

# Deer Management Unit 152

## Geographic Location:

Deer Management Unit (DMU) 152 is 386 miles<sup>2</sup> in size and is primarily in southwestern Marquette County. This DMU falls within the moderate snowfall zone and does not see the heavy snow fall amounts influenced by Lake Superior as seen in DMU's to the north. This unit is 60% publicly owned with much of it held in State ownership.

## Land use and habitat quality for deer

Industrial timber management heavily influences this unit. Traditionally timber management emphasis has been on hardwood and aspen production. Agricultural influence is very limited and primarily only a factor a near traditional rural communities and along M-95. Since 1978 the availability of deer wintering habitat has remained fairly stable in this DMU.

## Typical winter weather, as related to deer

Winter weather is moderate compared to other portions of the U.P. Only about 200 inches of snowfall typically occurs each year in the southern part of this DMU. More snowfall occurs in the northern part of this DMU but typically not the 300+ inches found in areas influenced by Lake Superior. Consequently, fawn recruitment and over-winter survival tends to be high in this DMU.

## Management Guidance

Both deer densities and hunting success rates are good in DMU 152 relative to other DMU's in the Western Upper Peninsula (WUP). Traditionally antlerless permits have been available for this DMU. The number of permits and whether they are available for private and public land depends on the previous winter weather and deer herd population trends. 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 normally has not impacted tree regeneration.

## Deer Harvest Analysis:

In DMU 152 buck harvested/mile<sup>2</sup> consistently ranks relatively high in the U.P. Over the last ten years (2006-2015) DMU 152 has averaged 2.9 bucks harvested/mile<sup>2</sup> (Fig.1). This harvest density signifies a relatively healthy deer herd compared to the rest of the WUP. In the last 15 years the bucks harvested per square mile has been somewhat volatile and took an unexplained drop in 2009 but recovered in 2010 (Fig. 2). Along with the rest of the U.P. this unit saw a significant drop in buck harvest/mile<sup>2</sup> for the 2014 deer season. The three harsh winters in 2012 - 2014 played a significant role in deer survival and lowered buck harvest rates in 2014 and 2015 (1.0 and 1.2) to the lowest recorded levels in the past 15 years for this unit. However, unit is still above the 10 average (DMU 152 – 2.9 WUP - 2.4) for bucks harvested/mile<sup>2</sup> in the WUP.

Since 2001 there has been a decrease in the number of antlerless tags available for this unit in an attempt to increase deer populations. Overall the harvest of antlerless deer in DMU 152 has been relatively small. We have not had any requests for Deer Management Assistants permits (Block DMAP's) and very few crop damage tags were requested (Fig. 2). No public or private land antlerless tags have

been available in this DMU since 2012. Also, regulation changes for the 2015 season made it illegal to take antlerless deer with archery equipment.

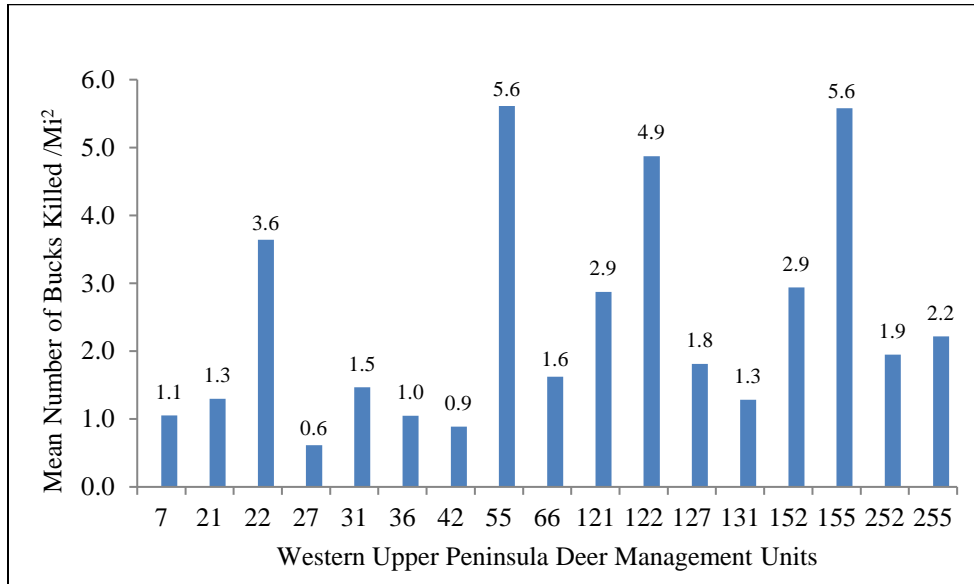


Figure 1. Mean number of bucks killed per square mile in the Western Upper Peninsula by Deer management unit, mail survey data 2006-2015.

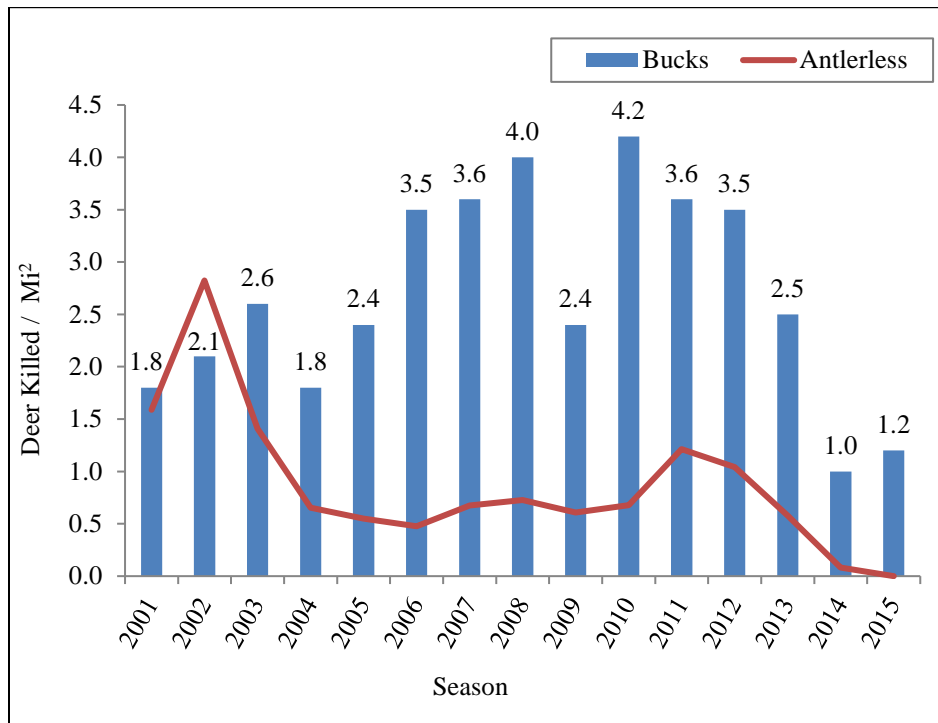


Figure 2. Deer harvested/mile<sup>2</sup> in Deer Management Unit 152 in all seasons combined from the mail survey harvest estimates, 2001-2012.

## Deer sightings and hunter success/satisfaction trends

Participation in the U.P. Camp Survey has remained fairly stable in DMU 152 over the last 11 years (average 24 camps) (Table 1). The WUP is divided into 17 DMU's and DMU 152 on average (last 3 years) recorded the fifth highest number of deer seen per day (2.0 deer seen per day) using camp survey data. Surprisingly however on average (last 11 years) this DMU has had a reported buck hunter success rate of 22%, which is only slightly off the 11 year average for the WUP (26%). However, DMU 152 also has one of the higher hunter densities in the WUP (9.6 hunters/mile<sup>2</sup>) which likely contributes to the slightly lower hunter success rate (Fig. 3). In fact this DMU has the fifth highest hunter density reported in the WUP, which suggests this area is producing and retaining a good deer population.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Camps	29	30	26	28	27	25	21	20	20	20	21
Hunters	155	153	137	142	134	115	105	98	91	93	91
% Killing a buck	22%	23%	27%	21%	22%	27%	32%	28%	7%	16%	19%
Deer Seen per day	1.6	2.9	2.6	1.2	2.2	3.4	2.8	2.7	1.5	1.9	2.5
Fawns seen per 100 does	43	41	50	28	32	47	37	33	37	36	58
Does seen per buck	5	4	4	4	3	5	3	5	9	7	4
More deer than last year	24%	32%	8%	4%	23%	46%	28%	0%	5%	33%	26%
Same number deer	35%	39%	23%	8%	35%	37%	28%	26%	10%	0%	53%
Fewer deer	41%	29%	69%	88%	42%	17%	44%	74%	85%	67%	21%
Season good-to-excellent	21%	38%	24%	15%	31%	37%	42%	21%	5%	16%	10%
Season fair-to-poor	79%	62%	76%	85%	69%	63%	58%	79%	95%	84%	90%

*Table 1. Summary of Camp Survey results for Deer Management Unit 152, 2006-2016.*

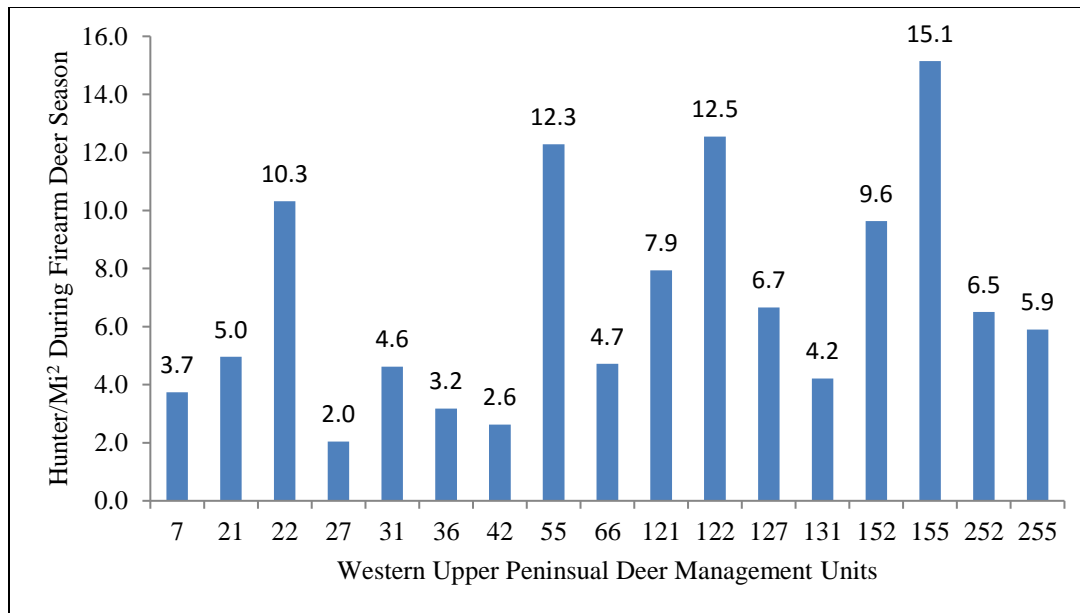


Figure 3. The mean number of hunters/mile<sup>2</sup> found during the firearm season in the Western Upper Peninsula, from mail survey data 2006-2015.

## Research Results

In cooperation with Mississippi State University the DNR is conducting an ongoing research project focusing on the role of predators, winter weather, and habitat on deer fawn survival in the western U.P. 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 this DMU.

## Agricultural Crop Damage

While this area may not see the high snow fall amount seen in units influenced by Lake Superior it does however get bitterly cold because it is further away from the Great Lakes. Because of the severe winter conditions agricultural activity is very small scale. We have not had any requests for block DMAP's over the last 16 years. The of use summer crop damage permits has been very low and no permits have been

issued in the five years. Crop damage is not a major problem in this DMU but it can be significant to the farms that experience deer problems.

### Forest Regeneration Concerns

Historically, DNR Forest Resources Division personnel have expressed concerns over tree regeneration difficulties at times in this DMU. However in the last decade DNR Forest Resources Division personnel have not expressed concerns over tree regeneration difficulties in this DMU.

### Deer-Vehicle Collisions

Across the U.P. reported deer-vehicle accidents, have declined since 2000 when reported collisions were just under 9000 reports the highest in 34 years (Fig. 4). In 2015 there were still 46% more reported deer vehicle accidents than occurred in 1980.

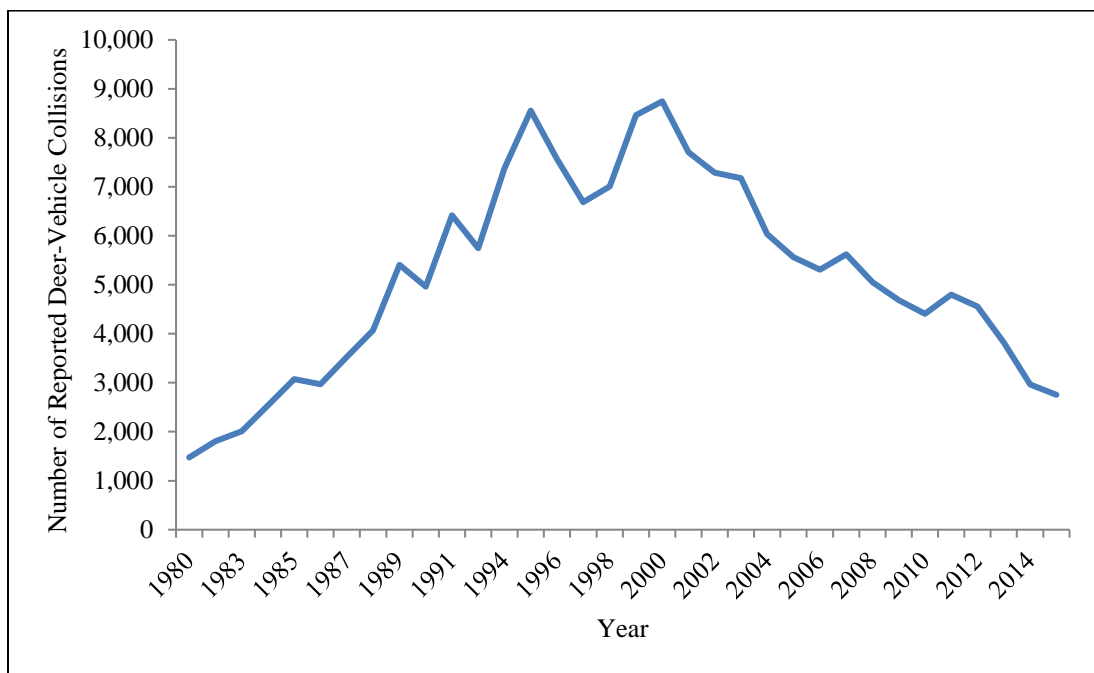


Figure 4. Reported deer-vehicle accidents, adjusted for traffic volume in the Upper Peninsula of Michigan, 1980-2015.

### Deer Condition Data

Each fall biological data is collect from harvested deer across the U.P. at deer registration stations. The diameter of antler beams measured 1 inch above the pedicel on harvested bucks give us an index of physical condition. Antler beam diameters on yearling (1.5 year old bucks) have had some variation over the U.P. during the past 15 years (Fig. 5.). However, we did see a noticeable decrease in beam diameter for yearlings harvested during the 2013 season. Likely this was a result of the harsh winter condition the fawns experienced during the 2012-13 winter.

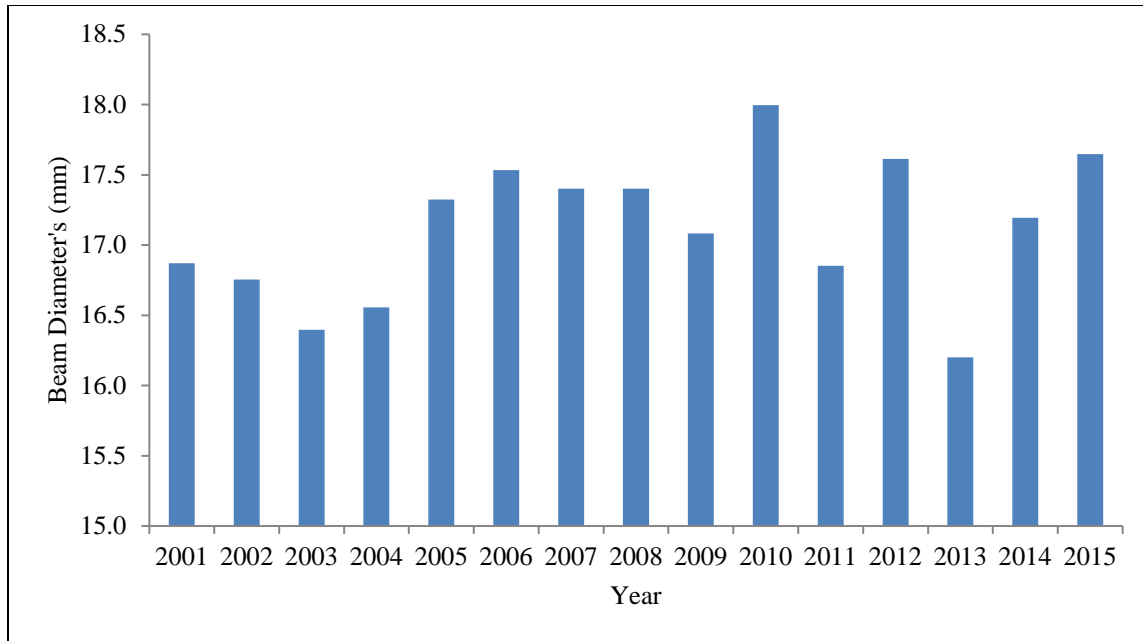


Figure 5. Mean yearling beam diameters (average of left and right) collected from hunter harvest deer for the Upper Peninsula, 2001-2015.

## Deer Management Recommendations:

Deer in this unit are in a moderate snowfall zone; depending on the prevailing winter winds harsh conditions can still be an issue for deer in this DMU. About 200-300 inches of snow falls annually in this unit and despite being further from Lake Superior depending on wind patterns the lake will still influence the amount of snow across this DMU (Fig. 6). Current reported local herd indicators, (camp survey, car deer accidents, DMAP, crop damage, and population projections) indicate that deer herd densities remain relatively low. Recently we experienced three difficult winters (2012-13, 2013-14, and 2014-15) in row which caused poor fawn production/recruitment and above average winter mortality. The harshest weather for wildlife was in the winter of 2014, which had the combination of higher than normal snowfall combined with record breaking cold temperatures. The deer in this DMU are still recovering from these winters and because of the high energy expenditure of navigating the landscape during periods of deep snow and poor the nutritional value of available food in this DMU during the winter it will make it very difficult for the population rebound quickly.

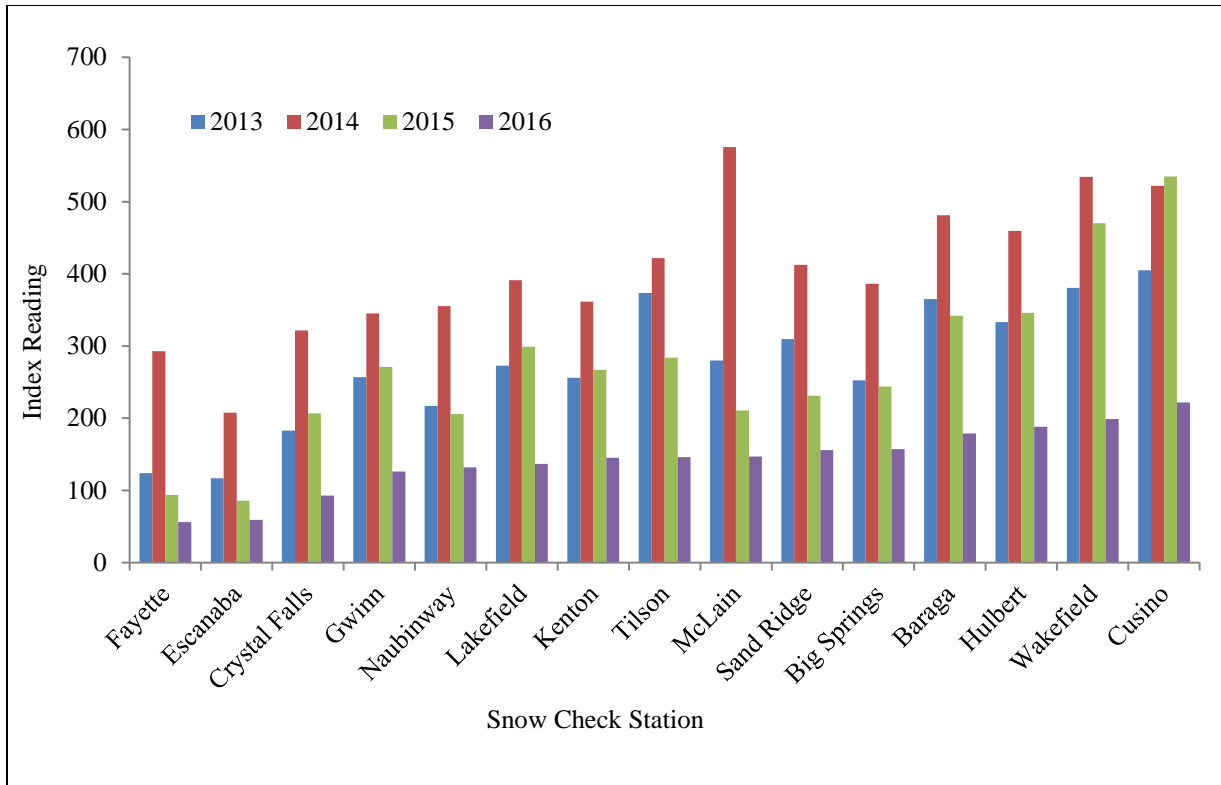


Figure 6. Total accumulated snow index collected at monitoring stations across the Upper Peninsula, 2013-2016 (2012-13, 2013-14, 2014-15 and 2015-16).

### Recommendation for DMU 152

Wildlife staff has recommended a prohibition on antlerless harvest for the upcoming three years (one regulation cycle) across the U.P. We also recommend keeping DMU 152 closed to general antlerless permits (private, public, or late season) for the 2017-2019 seasons. Local deer density issues associated with agricultural operations is minimal in this unit. We can effectively deal with localized deer problems by utilizing crop damage or DMAP permits at this time.

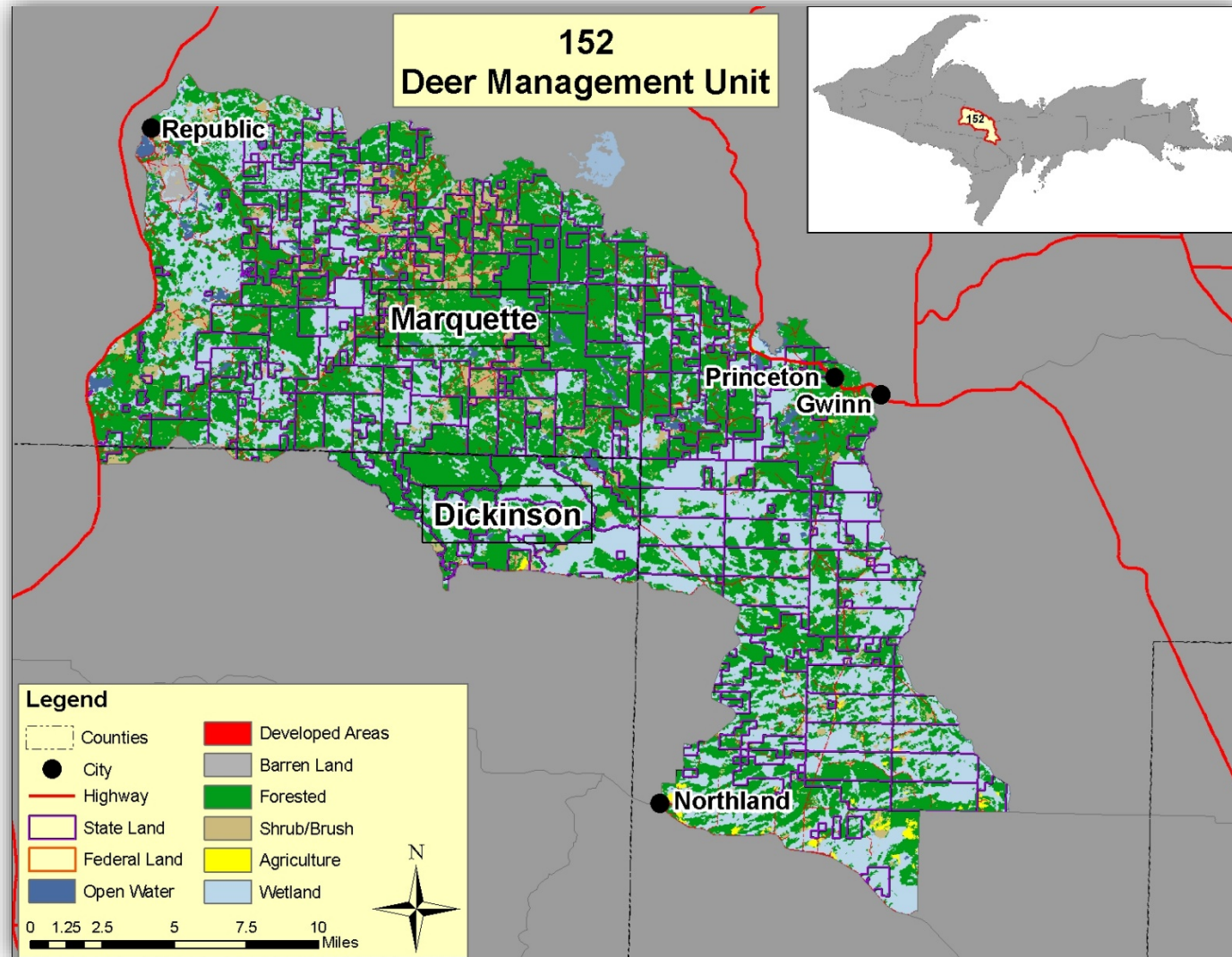


Figure 5: Cover types for DMU 152.