

# DMU 003

## Allegan County

### Deer Management Unit

#### Area Description

The Allegan County Deer Management Unit (DMU 003) is in the Southwest Region (SWR). It has roughly 50,700 acres of State Game Area (SGA) Land which is about 9 percent of the total acreage in the county. Topography varies from rolling hills to relatively flat. The ownership consists of a block of State land in the central portion of the DMU that extends through 13 townships.

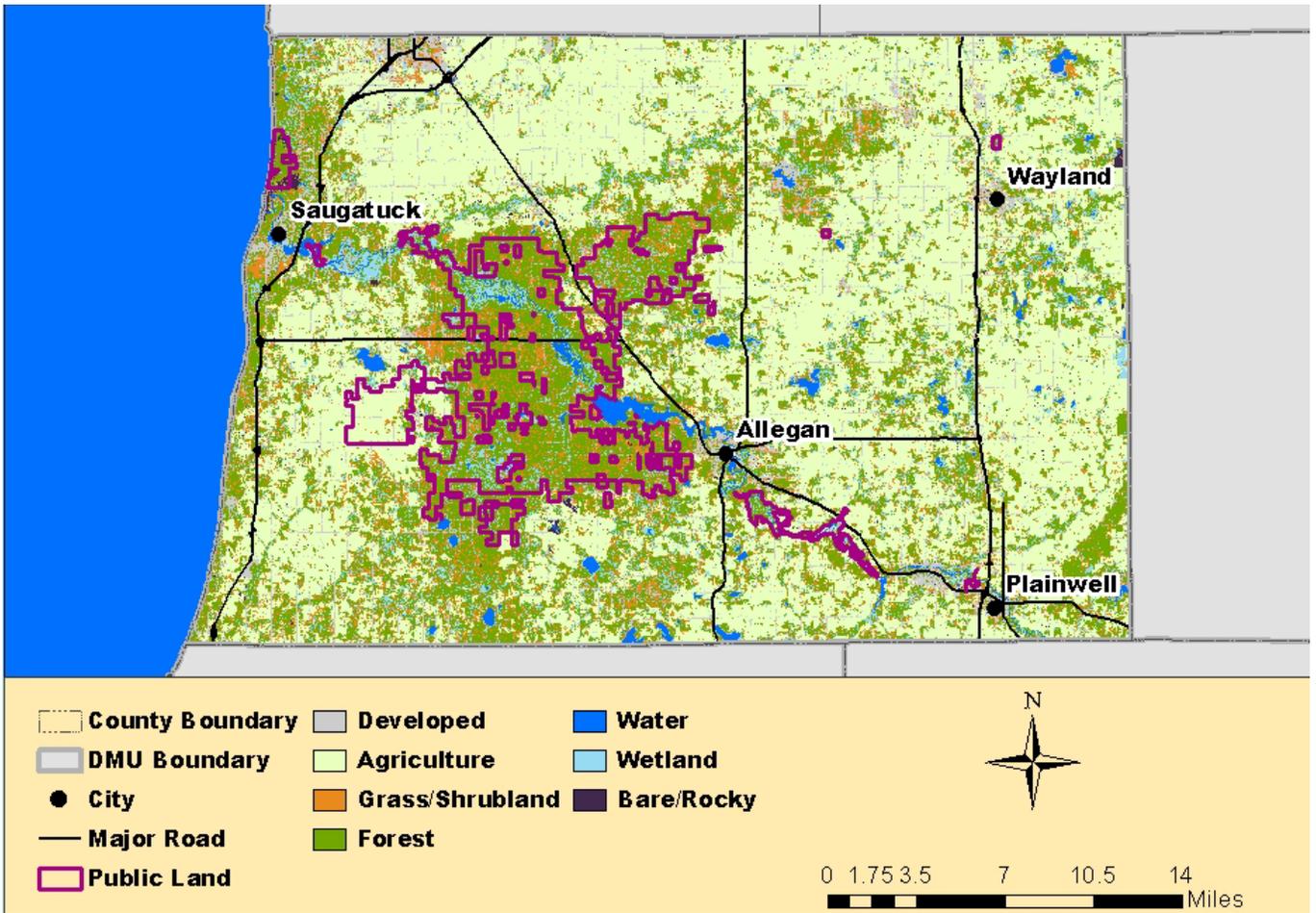
Soils in the area vary from heavy clays, muck and sandy mixes. These drier sandy soils tend to support mixes of oak, pines and red maple. Overall the game area is two thirds forested with significant wetland, grass, shrub and cropped areas. Agriculture constitutes for about half of the private lands composition throughout the DMU with woodlots spread throughout (Figure 1).

In general, this DMU has a variety of suitable habitats for deer. Allegan SGA has wetland complexes that are dominated by marsh species but some contain pockets of lowland conifers and shrub species. This DMU has the Kalamazoo River running through a portion of the SGA. There are early and mid-successional habitats that generate food and cover resources. Allegan SGA also has maintained food plots at the Fennville Farm Unit to provide a supplemental food resource as well as many pine stands in the area provide thermal cover in upland areas.

#### 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 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 hunter survey, the winter severity index, deer-vehicle collision data from the Michigan State Police, and deer-related information collected by regional wildlife biologists (e.g., hunter observations, number of Crop Damage Permits, spotlight surveys, habitat assessments, etc.)

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## Deer Harvest Analysis

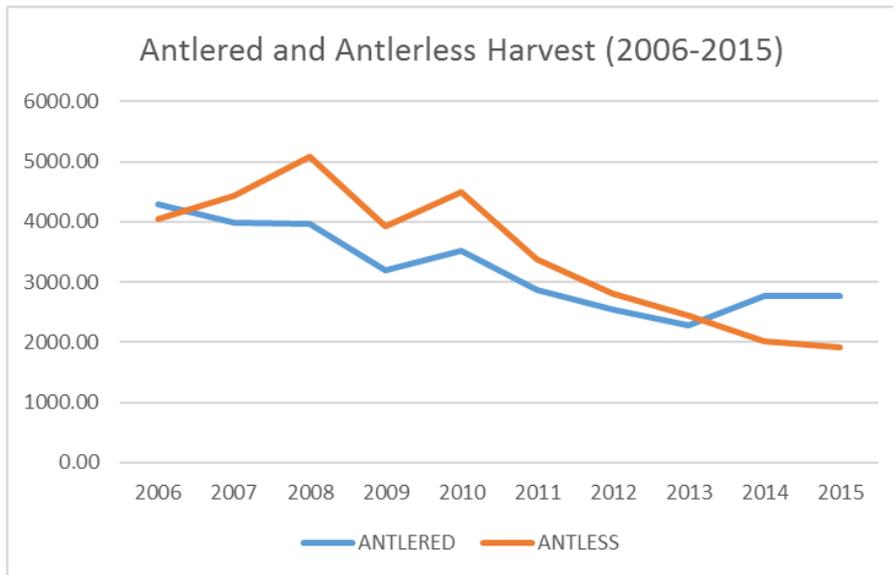


Figure 2: Allegan DMU's antlered and antlerless deer harvest from 2006 to 2015

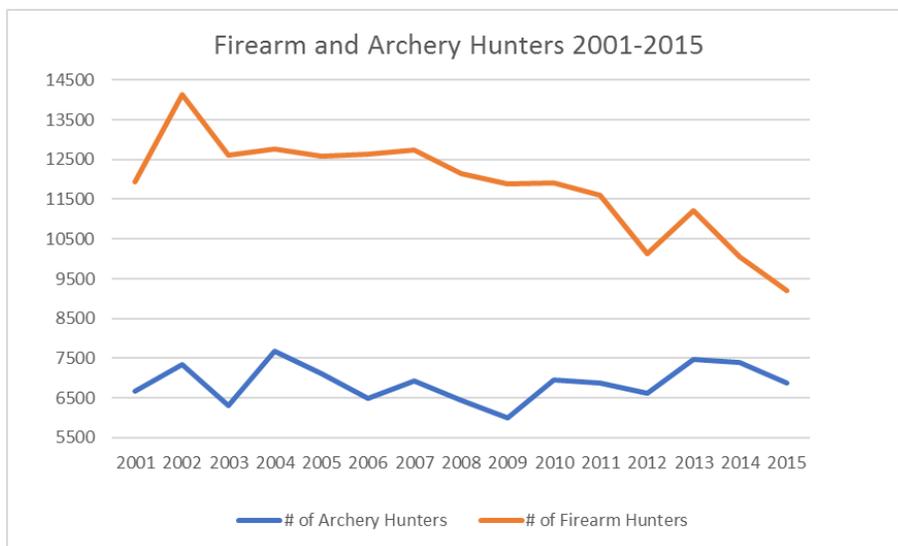


Figure 3: Allegan DMU's number firearm and archery hunters 2001 to 2015

Since 2008, declines of both antlerless and buck harvests have been observed (Figure 2). This may be due to a reduction in deer population, reductions in hunter numbers (Figure 3), or, most likely, a combination of both. 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 agriculture practices, can also impact deer numbers. Epizootic Hemorrhagic Disease (EHD) outbreaks occurring sporadically since 2006 contributed to a reduction in the population size (approximately 500 dead deer were reported in 2008 with large numbers also reported in 2012).

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. 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. In 2014 a redistribution of harvest happened for the first time since 2006 in having more bucks than does taken from the landscape.

## Other Population Assessment Factors

### Winter Severity Index (WSI)

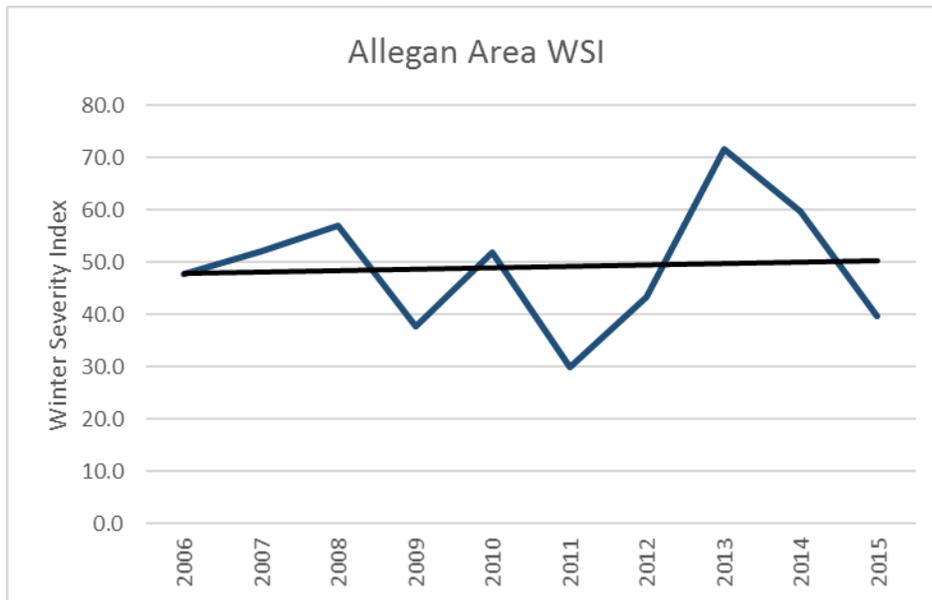


Figure 4: Allegan DMU's Winter Severity Index from 2006 to 2015

The current Winter Severity Index (WSI) system takes advantage of standard weather data available from the National Climatic Data Center. The DNR uses weekly data on air temperature, wind speed, and precipitation from weather stations throughout Michigan and the surrounding area in a series of mathematical equations to calculate a weekly index value from November through April. Normally, the WSI values from individual stations are averaged across the three regions of Michigan to give a regional perspective on winter severity. For the purpose of monitoring deer related trends in the Allegan area, only the Allegan Area WSI station data were used. The DNR plots these values over time to provide insight into the pattern of winter severity over the course of the winter and to identify severe weather events. Extended periods of severe weather and very early or very late peaks in severity tend to have the greatest effect on deer. The graph shows the cumulative WSI, or the overall severity of each completed winter season (Figure 4). Despite a few harsher winters over the past 10+ years, the trend has been for milder winters. Winter severity is an important factor influencing deer population levels in the Southwest Lower Peninsula. Relatively mild winters allow for increased deer survival, particularly for fawns which are typically the most vulnerable. Furthermore, mild winters tend to positively affect newborn survival. In general, milder winters tend to favor an increase in deer population levels.

## Deer Vehicle Collisions

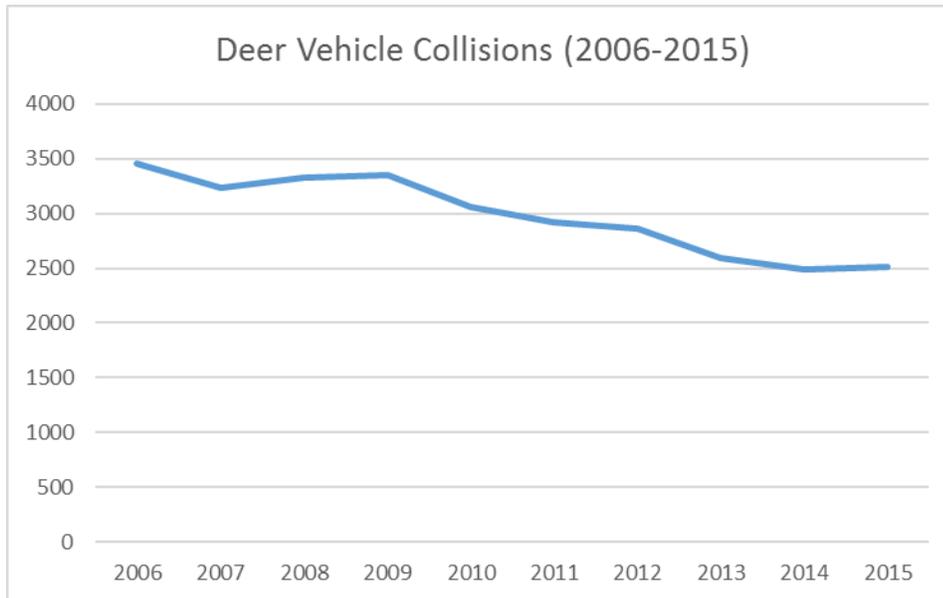


Figure 5: Allegan DMU's Deer Vehicle Collisions (2006-2015)

Deer-vehicle collisions (DVC) are commonly used as an index to the deer population trend. The idea is 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 indexed by vehicle miles travelled have declined significantly from 2006-2015 (27% decrease) in the Allegan DMU with the largest drop indicated from 2009 and 2010 (Figure 5). 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 Allegan DMU deer density has dropped over the past decade. However, the data also suggests that deer density in the Allegan DMU has stabilized between 2013 and 2015.

## Deer Management Assistance and Crop Damage Permits

Deer Management Assistance Permits (DMAPs) allow for the harvest of antlerless deer by private landowners or their designees during legal deer hunting seasons. 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. Landowners and agricultural producers may request and be granted DMAPs or Crop Damage Permits by MDNR to address deer damage concerns when sufficient antlerless permits are not available in a DMU to address the landowner's needs or when damage is occurring outside open deer hunting seasons, respectively. DMAP and Crop Damage Permit requests are tracked by MDNR and may trend with deer populations. For example, an increase in deer density may result in additional permit requests. The opposite is also true seeing that a decrease in the population may lead

to fewer requests. In the Allegan DMU, deer damage requests have been variable and weather dependent although a general reduction in requests has been experienced over the past several years. DMAP requests have remained variable as well and do not appear to have tracked deer densities. The same may not be true for crop damage requests as we have seen a decrease from 18 issuances in 2012 to seven in 2015.

### Deer Condition Data

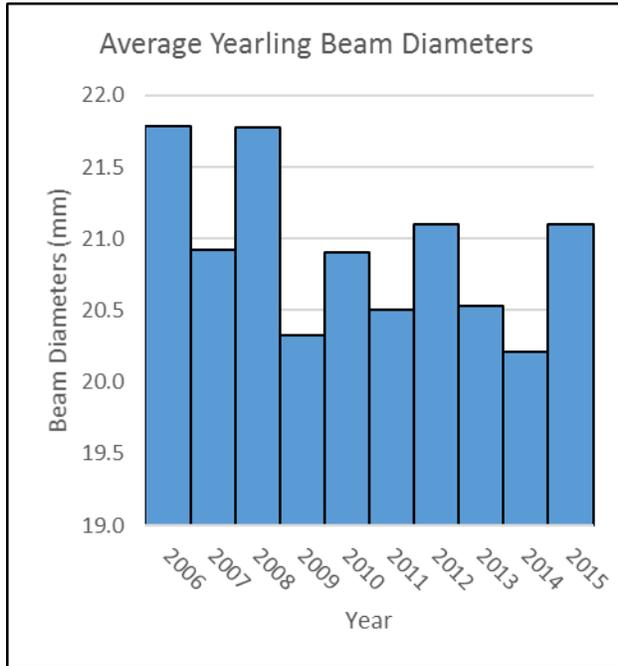


Figure 6: Allegan DMU's average yearling beam diameters 2006-2015

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 Allegan DMU there was a slight decline in antler beam diameter (Fig. 6). Similarly, there was a decline for the majority of the SLP. This slight decrease makes it difficult to determine if deer body condition declined in the Allegan DMU from 2006-2015. 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, 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, especially under the increased popularization of fall tillage. 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

The deer population has likely declined in this DMU in the last several years. The primary causes are liberal antlerless license quotas which have resulted in higher antlerless deer harvests and disease outbreaks. As this unit was formerly part of DMU 486, it is not possible to know the rate at which antlerless tags were filled from 2010-2012. Going back to 2009, the last year in which the Allegan DMU was an individual unit for private land antlerless licenses, 15,000 antlerless permits were available (12,000 for private land, 3,000 for public land). In 2013 the combined quota was reduced to 8,900 (8,000 for private land, 900 for public land). Currently, the deer population is still below the desired level across the DMU so the antlerless quota should be reduced to allow the deer population to rebound. It is recommended that private land antlerless quotas be reduced to 4,000 with the public land antlerless quota set at 50. Early antlerless season should remain closed.