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EVALUATION OF QUALITY DEER MANAGEMENT (QDM) IN DEER MANAGEMENT UNITS 152, 155, AND 252 (ALGER, DELTA, DICKINSON, AND MARQUETTE COUNTIES)

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ABSTRACT

A survey was completed to determine whether hunters and landowners supported existing mandatory Quality Deer Management (QDM) regulations in Deer Management Units (DMUs) 152, 155, and 252. A key feature of these existing QDM regulations was that the definition of a buck was a deer with three or more points on one antler. The Michigan Department of Natural Resources (DNR) supports the voluntary implementation of QDM practices on private land in Michigan. However, mandatory regulations should be imposed in a DMU only when it can be shown that a clear majority ($\geq 66\%$) of hunters and landowners support implementation. Questionnaires were sent to a random sample of landowners and hunters; 76% of the landowners and 82% of hunters returned their questionnaire. About 60% of landowners owning land in DMUs 152, 155, and 252 and 52% of people hunting deer in these DMUs supported continuation of antler point restrictions. Support from both landowners and hunters was insufficient to recommend continuation of antler point restrictions in DMUs 152, 155, and 252.

INTRODUCTION

Since 2001, deer hunters in Deer Management Units (DMUs) 152, 155, and 252 in portions of Alger, Delta, Dickinson, and Marquette counties have been allowed to take an antlered deer (buck) only if it had three or more antler points on one antler (Frawley 2001). This regulation



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was originally implemented as part of a deer management philosophy called Quality Deer Management (QDM). Quality Deer Management seeks to keep deer populations in balance with the habitat, more closely balance sex ratios, and increase the number of older-age bucks in the population.

The Michigan Department of Natural Resources (DNR) supports the voluntary implementation of QDM practices on private land. The DNR supports mandatory QDM regulations in a DMU if at least 66% of hunters and landowners in the affected DMU support these regulations. The DNR developed guidelines for considering and implementing QDM regulations with the assistance of private conservation groups and resource agencies (Quality Deer Management Working Group 1999). According to these guidelines, the DNR would determine whether hunters and landowners supported continuation of antler point restrictions five years after they were initiated.

The Wildlife Division has the authority and responsibility to protect and manage the wildlife resources of the State of Michigan. 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 and landowners supported continuation of the existing antler point restrictions (i.e., three points on a side) in DMUs 152, 155, and 252.

METHODS

This survey was done in accordance with guidelines developed for evaluating proposed mandatory QDM regulations in Michigan (Quality Deer Management Working Group 1999). A questionnaire was sent to 1,976 randomly selected hunters and landowners from DMUs 152, 155, and 252. The survey was designed to produce estimates that would be accurate within a margin of error of plus or minus five percentage points.

A list of property parcels ≥ 5 acres were obtained from the Equalization offices in Alger, Delta, Dickinson, and Marquette counties. The property tax records were organized by property parcel identification numbers, rather than by landowner names. Therefore, people owning multiple parcels were in the property tax records multiple times. The parcels owned by the same landowner were combined to create a list of landowners. Property tax records included a legal description for each parcel. These legal descriptions were used to exclude parcels lying outside DMUs 152, 155, and 252 from the sample. As the landowner list was compiled, publicly owned land and parcels within cities and villages were also excluded. The final landowner list consisted of 4,072 landowners. From the final landowner list, 1,000 landowners were randomly selected to receive a questionnaire (i.e., simple random sampling design, Cochran 1977).

The estimate of hunter support was calculated using a simple random sampling design. A random sample of these hunters was obtained from lists of people that indicated they had hunted in DMUs 152, 155, and 252 during 2002-2004. These lists represented randomly selected people included in annual deer harvest surveys that were conducted by the Wildlife Division (Frawley 2003, 2004, 2005). For these harvest surveys, hunters reported the DMUs where they hunted. The final list consisted of 1,648 hunters, and 1,000 hunters were randomly selected to receive a questionnaire.

People receiving the questionnaire were asked to report whether they supported continuation of the existing antler point restrictions in DMUs 152, 155, and 252. Response options to the question were “yes,” “no,” “undecided,” and “don’t care” (Appendix A). The percentage of support was measured by dividing the number of “yes” responses by the sum of those responses indicating “yes,” “no,” or “undecided.” People who indicated “don’t care” or who did not provide an answer were not used to estimate support for continuing antler point restrictions. A screening question was asked of everybody that received the questionnaire to determine whether they still hunted or owned land in DMUs 152, 155, and 252. The opinions of hunters that did not hunt within DMUs 152, 155, and 252 and landowners that did not own land within DMUs 152, 155, and 252 were not included when estimating support for continuing antler point restrictions.

Estimates of support for the continuation of antler point restrictions were calculated along with their 95% confidence limit (CL). This confidence limit 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.

The random sample of people receiving the questionnaire included 1,000 landowners and 1,000 hunters, including 24 people that were included in both the landowner and hunter samples (Table 1). Questionnaires were initially mailed during December 2005. As many as two follow-up questionnaires were mailed to nonrespondents.

RESULTS AND DISCUSSION

Questionnaires were originally mailed to 1,976 people, but questionnaires were undeliverable to 33 people (20 landowners and 14 hunters). Thus, the adjusted sample size was 980 landowners and 986 hunters. Questionnaires were returned by 1,525 people, yielding an overall 78% response rate. Questionnaires were returned by 740 landowners (76%) and 807 hunters (82%) (Table 1). Response rates of both groups exceeded the minimum response rate of 50% that was required in order to accept the results of the survey (Quality Deer Management Working Group 1999).

About 60% of the landowners owning land in DMUs 152, 155, and 252 supported the existing antler point restrictions (Table 2). In contrast, 38% of landowners did not support antler point restrictions and about 3% did not have an opinion about the rule. Among hunters that hunted in DMUs 152, 155, and 252, about 52% supported antler point restrictions (Table 3). About 46% of the hunters did not support antler point restrictions and less than 2% did not have an opinion about the rule. The support of both landowners and hunters was insufficient to recommend continuation of antler point restrictions for DMUs 152, 155, and 252 by the Wildlife Division to the Natural Resources Commission.

ACKNOWLEDGEMENTS

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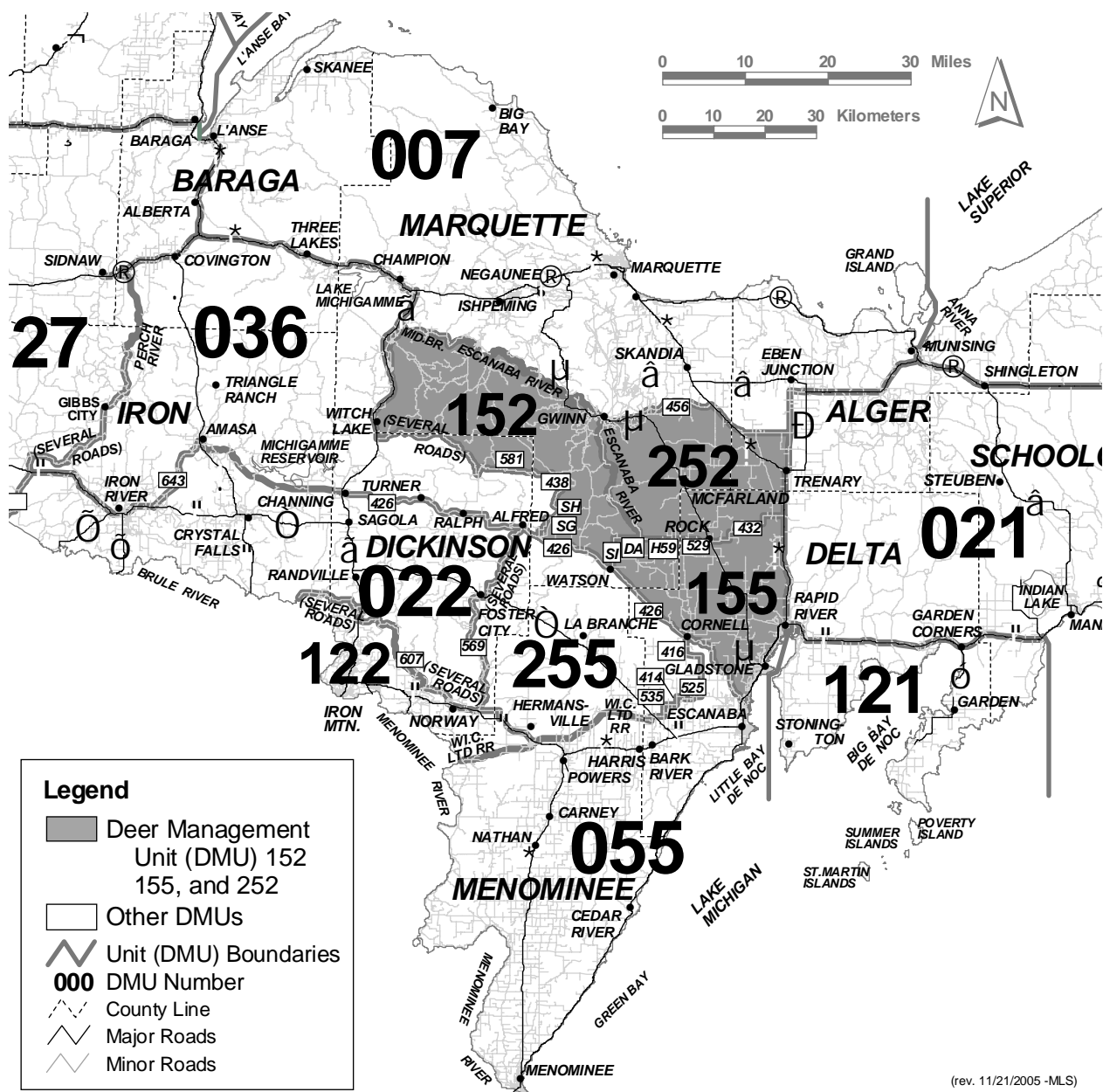


Figure 1. Deer Management Units 152, 155, and 252 (shaded area) in the Upper Peninsula of Michigan, 2005.

Table 1. Number of people within each group and number selected for the random sample of people receiving the opinion survey regarding mandatory QDM regulations in DMUs 152, 155, and 252, Michigan.

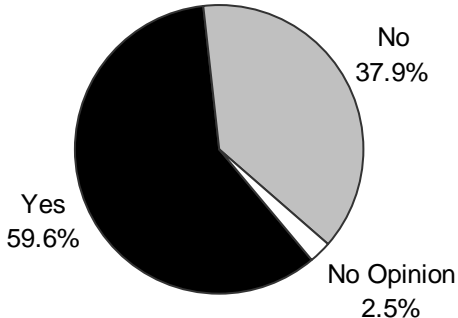
Group	Total number of people in group	Number of people included in sample ^a	Number of questionnaires that were undeliverable	Number of questionnaires returned	Response rate (%)
Landowners ^b	4,072	1,000	20	740	76%
Hunters ^c	13,179	1,000	14	807	82%

^aTwenty-four people were included in both the landowner and hunter samples; thus, the overall sample size consisted of 1,976 people.

^bLandowners owned at least one 5-acre parcel; however, each landowner was counted once regardless of number of parcels owned.

^cEstimated number of people that hunted deer in DMUs 152, 155, and 252 in 2003 (Frawley 2005).

Table 2. Proportion of landowners supporting the proposed mandatory QDM regulations in DMUs 152, 155, and 252, Michigan.

Response	Percentage of landowners ^a	95% CL ^b	Responses (%)
Yes (Supported mandatory QDM regulations)	59.6%	3.5%	
No (Did not support mandatory QDM regulations)	37.9%	3.4%	
No opinion	2.5%	1.1%	

^aPercentage of landowners owning at least one 5-acre parcel of land in DMUs 152, 155, and 252; landowners that selected "don't care" ($2.8 \pm 1.2\%$) were not used to measure support for mandatory QDM regulations.

^b95% confidence limits.

Table 3. Proportion of hunters supporting the proposed mandatory QDM regulations in DMUs 152, 155, and 252, Michigan.

Response	Percentage of hunters ^a	95% CL ^b	Responses (%)
Yes (Supported mandatory QDM regulations)	51.9%	4.0%	<p>A pie chart illustrating the distribution of responses regarding support for mandatory QDM regulations. The largest segment, 'Yes', represents 51.9% of the total and is colored black. The second largest segment, 'No', represents 46.2% and is colored light gray. The smallest segment, 'No Opinion', represents 1.9% and is colored white. Labels for each segment are placed directly on the chart.</p>
No (Did not support mandatory QDM regulations)	46.2%	3.9%	
No opinion	1.9%	1.1%	

^aPercentage of hunters that hunted deer in DMUs 152, 155, and 252; hunters that selected “don’t care” (0.5 ± 0.6%) or failed to provide an answer (0.3 ± 0.5%) about their support for QDM regulations were not used to measure support for mandatory QDM regulations.

^b95% confidence limits.

Appendix A

Deer Management Survey Questionnaire for
Deer Management Units 152, 155, and 252.



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

DEER MANAGEMENT SURVEY

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



Starting in 2001, deer hunters in Deer Management Units (DMUs) 152, 155, and 252 in portions of Alger, Delta, Dickinson, and Marquette counties were only permitted to take an antlered deer if it had three or more antler points on at least one antler. This rule has now been in effect for five hunting seasons, but before we make any recommendation about the future of this rule, we want to determine whether hunters and landowners support these antler-point restrictions.

1. Do you hunt in the management unit affected by the existing antler point restrictions (see map of DMUs 152, 155 and 252 on reverse side)? 1 ☐ Yes 2 ☐ No

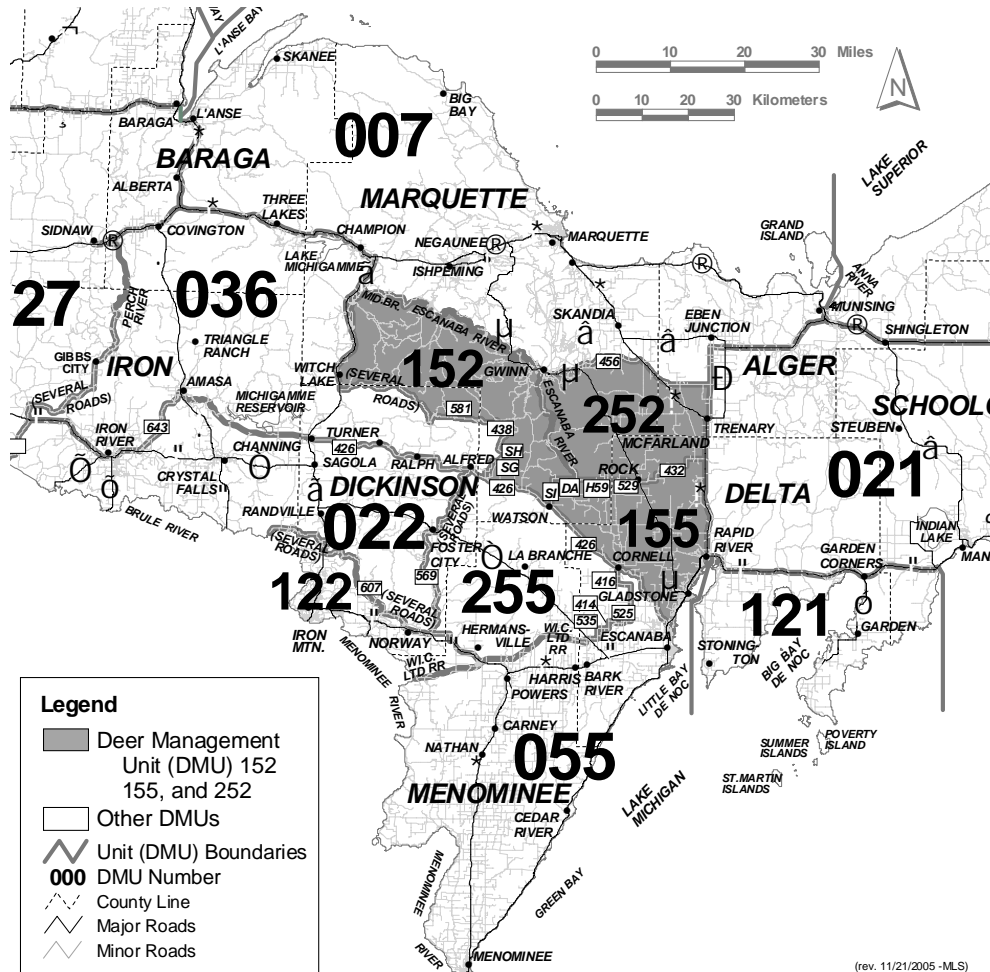
2. Do you own land in the management unit affected by the existing antler point restrictions (see map of DMUs 152, 155, and 252 on reverse side)? 1 ☐ Yes 2 ☐ No

3. Do you support the continuation of the antler point restrictions in DMUs 152, 155, and 252 (portions of Alger, Delta, Dickinson, and Marquette counties)? **For purposes of measuring support, checking the "no opinion" box will count as a "no" answer and indicates you have not formed an opinion about the proposal.** Checking the "don't care" box will result in your opinion not being counted as supporting or opposing the proposal. This merely indicates that you are aware of the proposal and don't care about this deer hunting regulation for this area.

1 ☐ Yes 2 ☐ No 3 ☐ No Opinion 4 ☐ Don't Care

*Please return questionnaire in the enclosed postage-paid envelope.
Thank you for your help.*

Deer Management Units 152, 155, and 252 in portions of Alger, Delta, Dickinson, and Marquette counties
QDM regulations are currently in effect in DMU 152, 155 and 252 (shaded area).



Deer Management Units 152 means that area of Marquette and Dickinson counties bounded by a line beginning at the junction of county road 426 and county road SI in Watson (Marquette county), then northeasterly on county road SI to the northwest corner of section 6, T42N R24W, easterly on the north section lines of sections 6 and 5, T42N R24W, to the Escanaba river, northwesterly along the Escanaba river to the middle branch of the Escanaba river, northwesterly along the middle branch of the Escanaba river to county road 478, westerly on county road 478 to county road 601, southwesterly on county road 601 through the city of Republic to highway M-95, southerly on highway M-95 into Dickinson county to Floodwood road, easterly on Floodwood road to McGregor creek road (section 10, T44N R28W), southeasterly on McGregor creek road to Cleveland homestead road (section 25, T44N R28W), easterly on Cleveland homestead road to county road 581, northerly and easterly on county road 581 to county road 438 in Marquette county, easterly on county road 438 to Ross grade road, southerly on Ross grade road to county road SH, southwesterly on county road SH to county road SG, southerly on county road SG to county road 426, southeasterly on county road 426 to the point of beginning.

Deer Management Units 155 means that area of Delta and Marquette counties bounded by a line beginning at the mouth of the Rapid river near the city of Rapid River in Delta county, then northerly upstream to highway US-2, westerly on highway US-2 toward the city of Rapid River to highway US-41, northerly on highway US-41 to county road 432, westerly on county road 432 to county road 529 at the city of Rock, westerly on county road 529 (H-59) into Marquette county to west Maple Ridge road (also known as county road DA), westerly on west Maple Ridge road to the north section line of sections 5 and 6, T42N R24W, westerly on the north section line of sections 5 and 6, T42N R24W, to county road SI, southwesterly on county road SI to county road 426, southeasterly on county road 426 into Delta county to highway US-2/US-41, northerly on highway US-2/US-41 to the Escanaba river, southeasterly down the center of the Escanaba river into Lake Michigan, northeasterly along the Lake Michigan shoreline, including any Delta county islands between the Escanaba and Rapid river mouths, to the point of beginning.

Deer Management Units 252 means that area of Marquette, Delta, and Alger counties bounded by a line beginning at the junction of highway US-41 and county road 432, then southwesterly on county road 432 to county road 529, westerly on county road 529 to county road H-59, westerly on county road H-59 to county road DA in Marquette county, westerly on county road DA to the north line of section 5, T42N R24W, to the Escanaba river, northerly along the Escanaba river to highway M-35, easterly on highway M-35 to county road 456, easterly on county road 456 to highway US-41, southeasterly on highway US-41 to King road, southeasterly on King road to county road H-44 (Traunik-Kiva road), easterly on county road H-44 to county road H-01 (Eben-Trenary road), southerly on county road H-01 to highway M-67, westerly on highway M-67 to highway US-41, southerly on highway US-41 to the point of beginning.