

# DMU 030 Hillsdale County

## Area Description

The Hillsdale Deer Management Unit (DMU), or DMU 030, lies in the Southern Lower Peninsula (SLP) region and covers Hillsdale County. The DMU consists of one percent public land. The majority of public hunting opportunities in this DMU are available on Adams Township (180 acres), Somerset (800 acres), and Lost Nation (2500 acres) State Game Areas.

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; Hillsdale was named for its hills and valleys (dales). The DMU is well suited for farming; nearly 60 percent of the land is in agriculture, with row crops (corn, soybeans, and wheat) being the main ag-commodities.

The landscape largely supports agriculture, the most dominant cover type in the DMU (Table 1, Figure 1). The headwaters for five of Michigan’s major rivers are located in the Hillsdale DMU; forest, and wetland vegetation types tend to be located along these waterways. Urban development is concentrated in the City of Hillsdale, toward the center of the DMU; however, the DMU is largely rural. Much of the private lands that are tillable in DMU 030 are kept in agriculture. Both private and public lands in the area support cover habitat for deer (e.g., woodlots, shrub/brush, and wetland); however, on private land, such cover tends to be located where topography, hydrology, or development prohibit farming. Deer throughout the Hillsdale DMU have access to food, water, and cover and can meet all life requisites in every portion of the DMU; but, cover may be more limited in portions of the DMU more heavily farmed (Table 1).

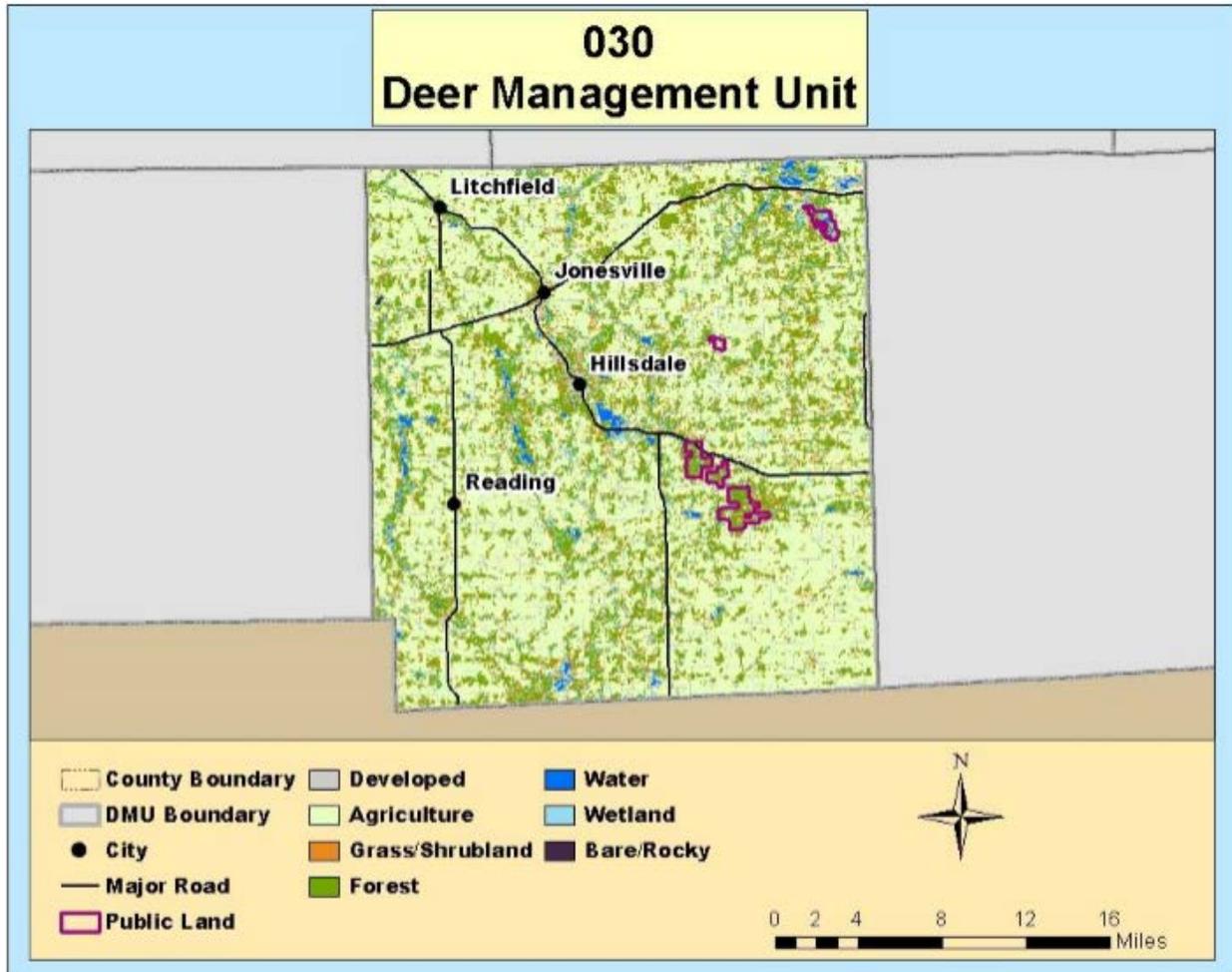
Table 1. Habitat Composition of DMU 030 on Public and Private land

Habitat	030 Private Land	030 Public Land
Forest	20.2%	62.0%
Agriculture	59.8%	9.2%
Grass/Shrub land	7.9%	11.2%
Wetland	6.9%	14.3%
Developed	4.2%	1.9%
Water	0.9%	1.3%
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.).

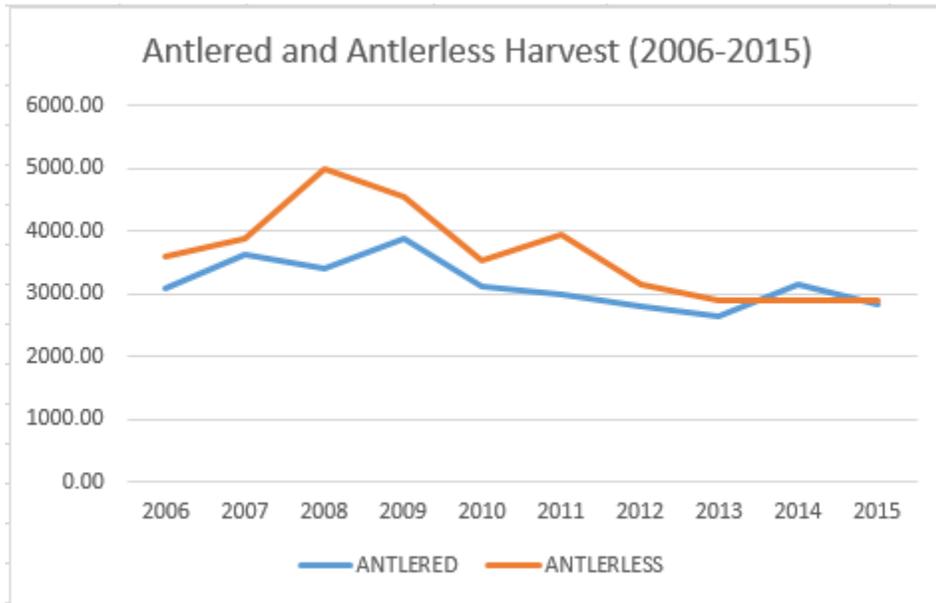
Figure 1 Habitat and Land use distribution in DMU 030



### Deer harvest Analysis

Over the past decade, the harvest of antlered and antlerless deer has essentially remained level. This may be due to a stabilization of the deer population or changing behaviors in hunters. However, this trend in harvest is likely due to a combination of these factors. Hunter numbers have declined in the Hillsdale DMU; however, it does not seem to correlate with the level of harvest trend. The liberalization of antlerless permits was intended to limit the productivity of the deer herd; however, it has not seemed to produce a significant change in the population trend for DMU 030 in the last decade. There was a peak in harvest and hunter numbers in 2009, and a decline has followed since that year; however, the overall trend from 2003-2012 is level. 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 in DMU 030



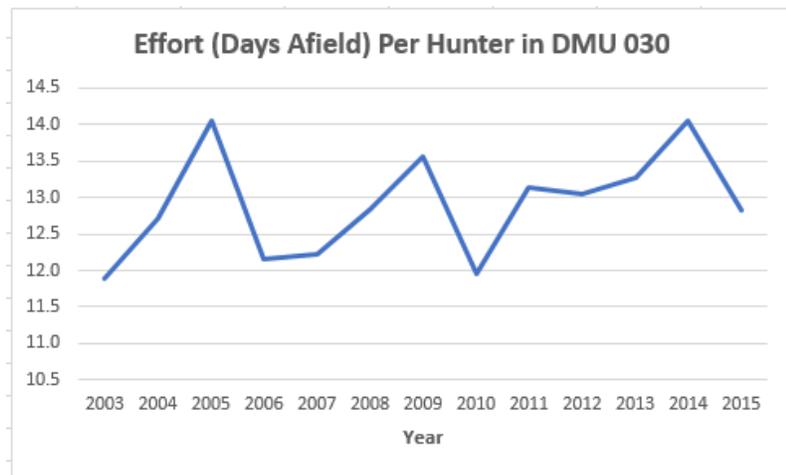
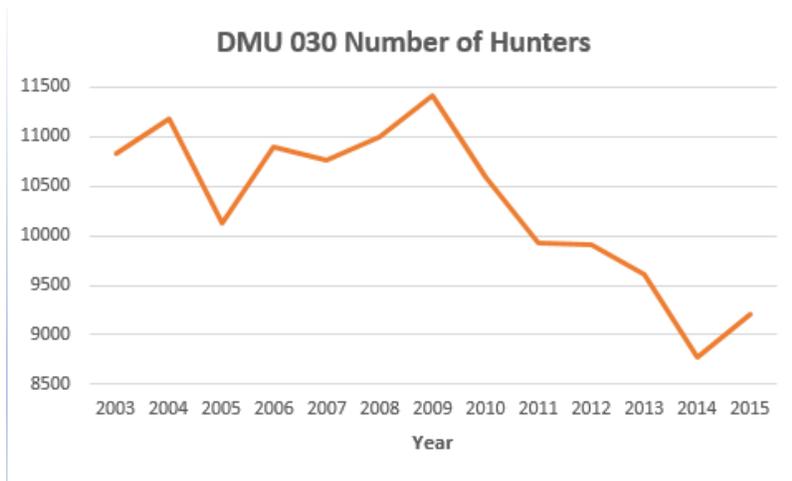
Hunter perceptions and goals can also impact harvest numbers. A large scale shift in hunters' decisions to target older deer and pass on younger bucks results in reduced harvest numbers and increased hunter effort, as there are fewer deer in older age classes. Success and harvest rates are thereby suppressed 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. Hunter perceptions and goals are likely playing a role in the deer harvest trends in the Hillsdale DMU. Quality Deer Management Association (QDMA) Cooperatives are quite organized in the Hillsdale DMU. In addition, the 2012 EHD die-offs affected a lot of hunter perceptions regarding the viability of the deer population in areas hit hardest by the disease. Many hunters expressed intentions reduce harvest in seasons following the outbreak.

Table 2 Age Structure of Antlered Deer Harvest in DMU 030

Year	1.5 Years Old	2.5 Years Old	3.5 + Years Old
2004	68.3%	11.8%	20.0%
2005	61.6%	16.8%	21.5%
2006	68.8%	11.4%	19.8%
2007	61.4%	19.1%	19.5%
2008	73.6%	14.3%	12.2%
2009	62.7%	19.2%	18.1%
2010	66.8%	18.1%	15.0%
2011	60.8%	15.4%	23.9%
2012	53.4%	24.9%	21.7%
2013	55.5%	20.1%	23.4%
2014	47.8%	29.6%	22.6%
2015	52.2%	24.2%	23.7%
2016	43.2%	16.8%	40.0%

Although harvest in DMU 030 has remained level over the past decade, there has been a slight increase in number of days afield per hunter (Figure 3). This suggests social factors (i.e. hunter perceptions and goals) may have some influence over both harvest and effort. Since 2004, there has been a significant increase in the percent of 2.5 and 3.5 year old bucks harvested and a significant decrease in the percent 1.5 year old bucks harvested (Table 2).

Figure 3 Number of hunters and effort in DMU 030



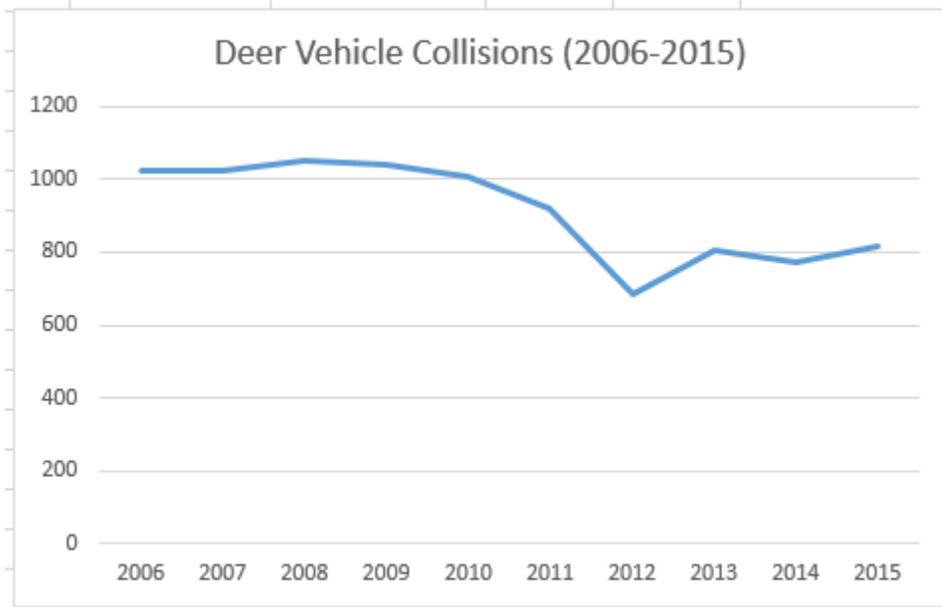
#### Additional Population Assessment Factors

##### 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 remained statistically level 206-2015 in the Hillsdale DMU, showing a very slight decline (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 level trend in DVCs is an additional indicator that the Hillsdale DMU deer density is being managed in a state of equilibrium.

Figure 4 Deer Vehicle Collisions in DMU 030



### 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. 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 Hillsdale DMU, these requests have increased, but are by no means common.

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. Since 2003, the number of crop damage complaints and permits issued in DMU 030 has significantly increased, peaking in 2009 (the same year we saw peaks in hunter numbers and buck harvest, as well as a peak in DVCs).

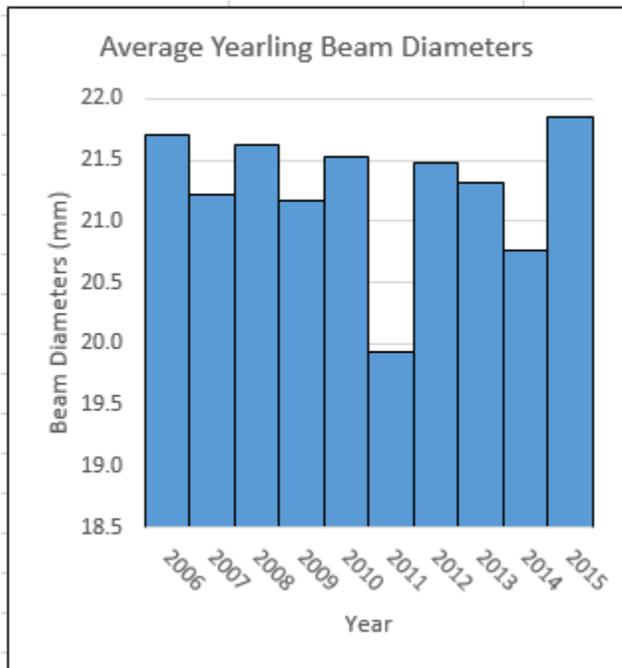
### Deer Condition Data

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 Hillsdale DMU, the average antler beam diameter has shown a statistically significant decline, as it has for the SLP, overall. The estimated annual decrease in this DMU is 0.098 mm, resulting in an estimated 0.884 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 Yearly Beam Diameters in DMU 030



It does appear that deer herd condition may have slightly declined in the Hillsdale DMU from 2006-14, although it seems to have 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 level trend 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*

The Hillsdale DMU experienced whitetail die offs as a result of the EHD outbreak in 2012. The estimated deer population remains over goal; however, has maintained a level to very slightly declining trend for population growth over the last decade. Other trends for DMU 030 indicate that buck harvest and antlerless harvest have been very level through the same timeframe. In addition, DVCs have remained level to very slightly declining in the DMU.

Deer damage complaints and permits issued for the area have increased over the last decade, and the population is still over goal; therefore, it is recommended that antlerless licenses are made available for public and private land and for a late antlerless season. 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, as well. The City of Hillsdale has experienced urban deer issues and received permits to conduct urban deer culls in the past; however, in recent years, the city chose to resolve these issues through hunting, alone; and, felt that their efforts have been successful in reducing the number of negative human-deer conflicts in the urban area. There is very limited public land (1%) in this county so most the hunting opportunity is on private land.

The maximum number of antlerless licenses purchased for DMU 030 is 10,413. We feel that a reduction in the quota will reflect the data which indicates this is a population that has been leveling off, may have experienced some localized declines as a result of EHD, experienced unusually harsh winter conditions, hovers just above goal, and for which there is a strong sentiment to stop population size reduction (as suggested earlier, this may be one of the reasons the trend is so flat; private landowners are already managing the heard at this desired level). However, it is important that folks have the ability and opportunity to take antlerless deer for recreation and management. We feel setting the private land quota at 12,000 will still provide that opportunity.

Based on this information, we recommend that the Public Land Quota remain at 400 and that the Private Land Quota be set to 12,000. We also recommend that this DMU is open for Early and Late Antlerless Firearm seasons.