

048

Deer Management Unit

Geographic Location:

Deer Management Unit (DMU) 048 is the largest DMU in the Eastern Upper Peninsula (UP) and encompasses 2,023 square miles of land. Approximately 53% of the land is publicly owned (Michigan DNR, US Forest Service, and National Park Service), while 47% is privately owned. Lying between Munising and Brimley, this unit is bounded on the south primarily by state highway M-28 and on the north by Lake Superior.

Land use and habitat quality for deer

Major land uses within DMU 048 are forest production and outdoor recreation. Summer range habitat quality for deer varies throughout the Unit and is driven by local soil productivity and subsequent cover types and related food availability. Silt loam and other productive soils below prolific deciduous stands provide excellent habitat types for deer where preferred food sources (such as grasses, hardwood leaves and lily species) are widespread and available. Other cover types that inhabit areas of excessively well drained sand provide less optimum food availability. However, the overall carrying capacity of DMU 048 is limited by winter severity and the capabilities and management of winter range. Many deer in this unit migrate vast distances to over-winter in more southern DMU's.

Typical winter weather, as related to deer

Climatic conditions in DMU 048 are among the most severe found in the UP Region. Growing seasons generally range from 130 days on the Lake Superior Shoreline to less than 100 days in the interior. Winter deer migrations in this unit are highly developed with a large portion of the deer moving into more southern DMUs. Winter mortality can be significant. Predation is a factor especially for deer wintering in the high snowfall zone, such as within the Petrel Wintering Complex near Shingleton.

Management Guidance:

This unit contains a high proportion of state and federal forest ownership with some industrial forest ownership. Both deer densities and hunting success rates are historically below-average in DMU 048 as compared to the rest of the UP. Because of this, antlerless permits have not been available for DMU 048 for many years if ever. There is very little agricultural activity in this area and consequently the level of deer crop damage is extremely low. Outside of the deer wintering complexes, deer browse has not impacted tree regeneration.

Deer Harvest Analysis:

The buck kill success rate for DMU 048 showed a steep decline during the 2013-2015 seasons, which corresponds with the increased severity of winters 2012/13-2014/15 (Figure 1). Average buck kill success for DMU 048 during the 2013-15 seasons was 15%, which was below the average for UP DMU's (19%). However, following the mild winter of 2015/16, the buck kill success rate increased to 23%, which is above-average for UP DMU's during the 2016 firearm season (19%).

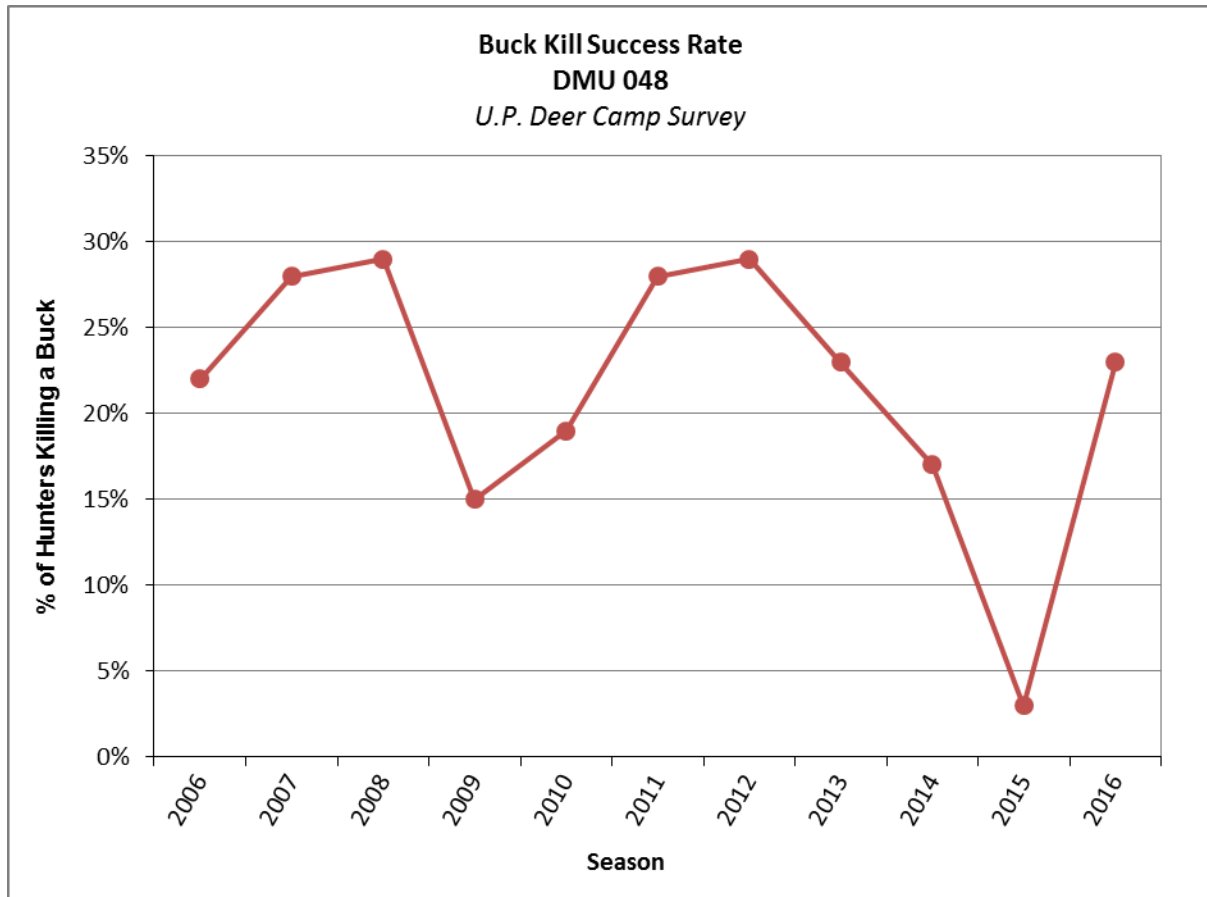


Figure 1. Buck kill success rate in DMU 048 within the Upper Peninsula Region.

The decrease in buck kill per square mile during 2013-2015 also corresponds with the severe winters of 2012/13-2014/15. The buck kill per square mile in DMU 048 (Figure 2) during 2006-2015 was 0.5, which is lower than the average for the UP region (2.2) during the same time period.

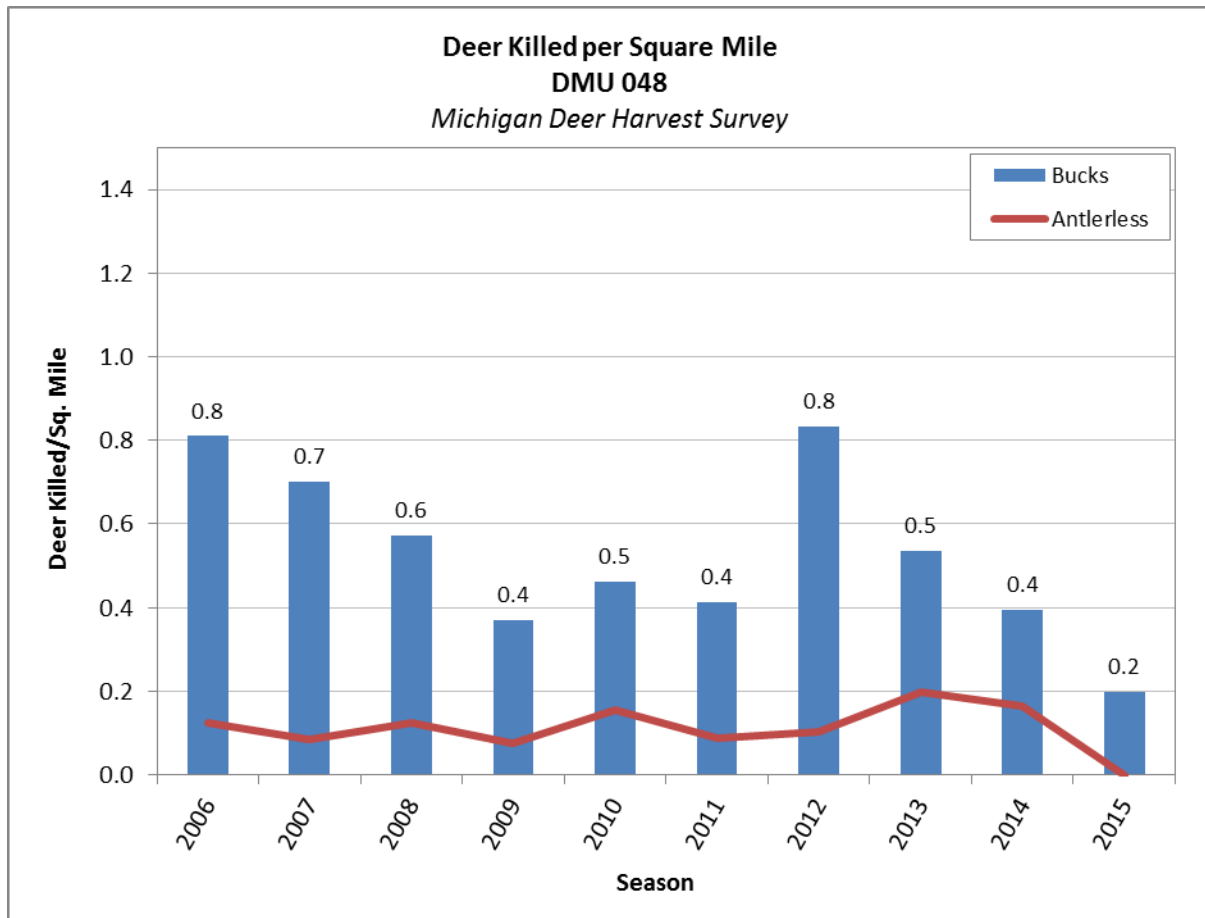


Figure 2. Deer killed per square mile in DMU 048 within the Upper Peninsula Region.

Due primarily to winter severity, antlerless deer licenses are not offered in this Unit. The ability to harvest a doe with archery equipment on the combination tag was removed just prior to the 2015 hunting season due to the severity of winters 2012/13-2014/15. This removed the very light take of 0.1 antlerless deer per square mile on average. The decrease in buck kill per square mile during 2013-2015 seasons can be attributed to the recent three consecutive severe winters.

Deer sightings and hunter success/satisfaction trends

During the 2016 firearm season, 36 cooperating deer camps (140 hunters) reported their hunting experience in this unit. In 2016, 31% of camps believed there were more deer than in 2015, which is an improvement from 0% the year before and likely due to the relatively mild winter of 2015/16 and subsequent increased fawn production. Sightings of deer increased from 0.9 to 1.4 per hunter day, and buck kill success increased from 3% to 23%. Only 13% considered 2016 to be a good-to-excellent season, although this was an improvement over 2015 (0%). Long-term trends of these statistics are demonstrated in Table 1.

DEER MANAGEMENT UNIT 048											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Camps	26	27	26	24	23	33	37	31	34	36	36
Hunters	127	140	130	103	99	138	161	147	116	148	140
% killing a buck	22%	28%	29%	15%	19%	28%	29%	23%	17%	3%	23%
Deer seen per day	1.3	2.7	2.2	1.2	1.7	1.9	2.6	1.6	2.1	0.9	1.4
Fawns seen per 100 does	54	47	47	51	58	55	52	25	47	54	51
Does seen per buck	2	4	3	5	3	2	4	3	6	3	3
More deer than last year	28%	48%	38%	4%	9%	30%	50%	13%	14%	0%	31%
Same number deer	32%	36%	21%	4%	43%	48%	25%	19%	0%	13%	36%
Fewer deer than last year	40%	16%	42%	92%	48%	21%	25%	68%	86%	87%	33%
Season good-to-excellent	32%	44%	48%	13%	13%	36%	53%	22%	18%	0%	17%
Season fair-to-poor	68%	56%	52%	88%	87%	63%	47%	78%	82%	100%	83%

Table 1. Deer Camp Survey data in DMU 048 within the Upper Peninsula Region.

Due to the relatively short and mild winter of 2015/16, observed fawn recruitment was 51 fawns seen per 100 does during the 2016 season, which is consistent with the 2006-2015 average (49 fawns per 100 does) and a reliable indicator of good fawn production in 2016. This should result in a large cohort of deer in the 1.5 year old age class for the 2017 hunting season, depending on the impacts of winter weather and other factors.

As of February 27th, 2017 actual snow depths at the Cusino snow depth station were 20 inches, which is similar to the long-term average of 25 inches for the winters of 2006/07-2015/16 during that same time period. Accumulated snow totals at Cusino were 213 inches, which is 15 inches (or 7%) below the long-term average of 228 inches during the same time period. If the winter of 2016/17 continues with below-average snow depths and relatively mild temperatures, decreased adult deer mortality and increased fawn production and recruitment are expected.

Research results

A research project focusing on the role of predators, winter weather, and habitat on deer fawn survival is being conducted in the central U.P. by Mississippi State University in cooperation with the DNR. Results of this research conducted in the low and moderate snowfall zones to date suggest the following:

- high pregnancy rate among adult females despite uneven buck to doe ratios
- low fawn annual survival following harsh winters
- under mild to moderate winter severity, the most important factor influencing the growth (positive or negative) of a deer population is the proportion of fawns surviving their first year and becoming potential breeders
- under severe winter conditions substantial mortality of adult females can occur, replacing recruitment of fawns as the most important factor effecting the growth of a deer population, until the adult female segment of the population recovers.
- severe winter weather can have multi-year effects on deer recruitment and population trends.
- annually, winter severity and habitat conditions influence the amount of predation, which overall was the dominant source of mortality of adult females and fawns. This illustrates the importance of considering all potential limiting factors and their interactions.

These results support results of other surveys suggesting that consecutive harsh winters that have occurred since 2008 have resulted in low deer populations in the region, including in DMU 048.

Agricultural crop damage

Agricultural lands are not prominent in DMU 048, so crop damage has not been an issue. Only 14 deer have been harvested on Crop Damage or DMAP's in this unit since 2001.

Forest regeneration concerns

Deer Management Unit 048 contains relatively low deer densities throughout various cover types; therefore browse impacts are minimal or non-existent throughout the unit, including within deer wintering complexes.

Deer-vehicle collisions

Figure 3 demonstrates a general decline in collisions since 2011, which coincides with three severe winters of 2012/13-2014/15; this is one of many indicators used to examine trends in deer numbers throughout the UP Region.

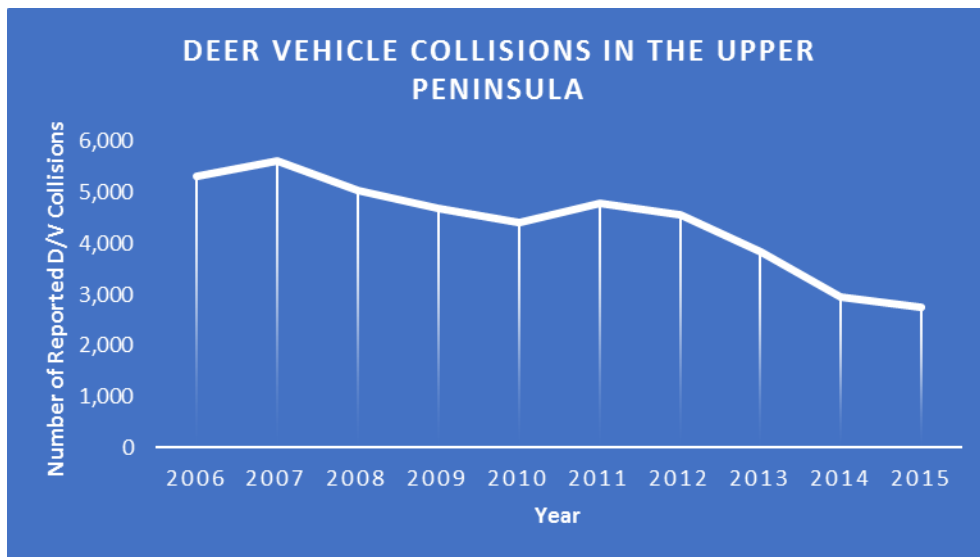


Figure 3. Deer vehicle collisions in the Upper Peninsula Region.

Deer condition data

Upper Peninsula yearling beam diameters are fairly consistent in the absence of severe winters, likely due to overall productivity and cation exchange capacity of UP soils. However, yearling beam diameters have varied greatly in recent years, with 2013 being the lowest on record, as demonstrated in Figure 4. Average beam diameters for 2015 were 17.78 mm, which are above-average and likely a response to a less-severe winter, early spring break-up, and good growing season.

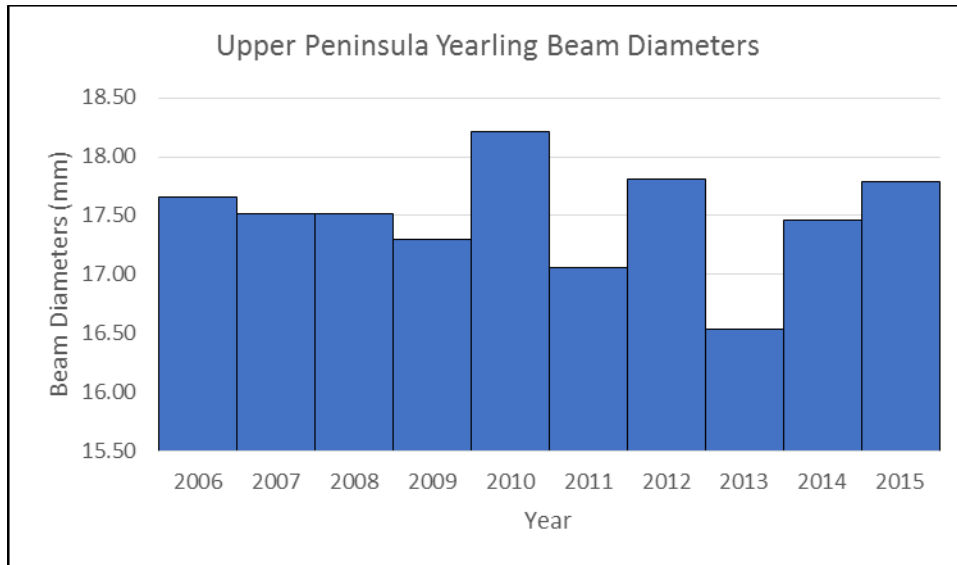


Figure 4. Yearling beam diameters in the Upper Peninsula Region.

Deer Management Recommendations

Due to innate severe winter conditions and a relatively short growing season, DMU 048 cannot sustainably support a high level of antlerless harvest. The deer population in DMU 048 was greatly reduced in recent years due to 3 consecutive severe winters. Although the deer population appears to be rebounding after a mild winter, the current deer population is still low and is not providing optimum recreational viewing or harvest opportunities. The buck kill per square mile (0.2) is among the lowest of UP DMU's. As a result, we recommend the unit remain closed to issuance of antlerless licenses for the 2017-19 regulation cycle.

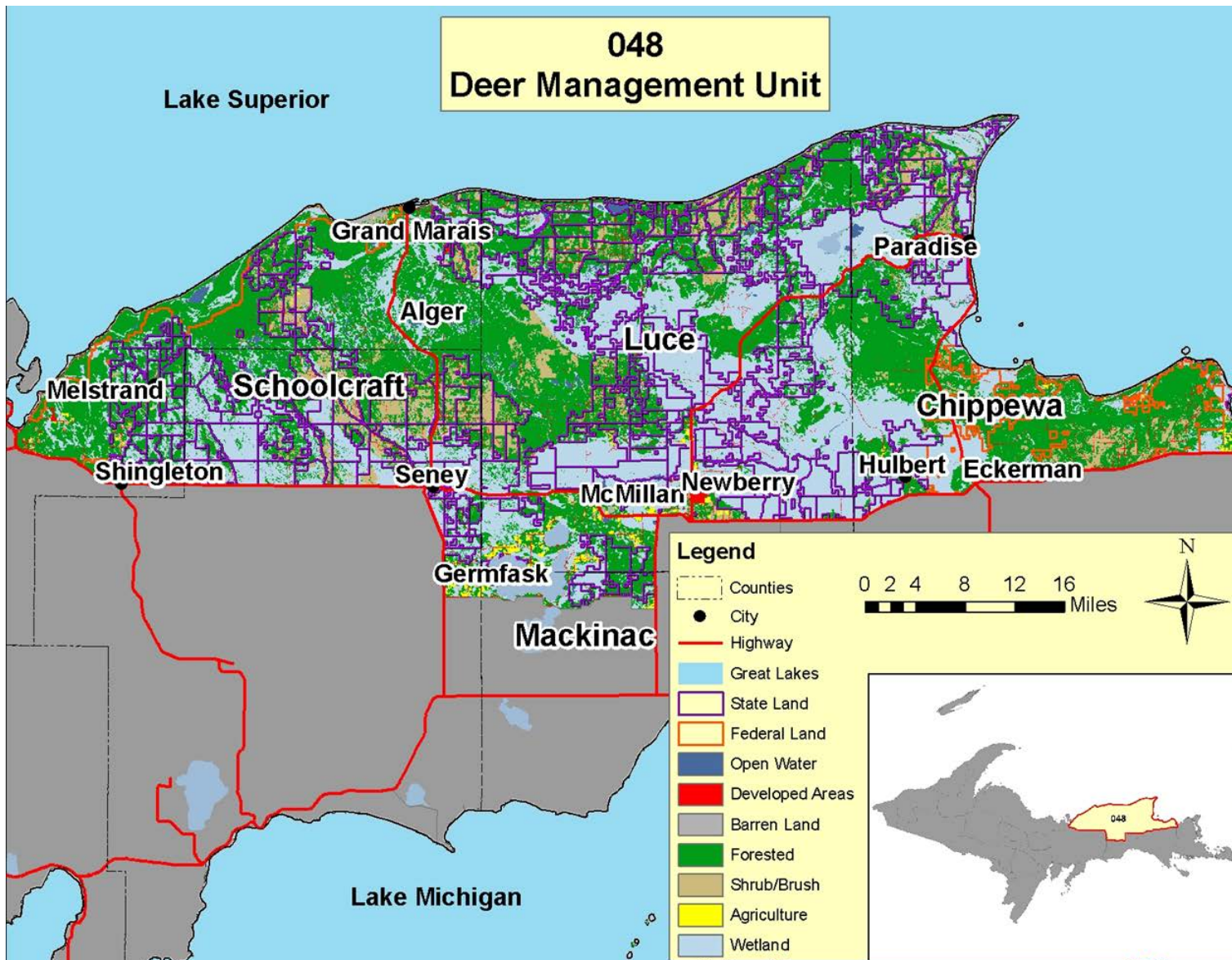


Figure 5. Cover type map of DMU 048 in the Upper Peninsula Region.