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QUALITY DEER MANAGEMENT (QDM) SURVEY: DEER MANAGEMENT UNITS 313, 318, AND 332

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ABSTRACT

A survey was completed to determine whether hunters and landowners supported mandatory QDM regulations in Deer Management Units (DMUs) 313, 318, and 332. The Michigan Department of Natural Resources (MDNR) supports the voluntary implementation of QDM practices on private land in Michigan. Mandatory regulations should be imposed in a DMU only when it can be shown that a clear majority (66%) of hunters and landowners support implementation. Questionnaires were sent to a random sample of landowners and hunters; 85% of the landowners and 86% of hunters returned their questionnaire. About 73% of landowners and 68% of people hunting deer in DMUs 313, 318, and 332 supported implementing mandatory QDM regulations. Support from both landowners and hunters was sufficient to recommend implementation of mandatory QDM regulations for DMUs 313, 318, and 332.

INTRODUCTION

Quality Deer Management (QDM) is a form of management that requires restrictive buck harvests and sustained antlerless harvests to produce a deer population that has a relatively equal sex ratio and that is in balance with its habitat. The Michigan Department of Natural Resources (MDNR) supports the voluntary implementation of these practices on private land. The MDNR supports mandatory QDM regulations in a



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Deer Management Unit (DMU) if at least 66% of hunters and landowners in the affected DMU support these regulations.

The MDNR developed guidelines for considering and implementing QDM regulations with the assistance of private conservation groups and resource agencies (Quality Deer Management Working Group 1999). Following these guidelines, Superior Deer Management Organization requested that the MDNR implement mandatory QDM regulations in DMUs 313, 318, and 332. These DMUs were located in portions of Alger, Delta, Dickinson, and Marquette counties in the Upper Peninsula (Figure 1). This group requested a change in buck harvest regulations so that a larger portion of yearling bucks would be protected from harvesting by hunters, thereby allowing these bucks to become older. This group sought to change the definition of a legal buck to a deer with three or more points on one antler. The current definition of a legal buck is a deer with an antler greater than three inches in length. This group also supported the harvest of sufficient antlerless deer annually to stabilize or reduce overall deer numbers to keep deer numbers in balance with the habitat.

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 proposed mandatory QDM deer harvest regulations in DMUs 313, 318, and 332.

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 2,844 randomly selected hunters and landowners from DMUs 313, 318, and 332. The survey was designed to produce estimates that would be accurate within a margin of error of plus or minus five percentage points.

Although DMUs 313, 318, and 332 included small portions of Alger and Dickinson counties (Figure 1), only landowners from Delta and Marquette counties were included in the sample. A list of property parcels ≥ 5 acres in Delta and Marquette counties were obtained from property tax records. Property tax records were organized by property parcels, rather than by landowner. Thus, people owning multiple parcels were in the property tax records multiple times.

Property tax records from Delta and Marquette counties included a legal description for each parcel. These legal descriptions were used to exclude parcels lying outside DMUs 313, 318, and 332 from the sample.

The probability of a landowner being selected for the random sample varied by the number of parcels belonging to the landowner. Landowners with multiple parcels were more likely to be selected than owners with a single parcel. To account for the varying

probability of being included in the sample, the estimate of landowner support was calculated using a stratified random sampling design (Cochran 1977). Each landowner was assigned to one of four groups (strata): (1) landowners from Delta County owning one parcel, (2) landowners from Delta County owning more than one parcel, (3) landowners from Marquette County owning one parcel, or (4) landowners from Marquette County owning more than one parcel. The stratified sampling design accounted for the varying probabilities of being selected from the four strata so that estimates could be reliably extrapolated from the sample to all landowners owning a parcel of land that was at least 5 acres.

Although DMUs 313, 318, and 332 included small portions of Alger and Dickinson counties (Figure 1), only hunters from Delta and Marquette counties were included in the sample of hunters receiving a questionnaire. The estimate of hunter support was calculated using a simple random sampling design (Cochran 1977). A random sample of these hunters was obtained from lists of people that indicated that they had hunted in Alger or Dickinson counties during either 1998 or 1999. These lists represented randomly selected people included in annual deer harvest surveys that were conducted by the Wildlife Division (Frawley 1999, 2000). For these harvest surveys, hunters reported the county where they hunted deer, rather than the DMU where they hunted. Thus, the hunter sample included some hunters that had hunted outside of DMUs 313, 318, and 332.

People receiving the questionnaire were asked to report whether they supported the mandatory QDM regulations for DMUs 313, 318, and 332. Response options to the question on the proposal 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 do not provide an answer were not used to estimate support for the proposed QDM regulations. Moreover, opinions of hunters that did not hunt within DMUs 313, 318, and 332 and landowners that did not own land within DMUs 313, 318, and 332 were not included when estimating support for the proposed QDM regulations.

Estimates of support for the mandatory QDM regulations 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 nonresponse bias.

The random sample of people receiving the questionnaire included 736 landowners and 2,123 hunters, including 15 people that were included in both the landowner and hunter samples (Table 1). The landowner sample included 182 landowners from Delta County and 554 people from Marquette County. Questionnaires were initially mailed during mid-January 2001. A reminder note and up to two follow-up questionnaires were mailed to nonrespondents. To increase the number of questionnaires returned, everybody that returned their questionnaire promptly was eligible to win a prize. Although 2,844 people

were sent the questionnaire, 70 surveys were undeliverable resulting in an adjusted sample size of 2,774 (i.e., minus undeliverable questionnaires). Questionnaires were returned by 2,384 people, yielding an 86% adjusted response rate.

RESULTS AND DISCUSSION

Questionnaires were originally mailed to 736 landowners and 2,123 hunters, although questionnaires were undeliverable to 31 landowners and 39 hunters. Thus, the adjusted sample size was 705 landowners and 2,084 hunters. Questionnaires were returned by 600 landowners (85%) and 1,798 hunters (86%) (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 $73 \pm 4\%$ of landowners owning land in DMUs 313, 318, and 332 supported implementing mandatory QDM regulations (Table 2). In contrast, $24 \pm 4\%$ of the landowners did not support mandatory QDM regulations and $3 \pm 2\%$ did not have an opinion about the regulations. Among hunters that hunted in DMUs 313, 318, and 332, about $68 \pm 3\%$ supported implementing mandatory QDM regulations (Table 3). About $29 \pm 3\%$ of the hunters did not support mandatory QDM regulations and $3 \pm 1\%$ did not have an opinion about the regulations. Support from both landowners and hunters exceeded the minimum support level of 66% that was required to recommend implementation of mandatory QDM regulations for DMUs 313, 318, and 332 by the Wildlife Division to the Natural Resources Commission.

LITERATURE CITED

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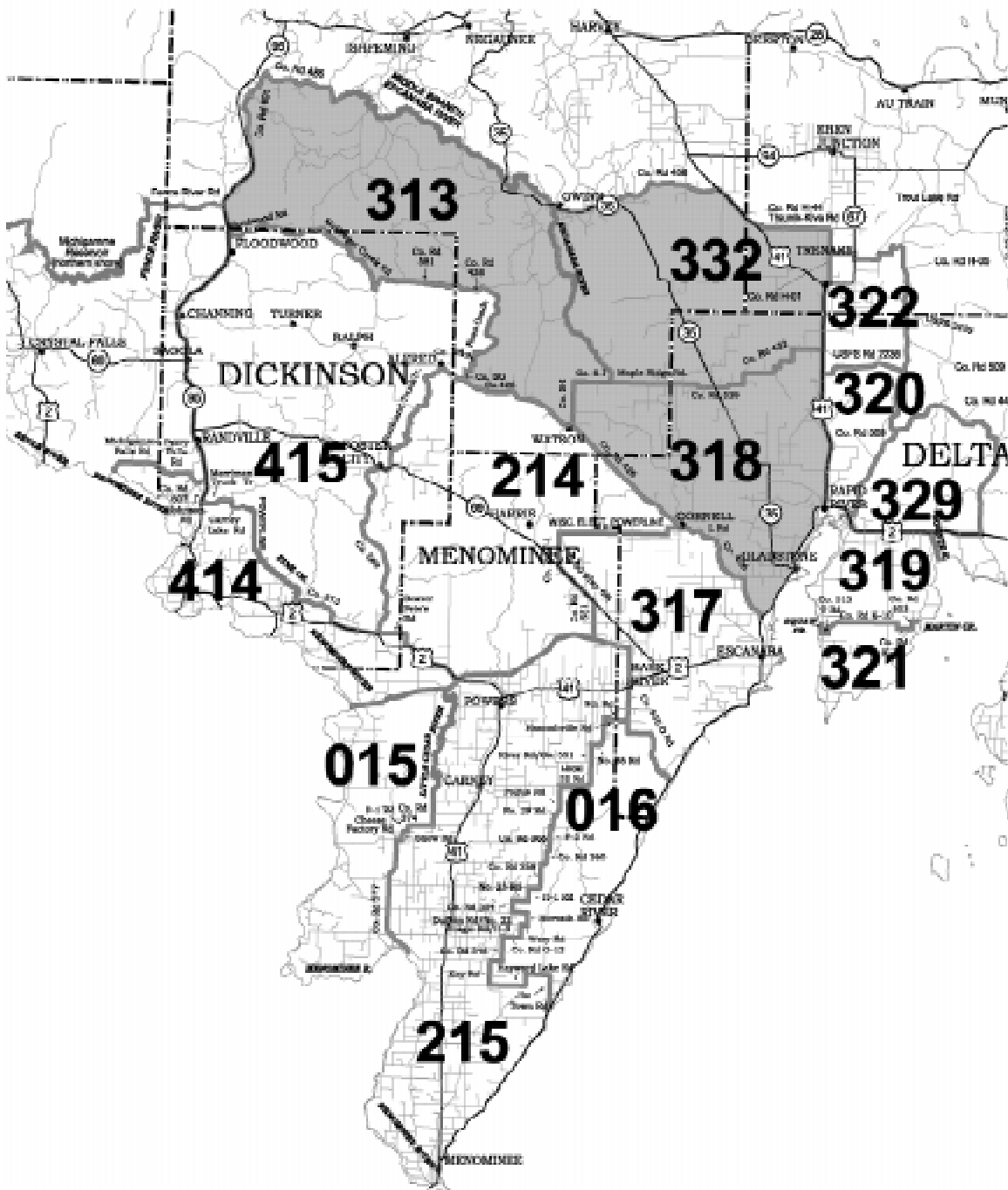


Figure 1. Deer Management Units 313, 318, and 332 (shaded area) in central Upper Peninsula of Michigan, 2000.

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 313, 318, and 332, Michigan.

Group	Total number of people in group	Number of people included in sample	Number of questionnaires returned
Landowners^a			
Delta County owners with one parcel	696	48	39
Delta County owners with multiple parcels	701	134	114
Marquette County owners with one parcel	939	352	279
Marquette County owners with multiple parcels	357	202	168
Hunters^b	30,133	2,123	1,798

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

^bEstimated number of people that hunted deer in Delta and Marquette counties in 1999 (unpublished data).

Table 2. Proportion of landowners supporting the proposed mandatory QDM regulations in DMUs 313, 318, and 332, Michigan.

Response	Percentage of landowners ^a	95% CL ^b	Responses (%)
Yes (Supported mandatory QDM regulations)	72.5%	4.4%	<p>A pie chart illustrating the distribution of responses to the survey. The largest slice, representing 'Yes' responses, is black and accounts for 72.5% of the total. A smaller grey slice represents 'No' responses at 24.2%. The smallest slice, representing 'No Opinion' responses, is white and accounts for 3.3%.</p>
No (Did not support mandatory QDM regulations)	24.2%	4.2%	
No opinion	3.3%	1.8%	

^aPercentage of landowners owning at least one 5-acre parcel of land in DMUs 313, 318, and 332; landowners that selected “don’t care” (3.1 ± 2%) or failed to provide an answer (0.2 ± 1%) about their support for QDM regulations 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 313, 318, and 332, Michigan.

Response	Percentage of hunters ^a	95% CL ^b	Responses (%)
Yes (Supported mandatory QDM regulations)	68.3%	2.8%	<p>A pie chart illustrating the distribution of responses to the proposed mandatory QDM regulations. The largest slice, representing 'Yes' support, is black and accounts for 68.3% of the total. The 'No' response is shown in gray, making up 28.6%. The smallest slice, 'No Opinion', is white and represents 3.1%.</p>
No (Did not support mandatory QDM regulations)	28.6%	2.7%	
No opinion	3.1%	1.0%	

^aPercentage of hunters that hunted deer in DMUs 313, 318, and 332; hunters that selected “don’t care” (3.7 ± 1%) or failed to provide an answer (0.4 ± 1%) about their support for QDM regulations were not used to measure support for mandatory QDM regulations.

^b95% confidence limits.

Appendix A

Quality Deer Management Survey Questionnaire for Deer Management Units 313, 318, and 332



Quality Deer Management Survey

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



A proposal has been submitted to the DNR to modify deer harvest regulations in Deer Management units 313, 318, and 332. The proposal requests that: (1) a legal buck be defined as a deer with at least 3 points on one antler; (2) antlerless harvest quotas would be developed annually by the wildlife management unit supervisors for consideration by the Natural Resources Commission, and (3) the regulation be in place for five years beginning with the fall 2001 deer hunting seasons.

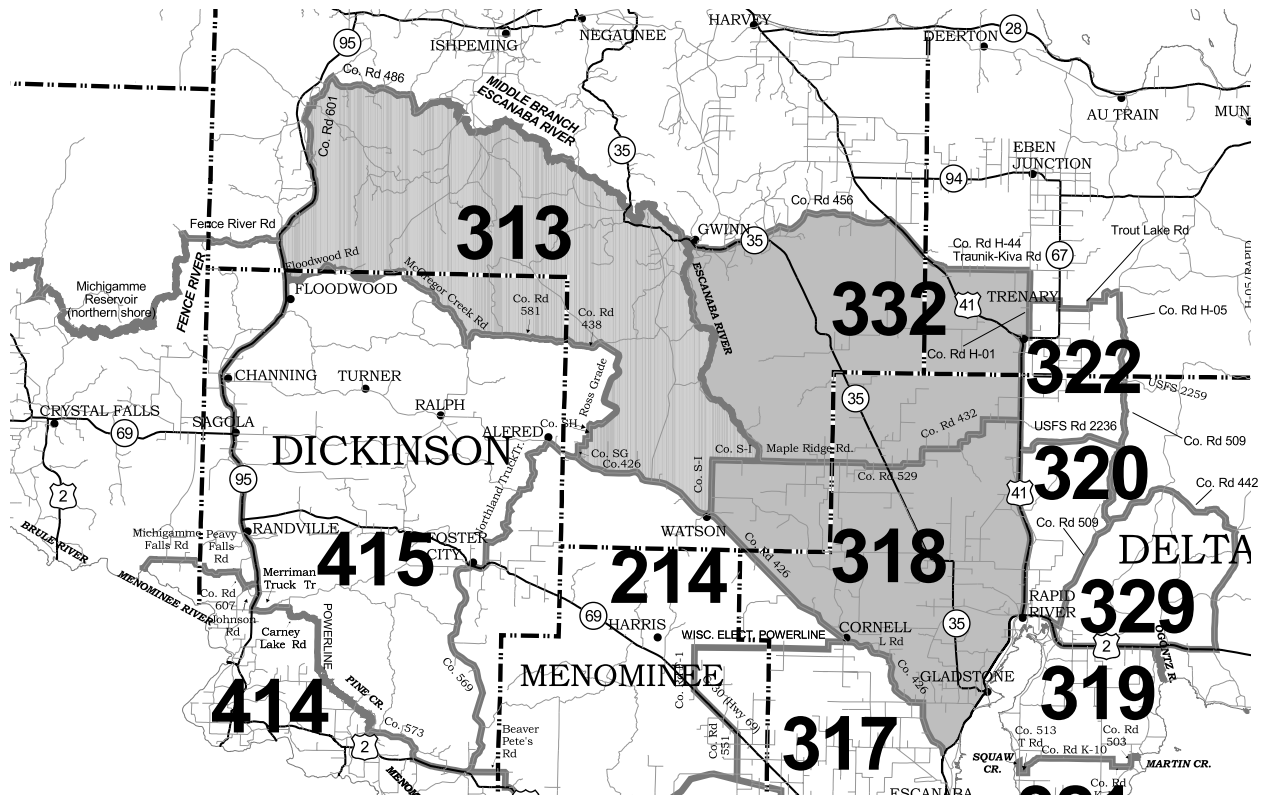
1. Do you hunt in the management units affected by the proposed regulation (*see map on reverse side*)? 1 Yes 2 No
2. Do you own land in the management units affected by the proposed regulation (*see map on reverse side*)? 1 Yes 2 No
3. Do you support the above proposal? **For purposes of measuring support, checking the “no opinion” box will count as a “no” vote 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 supportive or opposed to the proposal. This merely indicates that you are aware of the proposal and don’t care what the deer hunting regulations are 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 313, 318, and 332 in Central Upper Peninsula

Shaded area will be affected by proposed regulation changes



Deer Management Unit 313 includes portions of Marquette and Dickinson counties bounded by a line beginning at county road 426 and county road SI in Watson, 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 to highway M-95, southerly on highway M-95 to Floodwood road, easterly on Floodwood road to McGregor creek road, southeasterly on McGregor creek road to Cleveland homestead road, easterly on Cleveland homestead road to county road 581, 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 GH, southerly on county road GH to county road 426, southeasterly on county road 426 to the point of beginning.

Deer Management Unit 318 includes portions of Delta and Marquette counties bounded by a line beginning at the junction of county road 426 and highway US-41, then northerly on highway US-41 to county road 432, westerly 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 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 to the point of beginning.

Deer Management Unit 332 includes portions 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.