

THE IMPACTS OF A SURVEY ON DEER DAMAGE  
PROGRAM DELIVERY IN OHIO

By

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## **Abstract**

Understanding the best approach to deer damage management can help minimize monetary loss and aggravation to farmers and non-agricultural landowners who experience damage caused by white-tailed deer (*Odocoileus virginianus*) in Ohio. A survey was conducted of all agricultural and non-agricultural Ohioans who received a deer damage permit in 2013 to assess their attitudes towards deer damage, Ohio's deer damage permitting system, and acceptance/knowledge of additional programs that may help them reduce deer damage. My research updated the Ohio Division of Wildlife farmer attitude survey (Reynolds, 2000) last completed in 2000 and results indicate that there has been a drastic change in attitude towards the satisfaction with the level of service provided by the agency. In addition, we surveyed Ohio landowners experiencing non-agricultural damage (e.g. landscape damage) for the first time in Ohio which has not only allowed analysis with agricultural permittees but also provides a baseline for future surveys regarding non-agricultural landowners that experience deer damage. Results also demonstrate that permittees strongly support maintaining a deer damage permit program in Ohio. In addition, improvements within the current program structure along with recommendations for implementation of new programs were identified to further help the Ohio Division of Wildlife assist landowners in minimizing deer damage in Ohio.

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# The Impacts of a Survey on Deer Damage Program Delivery in Ohio

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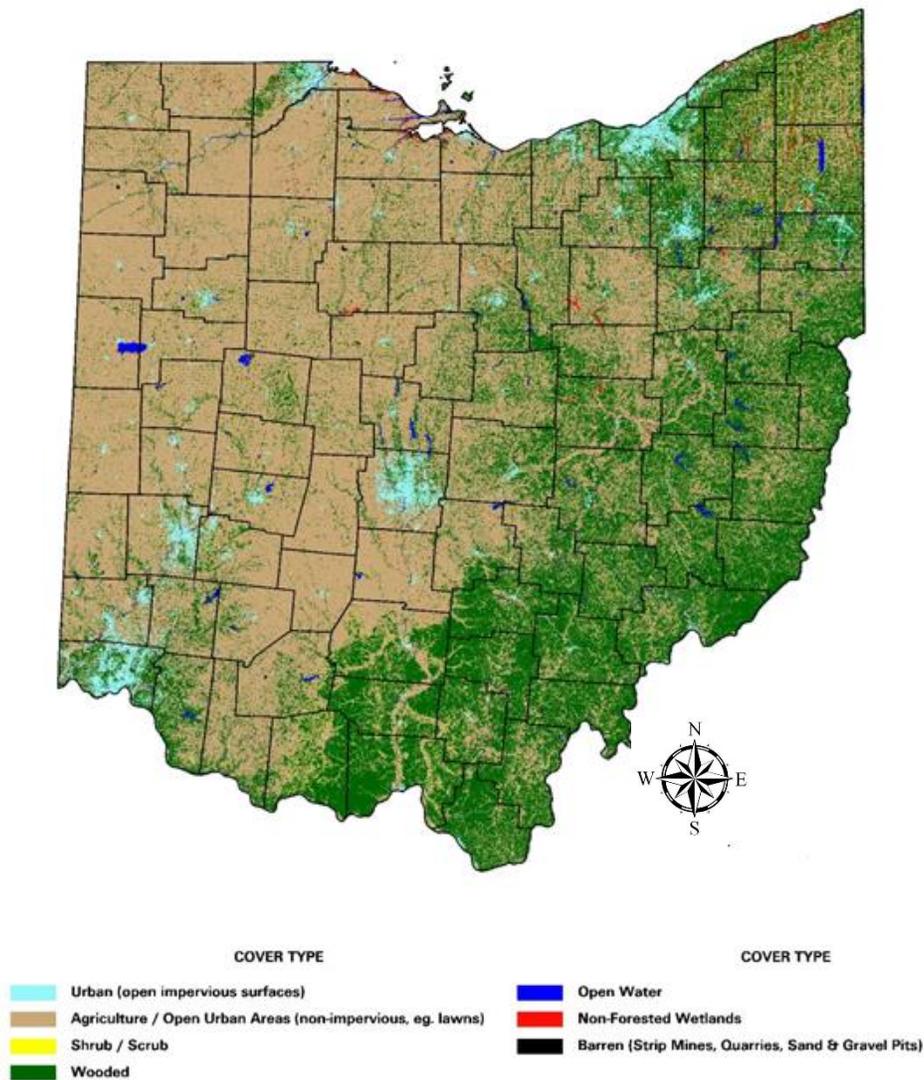
## Introduction

Whitetail deer were considered extirpated in Ohio in the early 1900's. However, much like other states in the country, whitetail deer numbers have grown exponentially since the middle of the 20<sup>th</sup> century. The Ohio Department of Natural Resources-Division of Wildlife (Division of Wildlife) estimated there were 725,000 deer in the fall of 2011 in Ohio ("2010-2011 Wildlife", 2011). Deer populations can have a major impact financially for landowners. Conover (2002) estimated that wildlife damage accounts for over \$22 billion annually and the Pennsylvania Agricultural Statistics Service (2001) estimated deer damage to grain crops at \$25.7 million with an additional \$17.5 million on high-value agricultural crops and \$4.3 million on nursery stock. Deer damage is also experienced by non-agricultural producers. Arno and Viola (2010) estimated deer damage and deer abatement costs for one township in New Jersey as \$6.4 million per year and in one county in Connecticut at \$124.2 million a year. In Ohio, deer are managed by the Division of Wildlife and therefore the agency is charged with assisting landowners that experience the various types of deer damage caused by deer to help them minimize loss.

Historically, wildlife management has focused deer management efforts on biological carrying capacity (number of animals an area can sustain ecologically). In the last few decades however, as deer-human interactions have become more common, more emphasis has been placed on integrating social carrying capacity (SCC) into wildlife management. SCC is a term that refers to the number of animals an area can sustain based on the tolerances of the landowners in that area. Using SCC to inform management decisions is occurring with many wildlife species throughout the world. Social carrying capacity has been examined with regard to animals ranging from gray wolves (Peyton et al. 2007) to elephants (Sumatra et al. 2000). Managing deer on a large scale level often focuses on managing for a particular density within a particular area. However, when dealing with deer damage, managing for densities should be avoided and instead should focus on SCC aspects such as specific identified problems and values (Northeast Section of The Wildlife Society, 2016). In Ohio, the push to continue deer damage permitting demonstrates deer populations have exceeded SCC for a variety of agricultural producers and landowners in Ohio.

Ohio's deer management goal strives to balance deer damage and other negative impacts while providing recreational opportunities (Division of Wildlife, 2015). Since 1973, Ohio has had a deer damage permitting system to address deer damage through issuing Deer Damage Control Permits (DDCPs). Many other states have similar programs. Horton and Craven (1997) noted that 86% of states had some form of out-of-season control program for deer. The deer damage permitting system in Ohio has been primarily used to address damage that farmers experience. However, as Ohio has become more urbanized, coupled with the increase in the deer population, many other claims of deer damage have arisen such as those involving landscape, gardens, and other types of property damage. Also, many public lands such as park districts, forestlands, and preserves in Ohio have also experienced a loss of biodiversity on their properties as a result of the increased deer population. Often these public lands have the added challenge of being in areas which do not allow open regulated hunting. This is the case for many city and county park districts. Frankland and Nelson (2003) noted an increase of dwarf larkspur flowering in Beall Woods Nature Preserve in Illinois from 58% to 93% along with a height increase from 12.4 cm to 33.8 cm when deer exclosures were used demonstrating that deer can have major impacts on native flora species. Ohio has used their deer damage permitting system to help public lands managers manage deer within their lands as well. Because of the varying attitudes and types of damage deer can cause, managing them can be a complex task for any state wildlife agency.

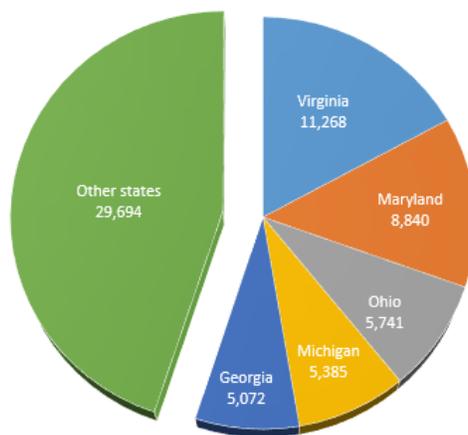
Ohio has a diverse landscape with large crop fields in the northwest to the foothills of the Appalachian Mountains in the southeast (Figure 1). This is crossed by an extremely dense urban population from the northeast to the southwest. According to the 2010 US Census, Ohio has the seventh largest population in the country (US Census Bureau, 2010). In addition, thirty-nine percent of the state is in agricultural production (USDA-NASS, 2014). This large population accounts for the fifth largest hunting density in the United States (Kenyon, 2014) despite the large amount of the state in urban areas and agricultural production.



*Figure 1– Ohio 1994 Land Cover Map, Ohio Dept. of Natural Resources*

There are three primary representatives that handle deer damage in Ohio: county Wildlife Officers, county Soil and Water Conservation District Wildlife Specialists, and district wildlife biologists. When a landowner experiences deer damage and requests a DDCP, a DOW representative typically will do an on-site investigation to verify that the damage is caused by deer. In situations where damage has been verified for several years, the representative may elect to approve a permit without an on-site investigation. Once deer damage is confirmed, a DDCP is issued to the landowner to allow them and their agents to kill an agreed upon number of deer on their property. This number of deer is determined between the landowner and the investigating employee using multiple criteria such as the amount of damage, type of damage, time of year, location, etc. These DDCP's may be used under the dates and conditions set forth on the permit. In most cases, the use of a DDCP is only allowed outside the deer hunting season between early February and late September. Under certain circumstances, such as buck rub damage to trees, there may be an allowance for the permits to be used during deer hunting

season as well. DDCP's are used to address both agricultural and non-agricultural deer damage. A review of Quality Deer Management Association's 2013 report showed that Ohio had the third highest number of deer killed under damage permits in the country with 5,471 deer killed (Figure 2). These deer were killed under 1,135 permits issued by the agency with 1,177 complaints received that year (Publication 5304, 2014). In 1995, Ohio conducted a farmer attitude survey towards wildlife issues. Reynolds (2000) conducted an update of that survey to determine if any changes had occurred in the previous five years, but that was the last time the Division of Wildlife assessed what agricultural producers thought about deer and deer damage in the state. Moreover, assessing opinions about non-agricultural deer damage hasn't been a priority, and no surveys had been conducted of non-agricultural owners prior to our research. An evaluation of Ohio's deer damage permitting system allowed for a comprehensive look at attitudes towards deer damage and the current deer damage permitting system.



*Figure 2 – Number of deer killed on damage permits: Quality Deer Management Association Report, 2013*

### **Research Methods**

To help us understand our stakeholders who are receiving deer damage permits, I conducted a survey of all landowners – agricultural and non-agricultural – who received a permit during calendar year 2013 (Appendix 1). This survey assessed a variety of factors, including attitudes toward deer and deer damage, social carrying capacity for deer, and practices related to lethal and non-lethal control of deer populations.

The deer damage permit holder information was obtained from a database of permits maintained by the Division of Wildlife. To gain the largest sample possible, 100% of the 2013 permit holders were sampled using a census sampling method. The survey design was developed using questions from the 2000 Ohio Farmer Attitude Survey as well as the few other surveys of deer damage conducted in the United States and refined after review from the Division of Wildlife deer biologist, advisors from the University of Wisconsin-Stevens, and the Ohio Farm Bureau.

Survey implementation followed a modified Dillman's Total Design Method. I received a 68.3% (N=745) response rate to my survey which was similar to the 70% response rate from Horton and Craven (1997) research of damage permits in Wisconsin. An advance notice postcard was sent to potential respondents through Vistaprint (Figure 3). One month after the advanced notification postcard was sent, a hard copy of the questionnaire was sent to all non-respondents. Because of the high response rate, no additional attempts to contact non-respondents were made.



*Figure 3 - Vistaprint postcard for advanced notification*

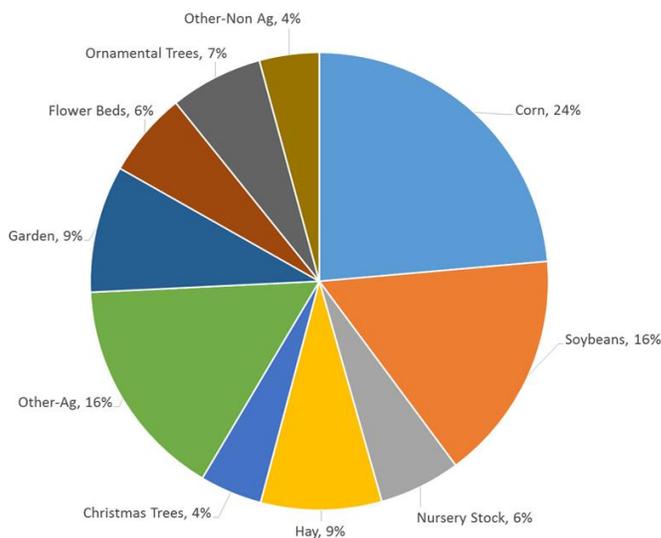
Completed questionnaires were collected by the DOW at the Waterloo Research Station. This allowed me to take advantage of an account that the research station has with their local post office to pay for return postage of the many surveys conducted throughout the state by the Division of Wildlife. The questionnaire itself noted at the bottom of the page the logos of the Division of Wildlife, Ohio Farm Bureau Federation, and the University of Wisconsin-Stevens Point. Having the logos on the questionnaire likely helped with the high response rate. However, at a very small level it may have also dissuaded some from responding. All respondents had the option to take the online version of the survey throughout the survey period. The online version accounted for 18.4% (N=137) of the responses.

Because of the relatively large size of the questionnaire (71 questions), this research provided a vast amount of opportunity for analysis in a multitude of areas regarding deer management and deer damage in Ohio. However, this report will focus on only one small aspect of the research regarding the impacts to program operation of Ohio's deer damage permitting system as well as discussing a potential for a few additional opportunities in Ohio to address deer damage.

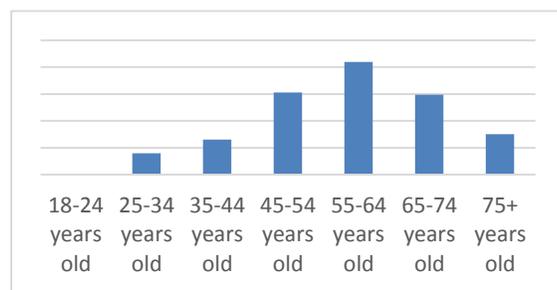
### **Respondent Demographics**

While the Division of Wildlife has never conducted surveys of non-agricultural deer damage landowners, 25% (N=178) of the respondents reported, either in entirety or in part, non-agricultural damage (Figure 4). It should be noted that while the questionnaire asked for the respondent to identify their "primary type of deer damage", in many cases the person responding chose multiple categories of deer damage. However, when looking at the

agricultural damage there is a strong similarity to the 2000 Ohio Farmer Attitude Survey which showed 83% of respondents experiencing corn and/or soybean damage whereas this survey showed 75% (N=559) of respondents experiencing corn and/or soybean damage. For my survey there was no significant difference in property size between agricultural and non-agricultural deer damage ( $t=-3.15$ ,  $p>.01$ ) as well as a similar mean acreage for agricultural damage when compared to the 2000 Ohio Farmer Attitude Survey (226 acres in 2014, 209 acres in 2000). The majority of respondents were male (92.5%) with the age structure slightly skewed right towards an older respondent class (Figure 5) with the largest respondent group being the 55-64 year old group. I also assessed any affiliation to conservation organizations, such as Whitetails Unlimited and local sportsmens clubs, as well as any affiliation to the Ohio Farm Bureau Federation. 48.4% (N=322) of those responding were currently members of the Ohio Farm Bureau Federation with an additional 16.6% (N=110) being a member in the past. There was little affiliation with conservation organizations with local sportsmens clubs leading the responses by only 84 respondents. All Ohio counties except Darke, which no permits were issued within the county in 2013, were represented in the sample with a response rate range from 0% to 100% (Appendix 2).



**Figure 4 - Type of deer damage experienced by respondents**

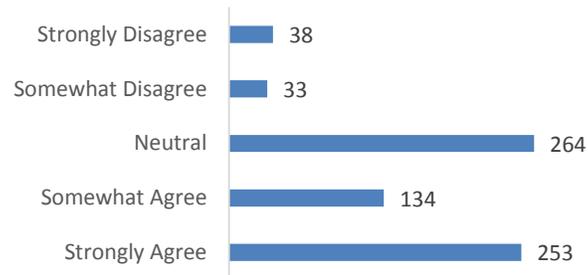


**Figure 5 - Age Structure of Respondents**

### **Initiating an Online Application and Permitting System**

The goal of any research should be to use the results to invoke changes. This research provided an opportunity to evaluate opportunities for the agency to make programmatic changes within Ohio. There had been discussion within the Division of Wildlife for many years to look at the possibility of an online system for issuing deer damage permits to landowners. However, there was a lot of speculation that an online system would not only be poorly received by many landowners in Ohio but also that there would be a significant amount of landowners in Ohio that would simply not have capabilities of utilizing an online system such as the Amish, some residents in highly rural areas, and some of the older demographic that don't use computers. This

research, however, provided strong justification for the agency to move forward with developing and implementing a web-based online application and permitting system with 35.0% of respondents strongly supporting it and an additional 18.6% “Somewhat Agree[ing]” (Figure 6). Those that were “Neutral” accounted for 36.5% of the responses. I considered all responses from “Neutral” to “Strongly Agree” as those that would use an online application and permitting system for a total support of 90.1% of the respondents.



*Figure 6 – The number of respondents by category regarding their attitude towards an online permitting system*

The timing to implement an online system was ideal since the agency was also revising their internal procedure for handling deer damage complaints which provides guidance on how the agency addresses landowner complaints and provides guidelines for issuance of Deer Damage Control Permits to landowners. Because of the strong support for an online permitting system the agency chose to move forward with development of it.

### ***How the Online Application and Permitting System Works***

The process for a Deer Damage Control Permit begins with a landowner submitting an application online through the Ohio Division of Wildlife website. An introduction page describes the intent of the program as well as some of the logistics of the permits. Not only does this allow a person to better understand the agencies stance on issuing Deer Damage Control Permits but also provides an easily accessible online resource for hunters to better understand the system as well. Prior to the online application and permitting system, the only resource for relaying information to the public about Deer Damage Control Permits was in a publication titled “Managing Ohio’s Deer” (Division of Wildlife, 2008) and a very short notation in the agencies annual Deer Harvest Summary publication.

The application for a Deer Damage Control Permit is a short form which includes fields for the applicant to fill out their contact information, including email if possible, the type of damage they are experiencing, the location of the damage, if the damage is currently occurring, and potential shooters for a permit (Figure 7). They also can submit comments about the situation to provide the Division of Wildlife representative handling the application some background information on the situation. After they hit submit, an email is automatically sent to the

designated Division of Wildlife district representative for that region. The district representative then forwards the email to the appropriate person handling permitting for the county in which the application was filed. The county representative logs into the system to view the application and, if one was needed, enters in information from the on-site investigation. If the county representative determines a permit is warranted they then click “Create Permit”. A new page opens allowing that representative to determine which shooters proposed by the applicant may be listed on the permit, the number of deer that may be killed, effective dates for the permit, any notifications needed prior to or after a shooter operates under a permit, and any additional special conditions of the permit. If an email was provided, they click “Email Permit” and the permit is immediately emailed to the applicant. For those that were unable to provide an email, the representative can print the permit and provide it to the landowner, either by mail or by handing it to the applicant after printing the permit in their vehicle with their Mobile Computing (MCT) and printer. The MCT was already a standard tool in all Wildlife Officer vehicles. After a shooter kills a deer they attach a handmade temporary tag to the deer, just as a hunter does during Ohio’s deer hunting season. Within 5 business days they must log into the system using the permit number and a unique ID number which are listed on the permit to report the kill. After they enter the date of kill, time of kill, whether it is antlered or antlerless, and if the deer will be consumed, they click “Submit” (Figure 8). The system then displays for the shooter the remaining number of deer that may be killed under the permit as well as notifies the applicant who received the permit the remaining number of deer that may be killed. Whenever needed, a Division of Wildlife employee/representative may log in to see the status of a permit, make changes to an issued permit, or use one of the many search options to search the database that contains the information for applications and issued deer damage.

The screenshot shows the 'Enter New Wildlife Damage Report' form. At the top, it features the Ohio Department of Natural Resources logo and the text 'WILDLIFE DAMAGE COMPLAINT SYSTEM' and 'OHIO DEPARTMENT OF NATURAL RESOURCES | DIVISION OF WILDLIFE'. The form is divided into several sections:

- Complainant Information:** Fields for First Name, Last Name, Business Name, Address, City, Zip, Phone, and Email (with a note: '(providing an email allows for quicker permit issuance)').
- Location of Damage:** A dropdown menu for 'County where damage is occurring', a field for 'Total Acres of Property(ies)', and a checkbox for 'Same as Mailing Address'. Below this is an 'Add Location' section with an 'Address' field and a note 'No Damage Locations Found'.
- What is being damaged?:** A section titled 'Check all that apply' with a grid of checkboxes for various types of damage: Corn, Christmas Trees, Soybean, Garden, Wheat, Flower Beds, Hay, Ornamental Trees, Produce, Livestock, Nursery Stock, Airport, Orchard, and Other.
- Active Damage:** A section with the question 'Has any of the damage occurred in the last week?' and radio buttons for 'Yes' and 'No'.
- Comments:** A text area labeled 'Enter comment'.

A 'Submit' button is located at the bottom center of the form.

Figure 7 - Application page for Deer Damage Control Permit

Figure 8 - Page for shooters to enter deer shot under a permit

**Development of the Online Application and Permitting System**

Development of the online application and permitting system was completed by the Ohio Department of Natural Resources-Office of Information Technology. The system was based on the online complaint and permitting system for Canada Geese that the Division of Wildlife has used since 2008. The timeline from initial discussion to implementation was approximately 6 months, although it should be noted that this project was not the only one being worked on by Office of Information Technology. The system was developed in two phases. Phase one included the development of the database and online entry for staff. This phase took 139.9 hours for the Office of Information Technology to develop and implement at a cost to the Division of Wildlife of \$11,891.50. This phase was utilized by the agency throughout 2014. Phase two included the application for a permit by the public as well as the online issuance of permits to landowners. This phase took 155.7 hours to develop and implement at a cost to the Division of Wildlife of \$13,234.50 for a total cost of the system of \$25,126. Both phases of the system were tested multiple times by agency staff prior to implementation. The online application and permitting system was officially made available to the public on December 28, 2015.

**Benefits of the Online Application and Permitting System**

There were many identified benefits from an online application and permitting system including benefits to the agency, benefits to the landowner, and benefits to the shooters authorized to shoot under an issued Deer Damage Control Permit. The agency was able to eliminate seven (7) forms utilized by staff that were part of the old deer damage procedure: Form 9003 (Single Prop Deer Damage Control Permit), Form 9015 (Landowner Permission Form), Form 8828 (Multiple Property Investigation Form), 8829 (Single Property Investigation Form), Form 8809 (District Annual Summary Form), Form 8840 (County Annual Summary Form), and Form 8947 (Deer Damage Tag-get right name). Not only did the online system reduce the amount of paperwork required under

the old permitting system, but it also streamlined end of the year summaries for the agency. While there is really no easy way to quantify the amount of time spent on paperwork and facilitation of Deer Damage Control Permits prior to conversion to an online system, there is certainly a significant amount of time savings by reducing the time to manually enter investigation forms and permits as well as time filing the paperwork. Conservatively, \$4,000 per year in savings is expected due to the reduction in time to staff to facilitate the program. With the old system there was also a significant amount of money spent by the agency to print the various forms and tags to facilitate the program. In 2011 the Division of Wildlife spent \$5,485 in printing costs for these forms not including the cost for printing the temporary tags which cost the agency an additional several thousand dollars. Much of these costs were annual costs to facilitate the program. Additional cost savings will be experienced with the elimination of the need to deliver permits to landowners. The costs savings of the online application and permitting system is expected to pay for itself in the first few years of operation.

However, one of the largest benefits to the agency comes with real-time access to applications, issued permits, and deer shot. In the past there was a significant lag time between when a person shot a deer and the deer was reported since the shooter would have to send in a completed Form 8947 for each deer shot which then was filed by the Wildlife Officer in their home office. If the district office needed to investigate whether a deer was killed or not, they typically would need to contact the Wildlife Officer for the county the permit was issued in and the Wildlife Officer would need to sort through paper files to look for the completed Form 8947. This was all under the assumption that the Form 8947 was not in transit by USPS mail or had not gotten misplaced.

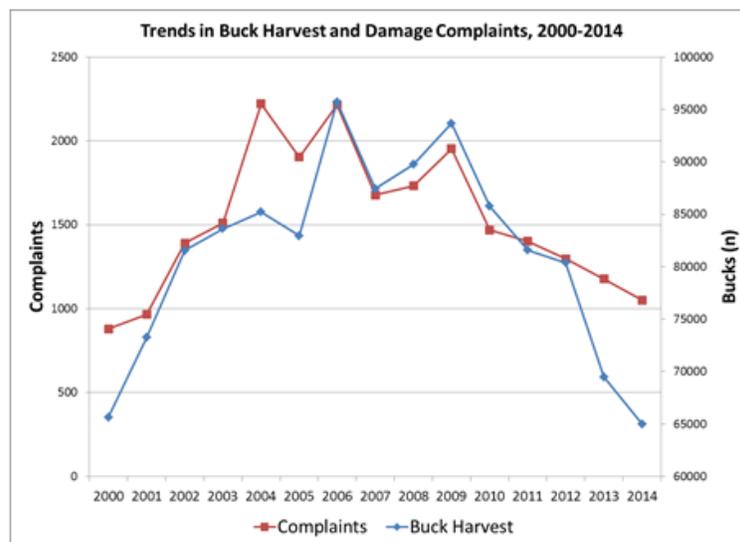
A shooter under the online system has three (3) options for claiming a deer shot under a Deer Damage Control Permit: mail it in to a district office where a staff member enters the data, call in the data to a district office during business hours, both to accommodate the limitation of some landowners without computers/computer access, or by logging into an online page to enter their data as mentioned earlier. When possible, the online submission is encouraged by those issuing a Deer Damage Control Permit.

The online application and permitting system also provided some benefits to the landowner as well. While initially it may seem like a burden for a landowner to submit an application online, what the online system provides to the landowner is in actuality an easier ability to communicate with the Division of Wildlife representative assigned to address deer damage complaints and the request of a Deer Damage Control Permit. With the old system, in most cases the communication for a permit was done by phone. This often resulted in the landowner having to leave a message on a voicemail and in turn may lead to several days of the landowner and the Division of Wildlife representative trying to communicate with each other. The online system also allows for a better record of documenting when an application is submitted and responded to. This can be beneficial when it is called into question if a representative is responding in a timely manner. In addition, in

situations where a permit is issued annually for repetitive damage, the online system allows a Division of Wildlife representative, when deemed appropriate to do so, to issue a permit much faster. With the prior system it usually required the Division of Wildlife representative and the landowner to schedule a time to meet to fill out a permit, get the landowner's signature, and supply the landowner with the Form 8947's or to deal with the lag time for a permit to arrive by mail to the landowner. For the shooter, the online system allows for not only a quicker ability to report a deer shot under a permit but the system also provides a running tally of the number of deer shot. This allows for a better accountability for the remaining number of deer issued to be shot.

### **Additional Application Opportunities for the Agency**

Managing a deer herd, including damage caused by deer, can be a complicated and challenging job for wildlife manager (Decker and Gavin, 1987). A section of my survey investigated several programs for deer management, both those currently used in Ohio as well as programs utilized to manage deer herds in other states. Because the Division of Wildlife has consistently only allowed one buck to be killed per hunter per year, the agency uses it as the primary index to the deer population in Ohio (Publication 5304, 2015). Ohio has seen a correlation between the deer population and the number of deer damage complaints (Figure 9).

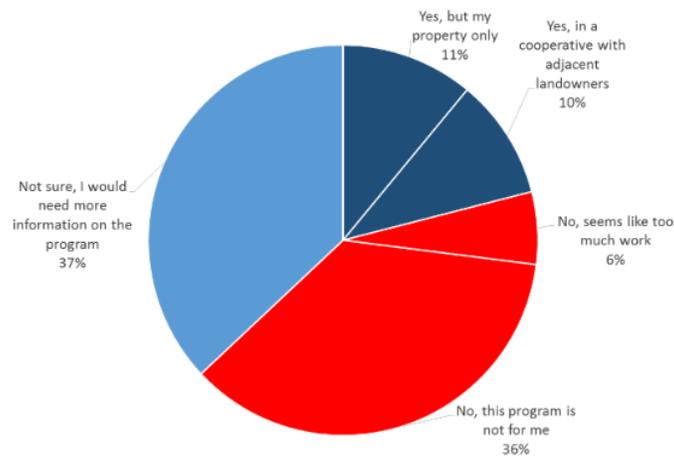


*Figure 9 - Buck Harvest Compared to Damage Complaints: Data compiled by Mike Tonkovich-Ohio Division of Wildlife*

### **Initiate a Deer Management Assistance Program**

One section of my questionnaire assessed the attitudes towards a deer management tool often referred to as Deer Management Assistance Program (DMAP). Several states currently use some form of a DMAP program where state wildlife biologists work with landowners to help them manage their local deer herd. This program offers landowners the ability to obtain additional tags at a reduced cost to kill antlerless deer during the hunting

season. As figure 10 shows, reducing the deer population in a local area should help further address landowners within that area that are experiencing deer damage. Twenty-one percent (N=141) of the respondents showed an interest in participating in a DMAP program if instituted in Ohio with an additional 37% (N=247) stating they would like additional information about a DMAP program (Figure 10). When the questionnaire asked what was the greatest influence for allowing someone other than a family member or friend on their land to hunt, the top two reasons were that hunters were willing to kill doe's (52%) and the hunter is willing to kill multiple deer (35%). Both of these reasons are main components of a DMAP program demonstrating that landowners already embrace the concepts of such a program. This research suggests that there is already some support for the agency to initiate a DMAP program along with many other landowners interested in becoming educated about how a DMAP program could help reduce deer damage on their property.

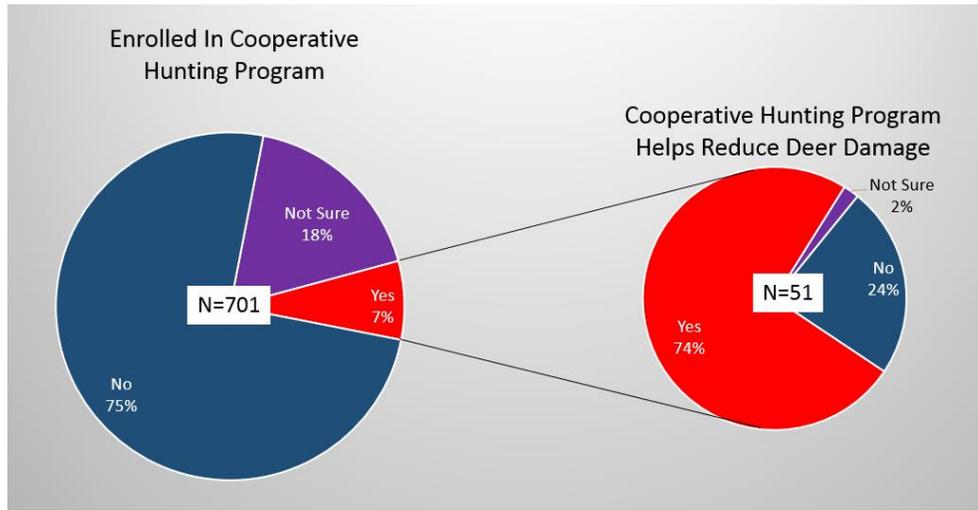


**Figure 10 - Interest in participating in a DMAP program**

***Utilize the Cooperative Hunting Program***

Ohio currently facilitates a program called the Cooperative Hunting Program with 1,176 cooperators covering 251,335 acres enrolled statewide. The intent of the program is to provide hunting opportunity to hunters while giving landowners increased law enforcement presence and property boundary signs. The Cooperative Hunting Program in Ohio is not highly publicized and the agency does not actively seek out new enrollees. Also, the program is used to varying levels throughout Ohio. For the last several years there has been discussion to either revise or eliminate the program in Ohio. This research looked at the attitudes regarding deer damage for those that had property enrolled in the Cooperative Hunting Program. Only 7% (N=50) of those responding were using the permit on properties enrolled in the Cooperative Hunting Program. However, of those enrolled, 74% (n=37) of the respondents felt that being in the program helped reduce the amount of deer damage on the property (Figure 11). This research suggests that while the Cooperative Hunting Program has not been used as a deer management tool, the agency should actively promote the Cooperative Hunting Program to those receiving

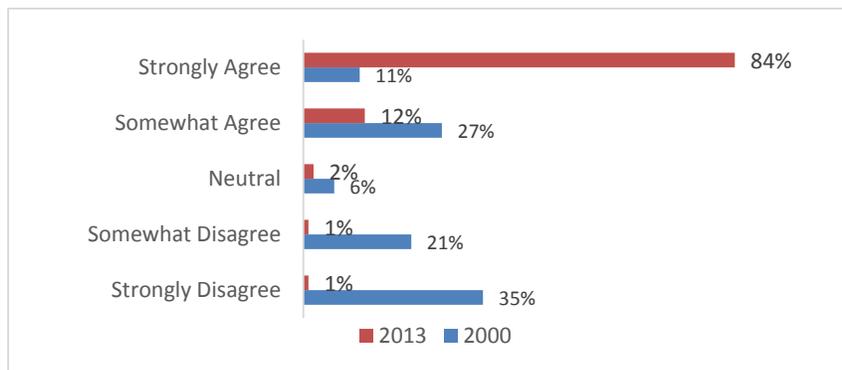
a Deer Damage Control Permit. In addition, some additional benefits of the Cooperative Hunting Program regarding deer management may be seen if the agency would conduct a survey of those enrolled in the program.



**Figure 11** - Cooperative Hunting Participants and deer damage affect

**Summary**

Landowners in Ohio have had a tremendous shift since the 2000 Ohio Farmer Attitude Survey regarding the level of service they receive from the Division of Wildlife (Figure 12). While there are likely many reasons for the shift in attitude and this research did not take a closer look at this change, this suggests that landowners have a high level of trust with the decisions the agency makes about deer damage. This is further justified with only 4% (N=23) of respondents who responded about what direction the agency should go with the deer damage permitting program wanting to replace or phase it out. Modifications to the process for issuing permits as well as improving, and where possible creating additional, deer management tools to help further reduce deer damage will only help to maintain this high level of satisfaction in Ohio.



**Figure 12**- Respondents satisfaction with Service Received as compared to the 2000 Farmer Attitude Survey

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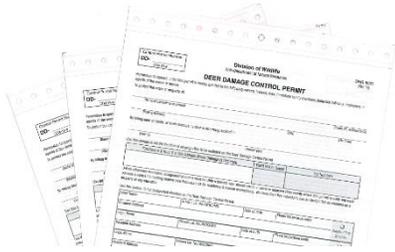
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# Understanding Views of Ohio's Deer and Deer Damage Permitting System



Dear <Name>,

Understanding your opinions about deer, deer damage, and the Ohio Division of Wildlife's deer damage permitting system is crucial to best meet the needs of landowners who experience damage. In cooperation with Kristin Floress, Assistant Professor at the University of Wisconsin – Stevens Point, I am conducting a survey of the people who received a deer damage permit in 2013 to understand your thoughts on deer in Ohio and the deer damage program as well as ways to potentially assist residents experiencing deer damage in Ohio. Direct benefits to you for participating in this research include improving the deer damage permitting program so that the Ohio Division of Wildlife may be able to better serve you in the future.

Your input is vital to the success of this project, and your answers are confidential. Your name will in no way be connected to your answers, and individual responses will never be used, only used in summary reports. Participation in this survey is completely voluntary. You may stop taking the survey at any time.

When taking the survey only think about the damage you experienced during 2013. Unless otherwise instructed, please check the box that corresponds to the answer category that best describes you and your situation or opinion. The survey should take approximately **20-30** minutes to complete. Please read each question carefully. By completing the survey, you are consenting to participate in this research.

If you'd like to complete the survey online, you may do so at <https://www.surveymonkey.com/s/ohiodeer> and enter the following code when prompted : <ID Code>.

I appreciate your valuable time in participating in the survey. If you have any questions about this project, please don't hesitate to call me at (330) 338-6140 or [gwest216@uwsp.edu](mailto:gwest216@uwsp.edu) or my advisor at (715) 346-4135 or [kfloress@uwsp.edu](mailto:kfloress@uwsp.edu) . If you have concerns about your treatment in this study, please contact:

Dr. Jason R. Davis, Chair  
Institutional Review Board for the Protection of Human Subjects  
School of Business and Economics  
University of Wisconsin-Stevens Point  
Stevens Point, WI 54481  
(715) 346-4598

Geoff Westerfield

A handwritten signature in cursive script that reads "Geoff Westerfield".

University of Wisconsin-Stevens Point

Project supported by:



## 1. Information about the damage you experienced in 2013

a. What was the primary type of deer damage experienced in 2013? (check only one)

Agricultural		Non-Agricultural	
Corn	<input type="checkbox"/>	Garden	<input type="checkbox"/>
Soybeans	<input type="checkbox"/>	Flower Bed (Annuals or perennials)	<input type="checkbox"/>
Nursery Stock	<input type="checkbox"/>	Ornamental Trees	<input type="checkbox"/>
Hay	<input type="checkbox"/>	Other	<input type="checkbox"/>
Christmas Trees	<input type="checkbox"/>		
Other	<input type="checkbox"/>		

## 2. Your General Thoughts about Ohio's Deer Population

a. Around your property, would you prefer to see:

- More deer
- Same number of deer
- Fewer deer
- No opinion

b. Thinking about the past 5 years, which statement BEST describes the trend you have seen in the deer population in the county where your deer damage permit was issued.

Would you say there are:

- More deer now
- Same number of deer now
- Fewer deer now
- No opinion

c. How strongly do you feel the statewide deer population is directly related to the amount of deer damage experienced by landowners in Ohio (i.e. more deer = more damage, less deer = less damage)?

- Strongly agree
- Somewhat agree
- Neutral
- Somewhat disagree
- Strongly disagree

d. How satisfied are you with the way the Division of Wildlife manages deer in Ohio?

- Very satisfied
- Somewhat satisfied
- Neutral
- Somewhat dissatisfied
- Very dissatisfied

### 3. Information about the property protected with the deer damage permit

a. Did you own the land that was protected with your 2013 deer damage permit?

- Yes, I (or my spouse and I) own the land
- Yes, but there are multiple owners of the land
- No, I lease the land
- No, I use the land without having to compensate the landowner

b. Was this the first year you have ever received a deer damage permit for this property?

- Yes
- No

c. How many total acres was the property that was being protected with your deer damage permit? (*enter a number below*)

\_\_\_\_\_ Total acres

d. Of the total acres listed above, how many acres contained the plants being damaged (exclude areas like forest, asphalt, lakes, etc.)? (*enter a number below*)

\_\_\_\_\_ Acres

e. Considering the deer you see on your property, on average what percentage of THEIR day do you feel they spend on the property? (*enter a number below*)

\_\_\_\_\_ % of the day

f. By whatever means available, do you make any efforts to monitor/survey the deer population on the property?

- Yes If yes, by what means? \_\_\_\_\_
- No
- Not sure

g. Was the property enrolled in any of the following USDA programs? (*check all that apply*)

- Agricultural Management Assistance Program (AMA)
- Cooperative Conservation Partnership Initiative (CCPI)
- Conservation of Private Grazing Land Program
- Conservation Reserve Program (Farm Service Agency) (CRP)
- Conservation Stewardship Program (CSP)
- Environmental Quality Incentives Program (EQIP)
- Agricultural Water Enhancement Program (AWEP)
- Conservation Innovation Grants (CIG)
- Farm and Ranch Lands Protection Program (FRPP)
- Grassland Reserve Program (GRP)
- Healthy Forest Reserve Program (HFRP)
- Small Watershed Rehabilitation Program
- Wetlands Reserve Program (WRP)
- Wildlife Habitat Incentive Program (WHIP)
- Crop Insurance

h. Which county was the property primarily in? (*write the county name below*)

\_\_\_\_\_ County

## 4. Your Thoughts On The Policies and Procedures For Deer Damage Permits

**a. Who issued you your 2013 deer damage permit? (check only one)**

- Wildlife Officer
- Division of Wildlife Biologist
- Wildlife Specialist (County Soil and Water Conservation District)
- Other
- Not sure

**b. Did you contact/use any of the following to determine ways to minimize deer damage on your property? (check all that apply)**

- Division of Wildlife Officer
- Division of Wildlife Biologist
- County Soil and Water District Office (SWCD)
- Farm Bureau
- Friend/Relative
- Internet
- Other \_\_\_\_\_

**c. Please indicate the level to which you agree with the statements below.**

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
a. The permit helped me reduce the deer damage I experienced.	<input type="checkbox"/>				
b. I was satisfied with the service I received from the person that issued my permit.	<input type="checkbox"/>				
c. I was satisfied with the number of days it took to have my permit in hand.	<input type="checkbox"/>				
d. The restrictions/rules on the permit still allowed me enough flexibility to address the deer damage.	<input type="checkbox"/>				
e. The person that issued the permit was knowledgeable about deer damage.	<input type="checkbox"/>				
f. There should be an automatic renewal process for landowners with repeat deer damage.	<input type="checkbox"/>				
g. There should be an option to apply for a deer damage permit online.	<input type="checkbox"/>				
h. It is important that a Division of Wildlife employee verifies damage prior to issuing a permit.	<input type="checkbox"/>				
i. I feel I maximized use of the deer damage permit to the best of my ability.	<input type="checkbox"/>				
j. I was issued enough tags to address the damage I was experiencing.	<input type="checkbox"/>				

**d. Which statement best describes your thoughts on the best course of action for the Ohio Division of Wildlife regarding their policy on addressing deer damage in Ohio?**

- AS IS.** Continue ONLY with the current deer damage permitting system with the current policy, no additional programs are needed
- MODIFY.** Continue ONLY with the current deer damage permitting system, but it needs some modifications
- PHASE IN.** Continue with the deer damage permitting system AND phase in an additional program for controlling deer damage
- PHASE OUT.** Phase out the deer damage permitting system while at the same time institute a new program for controlling deer damage
- REPLACE.** Immediately replace the deer damage permitting system with a new program for controlling deer damage
- NOT SURE.** I am not sure what the best course of action should be for the Ohio Division of Wildlife

**e. Regarding the deer damage permit rules, what could the Division of Wildlife do to make the permit more useful to you?**

**5. Current Techniques That Are Used For Managing Deer Damage In Ohio**

**NONLETHAL CONTROL METHODS**

*Non-lethal control methods often are used in conjunction with lethal control of deer to manage deer damage. The following section will assess your use and knowledge of non-lethal control methods.*

**a. Please check all boxes that apply to non-lethal techniques you used in 2013.**

	I used this technique	I feel this technique helped reduce the deer damage	I would be interested in more information about this technique
Fencing – Electric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fencing – Non-electric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visual Deterrents (ex. Scarecrows, flagging, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Taste Deterrents (ex. Hot sauce/pepper, commercial sprays, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smell Deterrents (ex. Soap, human hair, commercial sprays, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise Deterrents (ex. Propane cannons, air horns, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planting deer resistant plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat removal/modification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**HUNTING**

Hunting has been successfully used to manage the deer herd in much of Ohio since modern hunting returned to the state in 1943. To most effectively use hunters to manage your deer herd you must have an understanding of basic deer biology, population density and most importantly an understanding of the hunters you are using as a management tool. The following section will assess your use of hunting as a management tool.

**a. Choose the response below that best describes the hunting that was utilized on the property in 2013.**

Hunting was not utilized because:

- it was not legal in my area
- it was impractical due to safety reasons
- there was little or no habitat for deer (ex. all crops)
- I had bad experiences with hunters in the past

Hunting was utilized during:

- bow season only
- muzzleloader season only
- shotgun season only
- combination of gun and bow seasons

**b. Please check the appropriate box for each question.**

	None	1-5	6-10	10 or more	Not sure
In 2013, how many hunters were allowed to hunt on the property where the deer permit was issued?	<input type="checkbox"/>				
In 2013, how many hunters asked to hunt the property where the deer permit was issued?	<input type="checkbox"/>				
In 2013, how many of the hunters were friends or family?	<input type="checkbox"/>				
How many total deer, NOT INCLUDING THOSE KILLED WITH YOUR DEER DAMAGE PERMIT, were killed by hunters on the property where the deer permit was issued in 2013?	<input type="checkbox"/>				
Of the total number of deer killed in 2013, NOT INCLUDING THOSE KILLED WITH YOUR DEER DAMAGE PERMIT, how many were doe's (females)?	<input type="checkbox"/>				

**c. Through assessment of the data of Ohio's 2013-2014 deer hunting season 75% of hunters only harvested 1 deer. With the liberal bag limits statewide, it can be assumed then that most hunters only WANT to kill 1 deer. Which of the following best describes your thoughts about the number of deer hunters that you allow to hunt deer on the property.**

- I could have used more hunters on the property
- I had just the right number of hunters on the property
- I have too many hunters utilizing the property

**d. What percentage of the fall deer population do you feel needs to be removed to keep the deer herd from growing? (enter a number below)**

\_\_\_\_\_ %

**e. Of the following factors, which TWO have the greatest influence on your decision to let someone OTHER than a friend or family member deer hunt on your property?**

**(check two boxes below)**

- Overall appearance and attitude of the hunter
- An offer of some type of compensation, including money, from the hunter
- The season in which the hunter intends to hunt
- Where the hunter resides
- Knowing the hunter indirectly (friend of a friend)
- Liability assumed by me for the hunters actions
- Ability to control the times hunters can access the property
- Ability to control who the hunter is allowed to bring with them
- Hunter is willing to kill doe's (not just a buck hunter)
- Hunter routinely kills multiple deer each year (proven successful hunter)

**f. The following questions are to gain an understanding of landowner's knowledge of hunting dynamics in Ohio.**

	I would have thought it would have been LESS	I would have guessed this	I would have thought it would have been MORE
It takes an average hunter 14 hours to kill an antlerless deer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Since 1995, hunting license sales have dropped 18%.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nearly 2/3 of the deer killed in Ohio each year are antlerless deer. Deer damage permits typically only account for less than 3% of the deer shot in Ohio.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**DIVISION OF WILDLIFE'S COOPERATIVE HUNTING PROGRAM**

*The Cooperative Hunting Program is a current program run by the Ohio Division of Wildlife. The programs goals are to provide access to hunters in exchange for providing some increased monitoring of the property by the Wildlife Officer to reduce trespassing issues. The following section will assess your attitude towards the program.*

**a. Was the property under your 2013 deer damage permit enrolled in the Division of Wildlife's Cooperative Hunting Program?**

- Yes
- No
- Not sure

**b. Do you feel the Cooperative Hunting Program helps or could help in controlling deer damage on the property?**

- Yes
- No

**c. If not enrolled, would you be interested in enrolling the property in the Cooperative Hunting Program?**

- Yes
- No
- Not sure, I would need more information

**LEASING**

*Throughout the country there has been an increasing trend in hunters leasing land so that they have sole hunting rights to the property. State wildlife agencies have viewed leasing as a barrier to deer management because it can limit the number of deer by limiting access to the use of additional hunters to kill deer. The following section is to understand your use and knowledge of leasing.*

**a. Was the property leased for deer hunting rights in 2013?**

- Yes
- No
- Not sure

**b. On properties that are leased for deer hunting, I feel the lease leads to:**

- More deer on the property
- Same number of deer on the property
- Fewer deer on the property
- No opinion

**c. On properties that are leased for deer hunting, I feel the lease \_\_\_\_\_ the amount of deer damage on the property:**

- Greatly reduces
- Somewhat reduces
- Has no effect on
- Somewhat increases
- Greatly increases

**d. Do you think the property covered under the deer damage permit in 2013 might be leased for hunting rights in the future?**

- Yes
- No
- Not sure

**EARN-A-BUCK CONCEPT**

*Hunters are seemingly willing to do about anything anymore to get access to hunting opportunities. As a landowner you have the ability to impose harvest restrictions on the hunters using the property to further your deer management objectives. One concept is Earn-A-Buck where you mandate a certain number of doe's must be killed before a buck can be killed. While this concept has proven not to work while managing statewide deer populations by state wildlife agencies, you are in a unique position to use it on your property since you "hold the keys" to your property.*

**a. Did you use the Earn-A-Buck concept on the property in 2013?**

- Yes
- No, I did not realize I could impose harvest rules on my property
- No, but I am very interested in using the Earn-A-Buck concept
- No, but I used other landowner restrictions to manage the hunters

## 6. Potential Programs for Managing Deer Damage In Ohio

### **DEER MANAGEMENT ASSISTANCE PROGRAM**

*Several states use a program called Deer Management Assistance Program (DMAP) to help address deer damage issues on properties. The program allows landowners, in collaboration with the Division of Wildlife, the ability to obtain additional tags for a reduced cost to kill antlerless deer during the deer hunting season. This is done with an evaluation of the property with a Division of Wildlife representative following an agreed upon management plan with identified deer density goals.*

**a. Would you be interested in participating in a Deer Management Assistance Program in Ohio?**

- Yes, but my property only
- Yes, in a cooperative with adjacent landowners
- No, seems like too much work
- No, this program is not for me
- Not sure, I would need more information on the program

**b. On properties that would utilize DMAP, I feel it would lead to:**

- More deer on the property
- Same number of deer on the property
- Fewer deer on the property
- No opinion

**c. On properties that would utilize DMAP, I feel it would \_\_\_\_\_ the amount of deer damage on the property.**

- Greatly reduce
- Somewhat reduce
- Have no effect on
- Somewhat increase
- Greatly increase

### **VOLUNTARY PUBLIC ACCESS PROGRAM**

*State wildlife agencies have the ability to apply for a grant through the United States Department of Agriculture to receive money to increase public access in their state. To date 38 states have received money to facilitate a Voluntary Public Access Program in their state. In most cases the landowner received monetary compensation in return for allowing public access. Ohio has not yet applied for the grant. One potential added benefit to the landowner is that increasing the number of hunters on the property can help to reduce the amount of deer damage on the properties enrolled.*

**a. Would you be interested in participating in a Voluntary Public Access Program in Ohio?**

- Yes, more hunters on my property will help reduce deer damage
- No, this program is not for me
- No, but I would be interested in a program that creates wildlife habitat on my property
- Not sure, I would need more information on the program

## **Education**

*Education is often considered a key component to properly addressing wildlife damage. The more educated the landowner is regarding the best tactics for reducing deer damage usually leads to lower amounts of deer damage experienced. The following section will gain your attitude towards various educational aspects of deer management.*

**a. Do you feel the Ohio Division of Wildlife does a good job of explaining to the public the process they follow for managing deer in Ohio?**

- Yes
- No
- Not sure

**b. Given the opportunity, would you attend a seminar/public workshop to learn more about the management of deer in Ohio?**

- Yes
- No
- Not sure

**c. Given the opportunity, would you attend a seminar/public workshop to learn more about how to reduce deer damage on the property?**

- Yes
- No
- Not sure

**d. How far would you be willing to travel to attend a seminar/public workshop?**

- Less than 10 miles
- 11-30 miles
- 31-60 miles
- More than 60 miles

**e. How much would you be willing to pay for a seminar/public workshop?**

- Nothing, I would only attend if it was free
- Up to \$5.00
- Up to \$10.00
- More than \$10 .00

**f. Do you feel the Division of Wildlife has adequate publications about how to reduce deer damage on properties in Ohio?**

- Yes
- No
- Not sure

**g. Do you feel the Division of Wildlife needs more information on their website about how to reduce deer damage on properties in Ohio?**

- Yes
- No
- Not sure

## 7. About You

**a. Are you currently a member of any of the following organizations?**

*(check all that apply)*

- Ducks Unlimited
- National Wild Turkey Federation
- Quality Deer Management Association
- Whitetails Unlimited
- Pheasant/Quail Forever
- Local sportsmen's club
- Other

**b. What is your affiliation with the Ohio Farm Bureau Federation?**

*(check only one)*

- Currently a member
- Have been a member, but not currently a member
- Not a member, but the property owner is a member
- None of these
- I am not sure

**c. What is your highest level of formal education?**

- High school diploma or GED
- Some college courses, but no degree
- 2 year college degree
- 4 year college degree
- Graduate degree

**d. Do you have any formal training in conservation from a college or university?**

- Yes
- No

**e. What is your gender?**

- Male
- Female

**f. What is your age?**

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older

**In late 2014 I will be conducting interviews to help clarify any questions that develop from the survey responses. This will be the first time any formal interviews have been conducted regarding Ohio's deer damage permitting system. Only a few interviews will likely be needed and will be chosen randomly from those willing to participate. Your participation in the interviews is voluntary and will in no way be connected to the responses you provided in this survey. If you are interested in providing your information to be eligible to help, please go to:**

**<https://www.surveymonkey.com/s/deerdamageinterview>**

**Thank you for your time and assistance! Please use the space below and the back page for any additional comments about this survey or deer damage you wish to share. When finished, please return your completed survey in the postage-paid enveloped**

Appendix 2 – Response Rate by County

County	Surveys sent	Surveys Completed	Response %
Adams	16	9	56.3%
Allen	6	3	50.0%
Ashland	19	13	68.4%
Ashtabula	18	13	72.2%
Athens	14	13	92.9%
Auglaize	3	3	100.0%
Belmont	16	8	50.0%
Brown	18	13	72.2%
Butler	13	8	61.5%
Carroll	17	14	82.4%
Champaign	3	2	66.7%
Clark	1	1	100.0%
Clermont	22	16	72.7%
Clinton	7	4	57.1%
Columbiana	28	15	53.6%
Coshocton	20	13	65.0%
Crawford	5	3	60.0%
Cuyahoga	14	9	64.3%
Darke	0	0	0.0%
Defiance	6	5	83.3%
Delaware	12	7	58.3%
Erie	13	10	76.9%
Fairfield	43	26	60.5%
Franklin	18	9	50.0%
Gallia	12	10	83.3%
Geauga	14	10	71.4%
Greene	22	16	72.7%
Guernsey	25	21	84.0%
Hamilton	11	8	72.7%
Hancock	13	7	53.8%
Hardin	6	2	33.3%
Harrison	8	7	87.5%
Henry	1	0	0.0%
Highland	14	11	78.6%
Hocking	19	12	63.2%
Holmes	7	5	71.4%
Huron	6	5	83.3%
Jackson	20	14	70.0%
Jefferson	9	4	44.4%
Knox	69	46	66.7%
Lake	22	16	72.7%

County	Surveys sent	Surveys Completed	Response %
Lawrence	18	10	55.6%
Licking	36	24	66.7%
Logan	18	12	66.7%
Lorain	26	19	73.1%
Lucas	5	3	60.0%
Madison	2	0	0.0%
Mahoning	16	12	75.0%
Marion	1	1	100.0%
Medina	14	12	85.7%
Meigs	9	3	33.3%
Monroe	19	11	57.9%
Montgomery	1	0	0.0%
Morgan	19	13	68.4%
Morrow	2	2	100.0%
Muskingum	35	21	60.0%
Noble	6	2	33.3%
Ottawa	4	2	50.0%
Paulding	7	7	100.0%
Perry	5	1	20.0%
Pickaway	5	3	60.0%
Pike	7	4	57.1%
Portage	14	7	50.0%
Putnam	4	2	50.0%
Richland	31	20	64.5%
Ross	11	6	54.5%
Sandusky	3	1	33.3%
Scioto	17	12	70.6%
Seneca	6	5	83.3%
Stark	14	11	78.6%
Summit	13	9	69.2%
Trumbull	19	12	63.2%
Tuscarawas	10	6	60.0%
Union	3	3	100.0%
VanWert	4	3	75.0%
Vinton	4	3	75.0%
Warren	5	3	60.0%
Washington	29	16	55.2%
Wayne	14	10	71.4%
Williams	16	12	75.0%
Wood	3	2	66.7%
Wyandot	5	2	40.0%