



New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Bureau of Wildlife

Assessment of Deer Hunters' Support for Antler Restrictions in Wildlife Management Units 3A, 4G, 4O, 4P, 4R, 4S, 4W, and 4X

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Abstract

The New York State Department of Environmental Conservation (DEC) conducted a survey to determine whether deer hunters support a sportsmen's proposal for mandatory antler restrictions in Wildlife Management Units (WMUs) 3A, 4G, 4O, 4P, 4R, 4S, 4W, and 4X in the northern and western Catskill Region of New York. Specifically, the proposal calls for a regulation change to increase the minimum harvest standard for bucks in these units from any deer with an antler that is ≥ 3 inches in length to any deer with at least one antler with ≥ 3 points that are ≥ 1 inch long. The DEC supports voluntary antler restriction programs but has established guidelines for developing regulations for mandated antler restrictions requiring a supermajority ($\geq 67\%$) of support and no more than 20% strong opposition among deer hunters who hunt in the units in question. In February 2009, questionnaires were sent to a random sample of hunters who hunt in the WMUs included in the antler restriction proposal, and responses were evaluated in 4 WMU groups: 3A-4X, 4O-4P-4W, 4R-4S, and 4G. The mail survey response rate was 53.3% and results varied significantly ($P < 0.0001$) from a subsequent phone survey of non-respondents. When adjusted for non-response bias, hunter support for mandatory antler restrictions exceeded the DEC threshold in WMUs 4O-4P-4W (67.5%) and WMUs 3A-4X (69.8%). However, strong opposition for the proposed restriction also exceeded the DEC threshold in both WMUs 4O-4P-4W (22.1%) and WMUs 3A-4X (20.3%). For all WMU groups, the 95% confidence intervals of support and strong opposition spanned the DEC thresholds. Thus, the results of this study are inconclusive and do not provide clear direction to support moving forward with mandatory antler restrictions or to support taking no action. Monitoring of hunter attitudes towards mandatory antler restrictions will continue to be important regardless of whether new regulations are adopted or not.

Introduction

In recent years there has been growing interest and debate among hunters about programs to establish antler restrictions for deer hunting in New York. Antler restrictions prohibit hunters from taking bucks unless the buck meets a specific antler standard such as having 3 or more points on one antler. Simply stated, antler restrictions reduce harvest pressure on young bucks, allowing for a greater number of bucks to survive into older age classes (2.5 years and older) becoming larger and heavier, including larger antlers with more points.

The New York State Department of Environmental Conservation (DEC) supports voluntary antler restriction programs but does not see a critical biological need or compelling management advantage to mandate antler restrictions. However, DEC recognizes that antler restrictions can be part of a viable deer management program when hunter support for such restrictions is widespread. To address proposals from antler restriction advocacy groups in a consistent manner, DEC initiated a process that involves documentation by people who hunt in a given area of widespread support for mandatory antler restrictions, followed by scientific evaluation of support through a DEC sponsored survey. Because of the substantial change that antler restrictions would entail for New York hunters, DEC has established guidelines that require at least 67% support and no more than 20% strong opposition for mandatory antler restrictions before initiating formal regulatory changes.

Over the course of several years, hunters from several combinations of Wildlife Management Units (WMUs 3A and 4X, WMUs 4O, 4P, and 4W, WMUs 4R and 4S, and WMU 4G) expressed interest to the DEC regarding implementation of state mandated antler restrictions in these units. The groups advocating antler restrictions provided evidence to DEC of substantial grassroots support for antler restrictions within their areas through informal surveys and petitions from local hunters, letters of support from county federations of sportsmen and local elected representatives, and comments provided during several informational meetings.

The objective of the DEC survey reported here was to determine the level of support and opposition for mandatory antler restrictions among deer hunters who hunt in the Wildlife Management Units in the area of interest, pursuant to established guidelines.

Methods

DEC conducted a mail survey of deer hunters who likely hunted in one of the WMU groups: 3A-4X, 4O-4P-4W, 4R-4S, or 4G. Using the Department's automated licensing system data base, a random sample of hunters was drawn from among: (1) hunters who reported harvesting a deer in one of the study area WMUs during the 2008 hunting season, (2) hunters who applied for a Deer Management Permit in one of the study area WMUs during the 2008 hunting season, and (3) hunters who reside in one of the study area WMUs. The sample was drawn to provide roughly 1,000 names per WMU group with a goal of obtaining ≥ 400 usable responses from each group. This sampling frame was designed to yield estimates that would be accurate to within a margin of error of plus or minus 5 percentage points (Cochran, 1977).

Hunters receiving the questionnaire were provided details of the potential antler restriction regulation and asked to indicate whether they support the proposed mandatory antler restriction regulations (Appendix A). Response options for indicating support were based on the 5-point Likert scale. For the purpose of comparing support levels to DEC thresholds, responses indicating "strongly support" or "moderately support" were summed while responses indicating "don't care," "moderately opposed," or "strongly opposed" were tallied separately.

Hunters were also asked to indicate one WMU in which they primary hunt. This question was used to assign respondents to one of the four WMU groups. Responses from hunters who neglected to indicate their primary hunting area or who indicated that their primary WMU was "other" (instead of one of the WMUs in the survey area) were not included when estimating support for the proposed antler restriction regulations. Responses from hunters who indicated more than one WMU (despite the instructions to only designate a single WMU) were not

included in the WMU group totals unless the multiple selections were all part of one WMU group¹.

Questionnaires were mailed on February 2, 2009, and questionnaires postmarked on or before February 20, 2009 were included in the analysis. To test for non-response bias in our data, we contacted >50 non-respondents from each WMU group via telephone. We asked these hunters the same questions as were on the mail survey. Mail survey results were corrected for non-response bias using Lessler and Kalsbeek (1992).

Results and Discussion

Of the initial 3,917 questionnaires mailed to hunters, 104 were undeliverable (typically because of erroneous addresses). Thus, the adjusted sample size was 3,813. We received 2,032 responses for a 53.3% response rate. Responses were categorized into the four WMU groups based on the information indicated by hunters in the first survey question. Responses from hunters who indicated their primary hunt location was "Other" ($n = 144$), who selected multiple areas ($n = 66$), or who neglected to indicate their level or support or opposition ($n = 34$) were not used in the analysis of WMU groups. This yielded 353 usable mail survey responses for WMUs 3A-4X, 549 responses for WMUs 4O-4P-4W, 419 responses for WMUs 4R-4S, and 400 responses for WMU 4G (Appendix B1).

Additionally, we telephoned 59 hunters in WMUs 3A-4X, 61 hunters in WMUs 4O-4P-4W, 51 hunters in WMUs 4R-4S, and 56 hunters in WMU 4G who did not respond to the mail questionnaire (Appendix B2) to assess non-response bias. Consistent with the mail survey, responses from hunters who during the phone survey indicated their primary hunt location was "Other" ($n = 66$) or who neglected to indicate their level or support or opposition ($n = 1$) were not used in the analysis of WMU groups.

We found that mail survey respondents had significantly lower support levels ($\bar{x} = 64.1\%$) and higher levels of strong opposition ($\bar{x} = 27.8\%$) than non-respondents (support, $\bar{x} = 70.5\%$; strong opposition, $\bar{x} = 11.0\%$; $P < 0.0001$), clarifying the importance of adjusting the survey data to account for non-response bias.

When adjusted for non-response bias, hunter support for mandatory antler restrictions exceeded the DEC threshold (67% support) in WMUs 4O-4P-4W (67.5%) and WMUs 3A-4X (69.8%, Table 1). However, strong opposition for the proposed restriction also exceeded the DEC threshold (20%) in both WMUs 4O-4P-4W (22.1%) and WMUs 3A-4X (20.3%). Hunter support for antler restrictions in WMUs 4R-4S (65.5%) and WMU 4G (64.9%) was below the DEC threshold, as was the level of strong opposition in WMUs 4R-4S (17.5%) and WMU 4G (19.6%). For all WMU groups, the 95% confidence intervals of support and strong opposition spanned the DEC thresholds (Figures 1a-b).

Based on the absolute estimates of hunter support and strong opposition, no WMU group clearly met the DEC guidelines. However, because DEC thresholds were within the 95% confidence interval for all measures of support and opposition, the results of this study are inconclusive and do not provide clear direction to support moving forward with mandatory antler restrictions or to support taking no action. Given the equivocal results, it is appropriate and

¹ For example, the response from a hunter who selected WMUs 4O and 4P was used because both units were within the WMU group 4O-4P-4W. Whereas, the response from a hunter who selected WMUs 3A and 4R, was not used because the two units belong to separate WMU groups, 3A-4X and 4R-4S.

advisable to continue evaluating hunter attitudes towards mandatory antler restrictions regardless of whether new regulations are adopted or not.

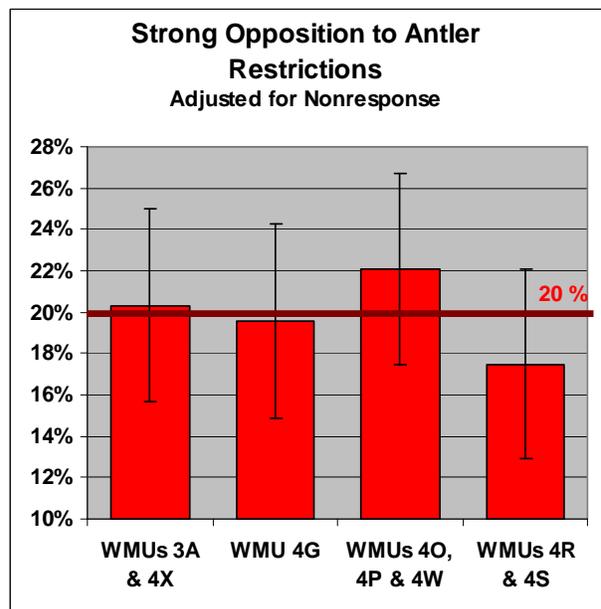
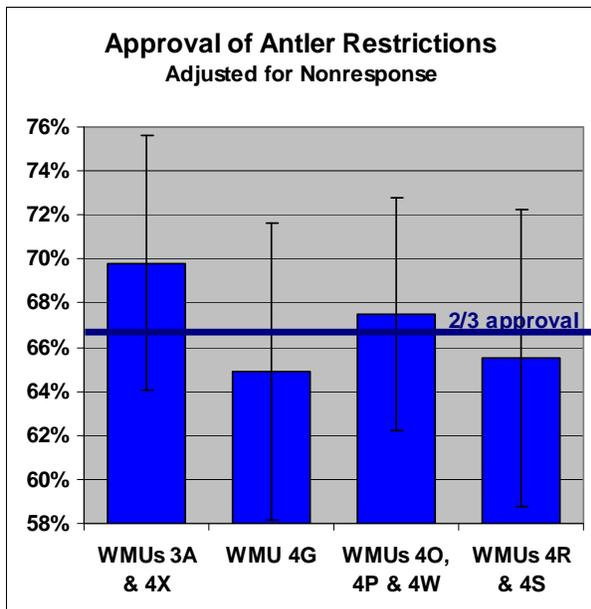
Deer management is among the highest profile DEC activities because of both recreational demand for deer hunting opportunity and the use of hunting as the most effective population management tool to mitigate ecological and economic impacts of locally overabundant populations. The DEC continually monitors harvests and indications of stakeholder satisfaction and will propose legislative and regulatory changes periodically when such are needed to fulfill our stewardship responsibilities.

Table 1. Attitudes of deer hunters in four Wildlife Management Unit (WMU) groups for proposed mandatory antler restrictions based on a mail survey conducted in February 2009 and adjusted for non-response bias. Confidence intervals (95%) are reported for the critical measures of support and opposition.

WMUs	<i>n</i>	Strongly Support	Moderately Support	Total Support	Don't Care	Moderately Oppose	Strongly Oppose
3A-4X	412	51.4%	18.4%	69.8% (64.0-75.6)	3.8%	6.0%	20.3% (15.6 - 25.0)
4G	456	40.3%	24.6%	64.9% (58.2-71.6)	6.7%	8.8%	19.6% (14.9-24.3)
4O-4P-4W	610	45.3%	22.2%	67.5% (62.2-72.8)	2.1%	8.3%	22.1% (17.5-26.7)
4R-4S	470	46.8%	18.7%	65.5% (58.7-72.3)	7.1%	9.9%	17.5% (12.9-22.1)
Total	1948	46.0%	21.1%	67.1% (64.0-70.2)	4.7%	8.2%	19.9% (17.6-22.3)

Figures 1a-b.

Levels of approval and strong opposition, with 95% confidence intervals, of deer hunters in four Wildlife Management Unit (WMU) groups for proposed mandatory antler restrictions relative to DEC thresholds based on a mail survey conducted in February 2009 and adjusted for non-response bias.



Acknowledgements

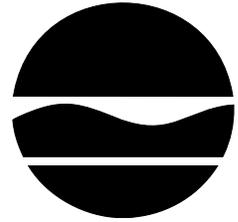
We thank Gordon Batcheller, Chuck Dente, Lauren Jacobson, Jeffrey Peil and other members of the DEC's Bureau of Wildlife who assisted with developing and mailing the questionnaire, processing the returns, and conducting the phone survey. Additionally, we thank the groups who brought the antler restriction proposals to DEC for their extensive efforts on behalf of those hunters interested in antler restrictions, and we appreciate the responses received from hunters during both the mail and telephone survey portions of this study.

Literature Cited

Cochran, W. G. 1977. Sampling techniques. 3rd edition. John Wiley & Sons, New York.

Lessler, J. T. and W. D. Kalsbeek. 1992. Nonresponse error in surveys. John Wiley & Sons, New York.

Appendix A. Questionnaire used to survey hunters from Wildlife Management Units 3A, 4G, 4O, 4P, 4R, 4S, 4W, and 4X in the northern and western Catskill Region of New York in February 2009 regarding proposed mandatory antler restrictions.



Alexander B. Grannis
 Commissioner

February 2009

John Doe
 1 Buck Way
 New York, NY 00000

Fellow Deer Hunter:

You have been randomly selected to participate in a survey to determine whether hunters support a proposal for mandatory antler restrictions in selected areas within New York State. Proposals have been submitted to the DEC to modify buck hunting regulations in Wildlife Management Units (WMUs) 3A, 4G, 4O, 4P, 4R, 4S, 4W, and 4X (see map below) through implementation of antler restrictions. The goal of the proposed antler restriction would be to protect a majority of young bucks from harvest. These restrictions would not affect the deer population goals for each WMU.

If implemented, the regulations would require that:

- Bucks taken in these WMUs have at least one antler with 3 or more points that are at least one inch long.
- Antlerless deer would still be classified as any deer having no antlers or antlers less than 3 inches long.
- The restriction would apply on all public and private land within the WMUs and during all hunting seasons.
- Hunters under 17 years old would be exempt.

Your opinion matters. Please take a moment to answer the following short questions, then simply cut and return the form in the enclosed postage-paid envelope **to DEC by February 20, 2009**. Please feel free to provide your comments on the back of the survey form.

To learn more about DEC's current antler restriction program, please see www.dec.ny.gov/outdoor/27663.html.

Thank you again for your assistance, and best of luck hunting in New York State!

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In which WMU do you primarily hunt?
 (fill in ONE only.)

- 3A 4G 4O 4P
 4R 4S 4W 4X Other

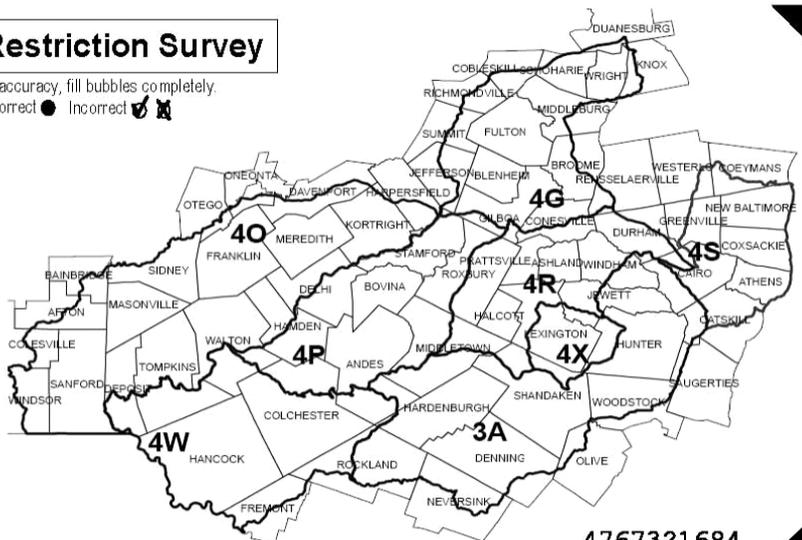
Please indicate your level of support for the proposed antler restriction.

For the purposes of measuring support, filling in the 'Don't Care' circle will result in your opinion not being counted as supportive or opposed to the proposal.

- Strongly Support Moderately Support
 Strongly Opposed Moderately Opposed
 Don't Care

Antler Restriction Survey

For best accuracy, fill bubbles completely.
 Correct ● Incorrect ☒



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Appendix B1. Attitudes of deer hunters in four Wildlife Management Unit (WMU) groups for proposed mandatory antler restrictions based on a mail survey conducted in February 2009. Responses that did not indicate a level of support or opposition ($n=34$) are not reported.

WMUs	<i>n</i>	Strongly Support	Moderately Support	Total Support	Don't Care	Moderately Oppose	Strongly Oppose
3A-4X	353	50.4%	13.6%	64.0%	1.1%	5.4%	29.5%
4G	400	48.3%	19.0%	67.3%	1.0%	5.3%	26.5%
4O-4P-4W	549	44.8%	16.9%	61.7%	1.3%	8.4%	28.6%
4R-4S	419	48.4%	16.0%	64.4%	1.0%	8.1%	26.5%
Multiple Groups	66	59.1%	13.6%	72.7%	3.0%	7.6%	16.7%
Other	142	54.2%	15.5%	69.7%	5.6%	7.7%	16.9%
Blank	69	26.1%	13.0%	39.1%	7.2%	14.5%	39.1%
WMU Group Total	1721	47.6%	16.2%	64.1%	1.1%	7.0%	27.8%
Grand Total	1998	47.7%	16.2%	64.0%	1.7%	7.3%	27.0%

Appendix B2. Attitudes of deer hunters in four Wildlife Management Unit (WMU) groups for proposed mandatory antler restrictions based on a phone survey of hunters who did not respond to the mail survey. Responses that did not indicate a level of support or opposition ($n=1$) are not reported.

WMUs	<i>n</i>	Strongly Support	Moderately Support	Total Support	Don't Care	Moderately Oppose	Strongly Oppose
3A-4X	59	52.5%	23.7%	76.3%	6.8%	6.8%	10.2%
4G	56	32.1%	30.4%	62.5%	12.5%	12.5%	12.5%
4O-4P-4W	61	45.9%	29.5%	75.4%	3.3%	8.2%	13.1%
4R-4S	51	45.1%	21.6%	66.7%	13.7%	11.8%	7.8%
Other	66	53.0%	21.2%	74.2%	12.1%	7.6%	6.1%
WMU Group Total	227	44.1%	26.4%	70.5%	8.8%	9.7%	11.0%
Grand Total	293	46.1%	25.3%	71.3%	9.6%	9.2%	9.9%