

DMU 020

Crawford County

Deer Management Unit

Area Description

Crawford County Deer Management Unit (DMU 020) is in the Northern Lower Peninsula Region (NLP) and is roughly 563 square miles in size. There is approximately 234,200 acres of public land which is 65% of the total acreage in the county. The remaining 126,120 acres is in private ownership. Topography is relatively flat throughout the DMU with some areas of rolling hills. Most of the soils in the area are well drained and consist of sand, sand/gravel, or sandy loams, with occasional inclusions of clay or organic soils, primarily along rivers and creeks. These drier sandy soils tend to support mixes of pine, oak, aspen, and red maple. The landscape consists of large blocks of both state and federal land. State owned land dominates a majority of the county while federal land is located in the southeast corner. These large blocks of land are dominated by forest land and provide excellent habitat for deer. The private land consists primarily of forested habitat. The Au Sable River, Manistee River, Beaver Creek, and many associated feeder streams flow through this DMU.

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 overabundance. Disease transmission, deer-vehicle collisions, and poor forest regeneration due to overbrowsing 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, the winter severity index, deer-vehicle collision data from the Michigan State Police, and deer-related information (e.g., habitat assessments, personal observations, public and hunter comments, etc.) collected by regional wildlife biologists, conservation officers, and foresters.

Population Assessment Factors

Winter Severity Index

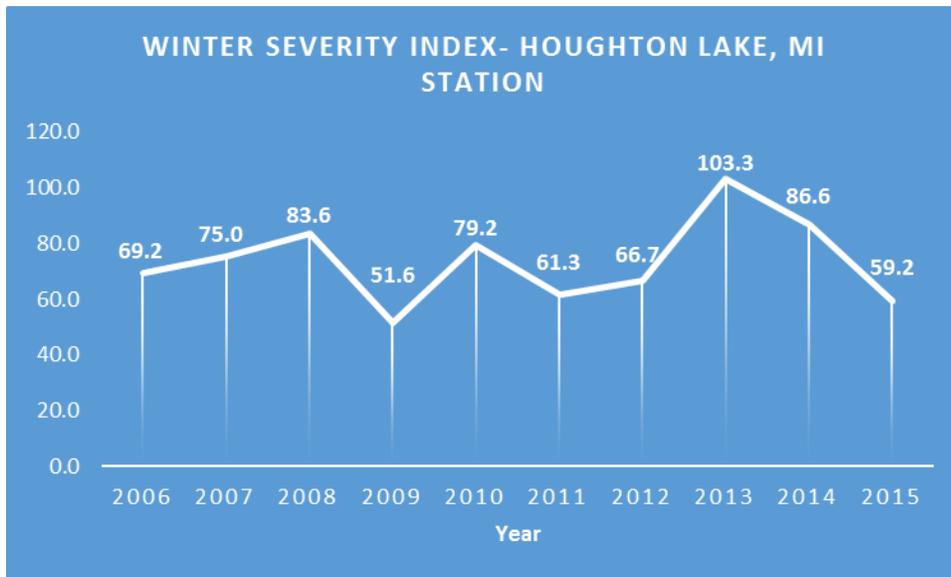


Figure 1: Houghton Lake Areas Winter Severity Index from 2006 to 2015

In northern Michigan, winter severity has a direct impact on deer condition at the population level. The current 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. The WSI values from individual stations are averaged to give a regional perspective on winter severity. 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 NLP WSI graph shows the cumulative WSI, or the overall severity of each completed winter season. Despite a few harsh winters in 2008, 2013, and 2014, the trend has been for close to normal and milder winters including 2016 through February when this analysis was conducted. Mild winters allow for increased survival over the winter, specifically for fawns which are typically the most vulnerable. Also, pregnant does experiencing a mild winter tend to be healthier which positively affects newborn survival. In general, milder winters tend to favor an increase in populations.

Deer Harvest Analysis

While it can be difficult to pinpoint exactly what is causing a population to increase or decrease, we can make predictions based on past trends and look at a number of factors that can indicate changes in populations.

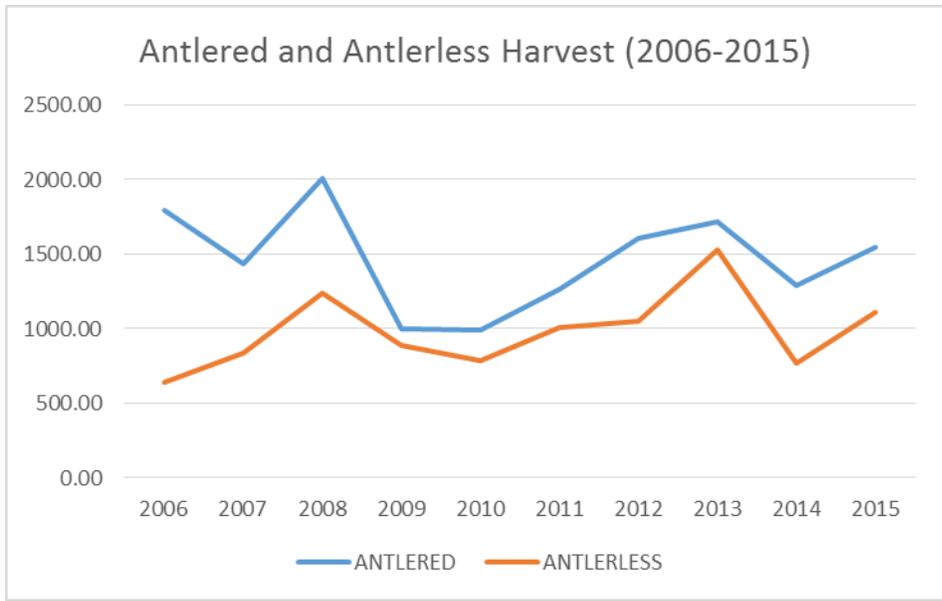


Figure 2: Antlered and Antlerless Harvest Crawford County 2006 to 2015

This graph shows the number of deer estimated to have been harvested annually from DMU 020. This data is derived from the annual deer hunter harvest survey. Antlered harvest reflects harvest of deer with antlers three inches and over, while antlerless harvest includes fawn bucks as well as fawn and mature does.

From 2006 through 2015, excluding the years following harsh winters, the steady increase in deer harvest suggests a stable to increasing deer population in DMU 020. Following the harsh winters of 2008 and 2013, deer harvest decreased suggesting a decrease in the deer population as a result of winter mortality.

Deer- Vehicle Collisions

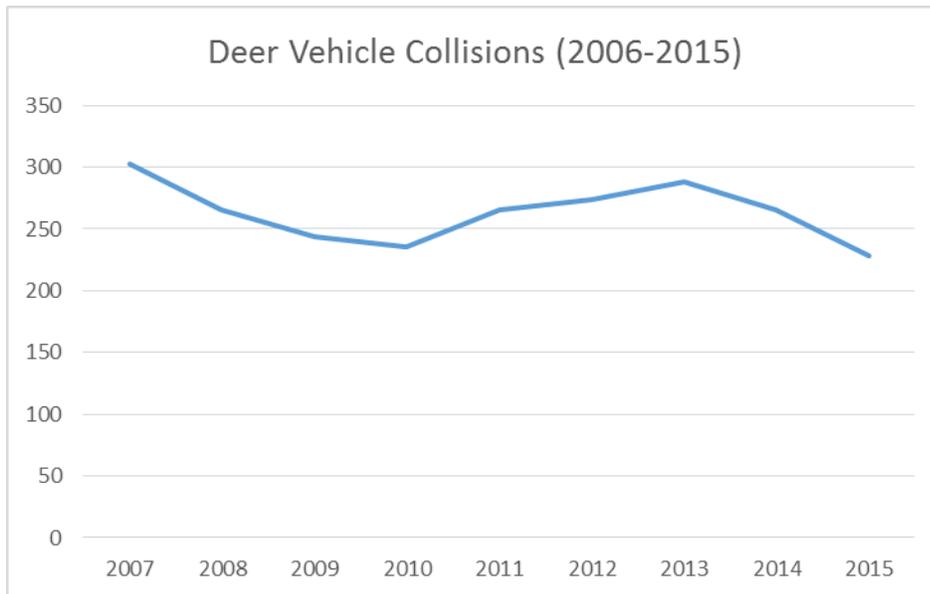


Figure 3: Crawford County Deer Vehicle Collisions 2006to 2015

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 proximity to the roadway and highway characteristics can influence the relationship between deer population and DVCs. However, DVC data can provide useful information if used as one part of a deer population assessment.

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 various fluctuations from year to year give supportive evidence to the primary driving factor of the deer population which is winter weather. Drops in DVC occurred one to two years after a particularly severe winter (e.g., 2008 and 2013). The overall trend for DMU 020 over the past decade has shown a slight decrease in DVC, despite the overall trend of milder winters. The most recent decline is likely due to the population decline resulting from the harsh winter of 2013. It is expected that DVC's will start to increase after the last few mild winters which won't cause significant winter mortalities.

Deer Condition Data

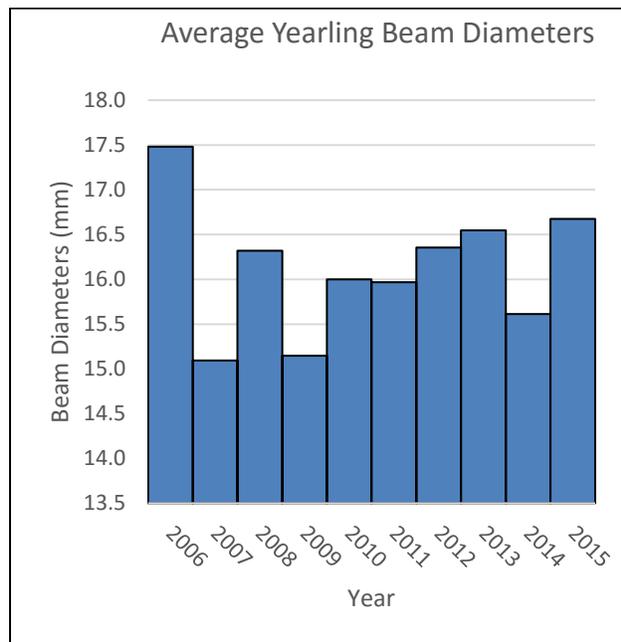


Figure 4: Crawford County Average Yearling Beam Diameters 2006 to 2015

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. 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. Availability of hard mast such as acorns can have a major impact on deer body condition in this DMU. In northern Michigan, winter severity has a direct impact on deer condition at the population level. Changes in land use practices can also affect cover and food resources.

Beam diameters in DMU 020 have had little fluctuation (< 1.5 mm) over the last ten years indicating stability within the herd. The small fluctuations in this DMU can primarily be attributed to environmental factors such as winter severity and food abundance such as mast production.

Deer Management Recommendations

While each indicator previously described is by itself not a stand alone gauge of the actual population change, the majority overall point towards a stable or slightly increasing deer population in DMU 020. Despite a few harsh winters in 2008, 2013, and 2014, the trend has been for close to normal and milder winters including 2016 through February when this analysis was conducted. Since the data suggests that

winter weather is the primary factor driving deer populations, we are recommending to increase antlerless permits within DMU 020.

A larger proportion of the antlerless quota should remain on private land. This is based on the fact that deer are not spread evenly across the landscape. Deer tend to congregate where the best food (and cover) is found. Because private lands tend to have better soils and are relatively productive, they can, and typically do support higher deer densities.

We do not recommend an early or late private land antlerless firearm season for DMU 020.

Deer Management Unit 20



Legend

Deer Management Units Polys Edit	Open Water	Hay/Pasture
Highway	Developed	Cultivated Crops
Cities	Forested	Wetlands
	Herbaceous	

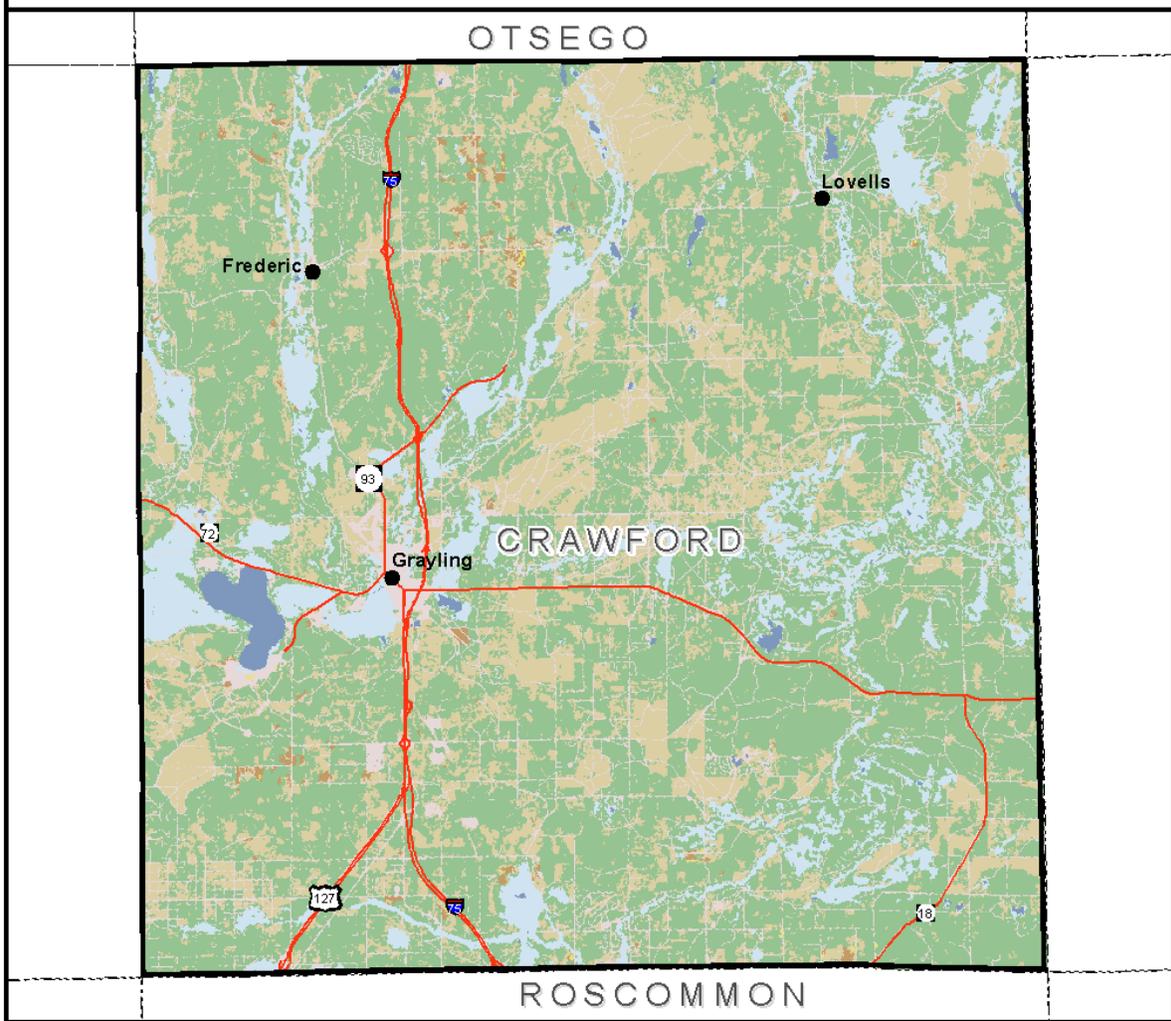


Figure 5. Crawford County Cover Type Map