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ANTLER POINT RESTRICTIONS STUDY SURVEY IN THE CORE CWD AREA

Brian J. Frawley

ABSTRACT

A survey was completed to determine whether hunters supported a study to investigate the effects of mandatory APRs (i.e., four points on a side) on Chronic Wasting Disease (CWD) among the deer in the 5-county Core CWD Area (Ionia, Kent, Mecosta, Montcalm, and Newaygo counties). The proposed study would look at the effects of mandatory APRs on deer numbers, antlerless harvest, and the sex and age composition of the deer herd. The data gathered from this study will better inform management and regulation decisions in CWD management areas. Questionnaires were sent to a random sample of hunters; 68% of hunters returned their questionnaire. About 63% of the people hunting deer in the 5-county Core CWD Area supported the mandatory APRs and 68% supported conducting a study to investigate the effects of these mandatory APRs.

INTRODUCTION

Chronic Wasting Disease (CWD) is a fatal neurodegenerative disease affecting several species of wildlife in the Cervidae family including white-tailed deer (*Odocoileus virginianus*). CWD is considered the most important disease currently threatening North American cervids (Gillin et al. 2018). CWD belongs to a group of diseases known as transmissible spongiform encephalopathies, which are caused by infectious misfolded proteins (i.e., prions). CWD prions can be passed directly and indirectly among susceptible animals. Chronic Wasting Disease was first found among Michigan's wild white-tailed deer in 2015 (Stewart et al. 2016).

During the last twenty years, there has been a growing interest in antler point restrictions (APRs) in Michigan, and the Department of Natural Resources (DNR) has received numerous



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requests from hunters to implement mandatory APRs. Under APRs, regulations would protect most 1½-year-old bucks from harvest because their antlers would be too small for hunters to harvest the deer legally. So, the APRs should allow these young deer to become older. Although the APRs may produce older deer, the effects of APRs on CWD management are generally unknown. Research from other states suggests that older bucks are more likely to be infected with CWD than younger bucks (e.g., Grear et al. 2006), and having more older bucks could help spread CWD. However, APRs may also lower the overall number of deer in the APR area, which could reduce the spread of CWD.

The Natural Resources Commission (NRC) requested that the DNR measure the support for a study investigating the effects of mandatory APRs on CWD among deer in portions of Ionia, Kent, Mecosta, Montcalm, and Newaygo counties (Core CWD Area). The proposed study would look at the effects of mandatory APRs on deer numbers, antlerless harvest, and the sex and age composition of the deer herd. The data gathered from this study will better inform management and regulation decisions in CWD management areas.

For this study, the DNR would divide the 5-county area in half and enforce mandatory APRs in one area (i.e., APR Area) and maintain the current rules in the other area (i.e., Control Area). In the APR Area, only bucks with at least four points on one antler could be taken. People that are currently exempt from APRs (for example, hunters in the Liberty and Independence hunts and people hunting under a Mentored Youth license) would continue to be exempt in the APR Area. In the Control Area, any buck with an antler greater than three inches in length could be taken with a valid license.

The DNR has the authority and responsibility to protect and manage deer in Michigan while the NRC has the authority to regulate the taking of game (Natural Resources and Environmental Protection Act, Public Act 451 of 1994). Opinion surveys are a management tool used by the Wildlife Division to accomplish its statutory responsibility. The main objectives of this opinion survey were to determine whether hunters supported mandatory APRs (i.e., four points on a side) and whether they supported a study to investigate the effects of these APRs on CWD among the deer in the 5-county Core CWD Area. If the field study is completed, hunters' support for APRs will be measured again when the study has ended to determine whether implementing the mandatory APRs changed the level of support for APRs.

METHODS

The guidelines for evaluating APR proposals (Quality Deer Management Working Group 2013) did not apply to this survey because this project was requested by the NRC, rather than initiated by a local group. A randomly selected sample of hunters (n=4,447) from the 5-county Core CWD Area was sent a questionnaire to determine their opinions about the proposed APR study (Table 1). Estimates of hunter support were calculated using a stratified random sampling design that included two strata (Cochran 1977). A random sample of hunters was obtained from a list of people that indicated they had hunted in the Core CWD Area during either 2016 or 2017 (first stratum). This list represented randomly selected people included in the annual deer harvest survey that was conducted by the Wildlife Division (Frawley 2017, 2018). Also, an additional random sample was selected from the list of hunters from the Core

CWD Area that had voluntarily reported information about their deer hunting activity via the internet prior to the initiation of the annual deer harvest survey (second stratum). The random sample consisted of 4,248 people from the first stratum and 199 people from the second stratum. The stratified sampling design accounted for the varying probabilities of being selected from the strata so estimates could be reliably extrapolated from the sample to all license buyers.

Questionnaires were initially mailed during mid-March 2019. Up to two follow-up questionnaires were mailed to nonrespondents. People receiving a questionnaire were asked to report whether they supported the proposed mandatory APRs for the Core CWD Area and whether they supported a study investigating the effects of the mandatory APRs on CWD among the deer. Response options to the questions were “yes” or “no” (Appendix A). The percentage of support was measured by dividing the number of “yes” responses by the sum of those responses indicating “yes” or “no.” People who did not provide an answer were not used to estimate support for the proposed mandatory APRs. Moreover, opinions of hunters that did not hunt within the Core CWD Area were not included when estimating support for the proposed APRs.

Estimates of support for the mandatory APRs were calculated along with their 95% confidence limit (CL). This CL could be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval was a measure of the precision associated with the estimate and implied that the true value would be within this interval 95 times out of 100. Estimates were not adjusted for possible response or nonresponse bias.

RESULTS AND DISCUSSION

Although 4,447 people were sent the questionnaire, 74 surveys were undeliverable resulting in an adjusted sample size of 4,373 (i.e., minus undeliverable questionnaires). Questionnaires were returned by 2,992 people, yielding a 68% adjusted response rate.

Among the hunters that hunted in the Core CWD Area, about 63% supported implementing the proposed mandatory APRs (Table 2). About 38% of the hunters did not support implementing the mandatory APRs. In addition, about 68% of the hunters supported a study to investigate the effects of APRs on CWD among the deer in the 5-county Core CWD Area, while 32% did not support a study.

The NRC holds final authority regarding APR implementation, which will be up for consideration during the establishment of deer hunting regulations for the 2019 season.

ACKNOWLEDGEMENTS

I thank all the hunters that provided information. Theresa Riebow completed data entry. Marshall Strong prepared Figure 1. Ashley Autenrieth, Sarah Cummins, Mike Donovan, Russ Mason, and Chad Stewart reviewed a draft version of this report.

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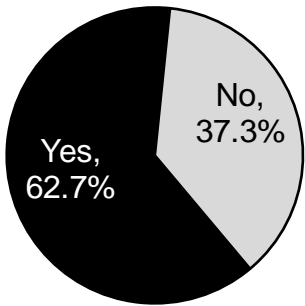
Figure 1. Five counties (shaded) in the Core CWD Area affected by the proposed APR study, 2019.

Table 1. The estimated number of hunters in the 5-county Core CWD Area and the number of hunters selected to receive the opinion survey about mandatory APR regulations in Core CWD Area, Michigan.

Total number of hunters ^a	Number of people included in sample ^a	Number of questionnaires that were undeliverable	Number of questionnaires returned	Response rate (%)
64,642	4,447	74	2,992	68

^aEstimated number of people that hunted deer in the 5-county Core CWD Area in 2017 (Frawley 2018).

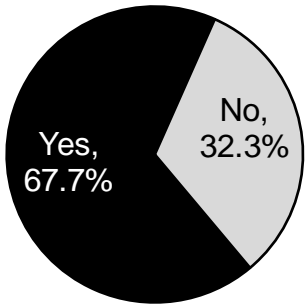
Table 2. The proportion of hunters supporting mandatory antler point restrictions in the 5-county Core CWD Area, Michigan, in 2019.

Response	Percentage of hunters ^a	95% CL ^b	Responses (%)
Yes (Supported mandatory APR regulations)	62.7	1.8	
No (Did not support mandatory APR regulations)	37.3	1.8	

^aPercentage of hunters that hunted deer in the 5-county Core CWD Area; hunters that failed to provide an answer (<1%) were not used to measure support for mandatory APRs.

^b95% confidence limits.

Table 3. The proportion of hunters supporting the APR study in the 5-county Core CWD Area, Michigan, in 2019.

Response	Percentage of hunters ^a	95% CL ^b	Responses (%)
Yes (Supported APR study)	67.7	1.7	
No (Did not support APR study)	32.3	1.7	

^aPercentage of hunters that hunted deer in the 5-county Core CWD Area; hunters that failed to provide an answer (<1%) were not used to measure support for mandatory APRs.

^b95% confidence limits.

APPENDIX A

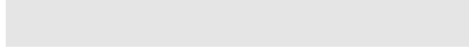
Questionnaire Used for the Evaluation of the Proposed APR study in Deer Management Units in the 5-county Core CWD Area of Michigan.



MICHIGAN DEPARTMENT OF NATURAL RESOURCES, WILDLIFE DIVISION
PO BOX 30030 LANSING MI 48909-7530

DEER HUNTER OPINION SURVEY

This information is requested under authority of Part 435, 1994 PA 451, M.C.L. 324.43539.



The effects of **mandatory** antler point restrictions (mAPRs) on Chronic Wasting Disease (CWD) prevalence are currently unknown. The Natural Resources Commission has requested the Department of Natural Resources to design and measure the support for a study investigating the effects of mAPRs on deer in portions of Ionia, Kent, Mecosta, Montcalm, and Newaygo counties (see map on reverse side). The proposed study would look at the effects of mAPRs on deer numbers, antlerless harvest, and the sex and age composition of the deer herd. The data gathered from this study will better inform management and regulation decisions in CWD management areas.

For this study, we propose to divide the 5-county area in half and enforce mAPRs in one area (i.e., mAPR Area) and maintain the current rules in the other area (i.e., Control Area). In the mAPR Area, only bucks with at least four points on one antler could be taken. People that are currently exempt from mAPRs (for example, hunters in the Liberty and Independence hunts and people hunting under a Mentored Youth license) would continue to be exempt in the mAPR Area. In the Control Area, any buck with an antler greater than three inches in length could be taken with a valid license.

If the proposed study is undertaken, mAPRs would be in place beginning with the 2019 deer hunting season. This survey's intent is to measure public support for mAPRs within the 5-county study area. Please provide us with your opinion about the mAPRs by completing the brief list of questions.

Please return this questionnaire in the enclosed postage-paid envelope.
Thanks for your help.

1. Do you hunt deer in the area affected by this proposed study (see figure below)? 1 ☐ Yes 2 ☐ No
2. Do you own at least 5 acres of land in the area affected by the proposed study? 1 ☐ Yes 2 ☐ No
3. Do you support the proposed antler-point restrictions in the county where you hunt in the study area? 1 ☐ Yes 2 ☐ No
4. Do you support this proposed antler-point restriction study? 1 ☐ Yes 2 ☐ No

The shaded area would be affected by the proposed study.

