N=516

1) 19% Yes 2) 9% No 3) 72% I am not familiar with it

29. Do you favor Project Respect? (CHECK ONE) N=508

1) 23% Yes 2) 4% No 3) 74% I am not familiar with it

30. How would you rate what DNR wildlife managers are now doing to promote a sufficient game bird population? (CIRCLE ONE) N=439, $\bar{x}$=3.5

1 (20%)	2 (9%)	4 (8%)	4 (44%)	5 (12%)	6 (3%)	7 (5%)
Very Poor			No Effect			Very Good

A) Briefly state why: N=222; 59% don't know what is being done; 23% limited effort

THE NEXT SECTION DEALS WITH THINGS THAT COULD BE DONE TO IMPROVE FARM WILDLIFE POPULATIONS.

31. The following incentives are used to encourage wildlife management on private lands and can be used individually or in combination. Some incentives are intended to improve wildlife habitat on farmlands, others are used to improve public access to wildlife resources on private land for recreational use.

Rate the following incentives based on your understanding of the concept which may be very limited in some cases. (CIRCLE ONE FOR EACH INCENTIVE)

	Very Bad (%)	(%)	(%)	Okay (%)	(%)	(%)	Very Good (%)	(N)	($\bar{x}$)
1. USDA cost sharing	1(22)	2(10)	3(13)	4(42)	5 (5)	6 (3)	7 (5)	441	3.3
2. DNR wildlife managers' advice and planning	1(18)	2(15)	3(15)	4(39)	5 (6)	6 (3)	7 (3)	437	3.2
3. DNR advice plus assistance with habitat management	1(19)	2(10)	3(15)	4(37)	5 (9)	6 (4)	7 (6)	432	3.4
4. Tax credits for acreage managed for wildlife use	1(24)	2 (9)	3 (9)	4(25)	5(10)	6 (9)	7(13)	433	3.7
5. Tax credits for acreage left idle for wildlife use	1(26)	2(11)	3 (9)	4(21)	5 (9)	6(11)	7(13)	424	3.6
6. Cash payments made by DNR for acreage managed for wildlife use	1(29)	2(14)	3(10)	4(23)	5 (7)	6 (6)	7(10)	437	3.3
7. Cash payments made by DNR for acreage left idle for wildlife use	1(30)	2(15)	3(10)	4(24)	5 (7)	6 (7)	7 (8)	437	3.1
8. Tax credits for new fencing or for maintenance of existing hedgerows	1(30)	2(11)	3(11)	4(26)	5 (8)	6 (6)	7 (9)	429	3.3
9. Cash payments made by DNR for new fencing or for maintenance of existing hedgerows	1(33)	2(11)	3(13)	4(22)	5 (6)	6 (6)	7 (9)	427	3.1
10. Increase of game bird stocking program	1(16)	2 (7)	3 (8)	4(33)	5(13)	6(11)	7(13)	430	4.0
11. Project Respect (encourages landowners to permit hunting with permission)	1(14)	2 (5)	3 (8)	4(37)	5 (8)	6(10)	7(18)	424	4.2
12. Acres for Wildlife Project (encourages landowners to devote some land to wildlife)	1(19)	2 (8)	3(15)	4(29)	5(14)	6 (4)	7(11)	432	3.7
13. Encouragement of private land leasing agreements by clubs or hunting cooperatives	1(21)	2 (8)	3(11)	4(33)	5(11)	6 (6)	7(10)	433	3.6
14. Encouragement of private land hunting leases by individuals (hunters pay farmers)	1(25)	2(10)	3 (9)	4(29)	5 (8)	6 (8)	7(12)	426	3.5
15. Stricter enforcement of game laws	1(13)	2 (5)	3 (7)	4(30)	5(10)	6(10)	7(25)	426	4.5
16. More management help from hunters in spring or winter	1(14)	2 (8)	3 (9)	4(38)	5 (9)	6(10)	7(12)	425	4.0
17. Let farmers do their own habitat and hunter management	1(15)	2 (9)	3(13)	4(30)	5 (8)	6 (7)	7(18)	432	4.0
18. Cash incentives for portions of crops left unharvested for wildlife use	1(23)	2 (7)	3(10)	4(20)	5(10)	6 (7)	7(23)	446	4.0
19. Tax incentives for unharvested crop portions	1(26)	2(10)	3(13)	4(24)	5 (6)	6 (4)	7(19)	433	3.6
20. More public questionnaires	1(27)	2(11)	3(13)	4(37)	5 (5)	6 (3)	7 (5)	422	3.1
21. Upland game bird stamps (providing funds for farm management)	1(24)	2(10)	3(13)	4(34)	5 (9)	6 (3)	7 (8)	420	3.3
22. Requiring that a percentage of your farm be managed for wildlife	1(62)	2(13)	3 (7)	4(14)	5 (1)	6 (1)	7 (1)	416	1.9
23. Limiting insecticide use	1(42)	2(10)	3(10)	4(19)	5 (4)	6 (4)	7(11)	427	2.9

24. Limiting herbicide use	1(44)	2(12)	3 (9)	4(19)	5 (4)	6 (3)	7 (9)	413	2.7
25. Restricting mowing along fencerows or rights-of-way	1(41)	2 (8)	3(12)	4(26)	5 (5)	6 (2)	7 (6)	424	2.8
26. Establishing habitat projects on private lands in which hunters can participate	1(20)	2 (6)	3(13)	4(37)	5 (8)	6 (6)	7(12)	427	3.7
27. Establishing habitat projects on public lands in which hunters can participate	1(10)	2 (3)	3 (9)	4(34)	5(14)	6(10)	7(21)	417	4.5
28. Hunter education and safety classes	1 (7)	2 (5)	3 (5)	4(28)	5(10)	6(10)	7(36)	423	5.0
29. Better public information on how to manage wildlife populations effectively	1 (8)	2 (5)	3 (5)	4(37)	5(10)	6(12)	7(24)	427	4.7
30. Better public information on how to manage game bird populations effectively	1 (8)	2 (4)	3 (7)	4(36)	5(11)	6(11)	7(24)	429	4.6
31. Restricting burning along fencerows or rights-of-way	1(23)	2 (9)	3 (9)	4(26)	5 (6)	6 (8)	7(20)	436	3.9

THIS FINAL SECTION RELATES TO THE SUCCESSES AND FAILURES OF GRAY (HUNGARIAN) PARTRIDGE AND RING-NECKED PHEASANTS ON YOUR FARM.

32. How many different coveys (group of 2 or more) of gray (Hungarian) partridge occur on your farm during the month of January? (CIRCLE ONE) N=490, $\bar{x}$=3.0

0 (9%) 1(10%) 2(28%) 3(21%) 4(14%) 5 (7%) 6 (4%) 7 (2%) 8 (2%) 9 (4%) 10(0%)

A) If other, state how many: _____ coveys.

33. How many individual gray (Hungarian) partridge would all those coveys total? (CHECK ONE) N=482

1) 8% 0
2) 8% 1-5
3) 18% 6-10
4) 19% 11-15
5) 16% 16-20
6) 13% 21-25
7) 9% 26-30
8) 5% 31-40
9) 5% 41-50

A) If greater than 50, state how many: _____ individual birds.

34. Where are these coveys usually found? (CHECK THOSE THAT APPLY)

A) 33% Fencerows or hedgerows N=175
B) 13% Fenced roadsides N=69
C) 4% Railroad tracks N=22
D) 19% Ditches N=102
E) 40% Near farmsteads N=212
F) 21% Corn cribs N=111
G) 27% Manure piles N=144
H) 44% Corn stubble N=235
I) Other: N=74; 47% hayfield; 26% winter manure spreading

35. How would you rate the current gray (Hungarian) partridge population on your farm? (CIRCLE ONE) N=493, $\bar{x}$=3.8

1(10%) 2 (5%) 3(10%) 4(55%) 5(9%) 6 (5%) 7 (6%)
Declining Stable Improving

A) Briefly state why: N=198; 32% same amount each year

36. Which of the following would you rather see? (CHECK THOSE THAT APPLY)

A) 26% Renew stocking of the gray (Hungarian) partridge N=137
B) 31% Improving wild gray (Hungarian) partridge populations N=166

C) 30% More restrictive hunting season N=157

D) 6% Less restrictive hunting season N=30

E) 12% DNR encouragement of hunter interest in gray (Hungarian) partridge N=63

F) 12% Increased research on gray (Hungarian) partridge N=64

G) 17% Increased management of gray (Hungarian) partridge N=89

H) 18% DNR encouragement of farmer interest in gray (Hungarian) partridge N=95

I) 11% Less DNR encouragement of farmer interest in gray (Hungarian) partridge N=56

J) 13% Less DNR encouragement of hunter interest in gray (Hungarian) partridge N=67

K) 3% Other: N=16; varied

37. How many pheasants (total) would you estimate were on your farm at the start of the 1980 hunting season? (FILL IN THE BLANK)

A) 2(18%) Cock pheasants N=249, $\bar{x}$=7, range = 1-70

B) 10(18%) Hen pheasants N=234, $\bar{x}$=8, range = 1-60

C) (33%) Unable to estimate 174 out of 530

38. How many pheasants remained at the end of the 1980 hunting season? (FILL IN THE BLANK)

A) 2(36%) Cock pheasants N=132, $\bar{x}$=3, range = 1-20

B) 2(22%) Hen pheasants N=140, $\bar{x}$=6, range = 1-30

C) (48%) Unable to estimate 254 out of 530

39. How many of the starting number of cock pheasants do you feel were stocked birds? (CHECK ONE) N=453

1) 22% All
2) 26% None
3) 5% 1/4
4) 6% 1/2
5) 7% 3/4
6) 34% No idea

40. How would you rate the current wild (excluding stocked birds) pheasant population on your farm over the past 5 years? (CIRCLE ONE) N=471, $\bar{x}$=2.7

1(36%) 2(12%) 3(10%) 4(33%) 5 (5%) 6 (1%) 7 (3%)

Declining Stable Improving

A) Briefly state why: N=236; 23% don't see many anymore; 16% same amount each year/too many predators

PLEASE CHECK OVER YOUR QUESTIONNAIRE TO MAKE SURE THAT ALL OF THE QUESTIONS ARE ANSWERED.

PLEASE TAKE THIS SPACE TO ADD ANY OF YOUR OWN COMMENTS.

Most frequent responses:

- waste of money and/or tax dollars
- too much out-of-season hunting

THANK YOU VERY MUCH FOR YOUR IMPORTANT OPINIONS AND TIME!

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