

# Deer Management Unit 252

## Geographic Location:

Deer Management Unit (DMU) 252 is 297 miles<sup>2</sup> in size and is primarily in southeastern Marquette, southwestern Alger and northwestern Delta County. This DMU falls within the moderate snowfall zone and does not have the heavy snow fall influenced by Lake Superior as other DMU's to the north. Forty-five percent of this unit is held in public ownership, most of which is held by the State.

## Land use and habitat quality for deer

Industrial timber management heavily influences this unit. Traditionally timber management emphasis is primarily on aspen and lowland conifer production. There is a moderate amount of agricultural in this DMU compared to other DMU's in the western Upper Peninsula (WUP). The combination of farm crops and forest cover provides excellent habitat for deer in the southern and eastern parts of this DMU. Deer wintering habitat particularly north of Rock has seen a marked reduction since 1978. However, the traditional wintering complexes to the west of Rock in southern Marquette County have fared much better.

## Typical winter weather, as related to deer

Winter weather is moderate compared to other portions of the U.P. This unit has a marked variation in snow fall from north to south. About 200-250 inches of snow typically falls in the northern parts of this DMU near Gwinn and roughly 150-200 inches of snowfall occurs in the southern parts near Rock each year compared to 300+ inches in areas influenced by Lake Superior. Consequently, fawn recruitment and over-winter survival tends to be relatively good in this DMU.

## Management Guidance

Both deer densities and hunting success rates are relatively good in DMU 252 compared to other DMU's in the 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 comparatively 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

Despite the mosaic of farm and forested land in the southern and eastern portions of this DMU combined with comparatively mild winter weather condition DMU 252 has a relatively low bucks harvested/mile<sup>2</sup>. Over the last ten years (2006-2015) DMU 252 has averaged 1.9 bucks harvested/mile<sup>2</sup> (Fig. 1). This harvest density signifies a relatively healthy deer herd compared to the rest of the WUP, but is lower than one would expect given the available habitat. The three harsh winters in 2012 - 2014 played a significant role in deer survival across the U.P. yet this DMU had a significant increase in bucks harvested/mile<sup>2</sup> in 2014. This 2014 spike was in between the two lowest recorded buck harvest rates in the last 15 years (Fig. 2). We do not know the cause of this increase so we can only theorize that the

heavy November snow fall made deer more vulnerable to harvest along migration trails or perhaps deer were unable to reach traditional wintering areas.

In the past antlerless harvest permits have likely influenced the number of bucks harvested, but since 2004 antlerless harvest has been minimal. Antlerless harvest/mile<sup>2</sup> has remained relatively consistent with the number of antlerless permits available in a given year. Since 2001 there has been a decrease in the number of antlerless tags available for this unit in attempt to increase deer populations. After 2007 public land antlerless permits were no longer available and this DMU saw a marked downward trend in in antlerless harvest (Fig. 2). In 2011 private land permits saw a reduction from 1,000 permits to 500 and since 2012 no antlerless permits have been available. Overall the harvest of antlerless deer in DMU 252 has been relatively small. We have not had any requests for Deer Management Assistants permits (Block DMAP's) and no requests for crop damage tags since 2001. On top of suspension of antlerless harvest tags, a regulation change for the 2015 season made it illegal to take antlerless deer with archery equipment.

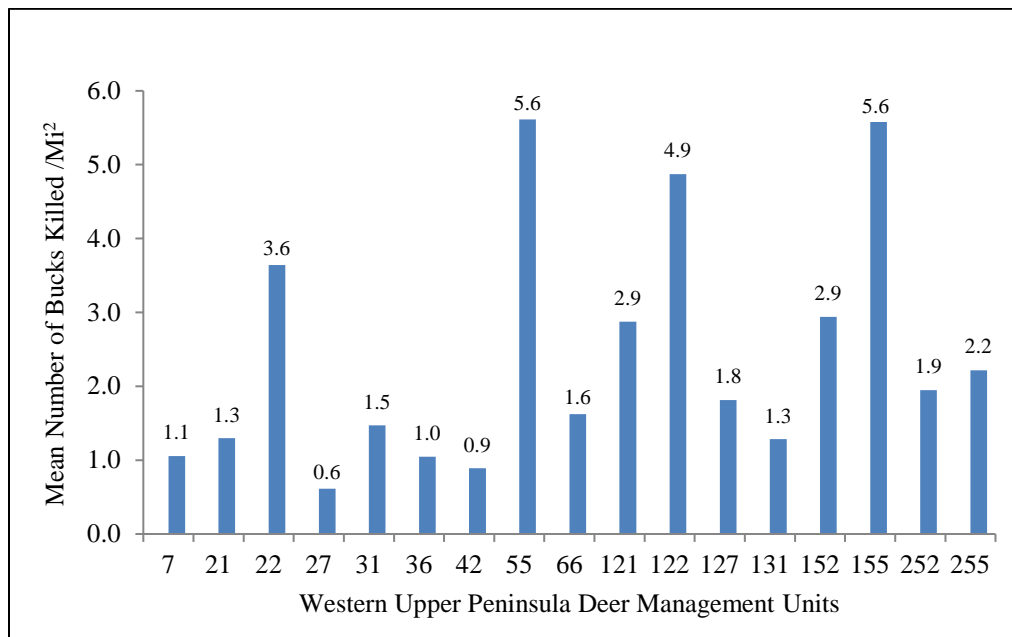


Figure 1. Mean number of bucks killed per square mile in the Western Upper Peninsula by Deer management unit, mail survey data 2006-2015.

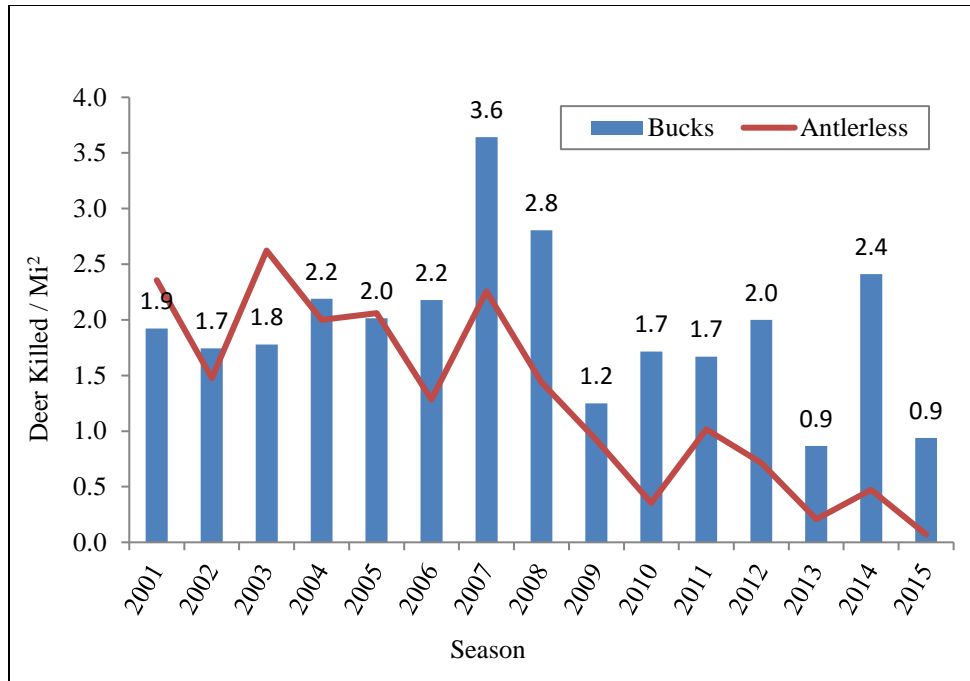


Figure 2. Deer harvested/mile<sup>2</sup> in Deer Management Unit 252 in all seasons combined from the mail survey harvest estimates, 2001-2012.

### Deer sightings and hunter success/satisfaction trends

Participation in the U.P. Camp Survey has remained fairly stable in DMU 252 over the last 11 years (average 20 camps) (Table 1). The WUP is divided into 17 DMU's and DMU 252 on average (last 3 years) is below the average (2.3) number of deer seen per day at (1.7 deer seen per day) using camp survey data. The percentage of hunters harvesting a buck in this DMU has really dropped off since 2013 and reached an 11 year low in 2015 (3%). This DMU has a hunter density of 6.5 hunters /mile<sup>2</sup> (Fig. 3). However, because many of the DMU's in the WUP have such low hunter densities, DMU 252 actually falls in the moderately high hunter densities category which may contribute to the lower hunter success rate.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Camps	19	21	21	22	20	23	21	21	15	18	17
Hunters	94	99	102	107	85	95	90	89	65	63	54
% Killing a buck	31%	40%	28%	18%	20%	22%	33%	20%	18%	3%	13%
Deer Seen per day	2.6	3.2	3.1	1.1	2.4	2.7	3.4	1.6	2.5	0.8	1.7
Fawns seen per 100 does	60	48	35	34	54	55	55	29	39	57	78
Does seen per buck	3	2	3	1	6	4	2	7	6	8	2
More deer than last year	10%	33%	10%	0%	20%	18%	43%	0%	13%	0%	44%
Same number deer	40%	29%	25%	9%	25%	32%	33%	5%	0%	0%	18%
Fewer deer	50%	38%	65%	91%	55%	50%	24%	95%	87%	100%	38%
Season good-to-excellent	29%	43%	24%	5%	10%	23%	48%	0%	7%	0%	13%
Season fair-to-poor	71%	57%	76%	95%	90%	77%	52%	100%	93%	100%	87%

Table 1. Summary of Camp Survey results for Deer Management Unit 252, 2006-2016.

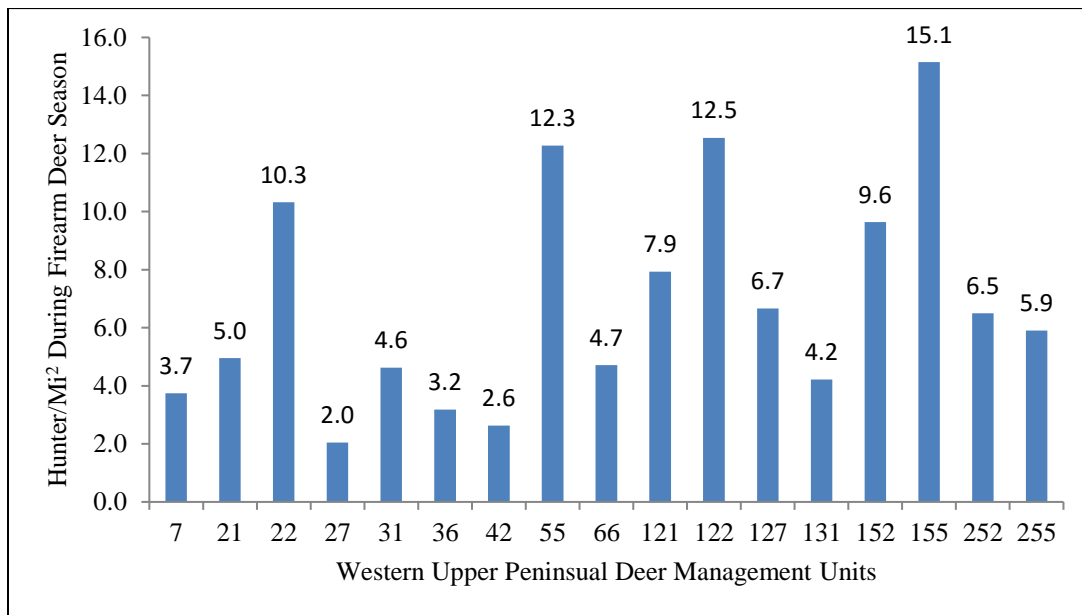


Figure 3. The mean number of hunters/mile<sup>2</sup> found during the firearm season in the Western Upper Peninsula, from mail survey data 2006-2015.

## 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

The southern and eastern edge of DMU 252 has some agricultural areas compared to other parts of the WUP and while this area may not see the high snow fall amount seen in units influenced by Lake Superior is united is made up of a lot of wetland complex's which are not suitable for agriculture. No block DMAP's have been requested over the last 16 years and the of use summer crop damage permits has been almost zero. 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.

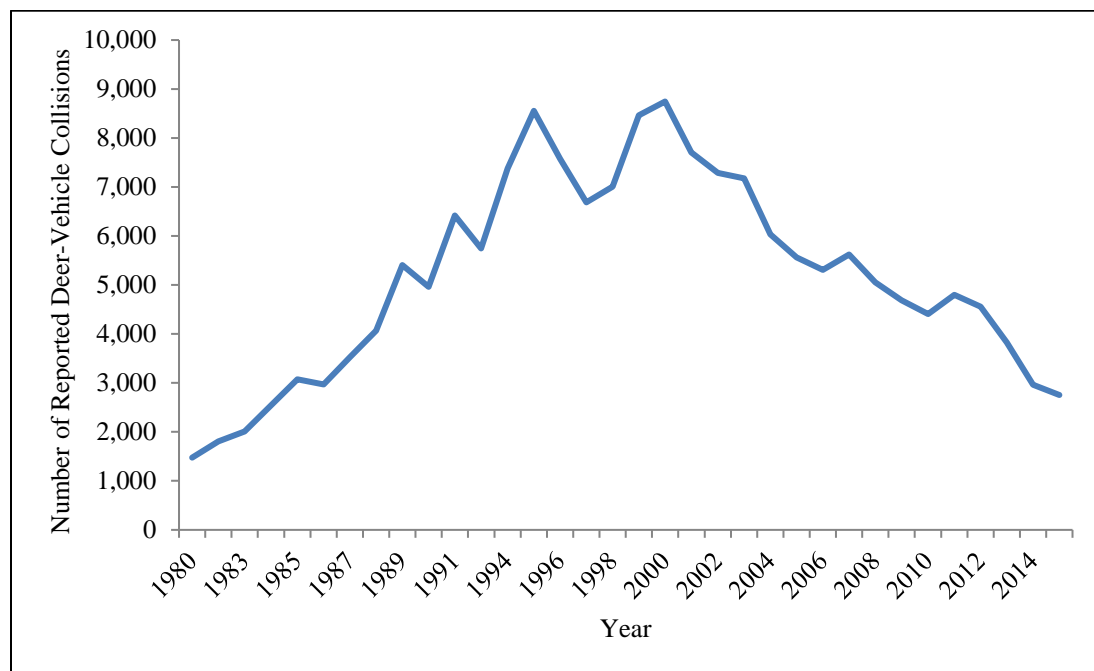


Figure 4. Reported deer-vehicle accidents, adjusted for traffic volume in the Upper Peninsula of Michigan, 1980-2015.

## 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.

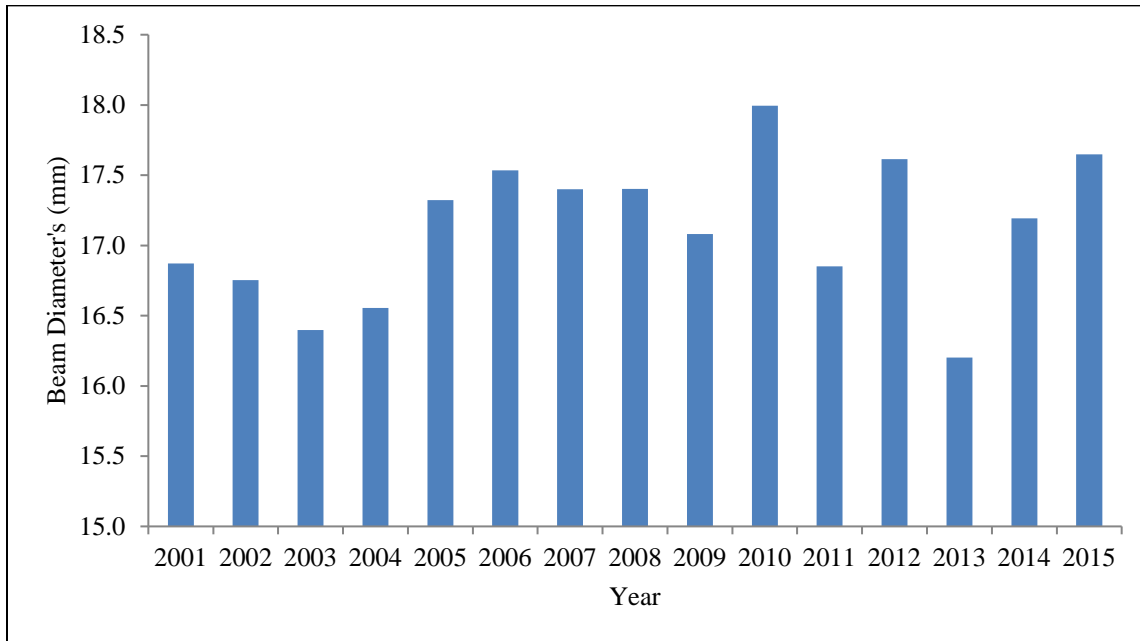


Figure 5. Mean yearling beam diameters (average of left and right) collected from hunter harvest deer for the Upper Peninsula, 2001-2015.

## 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. The snow monitoring station in Gwinn is a good representation for the moderate amount of snow this area receives in the northern part of this DMU (Fig. 6). As you move further south snow amounts continue to decrease and resemble the snow amounts reported in Escanaba. 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.

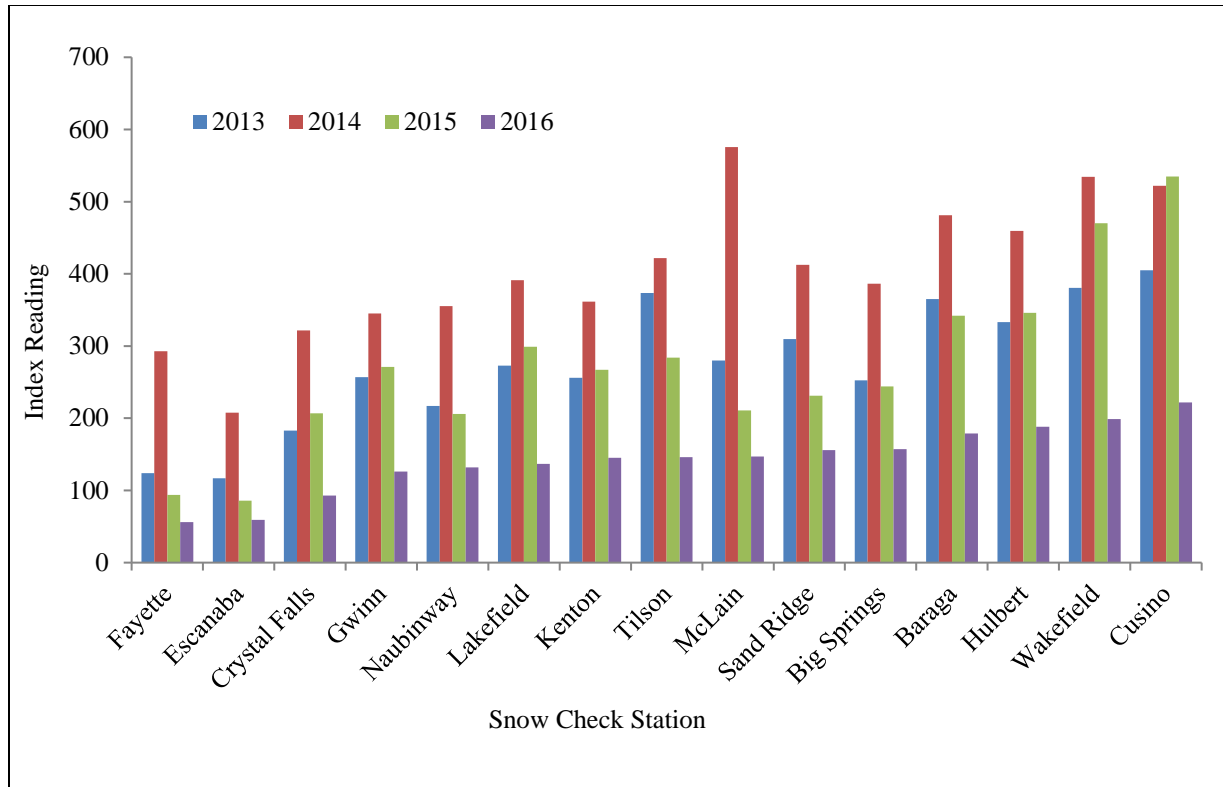


Figure 6. Total accumulated snow index collected at monitoring stations across the Upper Peninsula, 2013-2016 (2012-13, 2013-14, 2014-15 and 2015-16).

### Recommendation for DMU 252

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 252 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.

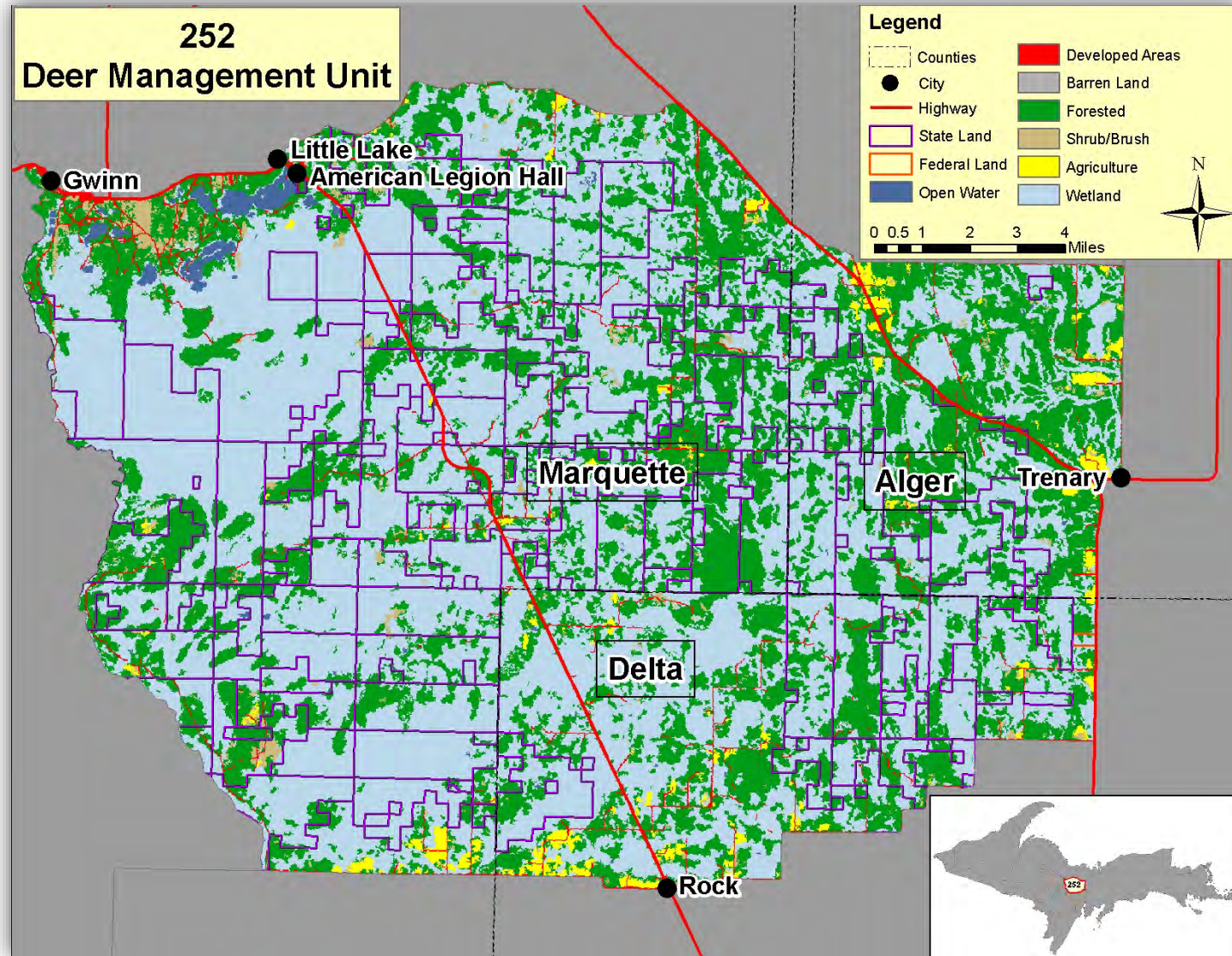


Figure 5: Cover types for DMU 252.