

## **Findings Abstracts**

# **Reported Harvest and Days Afield Among Waterfowl Hunters: Do Pre-season Contacts Make a Difference?**

CRAIG A. MILLER, ANDREW L. STEPHENSON,  
AND BRENT D. WILLIAMS

Illinois Natural History Survey, Prairie Research Institute, University of Illinois,  
Champaign, Illinois, USA

Wildlife management requires accurate harvest estimates. Because hunters harvest fewer large game species (e.g., moose, elk, deer) compared to other species, harvest numbers for these species are less subject to recall bias or errors. Small game species, however, are harvested in greater numbers over longer seasons and harvest estimates are more prone to recall bias, heaping, and multiplier effects (Beaman, Vaske, & Miller, 2005a, 2005b; Miller & Anderson, 2003; Schmidt & Chapin, 2014; Vaske & Beaman, 2006). Harvest record logs, mailed prior to the start of hunting seasons, are commonly used to reduce reporting errors. Researchers have assumed that record logs reduce recall bias and increase reporting accuracy by providing hunters an opportunity to accurately record harvest and days hunted per species.

The Illinois Natural History Survey has conducted annual harvest surveys of waterfowl hunters in Illinois beginning in 1981. Each year, a random sample of 5,000 waterfowl stamp purchasers is selected and mailed a pre-season harvest record card. Hunters are instructed to record individual duck and goose species harvested, along with number of days and counties hunted. Following conclusion of all waterfowl hunting seasons in the state, participants are mailed an Illinois Waterfowl Hunter Survey questionnaire; questionnaire mailings and postcard reminders are mailed in 2-week intervals. Questionnaires contain items related to harvest, number of days afield, preferences for management actions, and season dates. Hunters are instructed to not return the harvest card, but refer to it when completing the harvest and days hunted portions of the questionnaire.

We tested the assumption that the pre-season harvest card influenced reported waterfowl harvests and days afield. We mailed harvest cards to the standard random sample of 5,000 waterfowl stamp purchasers and then selected an additional 2,500 stamp purchasers who were not mailed harvest record cards. Other than mailing the pre-season

Address correspondence to Craig A. Miller, Illinois Natural History Survey, Prairie Research Institute, University of Illinois, Champaign, IL 61820, USA. E-mail: [craigm@illinois.edu](mailto:craigm@illinois.edu)

**Table 1**  
Mean days hunted and harvest among 2013–14 Illinois waterfowl hunters,  
by harvest card mailing

	Mailed harvest cards	Not mailed harvest cards	<i>t</i>	<i>p</i>	<i>r</i> <sub>pb</sub>
	<i>M</i>	<i>M</i>			
Duck days hunted	12.53	13.59	1.79	.074	.04
Teal harvested	4.08	4.50	0.60	.549	.03
Mallards harvested	9.90	11.06	1.45	.147	.04
Total ducks of other species	6.62	7.93	2.23	.026	.06
Total ducks harvested	18.66	21.39	2.00	.045	.05
Teal/Hunter/Day	1.02	1.27	1.81	.072	.10
Mallards/Hunter/Day	0.76	0.79	0.85	.398	.02
Ducks of other species/Hunter/Day	0.51	0.55	1.09	.275	.03
Total ducks/Hunter/Day	1.45	1.54	1.37	.172	.03

harvest record card to the first group the two groups did not differ; both received the same questionnaires mailed on the same dates. We received a total of 3,331 (46%) completed questionnaires from both groups. Selecting only those respondents who reported they duck hunted at least one day ( $n = 1,796$ ), we used independent sample  $t$ -tests to analyze response rates between the two groups and measured effect size ( $r_{pb}$ ) for each harvest variable tested. Estimates were calculated for total teal, mallards, total ducks of other species harvested, and total days duck hunting (Table 1). We standardized harvest by unit effort (days afield per hunter) to account for possible differences in hunter participation.

There was no difference in response rates between individuals mailed harvest record cards and those who were not; participants mailed the pre-season harvest card constituted 67% of the mailing list and 65% of respondents. The two groups did not differ in terms of total days spent duck hunting ( $t = 1.79$ ,  $p = .074$ ,  $r_{pb} = .04$ ). No significant differences existed between the two groups in reported harvest for teal ( $t = 0.60$ ,  $p = .549$ ,  $r_{pb} = .03$ ), and mallards ( $t = 1.45$ ,  $p = .147$ ,  $r_{pb} = .04$ ). Significant differences were found between the groups for other duck species ( $t = 2.23$ ,  $p = .026$ ,  $r_{pb} = .06$ ) and total ducks harvested ( $t = 2.00$ ,  $p = .045$ ,  $r_{pb} = .05$ ), but effect sizes were minimal. Standardized harvests by hunters/day results were similar to individual species; teal harvest/hunter/day ( $t = 1.81$ ,  $p = .072$ ,  $r_{pb} = .10$ ), mallards/hunter/day ( $t = .846$ ,  $p = .398$ ,  $r_{pb} = .02$ ), ducks of other species/hunter/day ( $t = 1.09$ ,  $p = .275$ ,  $r_{pb} = .03$ ), and total ducks/hunter/day ( $t = 1.37$ ,  $p = .172$ ,  $r_{pb} = .03$ ) produced no significant differences between groups.

Based on our findings, we conclude that pre-season harvest record cards had no effect on reported days afield, harvest, or response rates among Illinois duck hunters. Given our results, we question the efficacy of further use of these cards among Illinois hunters, and welcome careful examination of the value of pre-season harvest records by other agencies.

## Funding

This study was funded by Federal Aid in Wildlife Research W-112-R-23.

## References

- Beaman, J., Vaske, J. J., & Miller, C. A. (2005a). Cognitive processes in hunters' recall of participation and harvest estimates. *Journal of Wildlife Management*, *69*, 967–975.
- Beaman, J., Vaske, J. J., & Miller, C. A. (2005b). Hunting activity record-cards and the accuracy of survey estimates. *Human Dimensions of Wildlife*, *10*, 285–292.
- Miller, C. A., & Anderson, W. L. (2002). Digit preference in reported harvest among Illinois waterfowl hunters. *Human Dimensions of Wildlife*, *7*, 55–65.
- Schmidt, J. I., & Chapin, F. S. (2014). Relationship of community characteristics to harvest reporting: Comparative study of household surveys and harvest tickets in Alaska. *Human Dimensions of Wildlife*, *19*, 334–346.
- Vaske, J. J., & Beaman, J. (2006). Lessons learned in detecting and correcting response heap-ing: Conceptual, methodological and empirical observations. *Human Dimensions of Wildlife*, *11*, 285–296.