WILD TURKEY RESEARCH NEEDS SURVEY

Eric Dunton

SUMMARY OF FINDINGS

I conducted a wild turkey (*Meleagris gallopavo*) research needs survey to determine informational needs of natural resources professionals in Minnesota. The most common information or research need for habitat management included identification of turkey habitat requirements and improved understanding of turkey responses to habitat manipulations. The most common turkey ecology information needs were related to turkeys occurring on the northern edge of their range and included factors such as winter sources of food, mortality factors, depredation, and competition between turkeys and other species. Information needs for harvest management focused primarily on the population/permit setting process. Finally, respondents wanted information on urban turkey issues, and strongly advocated ending the turkey translocation program

INTRODUCTION

Brinkman and Kimmel (2000) developed a list of informational needs to improve wild turkey management in Minnesota from a research needs survey of Minnesota Department of Natural Resources (MNDNR) staff. The Long Range Plan for the Wild Turkey in Minnesota (MNDNR 2006) required an updated research needs survey in 2007. Thus, I surveyed MNDNR and National Wild Turkey Federation (NWTF) staff to identify current research and informational needs. This information will be used to develop focused research projects that address important information needs.

METHODS

I sent 100 surveys (Appendix 1) via e-mail on 5 December 2007 to MNDNR Regional Wildlife Managers, Assistant Regional Wildlife Managers, Area Wildlife Managers, Assistant Area Wildlife Managers, and a select group of MNDNR Conservation Officers, MNDNR Foresters, MNDNR Parks Managers, and NWTF personnel. I sent a follow-up reminder on 21 December 2007 to 84 non-respondents and a third and final reminder on 22 January 2008 to 72 non-respondents.

RESULTS

The overall response rate for the survey was 39% after 3 e-mailings (Table 1). The majority (69%) of respondents stated they needed more information to effectively manage wild turkeys in their work area. Commonly cited needs were for information on MNDNR's wild turkey population/permit allocation model (50%), managing urban turkey problems (45%), effects of forest management on turkeys (44%), winter sources of food (40%), timber stand improvement (38%), and effect of early mowing on turkeys (38%) (Table 2). A majority (55%) of respondents reported adequate information on turkey mortality factors (Table 3). However, the most frequent request for research information was for turkey mortality factors (59%). Other requests were for research information on hunter density/hunt quality (55%), winter sources of food (48%), turkey depredation (48%), and forest habitat management techniques (47%) (Table 3).

More information on habitat management techniques for wild turkeys was needed for invasive species control (48%), mowing effects (45%), and grassland management (44%) (Table 4). No consistent responses were received from respondents when asked to identify management practices that should be evaluated for inefficiencies (Table 5). Nearly all respondents (90%, n=21) identified trap and transplant as a program that should not be continued (Table 6).

Of the 23 respondents reporting urban turkey issues in their work area, the most common problems were roosting on houses/buildings, pecking at reflections in windows, eating from bird

feeders (52%), depredation in cattle feedlots or stored grain facilities (17%), concern about release of game farm birds (13%), and lack of information available to the public for managing urban nuisance turkey problems (9%) (Table 7).

When asked to identify research projects that should be initiated, respondents offered a variety of responses (Table 8). Habitat-related projects (45%) were the most common response.

Respondents identified the biggest challenges to turkey management in the next decade as managing urban/nuisance/depredation issues (35%), hunter access to private land for hunting (23%), northern turkey management (12%), and ending the trap and transplant program (12%) (Table 9).

When asked to rank the top 5 research or evaluation needs, respondents ranked the following items in order of importance (1 = most important, 5 = least important): forest habitat management (mean rank = 1.6), winter sources of food (2.3), habitat management in prairie/agricultural system (2.8), invasive species control (3.0), urban turkey management (3.2), and land acquisition (3.2) (Table 10). However, priorities varied among respondents. The 5 research or evaluation needs most frequently selected were habitat management in prairie/agricultural system (64% of respondents), land acquisition (50%), setting permit quotas to balance opportunity with hunt quality and safety (50%), winter sources of food (45%), invasive species control (41%), and urban turkey management (41%). Other research needs identified by respondents are listed in Table 11.

DISCUSSION

The response rate in this survey was much lower than for an earlier research needs survey (69%; Brinkman and Kimmel 2000) and responses had more variation. However, I detected common themes that appeared across multiple questions. The most common information or research need for habitat management included identification of turkey habitat requirements and improved understanding of turkey responses to habitat manipulations. This was important both in northern Minnesota where populations are expanding and in prairie/agricultural areas where turkey habitat is generally limited to riparian corridors.

Respondents also indicated a need for information on turkey ecology at the northern edge of Minnesota's turkey range, including winter sources of food, mortality factors, depredation, and competition between turkeys and other species.

Although most questions in the survey pertained to future research, I also asked questions about management projects. Respondents strongly indicated a need for information on the population/permit setting process and factors used in a model used for this process (Kimmel 2000). Respondents also need information on urban turkey issues. Finally, respondents strongly advocated ending the turkey translocation program, which represents a similar opinion from the 1999 survey (Brinkman and Kimmel 2000).

ACKNOWLEDGEMENTS

I would like to thank field staff throughout the state for taking time to complete this survey and providing input. K. Haroldson and R. Kimmel provided input on the design of this survey and reviewed earlier drafts.

LITERATURE CITED

Brinkman, T. J., and R. O. Kimmel. 2000. Wild turkey research needs survey. Pages 38-40 *in* A Berner, M. Lenarz, and T. Eberhardt, editors. Summaries of Wildlife Research Findings, 1999. Minnesota Department of Natural Resources, St. Paul.

Kimmel, R. O. 2000. Regulating spring wild turkey hunting based on population and hunting quality. Proceedings of the National Wild Turkey Symposium 8:243-250.

Minnesota Department of Natural Resources. 2006. The Long Range Plan for the Wild Turkey in Minnesota. Minnesota Department of Natural Resources, St. Paul.

Table 1. Groups surveyed and number of respondents for the 2007 wild turkey research needs survey, 2007, Minnesota.

Survey Groups	Surveyed	Respondents
Minnesota DNR Wildlife Section		
Region 1	24	10
Region 2	21	3
Region 3	22	10
Region 4	21	9
Minnesota DNR Conservation Officers	5	4
Minnesota DNR Forestry Section	2	2
Minnesota DNR Parks Section	3	1
National Wild Turkey Federation	2	0
Total	**100**	**39**

Table 2. Response for question 2: Do you have adequate information on the following wild turkey ecology and management topics? Wild turkey research needs survey, 2007, Minnesota.

		Response (%)		
Informational need	n	Yes	No	No opinion
Population/permit allocation model	32	38	50	13
Managing urban turkey problems	33	33	45	21
Effects of forest management on turkeys	34	50	44	6
Winter sources of food	35	57	40	3
Timber stand improvement	32	56	38	6
Effects of early mowing on turkeys	32	50	38	13
Turkey mortality factors	33	55	36	9
Turkey winter survival	34	53	35	12
Turkey productivity	33	52	33	15
Turkey habitat requirements	35	63	29	9
Other - Northern turkey ecology	2			
Other - Turkey registration compliance	1			
Other - Identifying game farm birds	1			
Other - Disease prevalence	1			
Other - Genetics	1			
Other - Turkey interactions with domestic fowl	1			
Other - Optimal permit numbers	1			

Table 3. Response for question 3: Should the DNR should conduct research on the following topics? Wild turkey research needs survey, 2007, Minnesota.

		Response (%)		
Research topics	n	Yes	No	No opinion
Turkey mortality factors	34	59	18	24
Hunter density/hunt quality	33	55	18	27
Winter sources of food	33	48	24	27
Turkey depredation	33	48	24	27
Forest habitat management techniques	30	47	20	33
Turkey habitat requirements	34	41	29	29
Population model sensitivity	32	41	16	44
Turkey winter survival	32	38	34	28
Turkey productivity	32	34	31	34
Urban turkey problems	32	34	28	38
Other -Competition with other species	1			
Other - Genetics	1			
Other - Population in prairie/ag habitat	1			
Other - Spring dispersal from wintering flocks	1			

Table 4. Response for question 4: Do you need more information on any of the following habitat management techniques for wild turkeys? Wild turkey research needs survey, 2007, Minnesota.

		Response (%)		
Management technique	n	Yes	No	No opinion
Invasive species control	31	48	39	13
Prescribed fire	31	45	45	10
Mowing (effects, height, timing)	31	45	32	23
Oak regeneration and management	32	44	44	13
Grassland Management	32	44	34	22
Timber stand improvement	33	36	48	15
Other- grass mixes to plant	1			
Other - value of food plots	1			

Table 5. Responses for question 5: Which management practices should be evaluated for inefficiencies, and how might these practices/techniques be improved? Wild turkey research needs survey, 2007, Minnesota.

n	Management practice
4	Evaluate trap and transplant program
2	Benefit of native species compared to non-native need more information
2	Best management practice for forest openings, need more information
2	Turkey habitat management in prairie/ag area, need more information
1	Use of food plots by turkeys
1	Monitoring and evaluation of habitat projects on private lands
1	Spring permit allocation model
1	Harvest mortality (compensatory or additive)
1	Urban and nuisance turkey management
1	Need more information on forest stand improvement
1	Grassland management in relation to bio-harvest, impacts on turkeys
1	Turkeys being vectors for invasive species dispersal (buckthorn), need more information
17	**Total respondents**

Table 6. Responses for question 6: Are there any wild turkey management activities that you feel should not be continued? Wild turkey research needs survey, 2007, Minnesota.

n	Management activity
19	End Trap and Transplant
1	Move hunting hours back to 5 p.m. closure
1	Planting and maintaining non-native vegetation on public land
1	Do not develop a fall permit allocation model
21	**Total respondents**

Table 7. Responses for question 7: What urban turkey management issues do you face in your work area? Wild turkey research needs survey, 2007, Minnesota.

n	Urban turkey issues
12	No urban turkey issues in work area
12	Roosting on houses buildings, pecking at reflection, eating from bird feeders
4	Turkey presence in cattle feed lots or stored grain facilities, issues associated with depredation
3	Release of game farm birds that lead to nuisance complaints
2	Need website to refer public on dealing with urban/nuisance turkeys, need better Information and education
1	Need more information on how to differentiate game farm birds from wild birds
1	Evaluate peoples interest in turkeys over time as density increases and find ways to control density in urban areas without hunting

Table 8. Responses for question 8: Are there any new wild turkey research projects that you feel should be initiated? Wild turkey research needs survey, 2007, Minnesota.

n	Research project
4	Minimum habitat requirements for turkeys in mixed prairie/ag habitat
3	Assessment of diseases in turkeys and disease management
2	Competition between turkeys and other species
2	Spring turkey dispersal from wintering flocks and factors that affect dispersal
1	Monitor loss of hardwoods and changing land use practices
1	Interactions between sandhill cranes and turkeys and possible disease transmission between species
1	Turkey habitat management in northern Minnesota
1	Affect of prescribed fire on reducing maple/basswood and stimulating oak regeneration, and affect prescribed fire has on controlling invasive species
1	Monitor affects of oak regeneration after timber sales using various cutting methods (I.e., clearcuts, shelterwood, group selection)
1	Turkey mortality and productivity
1	Forest habitat management techniques to encourage hard mast and soft production
1	Value of corn food plots
1	Oak regeneration
1	Genetic origins of flocks in western Minnesota
1	Impact of coyotes and other predators on turkey population outside historic range
1	Urban turkey problems
1	Northern turkey food habits
1	Northern turkey ecology
1	Evaluate permit setting process to gauge impact of hunter density on hunt quality
1	Impact turkeys have on oak regeneration in southern Minnesota
22	**Total respondents**[a]

[a] some respondents provided > 1 response

Table 9. Responses for question 9: In the next decade, what do you see as the biggest challenge to turkey management in Minnesota? Wild turkey research needs survey, 2007, Minnesota.

n	Turkey management
9	Managing urban/nuisance turkeys and real or perceived crop depredation
6	Hunter access to private land and hunter interference
3	Northern turkey issues; winter survival, providing quality winter habitat, maintaining populations without feeding
3	Ending trap and transplant program
2	Rural development resulting in loss of habitat and hunting opportunity
2	Loss of oaks due to succession to maple/basswood, proper oak management
1	Managing turkeys in mixed ag/prairie habitat
1	Loss of habitat and loss of protected land in programs (i.e., conservation reserve program [CRP])
1	Providing quality habitat for public hunting, there is little money for acquisition of quality forested land in prairie/ag landscape
1	Hunt quality and not quantity
1	People management, finding balance between
1	Influence of game farm birds on wild populations
26	**Total respondents**

Table 10. Responses for question 10: Select 5 items below from either category that you feel have the greatest need for research or evaluation and rank them in order of importance from 1 to 5 (1 = most important, 5 = least important). Wild turkey research needs survey, 2007, Minnesota.

Wild turkey research or informational/evaluation need	Mean rank	Respondents (%)
Forest habitat management	1.6	32
Winter sources of food	2.3	45
Habitat management in mixed prairie/agricultural system	2.8	64
Invasive species control	3	41
Urban turkey management	3.2	41
Land Acquisition	3.2	50
Use of food plots by turkeys	3.3	32
Turkey winter survival	3.3	18
Survey hunters to quantify satisfaction and hunt quality	3.3	18
Fall population survey	3.5	9
Setting permits to achieve; a high quality hunt, maximize hunting opportunity, maintain Safety	3.5	50
Population/permit allocation model	4	23
Trap and Transplant	4.3	14
Other	2.3	27
Other - Annual mortality study	2	9
Other - Depredation management	4	5
Other - Disease management	1	5
Other - Genetics	2	5
Other - Turkey survival in farmland region	1	5
Other - Northern turkey ecology	3	5
Other - Impact on tree regeneration	1	5
Other - Productivity	1	5
Other - Control of game farm birds	5	5

Table 11. Responses to question 11: Additional comments. Wild turkey research needs survey, 2007, Minnesota.

n	Comment
3	Hunter density too high, need to be more concerned with quality hunting rather than quantity of permits that are being offered
1	Need more public involvement with turkey management and permit setting
1	Make more permits available, develop alternative strategies for issuing permits (i.e., over the counter for last 2 time periods, or after a permit has been filled make it available to someone else for remainder of time period)
1	Remove or alter landowner preference, landowners should have to hunt on their own land if they are awarded preference
1	Habitat development/acquisition/land preservation need to be accelerated
1	Concern about competition between turkeys and other species, affect turkeys are having on other species outside of historic range
1	Concern over what affect artificially high turkey populations are having on oak regeneration

Appendix 1.

2007 Wild Turkey Research Needs Survey

The purpose of this survey is to determine and prioritize informational needs for effective wild turkey management in Minnesota

Eric Dunton
Wild Turkey Biologist
Farmland Wildlife Populations and Research Group
Minnesota Department of Natural Resources
35365 800th Avenue
Madelia, MN 56062
eric.dunton@dnr.state.mn.us

Name:_____

1. Do you need information to more effectively manage wild turkeys in your work area?
   _____Yes _____No

2. Do you have adequate information on:

	Yes	No	No opinion
Turkey habitat requirements	___	___	_____
Winter sources of food	___	___	_____
Timber stand improvement	___	___	_____
Effects of early mowing on turkeys	___	___	_____
Effects of forest management on turkeys	___	___	_____
Turkey winter survival	___	___	_____
Turkey productivity	___	___	_____
Turkey mortality factors	___	___	_____
Managing urban turkey problems	___	___	_____
Population/permit allocation model	___	___	_____
Other – specify_____	___	___	_____
Other – specify_____	___	___	_____
Other – specify_____	___	___	_____

3. Do you think the DNR should conduct research on:

	Yes	No	No opinion
Forest habitat management techniques	___	___	_____
Turkey habitat requirements	___	___	_____
Winter sources of food	___	___	_____
Turkey winter survival	___	___	_____
Turkey mortality factors	___	___	_____
Turkey productivity	___	___	_____
Turkey depredation	___	___	_____
Urban turkey problems	___	___	_____
Hunter density/hunt quality	___	___	_____
Population model sensitivity	___	___	_____
Other – specify_____	___	___	_____
Other – specify_____	___	___	_____

4. Do you need more information on any of the following habitat management techniques for wild turkeys?

	Yes	No	No opinion
Timber stand improvement	___	___	_____
Oak regeneration and management	___	___	_____
Invasive species control	___	___	_____
Prescribed fire	___	___	_____
Mowing (effects, height, timing)	___	___	_____
Grassland management	___	___	_____
Other – specify_____	___	___	_____
Other – specify_____	___	___	_____
Other – specify_____	___	___	_____

5. Which management practices should be evaluated for inefficiencies, and how might these practices/techniques be improved?

6. Are there any wild turkey management activities that you feel **should not be** continued?

7. What urban turkey management issues do you face in your work area?

8. Are there any new wild turkey research projects that you feel should be initiated?

9. In the next decade, what do you see as the biggest challenge to turkey management in Minnesota?

10. Select **5** items below from either category that you feel have the greatest need for research or evaluation and rank them in order of importance from **1** to **5** (1 = most important, 5 = least important).

Habitat Management/Turkey Biology	**Rank**
Use of food plots by turkeys	____
Winter sources of food	____
Forest habitat management	____
Habitat management in mixed prairie/agricultural system	____
Invasive species control	____
Urban turkey management	____
Turkey winter survival	____
Land acquisition	____
Trap and transplant	____
Other-specify_____	____
Other-specify_____	____

Surveys/population modeling/permit setting	
Survey hunters to quantify satisfaction and hunt quality	____
Fall population survey	____
Population/permit allocation model	____
Setting permits to achieve; a high quality hunt, maximize hunting opportunity, and maintaining safety	____
Other-specify_____	____
Other-specify_____	____

11. Additional comments: