

**HumanDimensions**  
Research Program

Illinois Natural History Survey  
Prairie Research Institute  
University of Illinois at  
Urbana-Champaign



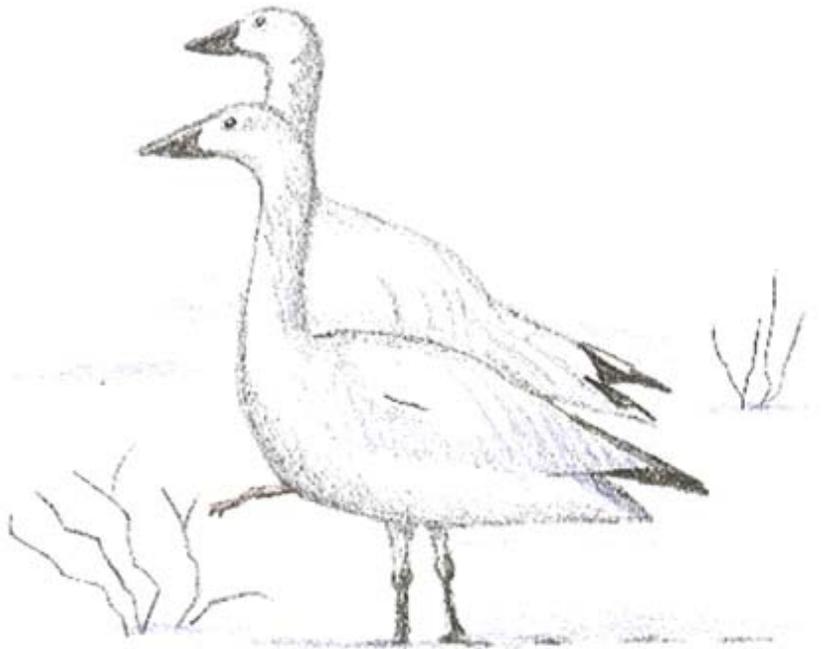
Federal Aid Project  
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# Hunter Participation, Harvest, and Hunting Behavior During the 2013 Illinois Conservation Order Season



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HUNTER PARTICIPATION, HARVEST, AND HUNTING  
BEHAVIOR DURING THE 2013 ILLINOIS  
CONSERVATION ORDER SEASON

JOB COMPLETION REPORT

WILDLIFE HARVEST AND  
HUMAN DIMENSIONS RESEARCH PROGRAM

STATE OF ILLINOIS

PROJECT NUMBER: W-112-R-22  
STUDY 101  
JOB NO. 101.6

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Champaign, IL  
September 5, 2013

Federal Aid in Wildlife Restoration  
W-112-R-22

Illinois Department of Natural Resources

Marc Miller, Director  
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Division of Wildlife Resources

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## **Abstract**

Harvest of light geese (*Chen caerulescens*, *Chen rossii*) during the 2013 Illinois Light Goose Conservation Order season was estimated at 73,495, a 16% decrease from the 2012 estimate of 87,558 geese. Participation decreased 22%, from 5,726 hunters in 2012 to 4,477 hunters in 2013. Hunters spent an estimated 45,724 days afield during 2013, a decrease of 6,039 days (12%) from 2012. The majority (49%) of the light goose harvest occurred during the month of February. Electronic calls were used by 57% of hunters, 64% used unplugged shotguns, and 56% indicated hunting between sunset and ½ hour after sunset. Fifty-eight percent of light goose hunters indicated an increase in effort over the past five years, and 58% of hunters perceived an increase in light goose abundance during the regular goose seasons. More than three-quarters (84%) of non-hunters were interested in light goose hunting to extend their hunting season. Hunters who did not participate in the Conservation Order season reported “no place to hunt snow geese,” “no snow geese in my area,” and “not enough time” as the primary reasons they did not hunt light geese.

## **Objective**

To survey hunters participating in the Light Goose Conservation Order (hereafter, spring) season to determine their activities and harvests in Illinois, as well as their opinions toward specific waterfowl management issues.

## **Methods**

A sample of 3,000 waterfowl hunters was randomly selected from purchasers of the Illinois State Waterfowl Stamp for the 2012-2013 season. On 3 April 2013, these potential Conservation Order Light Goose (*Chen caerulescens*, *Chen rossii*) hunters were mailed a 4-page

mail-back questionnaire and cover letter (Appendices A and B). Non-respondents were mailed a thank you/reminder postcard (Appendix C) on 22 April 2013, a second copy of the questionnaire and cover letter (Appendix D) on 10 May 2013, and another thank you/reminder postcard on 30 May 2013. Estimates of number of hunters, days hunted, and light geese harvested were based on confirmed sales of 64,896 Illinois Migratory Waterfowl Stamps (2012-2013 series). Estimated light goose harvest was adjusted for reporting bias using 0.478 as the adjustment factor (Anderson et al. 1996). Ninety-five percent confidence intervals were calculated for number of hunters, days hunted, and geese harvested, as described in Lischka et al. (2006). We entered and analyzed data using SPSS 21.0 (IBM SPSS Inc. 2012).

The 2013 spring goose season took place from 18 January to 31 March in the North Zone and from 1 February to 31 March in the Central, South Central, and South Zones. The season began in each zone the day after the regular Canada goose (*Branta canadensis*) season closed. Hunters during the spring goose season were exempt from any daily bag or possession limits, and hunters were permitted to use unplugged shotguns, electronic calls, and hunt from half an hour before sunrise to half an hour after sunset.

## **Results**

### *Harvest Results*

The questionnaire was not deliverable to 48 addresses, thus reducing our mailing list to 2,952 individuals. A total of 1,114 questionnaires were returned, of which 1,073 were considered usable for a 38% response rate. Of the usable responses, 108 (10%) hunters reported hunting light geese during the 2013 spring goose season. This proportion is a slight increase in comparison to the number of hunters who hunted light geese during 2012 (9%). During the 2013 spring goose season, we estimated a total of 4,477 light goose hunters statewide hunted for

45,724 days and harvested 73,495 light geese (Table 1). Approximately half (49%) of the harvest occurred during February, a 25% decrease from the 2012 February harvest (Table 2). Mean harvest was 16.42 geese per hunter overall for the season and 42.63 geese per successful hunter (harvested  $\geq 1$  goose) for the season. When hunters who harvested  $>100$  geese (Figure 2) are excluded, mean geese harvested per hunter and successful hunter for the season, respectively, drop to 6.26 and 16.25 geese. A total of 3,686 light geese were estimated to be crippled, an 11% decrease from the 2012 season.

Electronic calls were used by 57% of light goose hunters, and they harvested an estimated 18,250 (25%) light geese with electronic calls. Sixty-four percent of light goose hunters reported using an unplugged shotgun on at least one occasion. Hunters harvested an estimated 23,045 light geese with unplugged shotguns; moreover, hunters harvested an estimated 8,124 geese with the 4<sup>th</sup>, 5<sup>th</sup>, or 6<sup>th</sup> shell. Fifty-six percent of hunters reported hunting between sunset and  $\frac{1}{2}$  hour after sunset and harvested an estimated 9,214 light geese during that time period (Table 3). Light goose hunters hunted most frequently on private land on which they had permission (77%, compared to 72% in 2012), followed by private land owned by themselves or their family (26% - down from 30% in 2012, Table 4).

Hunters who hunted light geese in 2013 had either increased their light goose hunting efforts (58%) or indicated no change (20%) in their efforts. A majority (95%) of spring goose hunters also hunted during the regular waterfowl seasons, and 42% hunted ducks most often, followed by ducks and geese (38%) and geese (21%). Half of the hunters (48%) perceived an increase in the number of light geese during the regular goose seasons. One-third (31%) of spring goose hunters also harvested light geese during the regular goose seasons, for a total of 8,996 light geese.

### *Non-Hunter Interest in Light Goose Hunting*

Of the hunters who did not hunt during the spring goose season, 33% also did not hunt during the regular waterfowl season. Fifty-one percent of non-spring hunters expressed an interest in light goose hunting; top reasons were to extend their hunting season (84%) and to control the population (46%) (Table 5). Perceived constraints of non-hunters were dominated by managerial, biological, and situational constraints (no place to hunt: 49%, no geese where I live: 40%, and not enough time: 40%) (Table 6).

The general locations in which light goose hunters concentrated their efforts is presented in Figure 2. Conservation Order goose hunters were younger ( $M = 41$  years old) than non-hunters ( $M = 49$  years old), and had been hunting light geese during the spring for an average of 5.3 years. Light goose hunters were asked what type(s) of light goose hunting equipment they had: 61% of hunters had snow goose calls (including e-callers), 51% had rag/sock decoys, 48% had full-body decoys, and 45% had shell decoys (Table 7). Fifty-two percent of goose hunters took someone light goose hunting for the first time during 2013.

**References**

- Anderson, W.L., D.D. Thornburg, and R.M. Whitton. 1996. Estimating Canada goose harvest in southern Illinois quota zones. *Wildlife Society Bulletin* 24:233-237.
- IBM SPSS Inc. 2010. SPSS for Windows. IBM Corporation, 1 New Orchard Road, Armonk, NY, U.S.A.
- Lischka, S.A., W.L. Anderson, and L.K. Campbell. 2006. Results of the 2005-2006 Illinois hunter harvest survey. Human Dimensions Program Report HR-06-01. Illinois Natural History Survey, Champaign, IL. 55pp.

Table 1. Estimates of the number of hunters, days afield, and harvest of light geese 1999-2013 during the Illinois Conservation Order light goose season.

	Hunters	Days Afield	Harvest
1999	1,076	3,756	2,254
2000	865	6,643	7,612
2001	4,665	32,634	36,830
2002	5,107	31,204	17,875
2003	3,111	27,177	30,564
2004	5,976	44,306	37,189
2005	5,689	42,349	38,183 <sup>b</sup>
2006	5,543	53,154	59,799 <sup>b</sup>
2007	5,962 ± 1,147 <sup>a</sup>	39,170 ± 15,221	44,514 ± 25,794
2008	6,409 ± 1,046 <sup>a</sup>	50,471 ± 10,331	97,021 ± 40,811
2009	4,663 ± 950 <sup>a</sup>	33,947 ± 8,403	85,635 ± 36,479
2010	3,702 ± 820 <sup>a</sup>	25,581 ± 6,297	65,987 ± 42,519
2011	3,825 ± 826 <sup>a</sup>	30,753 ± 8,902	66,406 ± 30,962
2012	5,726 ± 943 <sup>a</sup>	51,763 ± 11,376	87,558 ± 41,316
2013	4,477 ± 1,192 <sup>a</sup>	45,724 ± 16,642	73,495 ± 52,191

<sup>a</sup> 95% confidence intervals

<sup>b</sup> Harvest data are estimates for Conservation Order Season only.

Table 2. Estimated light goose harvest by month during the Illinois Conservation Order light goose season from 2004-2013.

	January <sup>b,c</sup>	February	March
2004 <sup>a</sup>	-	26,404	10,785
2005	824 <sup>d</sup>	29,008	8,351
2006	67	43,815	15,917
2007	2,006	32,564	9,944
2008	295	61,376	35,351
2009	77	58,761	26,797
2010	249	44,755	20,983
2011	-	48,323	18,082
2012	55	60,625	26,878
2013	6,182	45,080	22,233

<sup>a</sup> Monthly harvest data before 2004 are not available.

<sup>b</sup> January estimates include only North Zone harvest unless otherwise noted.

<sup>c</sup> Harvest data are estimates for Conservation Order Season only.

<sup>d</sup> January harvest in 2005 also included Central Zone harvest.

Table 3. Methods utilized by hunters to hunt light geese and the estimated harvest associated with each during 2013.

Method	% Used	Total Hunters	Estimated Harvest
Electronic calls	57%	2,570	18,250
Unplugged shotguns	64%	2,860	23,045
Hunting from sunset to 1/2 hour after sunset	56%	2,529	9,214
Using 4 <sup>th</sup> , 5 <sup>th</sup> , or 6 <sup>th</sup> shell	41%	1,824	8,124

Table 4. Types of land hunted by light goose hunters during 2013.

Land Hunted	%	% point change from 2012
Public lands owned or managed by IDNR	5	1
Other public lands	4	0
Private land I or a member of my family own	26	-4
Private land on which I had permission to hunt	77	5
Private land I paid to access (lease, membership, etc.)	13	-2
Other	2	0

Table 5. Non-hunters reasons for wanting to hunt light geese during the spring light goose season.

Reasons for Interest	Percentage of Hunters
Extend my hunting season	85%
Reduce the population	46
Protect the tundra	42
To eat them	41
No bag limits	37
Get to use electronic calls	13

Table 6. Perceived constraints by hunters who did not hunt light geese during the Illinois spring goose season in 2013.

Perceived Constraints	Percentage of Hunters
No place to hunt snow geese	49%
No snow geese where I live/hunt	40
Not enough time	40
Equipment is too much money	18
Don't know how to hunt them	13
They're too hard to hunt	10
Not enough people to hunt with	10
Other	3
Hunting techniques conflict with my ethics	1

Table 7. Various categories of light goose hunting equipment owned by Illinois light goose hunters.

Equipment	Percentage of Hunters
Snow goose calls (including e-callers)	61%
Rag/sock decoys	51
Goose shells	45
Full-body decoys	48
Kites/Flags	46
Silhouettes	37
Floater	30
Spinning-wing decoys	22
Vortex™-like system	19
Other	8

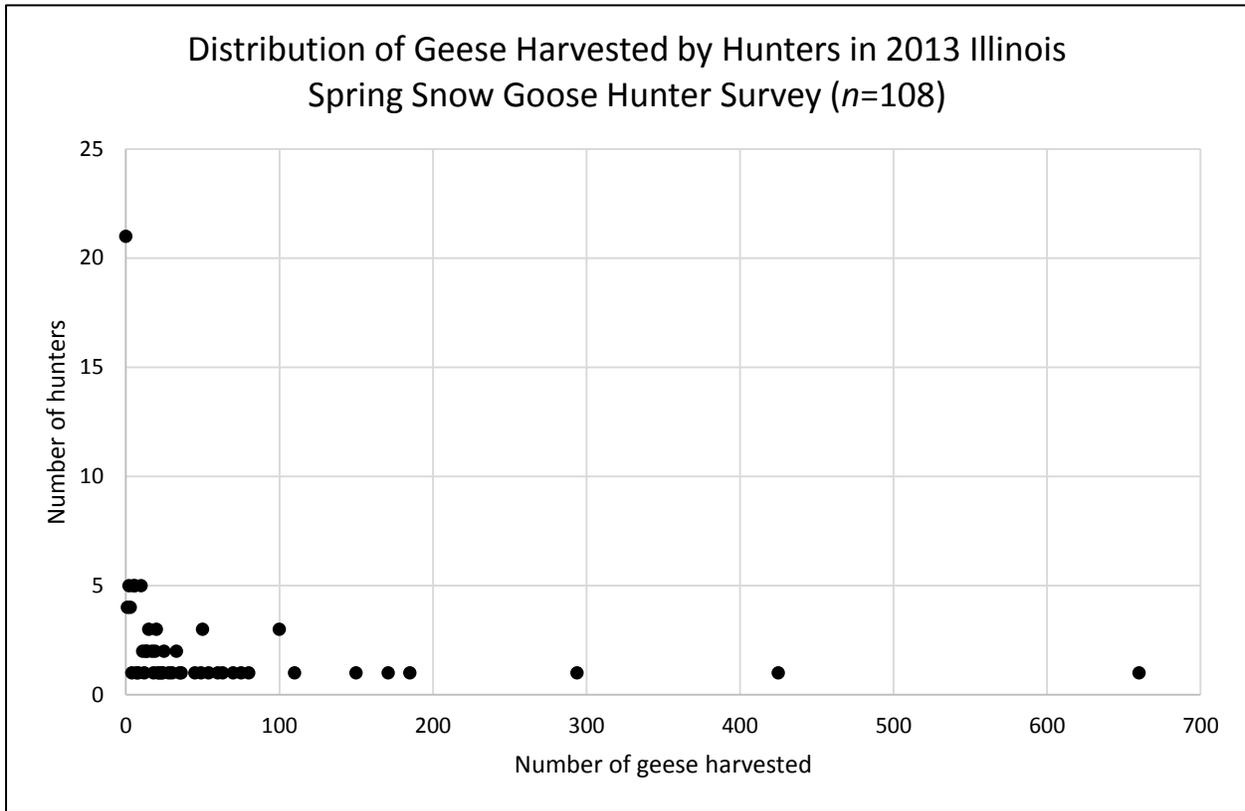


Figure 1. Distribution of geese harvested by frequency of hunters ( $n=108$ ).

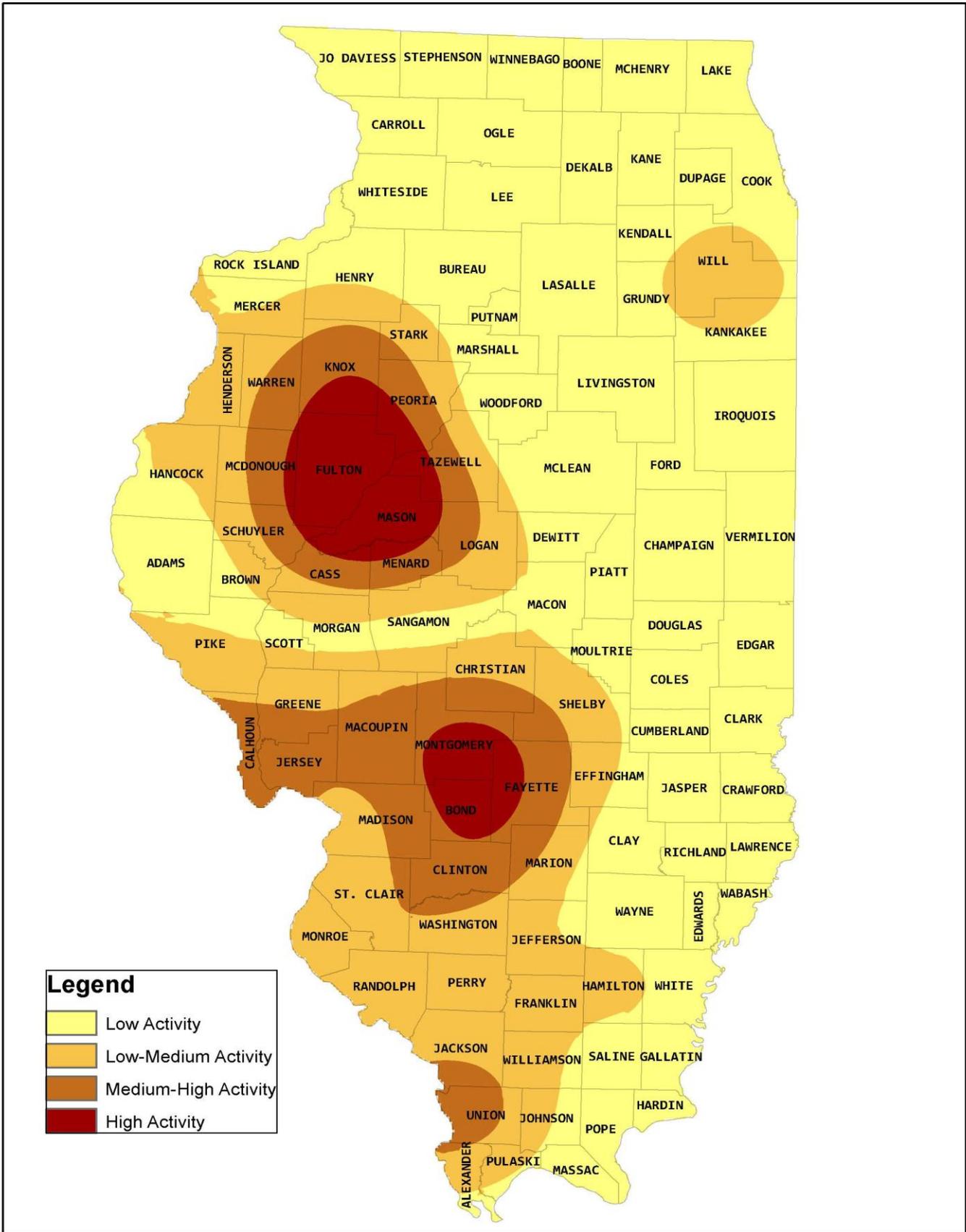
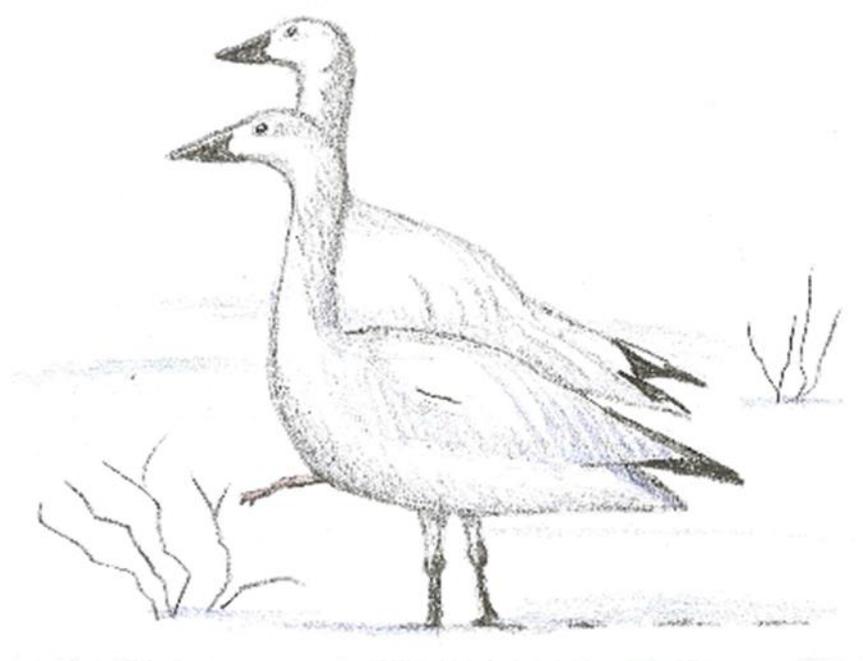


Figure 2. Geographic distribution of Illinois light goose hunters' ( $n = 108$ ) activity in spring 2013. (Map by Jeremy Clark, INHS)

Appendix A

# Illinois Spring Snow Goose Hunter Survey

## 2012-2013 Season



Illinois Department of Natural Resources  
Division of Wildlife Resources  
and  
Illinois Natural History Survey



ILLINOIS  
NATURAL  
HISTORY  
SURVEY

The Department of Natural Resources is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under the Illinois Compiled Statutes, The Wildlife Code, Chapter 520. Disclosure of information is voluntary. This study is funded by the federal Wildlife Restoration Fund through your purchase of sporting arms and ammunition.

***THANK YOU FOR YOUR COOPERATION!***

All of your responses will be kept confidential.

Please return this survey in the postage-paid return envelope provided.

**Section 1. Conservation Order (Spring) Snow Goose Hunting Effort and Harvest.** Please take a few minutes to complete the following questionnaire to help us evaluate the recent **spring Conservation Order snow goose hunting season even if you did not hunt snow geese. All questions pertain to Illinois hunting. Please note: "Snow geese" also includes Ross' and Blue geese.**

1. Did you hunt snow geese in Illinois during the 2013 Conservation Order (Spring) snow goose season (**North Zone: Jan. 18-March 31, 2013 Central, South Central, and South Zones: Feb. 1- March 31, 2013**)? Do not include hunting snow geese during the regular Canada goose season. *(Please check one.)*

\_\_\_\_\_ Yes                      \_\_\_\_\_ No (Please skip to **Section 2**)

2. In which zone did you hunt snow geese most often during the 2013 spring snow goose season? *(Please check one.)*

\_\_\_\_\_ North Zone      \_\_\_\_\_ Central Zone      \_\_\_\_\_ South Central Zone      \_\_\_\_\_ South Zone

3. Please indicate **your** effort- not your hunting party's effort- and harvest in the following table. **Include only harvest that occurred during the spring snow/blue and Ross' goose season; do not include snow goose harvest during the regular Canada goose seasons.** Report the counties in which you hunted, number of days you hunted, and geese harvested for the time period in which you hunted snow geese. Include only geese you harvested and days you hunted in Illinois. Count part of 1 day as 1 day.

	County hunted	Days hunted	Geese harvested	Geese hit, but not retrieved
January:				
February:				
March:				

4. Please indicate which of the following methods you used to hunt snow geese during the spring Conservation Order season by placing a check in the appropriate box and your harvest using each method.

	Used	Did Not Use	Harvest
Electronic calls			
Unplugged shotgun			
Hunting from sunset to 1/2 hour after sunset			

5. If you used an unplugged shotgun during the spring Conservation Order season, how many geese did you harvest using the:

4<sup>th</sup> shell                      \_\_\_\_\_ geese  
 5<sup>th</sup> shell                      \_\_\_\_\_ geese  
 6<sup>th</sup> shell                      \_\_\_\_\_ geese

6. On which of the following types of land did you hunt snow geese in Illinois during 2013 (*Please check all that apply.*)

- Public land owned/managed by IDNR       Other public land  
 Private land I/family own                       Private land where I had permission to hunt  
 Private land I paid to access                       Other (*Please indicate.*) \_\_\_\_\_

7. How has your spring snow goose hunting effort changed over the past 5 years? Please circle the number that matches your response.

Decreased Considerably	Decreased Moderately	Decreased Slightly	No Change	Increased Slightly	Increased Moderately	Increased Considerably
1	2	3	4	5	6	7

8. Did you hunt waterfowl (ducks and/or geese) in Illinois during the 2012-2013 regular waterfowl seasons?

- Yes                       No

9. What did you hunt most often?     Ducks                       Geese                       Both ducks and geese

10. Did you harvest any snow geese during the **regular goose season** in Illinois during the 2012-2013 goose season?

- Yes (how many? \_\_\_\_\_)                       No

11. How does the number of snow geese you see during the **regular goose season** compare to the last 5 years? Please circle the number that matches your response.

Decreased Considerably	Decreased Moderately	Decreased Slightly	No Change	Increased Slightly	Increased Moderately	Increased Considerably
1	2	3	4	5	6	7

12. How does the number of snow geese you see during the **spring conservation order (snow goose) season** compare to the last 5 years? Please circle the number that matches your response.

Decreased Considerably	Decreased Moderately	Decreased Slightly	No Change	Increased Slightly	Increased Moderately	Increased Considerably
1	2	3	4	5	6	7

**Section 2. Interest in Spring Snow Goose Hunting.** The following questions allow us to understand more about the hunters who do not hunt snow geese during the spring season. **If you DID hunt snow geese during the spring season, please skip to Section 3.**

1. Did you hunt waterfowl (ducks and/or geese) during the 2012-2013 regular waterfowl seasons?

- Yes                       No (Please skip to **Question 4**)

2. What did you hunt most often?

- Ducks                       Geese                       Both ducks and geese

3. In which zone did you **hunt waterfowl most often during 2012-2013**? Please check only **one response**.

- North Zone       Central Zone       South Central Zone       South Zone

4. Do you have an interest in hunting snow geese during the spring snow goose season?

- Yes                       No (Please go to **Section 3**)

5. Please identify why you're interested in hunting snow geese during the spring snow goose season. (Please check *all that apply*).

- No bag limits                       Reduce the population                       Get to use electronic calls
- To protect the tundra                       Extend my hunting season                       To eat them

6. Please identify which of the following prevents you from hunting during the spring snow goose season. (Please check *all that apply*).

- No place to hunt snow geese                       No snow geese where I live/hunt
- Not enough time                       They're too hard to hunt
- Equipment is too much money                       Don't know how to hunt them
- Not enough people to hunt with                       Hunting techniques conflict with my ethics
- Other (please indicate: \_\_\_\_\_)

**Section 3. Background Information.** The following questions allow us to understand more about the people involved in snow goose hunting in Illinois. All responses are kept confidential.

1. How many years have you been waterfowl hunting? \_\_\_\_\_ years
2. How many years have you been spring snow goose hunting in Illinois? \_\_\_\_\_ years
3. Please give your age. \_\_\_\_\_ years
4. What is your gender?      Male                       Female
5. What is your county of residence? \_\_\_\_\_ County
6. Which type(s) of snow goose hunting equipment do you have? (*Please check all that apply.*)
  - floater decoys                       full-bodied decoys                       rags/sock decoys
  - silhouettes                       kites/flags                       calls (including electronic callers)
  - shells                       spinning-wing decoys                       a vortex-like system
  - Other (please identify): \_\_\_\_\_
7. Did you take someone snow goose hunting for the first time during the spring snow goose season?
  - Yes                       No



**THANK YOU FOR YOUR TIME AND ASSISTANCE!**  
**Please return this survey in the postage-paid envelope provided.**

The Illinois Department of Natural Resources receives federal assistance and therefore must comply with federal anti-discrimination laws. In compliance with the Illinois Human Rights Act, the Illinois Constitution, Title VI of the 1964 Civil Rights Act, Section 504 of the Rehabilitation Act as amended, and the U.S. Constitution, the Illinois Department of Natural Resources does not discriminate on the basis of race, color, sex, national origin, age, or disability. If you believe you have been discriminated against in any program, activity, or facility, please contact the Equal Employment Opportunity Officer, Department of Natural Resources, One Natural Resources Way, Springfield, IL 62701-1787, (217) 782-7616 or the Officer of Human Resources, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

Appendix B

## ILLINOIS NATURAL HISTORY SURVEY

Institute of Natural Resource Sustainability  
University of Illinois at Urbana-Champaign

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April 05, 2013

Dear Waterfowl Hunter,

You have been chosen as one of a select group of Illinois waterfowl hunters to provide information about your waterfowl hunting activities related to snow goose hunting. Enclosed is a survey questionnaire regarding your snow goose hunting experiences in Illinois during the 2013 Conservation Order (spring) season. We ask you to please take a few moments of your time to complete this questionnaire and return it in the envelope provided **even if you were not successful or did not hunt snow geese during the Conservation Order (spring) season.**

**The information you and other selected hunters furnish our biologists is vital for proper waterfowl management and allows us to safeguard waterfowl populations while maximizing hunting opportunities.**

This survey is limited to those hunters selected. Please take a few minutes to complete the enclosed questionnaire and return it in the postage paid envelope provided.

Thank you for your time and assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Craig A. Miller".

Craig A. Miller  
Human Dimensions Research Program

Appendix C

Dear Waterfowl Hunter,

Recently you were mailed a questionnaire about snow goose hunting during the Conservation Order (spring) season. We have not yet received your response. **If you have already returned the questionnaire, we thank you. If you have not returned the questionnaire, please do so as soon as possible. Your input is very important!**

Your name and address will be deleted from our mailing list when your questionnaire is received. Thank you for your cooperation.

Appendix D

## ILLINOIS NATURAL HISTORY SURVEY

Institute of Natural Resource Sustainability  
University of Illinois at Urbana-Champaign

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May 06 , 2013

Dear Waterfowl Hunter,

You recently received a survey questionnaire requesting information about snow goose hunting during the 2013 Conservation Order (spring) season. If you recently returned your questionnaire, we thank you. If not, we have enclosed a second one for you. Please take a few moments of your time to complete this questionnaire and return it in the envelope provided **even if you were not successful or did not hunt snow geese during the Conservation Order (spring) season.**

**The information you and other selected hunters furnish our biologists is vital for proper waterfowl management and allows us to safeguard waterfowl populations while maximizing hunting opportunities.**

Please take a few minutes to complete the enclosed questionnaire and return it in the envelope provided.

Thank you for your time and assistance.

Sincerely,  


Craig A. Miller  
Human Dimensions Research Program