

DMU 013

Calhoun County

Deer Management Unit

Area Description

The Calhoun County Management unit (DMU) 013 is in the Southwest Region and was once part of the Bellevue deer management unit 308. Bellevue DMU 308 was split in 2016 after the discovery of CWD in Ingham County. Barry and Calhoun Counties are now their own deer management units with Eaton County being lumped into the CWD management unit 419 with Ionia, Shiawassee and Ingham Counties. Currently there are no public land hunting opportunities in Calhoun county. This DMU has an open agricultural landscape which is intermixed with forests and wetlands. DMU 013 is home to the city of Battle Creek which is a large metropolitan area in the Northwest portion Calhoun county and accounts for about 43 square miles of the landscape. Topography for Calhoun County varies from rolling hills to relatively flat with soils that are generally well-suited to row crop agriculture.

Management Guidance

Two main goals guide the deer management in this DMU: 1) impact management; and 2) hunting opportunities. Impact management refers to reduction of undesirable effects associated with high deer densities. Crop damage, deer-vehicle collisions, and poor forest regeneration due to over-browsing are examples of undesirable deer impacts. To find a middle-ground in which deer numbers provide ample hunting and wildlife viewing opportunities and mitigate unwanted impacts, we review data from several sources to adjust the harvest strategy as needed. These data include deer harvest data from check stations, an annual mail survey, deer-vehicle collision data, and deer-related information collected by regional wildlife biologists (e.g., number of Crop Damage Permits, reports for local hunter, habitat assessments, etc.).

Deer Harvest Analysis

The decline of both antlered and antlerless harvest is significant. (Fig. 1). This is likely due to a reduction in deer population. The liberalization of antlerless permits was intended to limit the productivity of the deer herd in this DMU. Antlerless harvest exceeded antlered harvest in most seasons from 2001-2011. This probably contributed to a slight decline in population during this time period. Other environmental factors, such as poor weather immediately preceding fawning, increased predation, changing agricultural practices, and lack of forest management can also impact deer numbers. In 2012, an outbreak of Epizootic Hemorrhagic Disease (EHD) in DMU 308 and surrounding counties, resulted in significant deer mortality and contributed to the reduction of the population in this DMU. This event was followed by a severe winter in 2013 which may have added to a slow recovery from the EHD mortality. Ultimately, determining a cause of any population change is difficult when assessing a large geographic region. Hunter perceptions and goals can also impact harvest numbers. A large-scale shift in

hunter's decisions to target older deer and pass on younger bucks (Fig. 2) results in reduced harvest numbers. Success and harvest rates can thereby be affected not by population decline, but by the human decision-making processes. Similarly, hunters may self-regulate harvest of antlerless deer for a variety of factors, such as a perception of too few deer. This may be why buck harvest exceeded antlerless harvest in 2013-2015 (Fig. 1).

Figure 1. Deer harvest trends in DMU 013 from 2001-2015.

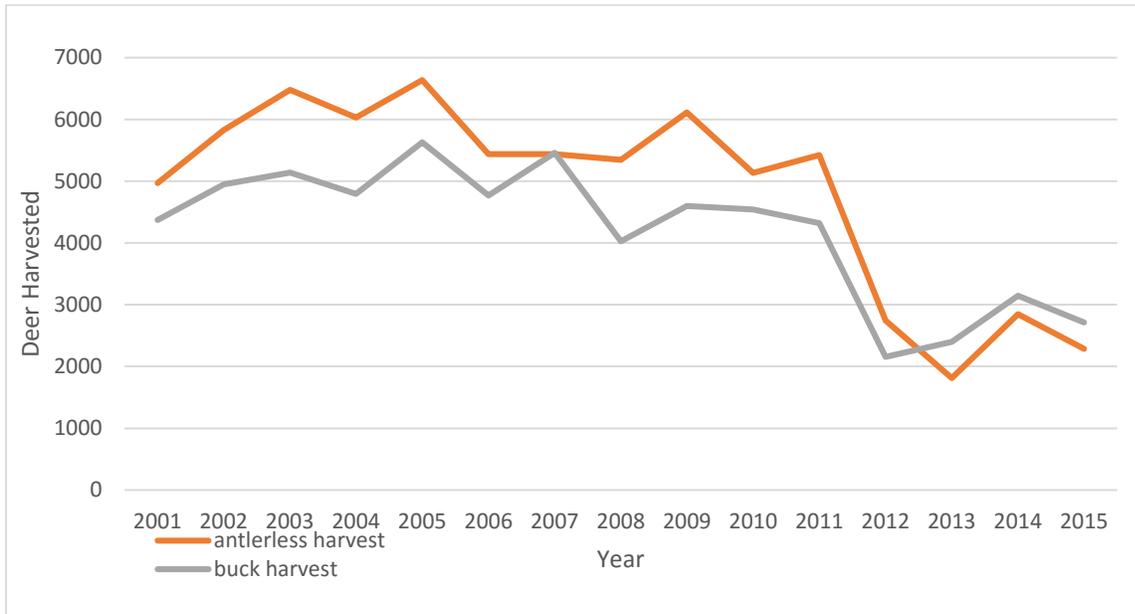


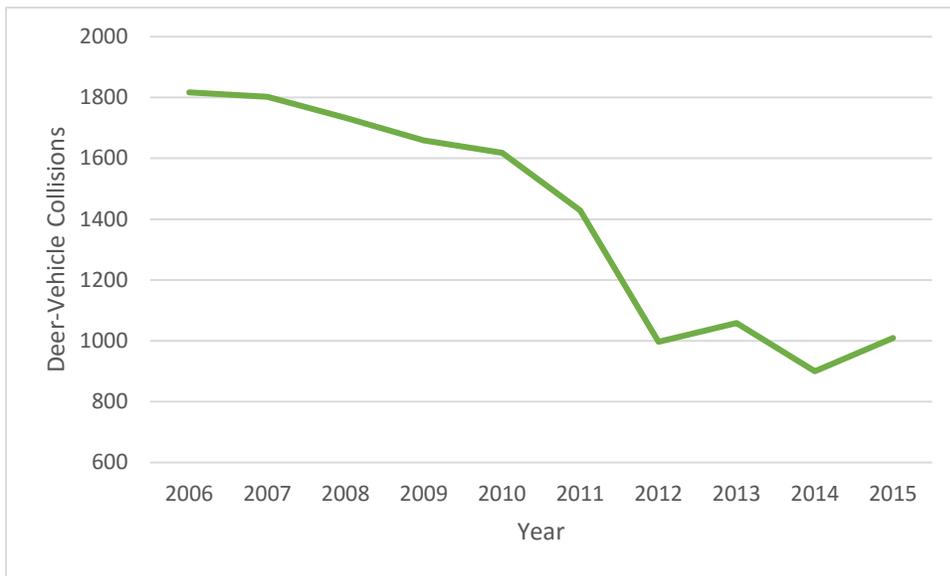
Figure 2. Percentage of 2 year old and older bucks in the total harvest from 2001-2015

Population Assessment Factors

The drop in harvest of antlered and antlerless deer suggests a deer population decline in DMU 013. Social factors (i.e. hunter perceptions and goals) may have some influence over both harvest and effort, but it is unlikely that hunter attitudes would have shifted enough in this time span to impact harvest and effort to this degree. More likely, it is a reduction in deer population leading to fewer deer being harvested.

Deer-vehicle collisions (DVC) are commonly used as an index to the deer population trend, the idea being that high rates of DVCs are correlated with high deer populations, and vice versa. Research has shown that there are other factors that influence the rate of DVCs. Cover close to the roadway and highway characteristics can blur the relationship between deer population and DVCs. However, DVC data can provide useful information if contextualized as one part of a deer population assessment. DVCs indexed by vehicle miles travelled have declined significantly from 2006-2015 in Calhoun County (Fig. 3). These data are provided by the Michigan State Police. Although changes may have occurred in law enforcement response and recording of DVCs over time, we assume they have remained consistent enough to provide an accurate estimate of DVC rates relative to vehicle miles driven. The displayed decline in DVCs is an additional indicator that the deer density has dropped over the past decade in Calhoun County.

Figure 3. Deer Vehicle collisions 2006-2015 in DMU 013.



Deer Management Assistance Permits (DMAPs) allow for the harvest of antlerless deer by private landowners (or their designees) during legal deer hunting seasons. Landowners may request and be granted DMAPs by Michigan Department of Natural Resources (MDNR) to address deer damage concerns when sufficient antlerless permits are not available in a DMU to address the landowner's needs. DMAP requests are tracked by MDNR and may trend with deer populations (i.e., an increase in deer density may result in additional DMAP requests). In DMU 013 recent requests for DMAPs have been low but the decline may also be influenced by changes to liberalized antlerless license purchasing options.

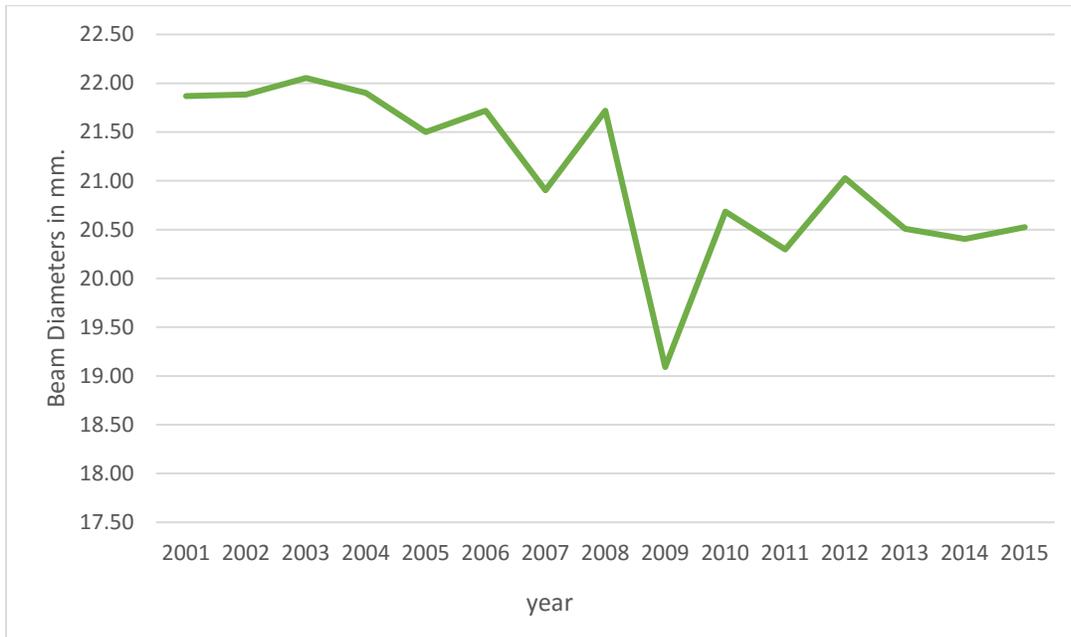
Crop Damage Permits are also requested by landowners, but allow for the harvest of antlerless deer outside of legal hunting seasons to address agricultural damage. Requests for Crop Damage Permits may also trend with deer density. In DMU 013, requests for Crop Damage Permits have been highly variable, and seem to correlate with weather events that influence the quality and timing of agricultural crop production.

Deer Condition Data

Yearling main antler beam diameter, measured just above the burr, and number of points are useful for determining deer body condition. These measurements are recorded by MDNR when hunters voluntarily present harvested deer at check stations throughout the state. When aggregated by DMU, the average antler beam diameter and number of points for yearling bucks over multiple years is calculated. An upward trend indicates improving herd condition, whereas a downward trend reflect the declining herd condition. Generally, herd condition is a function of environmental and landscape factors. An abundance of highly nutritional food resources and good cover is beneficial for herd condition. Depletion of these resources through overpopulation leads to a decline in herd condition, observed as low yearling buck main beam diameters and antler points. In southern Michigan, winter severity is not likely to impact deer condition on a population level. Land use and management practices can influence food availability and cover.

In the DMU 013, the decline in average antler beam diameter between 2001 and 2015 has been significant, as has the decline for the entire Southern Lower Peninsula (SLP). In this DMU average beam diameters have declined about 1.5 mm from 2001-2013 and seem to have stabilized since then (Fig.4). This is greater than the estimated reduction in average yearling antler beam diameter in the entire SLP of 1.02 mm for the same period. However, average yearling antler points did not change significantly in DMU 013 between 2013 and 2015.

Figure 4. Average beam diameters of yearling bucks from 2001-2015.



Increased deer density resulting in heightened intra-species competition and resource depletion can cause this phenomenon. However, as most of our deer population indices point to a decline in deer numbers, this seems unlikely to be the cause. Also, environmental influences (e.g., extreme weather events) tend to be short in duration and impacts are limited to short time frames (i.e., 1-2 years). We would not expect to see environmental effects drive down deer condition for this time span. Most likely, the reduction in deer body condition is mainly attributable to land use changes. High commodity prices have led to less acreage enrolled in the Conservation Reserve Program, expansion of row crop agriculture, and decline in deer cover. Although agriculture can provide highly nutritional food resources to deer, it is seasonally available and comes at a cost of naturally occurring food sources and cover. This is especially true with the popularization of fall tillage. The conversion of acreage from acceptable deer cover to agriculture and removal of brushy fence rows further fragments habitat, homogenizing the landscape and reducing the richness of a “patchwork” of habitat types in which deer thrive. Lack of timber management can lead to over mature forests with poor mast production and minimal understory habitat.

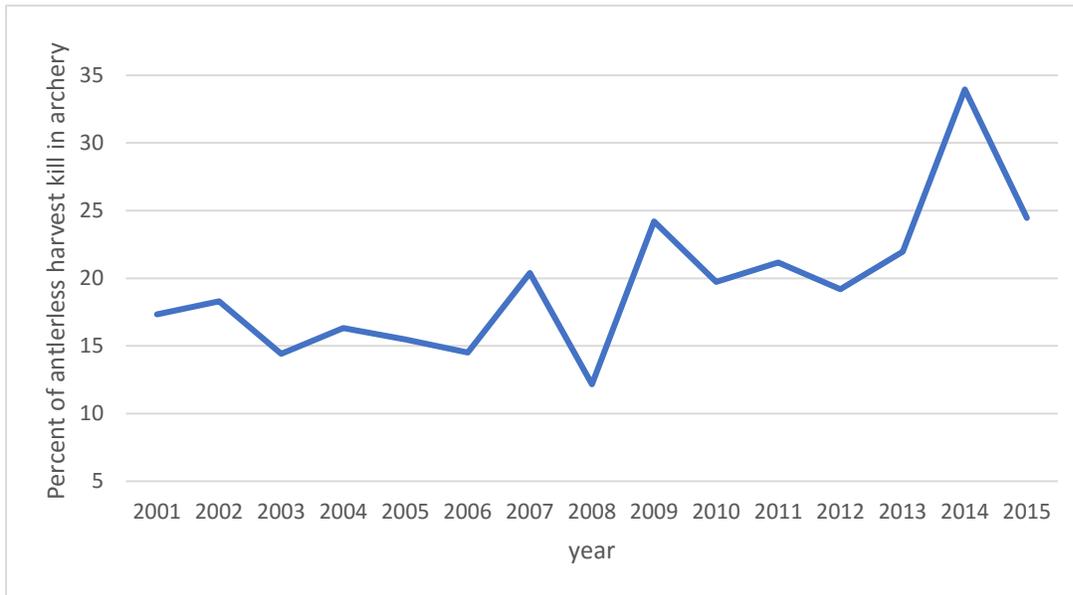
Deer Management Recommendations

The deer population has likely declined in DMU 013 in the last decade. Deer density remains moderate in most of the DMU with varying density from high to low. Reports from hunters and harvest estimates indicate a slow increase in population since the EHD occurrence in 2012. In areas of higher density, the issuance of DMAPs and Crop Damage Permits will continue, as harvest through the general hunting seasons maybe inadequate to relieve damage complaints.

Calhoun County was formerly part of DMU 308, so it is not possible to know the rate at which private land antlerless tags were filled in Calhoun County. In 2015 25,000 private land antlerless permits were available for DMU 308, of which 17,379 were sold and an estimated 5982 were filled. This puts the average success rate of antlerless harvest on private land in DMU 308 around 34%. Barry and Calhoun Counties were split back into their own DMU's in 2016 after CWD was found in Eaton County. In 2015, an estimated 5001 deer were harvested in Calhoun county which has 247 square miles of all year cover (this excludes, lakes, cities, agriculture fields). This yields an average deer harvest of 20.2 per square mile of cover, which is consistent with deer harvests for the previous three seasons in Calhoun County and indicates a stable and plentiful deer herd.

From 2009 to present there has been an increase in the percentage of antlerless deer harvested in archery season (fig. 5). With the antlerless harvest option during the archery season, combination tag hunters can harvest antlerless deer without purchasing an antlerless permit. At this time, it is unknown how many hunters used this option for antlerless harvest, but it may have significant impacts if antlerless permits numbers were reduced.

Figure 5. Percent of total antlerless harvest killed in archery season.



Hunting opportunities remain strong in Calhoun County as hunters continue to be more selective of antlered deer harvest and densities stay at sufficient levels. Harvest numbers indicate that deer numbers have decreased below previous years but are still strong as indicated by deer per square mile of cover. With deer numbers appearing to be stable and without antlerless data since the establishment of the DMU in 2016, it is recommended that there be no changes for this DMU at this time. Private land antlerless permits should remain at 7,500, public land antlerless permits should remain at 100, and early antlerless season should continue to be closed.