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## **Perceptions of white-tailed deer abundance and management among hunters and landowners in Illinois.**

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**Abstract:** State wildlife agencies often find themselves between hunters and landowners in managing white-tailed deer. During 1999 the Illinois Department of Natural Resources (IDNR) restricted archery deer harvest in a 5-county region of East-central Illinois to antlered deer only during the first month of the season. Restrictions were due to declining deer populations and increased archery harvest in the 5-county zone. Hunters in adjacent Shelby County claimed they were seeing fewer deer and lobbied both the IDNR and state legislators for inclusion in the restricted zone during the fall 2000 hunting season. We conducted a telephone survey of resident archery deer hunters (n=217) and landowners (n=409) in Shelby County during November 1999 to determine attitudes toward the deer population and management options. Hunters and landowners differed significantly in their perceptions of deer abundance ( $P < 0.000$ ). A majority of hunters (52%) reported seeing fewer deer compared to recent hunting seasons. Most landowners (46%) preferred the IDNR change regulations to allow increased harvest; 43% were satisfied with current regulations, and 12% favored regulations restricting harvest. Most landowners responded they experienced crop damage from deer during 1999. Landowner attitudes proved to be a deciding factor in policy discussions on expanding the 5-county restricted zone.

**Key words:** conflict, harvest restrictions, hunter preferences, landowner attitudes, telephone survey. Deer management involves a complex network of stakeholders.

Attitudes from key stakeholder groups are often not included in decisions regarding hunting seasons and regulations. Some important stakeholders are landowners, especially agriculture producers. In Midwestern states such as Illinois, agriculture producers are important participants in the decision-making process regarding white-tailed deer management. Illinois is a major agricultural state, with 85% of the land in crop production and 97% of the state in private land ownership. As such, discussions involving wildlife management must include the agriculture community. Regulatory actions favoring hunters must be weighed against attitudes of landowners.

### **Problem statement**

Firearm deer hunting is limited by providing a set number of permits for antlered and antlerless deer for each county. Archery deer permits are available for over-the-counter purchase, are not limited in number or by county, and can be used statewide. In this manner, archery deer hunting participation may not reflect deer densities in a given county. Biologists with the Forest Wildlife Program of the IDNR noted declining deer populations in 5 counties in east-central Illinois (Champaign, Piatt, DeWitt, Macon, and Moultrie). This region is characterized by vast areas under agricultural row crop production, punctuated by occasional

woodlots ranging in size from 2-3 hectares to 75-100 hectares. Following crop harvests, deer congregate in larger woodlots for the winter. This concentration allows for a relatively high harvest potential. Archery deer hunting appeared to be contributing to higher harvests than the population could sustain.

Beginning in 1995, firearm deer permits were decreased to reflect hunter numbers relative to deer densities, however given the over-the-counter sales of archery deer permits, limiting the number of archery permits was not an option. IDNR biologists therefore determined to either limit the season of deer harvest in these 5 counties. Management options included beginning the season 2 weeks later (in mid-October) or imposing a 1-deer limit for the first month of the season (October). Public input suggested a third alternative: limit archery harvest to antlered deer only during the month of October. As this option met biological standards and was agreeable to the archery deer hunting public, it was adopted by administrative rule and put into effect during the 1999 hunting season.

Hunters in Shelby County, located on the southern border of the 5-county restricted archery zone, began to lobby IDNR and state lawmakers for inclusion in the restricted archery zone. Hunters claimed deer populations were in decline in Shelby County and should therefore be included in the restricted archery zone. IDNR biologists found no biological evidence for the need to include Shelby County in the restricted zone. To address concerns of hunters and legislators from the county, executive staff of the IDNR Division of Wildlife Resources determined that a survey of archery deer hunters would be conducted to determine hunter attitudes and

perceptions regarding deer densities in Shelby County. Concurrent with this survey, landowners would be contacted for their attitudes in respect to deer densities, crop damage due to deer, and desired harvest goals set by the IDNR.

## Methods

We conducted a telephone survey of 242 randomly selected resident archery deer hunters who purchased an archery permit in Shelby County during 1998. Hunters were contacted November 1 through November 4, 1999 by the Human Dimensions research staff of the Illinois Natural History Survey. Each hunter was asked to respond to 15 items addressing perception of herd size, changes in deer numbers, and preferred management action. A second telephone survey of 528 landowners randomly selected from Shelby County land tax roles was conducted November 7 through November 11, 1999. Landowners were asked to complete 11 questions related to perceived herd size, crop damage, and desired management action. All calls were made during evening hours to optimize contacts, except when specifically requested by participants to call during other hours.

## Results

We received 217 (90%) completed telephone survey questionnaires from hunters in our sample. Of the landowners contacted, 324 (68%) completed the questionnaire. Most landowners (77%) stated they farmed their land themselves. Of those, the majority (91 %) had their land in row crop production, 16% in forage crops, 8% in livestock and 2% were dairy farms.

Most landowners (75%) allowed hunting on their property by family members, friends, or the public. When asked to describe the annual level of crop damage resulting from deer, slightly less than half of the landowners surveyed reported light damage (Table 1).

Landowners and hunters had differing perspectives of deer abundance compared to 5 years prior. A majority (50%) of landowners reported they saw more deer than 5 years earlier, 17.2% responded they saw less, and 33% reported seeing the same number. Fewer hunters (21%) responded they saw more deer than 5 years earlier, whereas a majority (51 %) reported they saw fewer deer, and 28% reported seeing the same number. When asked if Shelby County should be included in the 5-county restricted archery zone, 45% of hunters agreed. More landowners (46%) felt the

Illinois Department Natural Resources should increase deer harvest, whereas 43% supported maintaining the current management program and 12% wanted to decrease the deer harvest.

Landowner attitudes toward deer management and harvest were dependent upon perceptions of deer seen compared to 5 years earlier, level of crop damage experienced, desired level of deer population, and frequency of deer observations (Table 2). Hunter attitudes toward inclusion of Shelby County into the restricted archery zone were dependent upon perceptions of deer seen compared to 5 years earlier and deer harvested during the 1998-99 archery deer seasons (Table 3).

Table 1. Landowner perception of annual crop damage by deer in response to the question. "How would you describe the level of crop damage you experience annually due to deer?"

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<u>Landowner (percent)</u>	<u>Level of damage</u>
21%	none
49%	light
20%	moderate
7%	heavy
3%	severe

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Table 2. Analysis of variance model for landowner attitudes toward deer harvest.

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$r^2 = 0.46$                        $F = 3.9$                        $P < 0.0000$   
0

Independent Variables Deer seen compared to 5 years ago Level of crop damage Desired level for deer population Frequency of deer observations

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Table 3. Analysis of variance model for hunter attitudes toward deer harvest.

$r^2 = 0.40$                        $F = 2.36$                        $P < 0.0000$

Independent Variables  
Deer seen compared to 5 years ago  
Deer harvested

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### **Discussion**

Although less than half of Shelby County hunters surveyed supported changes in deer harvest during the first archery seasons, it is perhaps important to recognize that 45% of those responding did favor such a change. Given the political nature of the proposed policy, these hunters were perceived as representing the hunting public. An integral part of the perceived need for decreased deer harvest was the perception of deer herd decline. Most hunters felt the deer herd had declined over the five-year period prior to the survey. Landowner perceptions of deer herd size were opposite those of hunters. More landowners thought deer numbers were higher than 5 years earlier. Most landowners wanted deer harvest increased or kept at the current level, due to perceptions of deer herd size and

concerns over crop damage. The strong differences between landowner and hunter perceptions of deer herd size were important when the final regulatory decision was made, as landowner concerns abated lawmaker support for harvest restrictions.

### **Management implications**

This case serves as an example of the need for input from major stakeholders in wildlife management. Managers are often pressured by various stakeholders to manage resources in ways advantageous to a particular concern. By including the views of a variety of stakeholder groups, decisions may be made that will avoid conflict from and alienation of segments of the public not considered traditional wildlife management constituencies.