

DMU 051

Manistee County

Deer Management Unit

Area Description

The Manistee County Deer Management Unit (DMU 051) is in the Northern Lower Peninsula Region (NLP) (Figure 8). It has roughly 20,000 acres of State Forest Land which is about six percent of the total acreage in the county. DMU 051 is the only DMU in the Traverse City Forest Area that contains US Forest Service land, totaling about 34,000 acres or about 10% of the DMU. Topography is relatively flat to gently rolling hills with some more pronounced hills in the southern portion of the DMU. The ownership consists of a block of State land in the north central portion of the DMU and Federal land along the southern and eastern most townships.

Soils in the area consist of sandy moraine ridges, well drained sandy outwash plains, and poorly drained mucky lake plains. These drier sandy soils tend to support mixes of pine, oak, aspen, and red maple in the north and oak dominated forest types to the south. Field crop agriculture can be found on private lands in the central portion of the county. Orchards become prevalent closer to the lakeshore.

In general, this DMU lacks any large swamp conifer complexes, although it is not lacking in wetlands in general. Most of Manistee's wetland complexes are dominated by deciduous species that contain pockets of lowland conifers. However, being a Great Lakes shoreline county and the southernmost county in the Traverse City Forest Area tends to lessen the severity of winters here (Figure 1).

Traditional deer wintering areas occur along the Dutchman, Lemon, Big Bear Creeks drainage area, the Manistee River corridor, and the Little Manistee River corridor. Numerous pine stands provide thermal cover in upland areas as well.

The Manistee River State Game Area (SGA) is located along the Manistee River just upstream of Manistee Lake and the City of Manistee. This SGA encompasses over 4,000 acres. Deer hunting is popular at the game area, which is predominately floodplain forest with only a minor component of lowland conifers.

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. 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.).

Population Assessment Factors

Winter Severity Index (WSI)

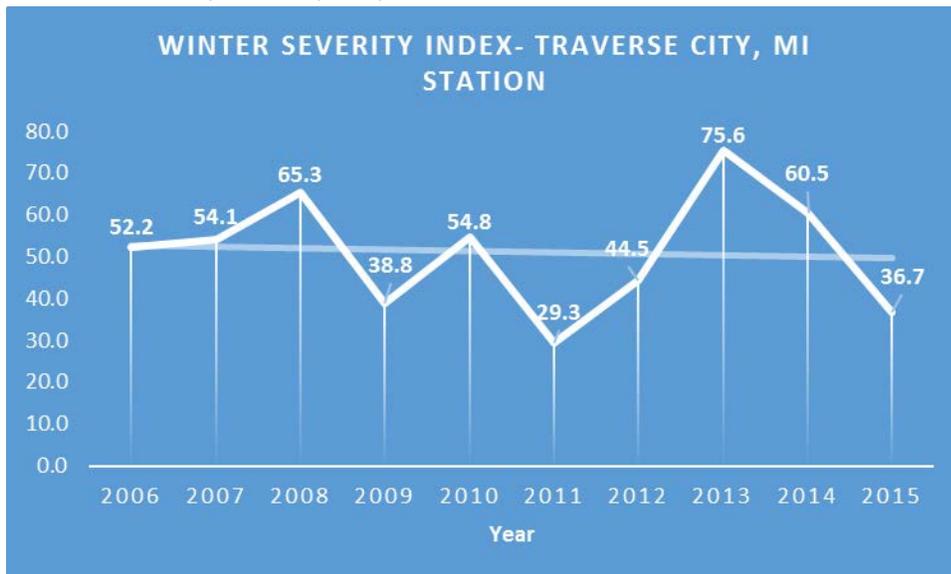


Figure 1: Traverse City Area Winter Severity Index from 2006 to 2015

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 to calculate a weekly index value from November through April. Normally, the WSI values from individual stations are averaged across a specific area (i.e. Upper Peninsula, Northern Lower Peninsula, Southern Lower Peninsula) to give a regional scale perspective on winter severity. To monitor deer related trends specific to the Grand Traverse area, only the Traverse City 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 above graph (Figure 2) shows the cumulative WSI, or the overall severity of each complete winter season. Despite several harsher winters over the past 10+ years, the trend has been for milder winters. Relatively mild winters allow for increased deer survival, particularly for fawns which are typically the most vulnerable. Furthermore, pregnant does experiencing a mild winter tend to be healthier which positively affects newborn survival. Whereas mild winters allow for better survival of deer, severe winters can cause high deer mortality. Does may abort fetuses to survive a severe winter, which creates a lag effect into the following year. Winter severity has been low over the last two years compared to the average trend for the area. The mild winters observed over the last several years would allow for a steady increase in the deer population.

Deer Harvest Analysis

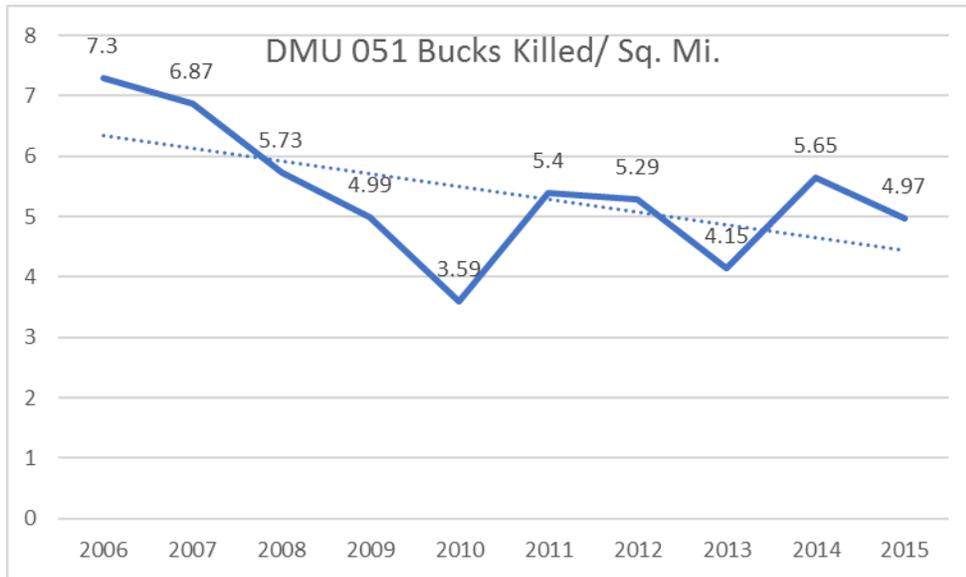


Figure 2. Bucks harvest in Manistee County, 2006 – 2015.

Buck harvest has oscillated between 3 and 7 bucks harvested per square mile over the last decade. The fluctuations observed are likely a combination of varying winter severities and hunting pressure. In DMU 051, the antlered deer harvest per square mile has shown a slightly negative trend (Figure 2) which by itself would suggest that the population is decreasing slightly. Starting in 2013, DMU 051 became part of a 12-county mandatory Antler Point Restriction (APR) area. The minimum legal buck must have at least three antler points on one side. This suppressed buck harvest for several seasons until bucks graduated into older age classes and produced antlers meeting the point restrictions. Another factor influencing bucks killed per square mile is hunting pressure. 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 looking at several factors that can indicate changes in populations.

In northern Michigan, winter severity has a direct impact on deer condition at the population level. Mild winters allow for better survival of deer, severe winters can cause high deer mortality. In addition, does may abort fetuses to survive which creates a lag effect into the following year.

Deer Vehicle Collisions

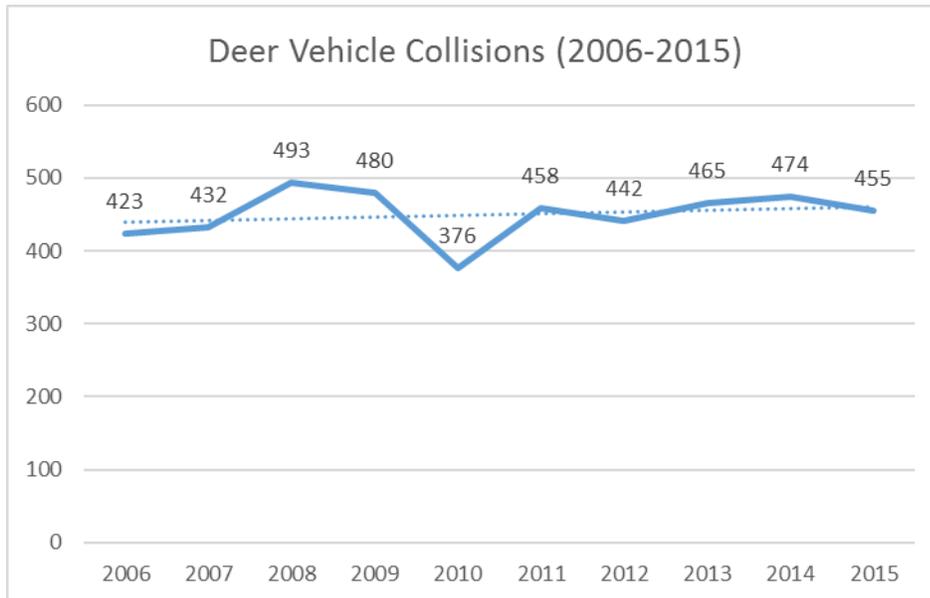


Figure 3. Deer Vehicle Collisions in Manistee County (2006-2015).

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 proximate to the roadway and highway characteristics can blur the relationship between deer population and DVCs. However, DVC data can provide useful information if considered as one part of a deer population assessment. Over the past decade has no significant change in the number of deer-vehicle collisions in DMU 051 (Figure 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 a reliable 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. Significant drops in DVC occurred one to two years after a particularly severe winter.

Deer Hunter Numbers and Behavior

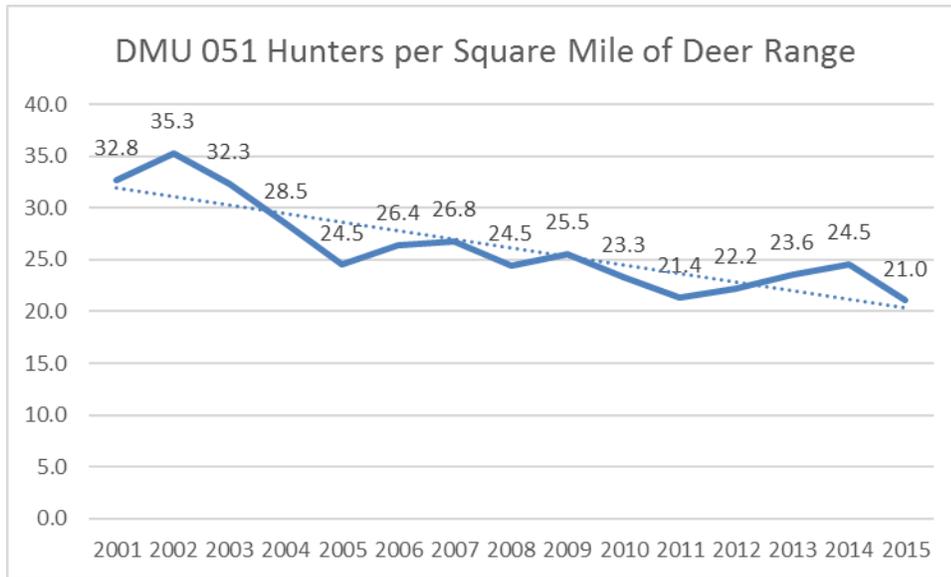


Figure 4. Hunters per square mile in Manistee County (2001 – 2015).

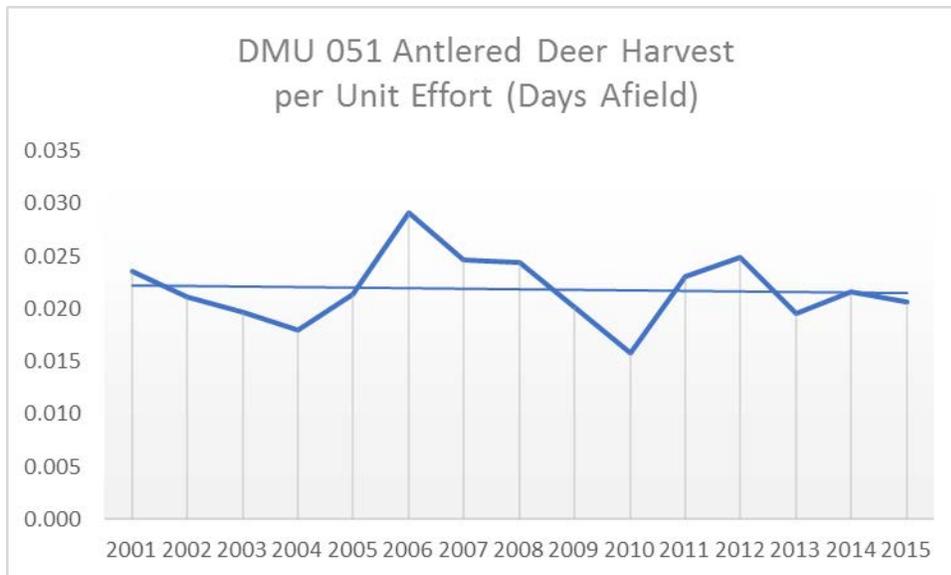


Figure 5. Antlered deer harvest per day of hunting, Manistee County (2001 – 2015).

Hunter trends can be an important indicator to assess if the number of hunters are driving populations up or down. In DMU 051 hunter numbers have steadily decreased over the last decade (Figure 4). However, looking at the number of antlered deer harvested per unit of effort (days in the field) has remained stable (Figure 5). This suggests that harvest is not solely dependent on the number of hunters. The years of low harvest have followed years of high winter severity in DMU 051 and the same goes for years of high harvest have followed patterns of lower winter severity indicating that harvest is more likely driven by the severity of the previous winters.

Hunter perceptions and goals can also impact harvest numbers. Large scale shifts 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.

DMU 051 is one the 12 counties included in an Antler Point Restriction (APR) zone. Starting in 2013 hunters were restricted to harvesting a buck with at least 3 or more points on one side. Therefore, the reduction in the 2013 buck harvest was anticipated because this was the first year of APRs and the number of legal bucks would be reduced. Starting in 2014 the hunter success rate did begin to rebound as hoped.

Deer Management Assistance Permits (DMAP)

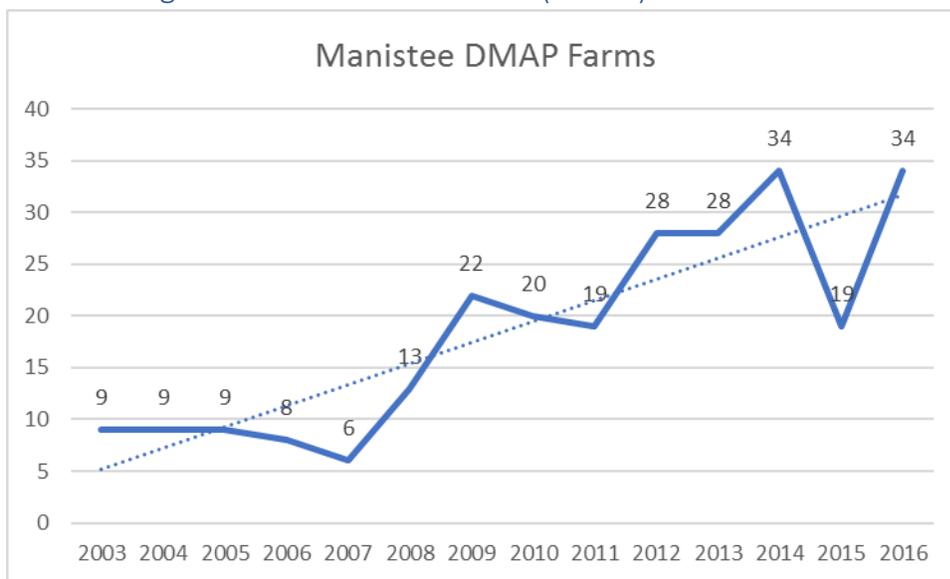


Figure 6. Manistee DMAP Farms per year

The number of farms per year requesting Deer Management Assistance Permits (DMAPs) has increased yearly in DMU 051 (Manistee County) since the yearly 2000s (Figure 6). The number of farms was chosen to track the trend of this particular index rather than the number of permits issued, permits purchased, or permits filled. The numbers of permits issued, purchased, and filled could be influenced by such things as change in farm management, crop harvest dates (corn), crop success, weather during hunting seasons, actual and perceived damage during growing season, deer visibility leading up to hunting season, availability of over-the-counter antlerless tags, and even the general economy. However, the practice of a particular farm requesting at least a minimal amount of permits is believed to remain steady from year to year despite the severity of damage and/or other factors. The increasing trend can also be affected by arable land either coming into production as farming techniques change or out of productions as land is left fallow or converted to other uses.

Deer Damage Shooting Permits (DDSP)

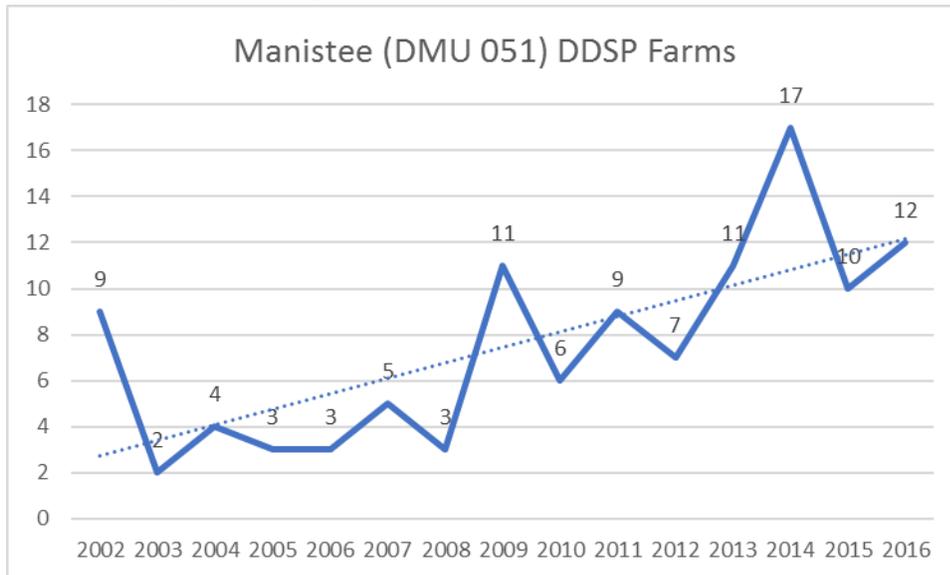


Figure 7. Manistee (DMU 051) DDSP farms per year in Manistee County, 2002 – 2016.

The trend for number of farms per year requesting Deer Damage Shooting Permits (DDSPs) has been on an increase in Manistee County since the yearly 2000s (Figure 7). The number of farms was chosen to track the trend of this particular index rather than the number of permits issued or permits filled. The numbers of permits issued and filled can be influenced by such things as change in farm practices, number of shooters on the permit, crop harvest dates (corn), crop success, actual and perceived damage during growing season, change in DNR staff responding, and changes in DNR general policies for making permits available. However, the practice of a particular farm reporting current crop damage generally remains steady from year to year despite the severity of damage and/or other factors. The increasing trend can also be affected by arable land either coming into production as farming techniques change or out of productions as land is left fallow or converted to other uses.

Deer Management Recommendations

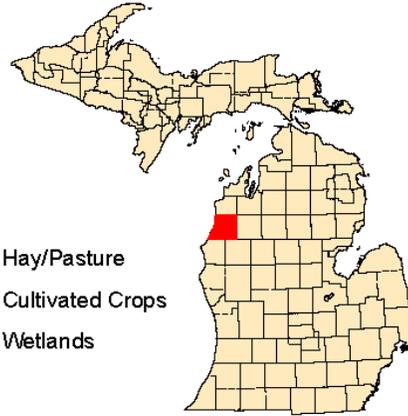
While each indicator previously described is by itself not a stand alone gauge of the actual population change, they do as a group predominately point towards a stable to modestly growing, deer population in DMU 051 (Manistee County). Therefore based on current trends for these indicators in DMU 051, we are recommending an increase to the 2013 recommended quotas. This antlerless quota recommendation is also consistent with the APR management philosophy of striving for a balanced buck to doe ratio and maintaining deer numbers at or below the biological carrying capacity.

A larger proportion of the antlerless quota should be private land antlerless. 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 do support higher deer densities. State Forest Land is typically less productive than private farmland but can support deer, but at lower densities than farmland. This creates a density gradient with the highest deer populations on the farmland and the lower deer densities on public forest lands. Therefore, population increases are going to be seen first and at a higher growth rate on private

farmland than on public land. The foods the deer are targeting on private lands are agricultural crops including various fruit orchards, row crops, pastures, and specialty crops. This can create economic hardships for individuals and communities. This is the reason that, as a population grows, harvest pressure on does typically is heavier on private lands. However, consideration should be made to keep deer populations on associated public lands at or below biological carrying capacity to minimize pressure on the public land habitat and therefore prevent too many deer migrating to private land. Another factor in distributing the total quota of antlerless licenses is the ratio of private to public land. Not only will private land have higher deer densities, but in most counties there is typically more private than there is public land, thus tilting the license distribution toward private land.

We also recommend an early/late private land antlerless firearm season for DMU 051 based on the increasing occurrence of deer damage to agricultural crops. An early season will allow farms with antlerless tags to target deer on their properties where damage has occurred. The early hunt will help target deer that are more likely to have been causing damage, and still in/near their summer range. Also, in some cases during the fall hunting seasons and after crops are harvested deer may move off of these now harvested ag lands and open fields to better cover where they may not be vulnerable during regular hunting seasons.

Deer Management Unit 51



Legend

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

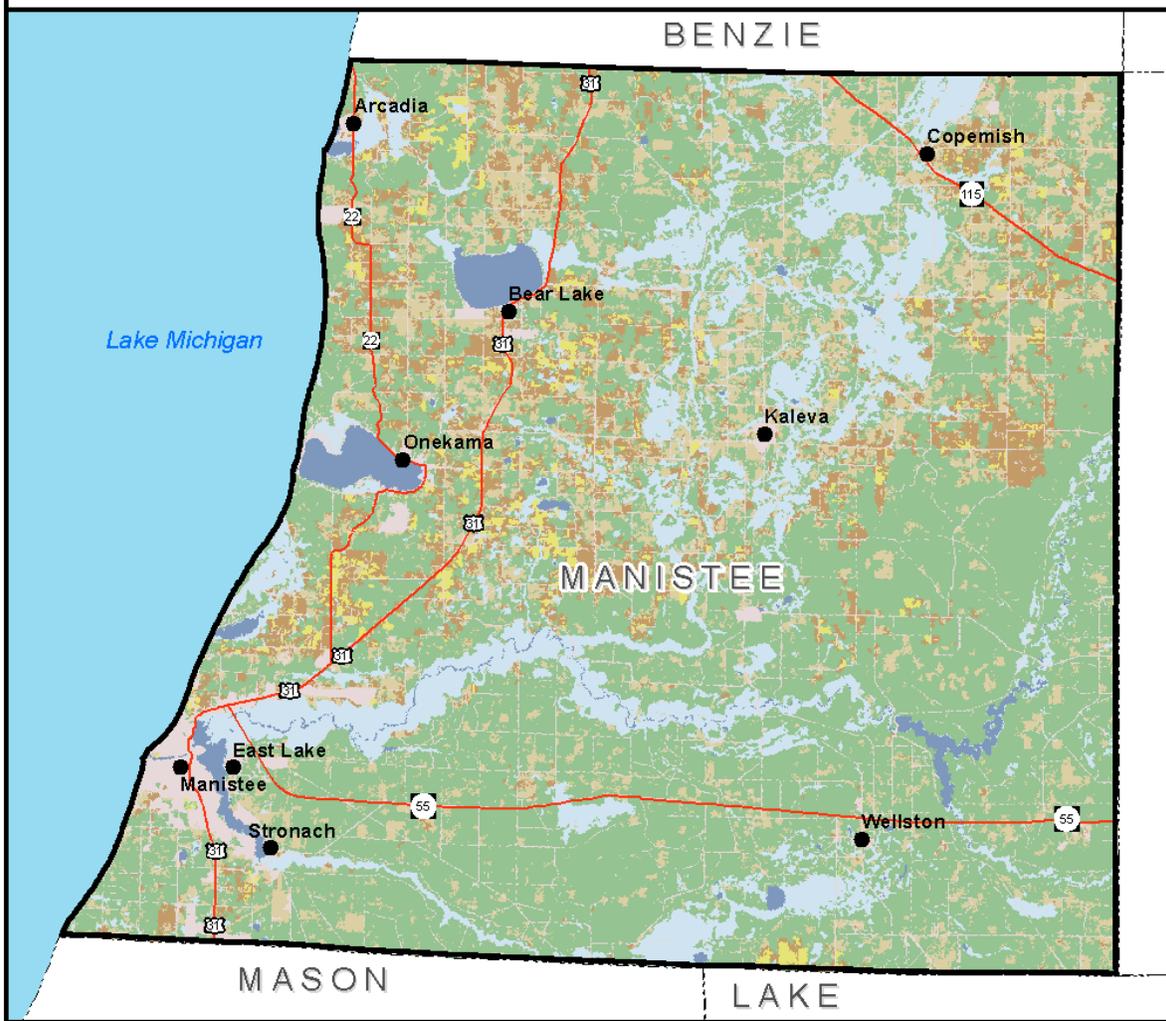


Figure 8. Deer Management Unit 051 Map