

## **History and Management Perspective on Michigan Buck Hunting Regulations Background Document**

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This overview provides background on Michigan buck harvest regulations over the years. Population management through regulated deer harvest is more closely tied to harvest of does, or antlerless deer. However, the intent is to provide background regarding how hunting regulations that have less overall impact on deer populations have affected Michigan bucks, and by extension, overall deer population sex and age structure. For the most part, antlerless harvest is regulated in a substantially different way. No effort is made here to describe antlerless regulations in any detail, though instances where licenses valid for antlered deer are able to be used on antlerless deer are identified. For many hunters, the demand for venison is sufficiently limited so that taking an antlerless deer may offset the need or desire to take a buck. This should be given consideration as an additional factor that may influence the harvest of bucks.

### *History of Buck Harvest Restrictions*

For many years, Michigan restricted hunters to bucks-only harvest in order to protect the reproductive capacity of the herd. This approach sustained deer populations that at times were quite scarce, but still allowed recreational opportunity and a chance to put food on the table by bagging bucks only. Michigan's basic statewide deer hunting regulation -- the definition of an "antlered deer" as one with at least one antler that measured three inches or more -- was adopted in 1921 and has remained the same since that time. In that same year, hunters were restricted to one buck, though any hunting camps that had four or more hunters could get a permit to take an additional "camp buck" for camp meat.

These basic deer harvest regulations remained unchanged for 35 years. In 1956 -- by which time the herd had grown significantly -- the state began to allow hunters to take some antlerless deer, too, by making licenses good for "any deer" in specified areas with high deer numbers. Nine years later, antlerless deer hunting was expanded to allow archery hunters to take a deer of either sex with their bow license, but the number of archery hunters and archery success rates were sufficiently low that the regulation had a small effect on harvest.

But 21 years later, in 1986, the Legislature created the second-buck license; allowing hunters to purchase an additional deer tag for firearms or archery season (though the second

archery tag was good in the Lower Peninsula, only). The season limit was suddenly doubled; hunters who used both firearms and bows could take up to four bucks annually. Five years later (in 1991) the rule was changed to limit hunters to two bucks annually, though they could still buy up to four buck tags (two for firearms, two for archery), so the bag limit of two was difficult to enforce.

In 1997, Michigan enacted Antler Point Restrictions (APRs) for the first time; hunters who used a second-buck tag were not allowed to take a deer unless it had at least four antler points on one side. The following year, second-buck licenses for both archery and firearm hunting were eliminated when the Legislature created the combination license. The combination license, which continues to exist to this day, is good for two bucks -- both may be taken in either season, or one each in archery and firearm. Though hunters may still choose to purchase both an archery and firearm license instead of the combination license, any hunter taking two bucks -- regardless of the licenses they use -- must ensure at least one of them has four or more points on one side.

Also in 1997, the DNR enacted APRs in three deer management units on all tags, requiring that all harvested bucks have at least one forked antler to be legal on South Fox Island, Drummond Island and in a portion of Iosco County (DMU 101 at that point, though it is currently DMU 135). Each of these areas came to be restricted for slightly different reasons, but they were all essentially viewed as experimental approaches to reducing harvest pressure on yearling bucks.

In 1999, hunters in a portion of Clare County (DMU 107 at that point) successfully lobbied the Natural Resources Commission to enact APRs restricting all antlered harvest to bucks with at least three antler points on one side. Deliberations over the proposal had been ongoing for quite some time, and similar discussions were being held around the state as interest in APRs increased and differences of opinion emerged. After the DMU 107 rule was enacted, the NRC established a uniform process for considering any future APR proposals. A key feature of that process was that implementation required a survey to be conducted by the Department to determine support among individuals in proposed APR areas. Two-thirds majority was required in order to implement an APR within a proposed area. That same level of support would be required in order to keep the APR in place after five years under the restriction.

With that process in place to provide information to the NRC about the existing level of support for proposals, some new APR areas were established and some proposals failed. Likewise, some restrictions were supported and retained after the initial years, and some lacked sufficient support and so were removed -- including the Clare County area that had been created just as the interest in APRs was building. There were some concerns that the proposal process was too divisive within the deer hunting community and demanding too much time of Department personnel. As a result, the NRC declared a moratorium on accepting proposals for any new APR areas in 1996.

During the moratorium, some Upper Peninsula hunters approached the NRC with a different proposal. The idea was to allow Upper Peninsula hunters who do not buy a combination license the opportunity to take any legal buck, but be limited to a single buck. At the same time, those who did choose to buy a combination license would be subject to an APR requiring at least three points on a side for one of those bucks, while the four point restriction on a second buck would remain in place as it is throughout the state. This proposal came forward at a time when there seemed to be even more hunter interest in seeing more bucks, and general acceptance that hunting rules might be necessary to accomplish that, but little agreement on what type of restriction would be most acceptable. This “Hunter’s Choice” approach -- implementing restrictions while leaving an option open to hunters as to which restriction they would face -- seemed to address several hunter concerns at once. The NRC agreed to implement the rules, which have now been in place in the Upper Peninsula since 2009. (A similar regulation has been enacted in DMU 487, the six-county area in the northeast Lower Peninsula where bovine tuberculosis (TB) is an issue in the deer herd. That change was recommended by the Department, along with other regulation changes to encourage antlerless harvest to try to maintain or increase progress on TB eradication.)

In 2011, a proposal was submitted to consider establishing a 3-point APR in 12 counties in the northwest Lower Peninsula (Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Lake, Manistee, Mason, Missaukee, Osceola, and Wexford Counties). Around the same time, the NRC assembled a work group to provide input regarding whether the former process for sponsoring organizations to propose an APR should be modified. The moratorium on considering proposals was lifted, several changes were made to the APR process, and the proposal for northwest Michigan came into consideration. A slightly modified version of the survey of public support, with continuation of the requirement for endorsement by two-thirds of potentially affected hunters surveyed, remains as the key feature of the process. The survey for northwest Michigan was initiated in September 2012, with potential APR implementation forthcoming for the 2013 season.

### *Potential Impacts of Buck Harvest Restrictions*

Since the establishment of deer hunting regulations of any kind in Michigan, there has never been an overall limit on the number of hunters that may pursue bucks or any type of quota on buck licenses. The overall bag limit on bucks has been as low as one and as high as four, with a bag limit of two bucks in place for about the last two decades. Antler Point Restrictions can be designated based on past data regarding the average number of antler points by buck age class to anticipate protection of a proportion of young deer. The APR process requires proposed restrictions to be expected to protect at least half of yearling bucks, with the goal being to increase the proportion of the buck population composed of older age classes (often stated as producing a more diverse buck age structure). Bag limits provide a different type of restriction than an APR, although a more general overall restriction on buck harvest likely protects mostly yearling deer, for two reasons. First, likely because of the past history of bucks-only hunting, along with general hunter interest in antlers and the way deer hunting traditions are often formed and passed down, Michigan hunters still focus much of

their harvest effort on antlered bucks. Even with substantial opportunities to harvest antlerless deer in recent years, the number of antlered bucks taken has almost always exceeded antlerless deer. This significant harvest pressure removes a high proportion of antlered deer and keeps yearlings - young deer sporting their first set of antlers - as the largest segment among the age structure of the overall buck population. So as hunters target antlered deer, yearling bucks are the most abundant segment available. Second, these young bucks are more vulnerable to harvest than older males (Maguire and Severinghaus 1954, Roseberry and Klimstra 1974, Ditchkoff et al. 2001). Thus, while APRs and other regulations may be implemented specifically to protect young bucks, any effective restriction on buck harvest is also likely to primarily result in a greater number of young bucks surviving at least one additional hunting season. Ultimately, then, much of the outcome of buck harvest restrictions may be considered in terms of the potential effects of producing a more diverse buck age structure.

The basic responses expected as a result of an increase in the number of mature bucks in a deer population are effects on behavioral interactions between deer, particularly during the rut prior to the peak of breeding. Deer breeding behavior is strongly influenced by chemical communications at locations of scrapes (where bucks and does communicate their presence to each other) and rubs (which serve as “dominance signposts” among bucks) formed by bucks. Hunters often observe that scrapes and rubs are formed primarily or sometimes exclusively by older bucks. Through research at the Cusino enclosure in Michigan’s Upper Peninsula, Ozoga and Verme (1985) documented this difference in rut behavior by comparing a population primarily consisting of yearling bucks to one with mature bucks present. With a clearer dominance hierarchy established in the presence of mature bucks, yearling bucks may participate less in rut behavior, sparring less with other bucks, and breed less, which could reduce stress to young deer and potentially improve their physical condition, accelerate antler development and perhaps increase their survival. This difference in overall rut behavior may also trigger the estrous cycle among does, producing a more intense but shorter rut which could reduce stress to all deer and perhaps improve fawn survival by synchronizing breeding so that most fawns are born at the optimal time in the following spring.

Although a difference in rut behavior is noted when mature bucks are present, no difference has been documented in adult doe breeding - conception dates, the number or proportion of does bred, and successful rearing of fawns was identical between a population primarily consisting of yearling bucks and one with mature bucks present (Ozoga and Verme 1985). Furthermore, as Sorin (2004) documented multiple paternity within deer litters at the George Reserve in Michigan, she found sires were commonly from 1-3 years apart in age. In other words, some does gave birth to litters that had more than one father (22% of the time), with the fathers often of different ages and including yearling bucks and older bucks. Males in this population were aged ranging from 1.5 – 6.5 years. This provided evidence that even under a diverse buck age structure, breeding of younger bucks was not entirely suppressed, although older males did account for a larger proportion of breeding. Ultimately, some potential benefits of a more diverse buck age structure are difficult to prove, such as potentially reduced stress levels and related benefits to deer condition. Ozoga and Verme (1985) concluded that, while

they found no direct evidence that herd productivity was reduced when mostly only yearling bucks were present, "...lack of a firm dominance hierarchy... may ultimately present problems."

### *Hunter Perspectives on Buck Harvest Restrictions*

In addition to considering potential biological impacts of different approaches to regulating buck harvest, the influence on hunter satisfaction and potential impact it may have on hunter recruitment and retention must be considered. One of the top priorities of the Department is to stop the decline our state has experienced in annual hunting participation. Considering that about 90% of the individuals that buy Michigan hunting licenses purchase a deer license, future deer hunting participation will likely drive overall future hunter numbers. Deer hunting increased significantly in popularity throughout the second half of the 20th century, but from 2001 to 2011, the number of people that annually purchased a deer license dropped by about 14% (from approximately 800,000 in 2001 to 690,000 in 2011; Frawley 2012). Similar declines are occurring in many areas of the country. Numerous assessments have indicated declines in hunting participation are mostly due to outcomes of changing landscapes and lifestyles from a primarily rural to urban society. However, regulations and management efforts that could shape hunter satisfaction may be able to lessen if not stop or reverse these trends.

In Michigan, as in many places, individual hunters typically indicate a variety reasons for pursuing game. Some of the key reasons have little to do with harvesting animals. Frawley and Rudolph (2008) found that Michigan deer hunters from the 2006 season indicated the most important reasons were simply spending time outdoors (indicated as Very Important by 68% of respondents to a survey) and spending time with friends and family (61% of respondents). The excitement of seeing deer was very important to 56% of respondents, while getting meat or taking a trophy was a very important reason for less than a third of deer hunters (29% and 20%, respectively).

Despite the value of aspects of hunting experiences unrelated to harvest, among the wide range of things hunters feel should be considered by the Department when setting deer regulations, hunters had the greatest concerns about the number of bucks and number of mature bucks. In the area where they hunt most, 72% of hunters thought there were very extensive to moderate problems regarding hunter dissatisfaction with the number of mature bucks, 67% with the overall number of bucks, and 62% with the overall number of deer. This compares to just 16% of hunters being concerned about problems with deer herd health where they hunt the most.

Furthermore, many Michigan hunters do support implementation of buck harvest restrictions in order to increase the number of bucks or mature bucks in the population. Support for restrictions varied by region of the state, from 58% in the Upper Peninsula to 52% in the Northern Lower Peninsula to 48% in the Southern Lower Peninsula. When asked specifically what regulations they would support, less than a majority of hunters supported

various options provided, such as 33% supporting a four point APR for all deer taken and 35% supporting a one buck limit.

The proportion of Michigan's antlered deer harvest composed of yearling bucks has been decreasing over the years. The antlered harvest in the 1980s often consisted of around 75% yearling bucks, while in recent years it has been closer to 60% and has even approached 50% (52% during the 2009 seasons). This change is likely due in part to buck harvest restrictions, but increased hunter interest also seems to have led to more hunters voluntarily passing younger bucks. Frawley and Rudolph (2008) found that a minority of Michigan deer hunters from the 2006 season indicated their typical buck harvest strategy was to simply take the first legal buck they see (37% of firearm hunters, 25% of archery hunters), and close to one-third of hunters indicated they typically take only a large buck (28% of firearm hunters, 32% of archery hunters). In recent years, many areas have seen the formation of "deer management cooperatives," where hunters of adjoining private lands form general agreements regarding deer harvest practices. Cooperatives have voluntarily implemented criteria to pass younger bucks and often emphasize the importance of an appropriate level of antlerless harvest. The Department has supported voluntary efforts and many biologists have made an effort to attend meetings of cooperative members when they have been invited and able to do so.

Overall, Michigan deer hunters appear to be interested in changes that would increase the number of bucks and mature bucks in the population, but there is not a majority of support for specific restrictions to potentially achieve this. In consideration with the wide variety of factors hunters indicate are important in determining their satisfaction, it is not clear that buck harvest restrictions are a readily available means of increasing hunter satisfaction to the point of expecting the trend of declining participation. However, a potentially important additional consideration is the way in which multiple factors influence the creation of hunting cultures and the initiation of individuals into hunting. Winkler and Warnke (2012) provide evidence that trends in deer hunter decline are strongly linked to differences in "cohorts" among the human population. A cohort is a group of individuals born at around the same time and aging while experiencing similar social influences and important events that shape the way they "see the world." The growth of deer hunting occurred after World War II among the "baby boomer generation." Social conditions that promoted hunting participation at that time - increasing household wealth, increasing free time, a tendency for households with women who stayed home and cared for families while men went to work and "provided for" their families - coincided with growing deer populations and expanding roads and access to places to hunt and pursue other outdoor recreation. This cohort continues to account for a large segment of the current deer hunting population (Frawley 2006), but very different social conditions now surround cohorts becoming young adults and having to determine whether deer hunting is something they can continue to prioritize as a way to spend their time. The extent to which deer hunting regulations can recruit and retain the next generation of deer hunters may have less to do with the viewpoint of hunters collectively and more to do with the viewpoint of these individuals. Insufficient information is available to evaluate whether taking such an approach might provide an opportunity to stop or reduce the declining trend in deer hunting participation.

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