

DMU 038 Jackson County

Area Description

The Jackson Deer Management Unit (DMU), or DMU 038, lies in the Southern Lower Peninsula (SLP) region and covers Jackson County. The DMU consists of five percent public land. The majority of the public hunting opportunities in this DMU are available on Grass Lake (125 acres) and Sharonville (3,435 acres in DMU 038) State Game Areas and Waterloo State Recreation Area (21,400 acres in DMU 038).

The topography of DMU 038 has been shaped by erosion and deposition during glaciation. Topography varies from undulating to steep, rolling to undulating, and nearly level to rolling hills. Well-drained soils make up 60 percent of the DMU; just over 40 percent of the land is in agriculture, with corn being the main cash crop.

The landscape supports a patchwork of cover types, with agriculture, forest, and wetland being most dominant. Urban development is concentrated in the City of Jackson, toward the center of the DMU; however, this is a populous county and development is ubiquitous throughout the DMU. There are six state highways, one interstate highway, and one U.S. highway that pass through DMU 038. This landscape configuration results in a strong interface between humans and the deer population. Although much of the private lands toward the outer edges of the DMU are in agriculture, private and public lands in the area support cover habitat for deer (e.g., woodlots, shrub/brush, and wetland). Deer throughout the Jackson DMU have ample access to food, water, and cover (Table 1) and can meet all life requisites in every portion of the DMU.

Table 1. Habitat Composition of DMU 038 on Public and Private land

Habitat	038 Private Land	038 Public Land
Forest	27.3%	55.4%
Agriculture	41.8%	8.7%
Grass/Shrub land	9.4%	7.3%
Wetland	12.5%	26.7%
Developed	7.0%	1.4%
Water	2.0%	0.6%
Bare/Rocky	0.1%	0.0%

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 deer over-abundance. Crop damage, deer-vehicle collisions, and poor forest regeneration due to over-browsing are examples. In an effort 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 and an annual survey, deer vehicle collision data from the Michigan State Police, and deer-related information collected by regional wildlife biologists (e.g., number of Crop Damage Permits, spotlight surveys, habitat assessments, input from hunters and Conservation Officers, etc.).

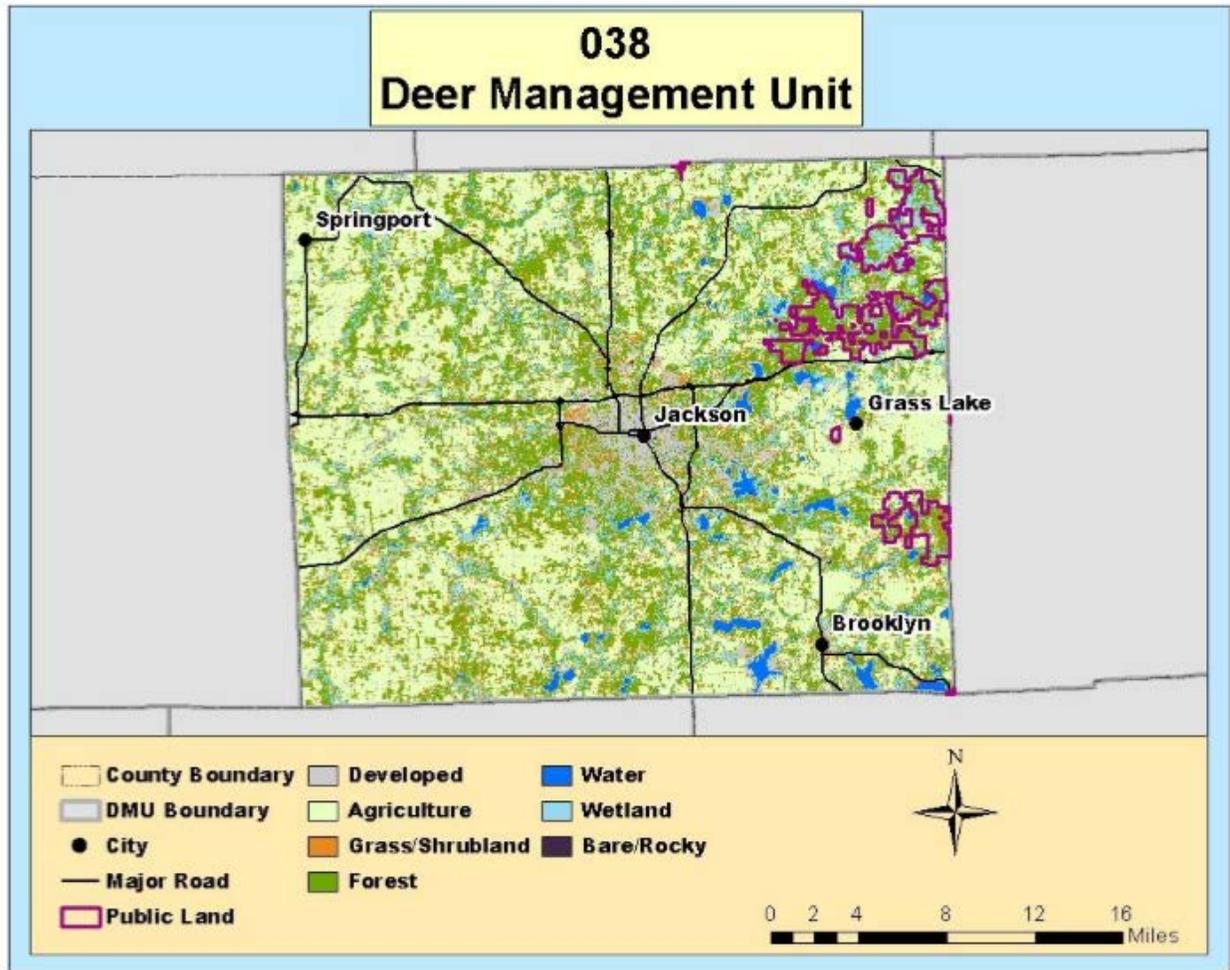


Figure 1 Habitat and use distribution in DMU 038

Deer harvest Analysis

Over the past decade, the harvest of antlered and antlerless deer has declined (Figure 2). This may be due to a reduction in deer population, the decline in participating hunters, or changing behaviors in hunters. However, these declines in harvest are likely due to a combination of these factors. The liberalization of antlerless permits was intended to limit the productivity of the deer herd and may have contributed to a population decline in this DMU. Other environmental factors, such as poor weather immediately preceding fawning, increased predation, and changing agricultural practices can also impact deer numbers. Ultimately, determining a cause of any population adjustment is difficult when assessing a large geographic region.

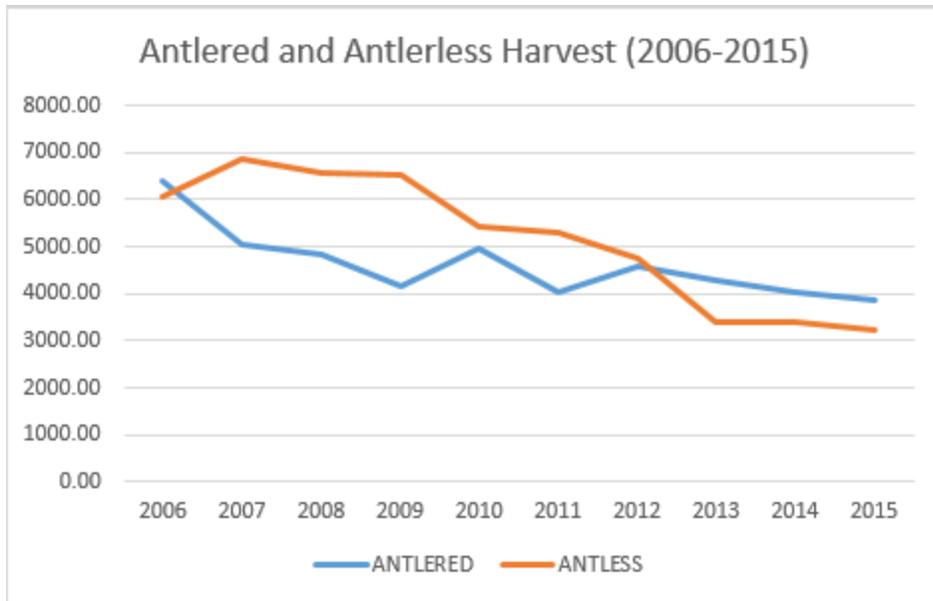


Figure 2 Antlered and antlerless harvest trends in DMU 038

Hunter perceptions and goals can also impact harvest numbers. A large scale shift in hunters' decisions to target older deer and pass on younger bucks results in reduced harvest numbers and increased hunter effort, as there are fewer deer in older age classes. We have seen a slight trend among hunters in DMU 038 to attempt to harvest older bucks. Success and harvest rates are thereby suppressed not by population decline, but by 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 has been the case in response to the 2012 EHD outbreak; particularly in localized areas hit hardest by the disease.

Table 2 Age structure of antlered deer harvest in DMU 038

Year	1.5 Years Old	2.5 Years Old	3.5 + Years Old
2005	64.7%	18.2%	17.0%
2006	65.7%	15.5%	18.9%
2007	62.4%	19.6%	18.1%
2008	59.2%	20.2%	20.6%
2009	64.5%	13.6%	21.9%
2010	61.2%	20.3%	18.5%
2011	61.7%	20.6%	19.5%
2012	62.5%	18.3%	17.0%
2013	61.0%	18.5%	20.7%
2014	47.1%	30.2%	22.7%
2015	50.6%	23.4%	26.0%
2016	40.1%	19.7%	40.1%

The concurrent decline in harvest and increase in number of days afield per hunter suggests a population decline in deer (Figure 3). 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 and more effort being expended by hunters to harvest deer.

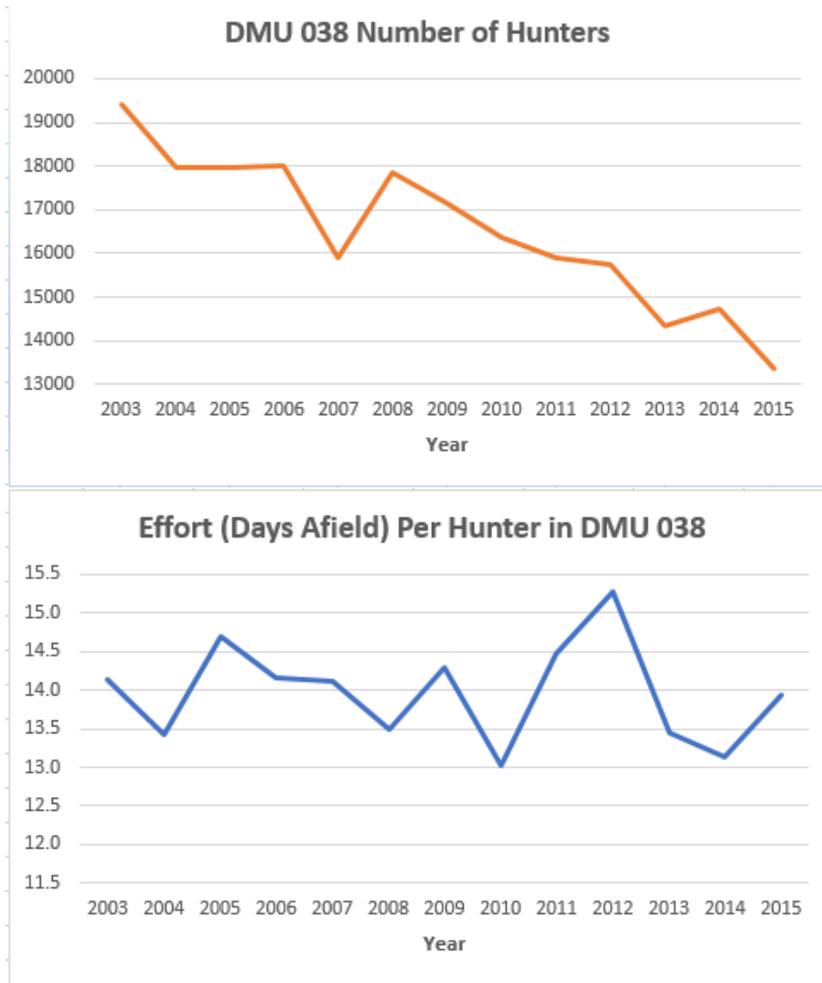


Figure 3 Number of hunters and efforts in DMU 038

Additional Population Assessment Factors:

Deer Vehicle Collisions

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. Habitat proximate 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 have declined from 2001-2010 in the Jackson DMU; but the decline has been most significant in very recent years (Figure 4). 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. The displayed decline in DVCs is an additional indicator that the Jackson DMU deer density has declined over the past decade.

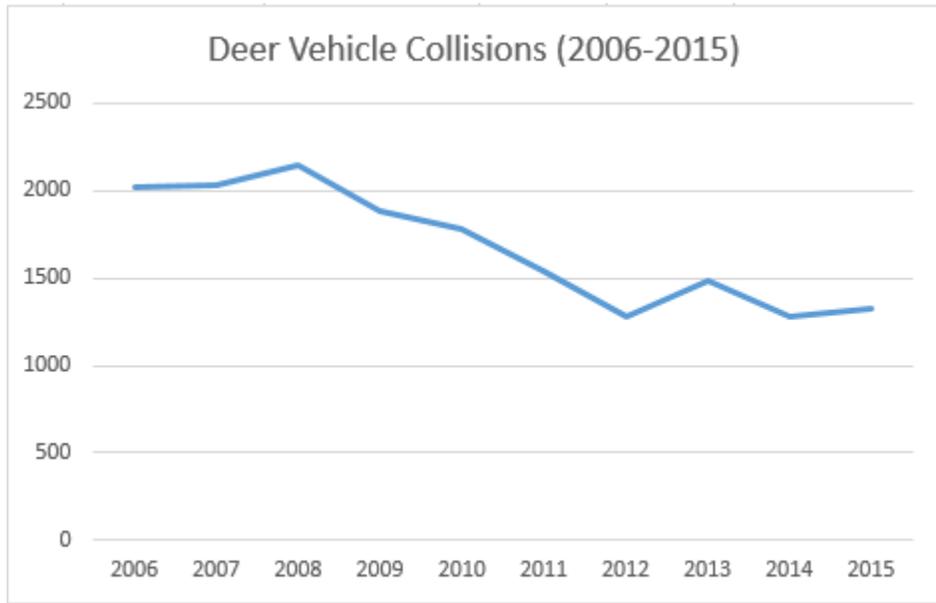


Figure 4 Deer Vehicle Collisions in DMU 038

Deer Management Assistance and Crop Damage Permits

Deer Management Assistance Permits (DMAPs) or “Block permits” 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 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 the Jackson DMU, the number of DMAPs issued has changed very little over the last several years.

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; however, changes in crop prices and increased awareness of the program among farmers likely play a role in permit request trends. In 2008, the number of crop damage complaints and permits issued in DMU 038 peaked; since that year, there permit requests have steadily declined.

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 as 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 points to 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 main beam diameters and antler points. In southern Michigan, winter severity is not likely to impact deer condition on a population level. Environmental factors may impact deer condition indirectly, though. A late frost or an especially rainy spring can negatively influence crop production which is a major source of nutrition in this DMU. Likewise, changes in land use practices can affect cover and food resources.

In the Jackson DMU, the average antler beam diameter has shown a statistically significant decline, as has it for the SLP, overall. The estimated annual decrease in this DMU is 0.093 mm, resulting in an estimated 0.835 mm decline from 2003-12 (Figure 5). This is lower than the estimated reduction in average yearling antler beam diameter in the entire SLP of 1.02 mm for the same period.

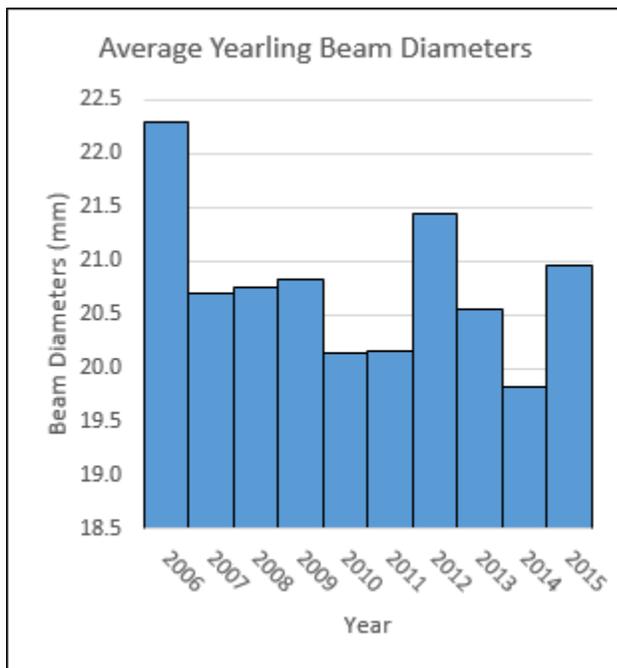


Figure 5 Average Yearling Beam Diameters in DMU 038

It does appear that deer herd condition may have slightly declined in the Jackson DMU from 2006-15, although it has rebounded recently. 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, although climate change may be shifting this perspective. Most likely, the reduction in deer 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. The conversion of acreage from acceptable deer cover to agriculture and removal of brushy field rows further fragments habitat, homogenizing the landscape and reducing the richness of a “patchwork” of habitat types in which deer thrive.

Deer Management Recommendations

This DMU experienced whitetail die-offs as a result of the EHD outbreak in 2012. In addition, the record-setting snow and low temperatures of the 2013-2014 winter have undoubtedly caused winter stress, rare for the SLP deer herd. The estimated deer population remains over goal; however, has a significantly declining trend for population growth over the last decade. These population model trends for the Jackson DMU are consistent with the declining buck harvest and antlerless harvest and the declining vehicle-deer accidents for the DMU. Deer damage complaints and permits issued for the area have decreased; however, permits are still being requested as deer continue to cause damage to crops.

We recommended that antlerless licenses are made available for public and private land and that a late antlerless season is open in DMU 038. This will provide opportunities for increased antlerless harvest and recreation. Continuing the late antlerless season may help to address some crop damage, DVCs, and nuisance issues in the area. There is very limited public land (5%) available in this DMU, so most of the hunting opportunity is on private land. The maximum number of antlerless licenses purchased for DMU 038 is 15,269. We feel that a reduction in the quota will reflect the data which indicates this is a population that has been decreasing, has experienced localized declines as a result of EHD, endured a substantially harsh winter, is coming closer to reaching goal, and for which there is a strong sentiment to stop further population size reduction. However, we feel that it is important that folks have the ability and opportunity to take antlerless deer for recreation and management. Setting the private land quota at 16,000 will still provide that opportunity in the Jackson DMU.

Based on this information, we recommend that the Public Land Quota remain at 1,600 and that the Private Land Quota be set to 16,000. We also recommend that DMU 038 is open for Early and Late Antlerless Firearm seasons.