

## PROGRAMMATIC ASSESSMENT

# ALL-TERRAIN AND UTILITY-TERRAIN VEHICLES

### Introduction

When transportation management was being analyzed for the 2004 CNNF LRMP, off-highway vehicle use was dominated by the popular all-terrain vehicle (ATV). According to Wisconsin State Statutes, in the late 1990s, an ATV was an engine driven device weighing less than 900 pounds, a maximum width of 48 inches, a seat designed to be straddled, and traveled on 3 or more low-pressure tires. At that time the larger utility-terrain vehicle (UTV) was primarily used in agriculture and not yet considered a recreational vehicle. There was no Wisconsin statutory definition for UTV. The off-highway vehicle analysis done for the LRMP EIS in the late 1990s and into the early 2000s addressed a broad range of vehicle types encompassing characteristics similar to ATVs and UTVs. At the time of the development of the CNNF LRMP it was not apparent that a utilitarian type of off-road agricultural vehicle would soon capture a significant portion of the recreational vehicle market and become a large part of motorized recreation in Wisconsin.

Within the individual Chequamegon and Nicolet National Forest Plans, written in the mid 1980's, ATV access policies were very different. The Nicolet Forest did not permit any ATV use while the Chequamegon National Forest provided ATV trails, permitted ATV access to most roads, and allowed off-trail/off-road ATV travel. There was also a user-developed ATV play area on the Chequamegon National Forest. In the 2004 LRMP Record of Decision, for the recently combined forests with a shared Forest Plan, a more balanced ATV policy was identified. ATV access was restricted to designated trails and roads, and cross-county ATV travel was prohibited across both land bases.



**Figure 1.** A variety of UTVs (photo from E-how.com).

In the eight years since the 2004 CNNF LRMP, UTVs have become a predominant recreational vehicle. Today they are widely used by motor sport enthusiasts, hunters, anglers, campers, and second home owners. Wider, heavier, and able to carry multiple passengers UTVs are now a

separate and independent type of recreational vehicle. Their popularity and widespread use warranted a review of the CNNF LRMP off-road motor vehicle assessment and recent Travel Management Project analysis.

## Legislation

The forest plan guides or limits decisions on federal actions made by forest leadership. The plans of specific national forests must be compliant with applicable laws, regulations, Executive Orders, and policies (36 CFR 219.7). As laws are written, rescinded, or amended forest plans need to be updated. This is accomplished by an administrative change (36 CFR 219.13). An administrative change is any change to a plan that is not a plan amendment or plan revision. Administrative changes include conformance of the plan to new statutory or regulatory requirements.

Over the past several years the State of Wisconsin has enacted a series of laws in an attempt to regulate growing ATV and UTV use on Wisconsin trails and roads. Because many motorized recreational trails cross administrative boundaries, the CNNF has also attempted to manage ATVs and UTVs so that State and Federal lands can similarly regulate appropriate use of public lands by owners and operators of ATVs and UTVs. At the time the 2004 CNNF LRMP was being written Wisconsin Statutes identified ATVs with a width of 48" or less (WI Statutes, 1997-98 Vol. 4, Chapter 340.01 2g). For consistency, the CNNF adopted Wisconsin's ATV definition and incorporated it into the forest plan (CNNF LRMP, Appendix EE, p.EE-1).

In 2005 the USDA Forest Service enacted the Travel Management Rule (36 CFR 212) combining and clarifying two existing regulations, 36 CFR 212 and 36 CFR 295. Forest Service regulations at 36 CFR 251-Land Uses, Subpart B-Special Uses revised the authority citation for part 251 and amended 251.51 by revising definitions. Forest Service regulations at 36 CFR Part 261-Prohibitions restate the authority citation and revised definitions.

The Travel Management Rule does not distinguish between types of off-highway vehicles. Motor vehicles are identified in seven discrete categories. One category is for motor vehicles less than 50 inches in width. ATVs and some UTVs are in the category of motor vehicles with a width less than 50 inches. Wisconsin statutorily revised their definition of ATV width from 48 inches to "...originally manufactured with a width of 50 inches or less..." to address evolving recreation vehicle standards (WI Statutes, 2007-08 (current through 2009) Chapter 340.01 2g). The CNNF administratively changed their LRMP definition of ATV width, which is cited as the State of Wisconsin ATV definition, to reflect the new Wisconsin statute.

In response to growing recreational use of utility vehicles Wisconsin initiated a Lightweight Utility Vehicle Pilot Program administered by the Wisconsin Department of Natural Resources in consultation with the Wisconsin Department of Transportation. This program was designed to evaluate use and effects of operating lightweight utility vehicles on ATV trails and routes. Passed as part of the 2007-2009 State Budget (2007 Wisconsin Act 20), 20 s. 666m 2.23.33 (11m)(a) 2, the lightweight utility vehicle pilot program included Florence, Forest, Sawyer, Marinette, Langlade, Lincoln, Oneida, and Washburn counties. Forest, Langlade, and Oneida counties opted out of the program.

The Lightweight Utility Vehicle as defined in s. 346.94 (21) (a) 2 was repealed by the 2009 Wisconsin Act 175 and replaced the Lightweight Utility Vehicle Pilot Program with the Utility Terrain Vehicle Pilot Program. This was accomplished in response to a favorable pilot program experience.

The 2009 Wisconsin Senate Bill 448, established a pilot program for the operation of Utility Terrain Vehicles similar to the Pilot Program for Lightweight Utility Vehicles that expired on September 30, 2009. The 2009 Wisconsin Act 175/2009 Senate Bill 448 established a Utility Terrain Vehicle Pilot Program until July 1, 2012. Due to the overall success of the UTV pilot programs, and the desire to formalize UTV use on Wisconsin trails and roads, legislation was developed to address UTV and ATV travel.

The 2011 Wisconsin Act 208, Registration and Operation of All-Terrain and Utility Terrain Vehicles, established a permanent method for regulating the use of Utility Terrain Vehicles (UTVs) and made changes to the laws relating to All-Terrain Vehicles (ATVs). Consequently the CNNF LRMP was administratively changed to incorporate Wisconsin's UTV definition and recognize the new statutory and regulatory requirements.

On June 1, 2012, the CNNF LRMP was administratively changed to update the ATV and add the UTV definitions that were statutorily created by the State of Wisconsin. In addition, the CNNF LRMP was administratively changed to incorporate the USDA FS Travel Management Rule, 36 CFR 212, with references to 36 CFR 251 and 36 CFR 261 revising definitions and citing authorities.

## Purpose and Scope of the Assessment

In this assessment, a review of the off-highway vehicle analysis presented in the CNNF LRMP EIS is coupled with the analyses done for the creation of the 2011 MVUM which allowed UTVs on designated roads and trails on the CNNF. The primary purpose of this assessment is to describe the *substantive differences*, if any, between the environmental impacts of ATV use and UTV use on the Chequamegon-Nicolet National Forest. If there are differences, recommendations for Forest Plan maintenance related to the differences will be outlined. If not, the Forest Plan standards and guidelines for ATVs will also apply to UTVs. The purpose of this assessment is not to provide a literature review and summary of the full range of environmental impacts of Off Highway Vehicles (including ATVs and UTVs). Rather, it is to define and describe the differences between the impacts of ATVs and UTVs, if there are any.

Environmental damage resulting from ORVs may occur when the users leave designated travel corridors and ride their machines "cross-country." Per Forest Plan direction, current Forest Closure Orders, and the Travel Management Rule cross country travel is not permitted on the CNNF. Impacts of cross country travel may include crushing vegetation, disturbing wildlife, disturbing soil, spreading weed seeds and decreasing water quality in lakes, streams and other wetland areas, all of which factored in to the elimination of cross-country ORV travel (see Forest Plan EIS pp. A-129 to A-147; USDA 2004c). ATVs greater than 48 inches or UTVs (vehicles greater than 50 inches but less than 65 inches) are not expected to be any more likely than ATVs 48 inches wide or less to leave designated roads and trails. They may be less likely to illegally travel off designated roads and trails because their larger size and length can limit maneuverability and their weight make them harder to free when they get stuck or hung up. Incidences of ORV's (including ATVs) leaving designated roads and trails on the Chequamegon-Nicolet National Forest may be more likely to occur from existing trails than from roads (Frater 2008). The variability in rider style (e.g. speed in and out of turns) may be as important as trail design features in determining impacts to the environment from their use (Meadows et al. 2008; p. 93).

Because this assessment is focused at the programmatic-scale and is a consideration of the consequences of allowing UTVs in the same places where ATVs are allowed, no site-specific analysis is provided. At this time, no UTV trail construction has been proposed on the CNNF. Engineering and safety review were completed during the analysis for the 2011 MVUM; in the review, 168.1 miles of trail and 6 miles of road were considered for UTVs (Miller 2011a, 2011b and Campbell 2011) but only 16.5 miles of road and trail were considered suitable for UTVs and were subsequently approved in the 2011 Decision (USDA 2011b).

Generally speaking, trail widening is expected if some portion of the current network of ATV trails on the CNNF is to be used by UTVs. Because UTVs are generally wider than ATVs, they require trails with a minimum width greater than trails designated for vehicles no wider than 50" such as ATVs. In the environmental analysis supporting the 2011 MVUM, many of the trails considered for UTV use were excluded from designation for UTVs because they were too narrow. The Forest Service Handbook (FSH 2309.18) provides guidance for trails designed for vehicles wider than 50" such as UTVs. Any conversion of these narrow trails to widen them, whether through CNNF actions or unauthorized UTV travel on these narrow trails, may lead to the following consequences:

1. More disturbed/compacted soil that is taken out of the productive landbase and that may be more likely to be colonized by non-native invasive plants (*see* Box 1).
2. More damage to vegetation encroaching or overtopping the trail leading to increased sunlight in the corridor and possibly increased edge effects (*see* Bentrup 2008, section 2.10).
3. ATV trail widening ( $\leq 3'$  wider) to accommodate UTVs may impact some wildlife species likelihood of crossing the trail or could result in an increased risk of collisions (for species that do not cross the trail quickly such as reptiles and amphibians).
4. Damage to the trail itself as a result of widening could lead to erosion or trail 'blowouts' on sandy soils or could invite illegal travel by even wider vehicles (such as highway legal vehicles; T. Maday *pers. comm.*). Such risks to trail infrastructure are expected to be discovered and avoided by engineering and safety reviews of any trail segment prior to designating UTV use. As with all on-forest motorized use, effective law enforcement is integral to the prevention of resource damage.

**Box 1. Trail widening example: Calculating the affected acres**

100 miles of trail = 528,000 ft. of trail.  
 Class 3 ATV trail averages 5 ft. wide.  
 100 miles of trail x 5 ft. wide = 60.6 affected acres

Class 3 UTV trails averages 8 ft. wide  
 100 miles of UTV trail x 8 ft. wide = 97.0 affected acres

Difference: 97.0 acres - 60.6 acres = 36.4 acres

Therefore, in this example, for every 100 miles of ATV trail widened from 5ft. to 8ft., approximately 36.4 acres would be removed from the productive landbase.

Class 3 OHV trail design widths from FSH 2309.18

Whether the additional mileage of roads and trails designated for UTV use translates into actual increased use, as opposed to "substituted use" (the same number of users riding UTVs instead of ATVs) is difficult to predict. In this assessment, the following generalizations are made based on the Wisconsin Department of Natural Resources pilot study and industry information (provided by Polaris Industries Inc., the largest manufacturer of UTVs):

- **UTV use is growing faster than ATV use.** In 2009, 59% of UTVs were purchased as a first vehicle; 41% were purchased as a replacement or addition to other utility vehicles; the purchase and use of UTVs appears to be growing faster than ATVs (Polaris 2010)

- **UTV riders are older than ATV riders.** The median income of 2009 UTV owners was \$80,000; mean age was 44 (Polaris 2010)
- **UTV riders drive at slower speeds.** Many of the respondents to a DNR pilot program survey commented on the safety of UTVs, due to older drivers, slower speeds, and features such as roll bars and safety belts (WDNR 2009).

## Environmental Consequences

### Resources

#### 1. Soils

During the preparation of the 2004 Forest Plan, the effects on soils from recreation/access activities, including ATV/ORV motorized trails and routes were evaluated (pp. 3-85 to 3-86). It is acknowledged that compaction, erosion and sedimentation all may result from ATV/ORV travel on roads and trails. Land dedicated for use as roads and trails is no longer part of the productive landbase and is not considered to have detrimental soil displacement or compaction. Although Utility Terrain Vehicles are heavier than All-Terrain Vehicles, the ground pressure resulting from them is expected to be similar to either an ATVs (est. 35 psi) or a highway legal vehicle (est. 25 psi; Toyota 4Runner); the ground pressure is roughly equal to the inflation pressure for pneumatic tires (Wikipedia 2012). Definitive calculations for ground pressure on soils are difficult because of the variability in soil characteristics (Saarilahti 2002) and will vary based on the load over the vehicle axles, tire type and pneumatic pressure and vehicle weight (*see* Box 2).

As noted in the Forest Plan FEIS (USDA 2004b, p. 3-86), the potential for adverse impacts to the soil resources is greatly reduced by limiting motorized travel (regardless of vehicle type) to designated locations and time periods. Cross-country travel and the creation of user-developed trails by ATV users was allowed on the Chequamegon landbase of the CNNF prior to the approval of the 2004 Forest Plan. ATV use is now limited to only those roads and trails designated for their use across the Chequamegon-Nicolet National Forest and the 2004 Forest Plan (USDA 2004a, p. 2-27) includes guidelines on seasonal restrictions on off-road vehicle use (some specifically for ATVs). Meadows et al. (2008) documented the impacts of ATV traffic on forest cover, soil disturbance and rutting resulting from both sport and utility-type ATVs; these are the effects the CNNF is avoiding by eliminating motorized cross-country travel.

In the soil resource report for the 2011 MVUM, the approximately 181 miles of existing roads and trails proposed for UTV-use in cooperation with a WDNR pilot project ending in June 2012 were anticipated to result in no additional adverse soil resource effects (Hoppe 2011) when

#### Box 2. Ground Pressure Example: M-Gator UTV



Weight of base vehicle:	1,650 lbs
Ground pressure with a 200lb. operator:	6.9 PSI
Maximum load (passengers and cargo):	1,650 lbs
Weight of vehicle with maximum load:	3,300 lbs
Ground Pressure with maximum load:	8.0 PSI

Source: [www.JohnDeere.com/MGator](http://www.JohnDeere.com/MGator)

compared to the condition of allowing ATVs and/or HLVs on those roads/trails. Although the Utility vehicles are wider (up to 65" wide) and heavier (up to 1,999 lbs.) than a standard ATV, they were expected to be operated on existing HLV and/or ATV road/trail corridors. Motorized vehicle use, whether an ATV, HLV or UTV, may affect soils through the erosion of road surfaces and deposition of eroded materials off the road surface and onto adjacent wetlands, riparian areas or upland soils. The interdisciplinary roads analysis reviews for the 2009, 2010, and 2011 MVUM, however, have eliminated public motorized vehicle use on many of the problem road/trail corridors with high soil risk ratings and those risks are present for regardless of the vehicle type (or width).

The ATV (both sport and utility types) effects assessment conducted by Meadows et al. (2008) evaluated the natural resource impacts of vehicles with a range of 350 lbs to 610 lbs and varied the tire treads among the vehicles (original tires v. more aggressive aftermarket treads) on trails created by the vehicle use in the study. Effects to soils were found for all vehicles but tread types did not result in a statistically significant difference between the tire-types in the study.

## 2. Water

During the preparation of the 2004 Forest Plan, the effects on water resources, including wetlands, from recreation/access activities, including ATV/ORV motorized trails and routes were evaluated (pp. 3-19 to 3-27; USDA 2004b). Use of best management practices (BMP's) for water quality will continue to result in the mitigation or avoidance of impacts of motorized vehicle use on water and wetland resources. The elimination of cross-country motorized travel under the 2004 Plan, and the Travel Management Rule can be considered a protection measure for water resources just as it is for soils. Whether the motorized vehicle is an ATV (generally less than 50 inches wide) or a UTV (generally between 50 inches and 65 inches wide), limiting the use only to roads and trails designated for such use (and specifying the season of use) is expected to minimize impacts to water resources.

In the hydrology resource report for the 2011 MVUM, the proposal to add UTVs to 167.6 miles of trail and 6.3 miles of road was determined to have no foreseeable adverse impact to water resources because these trail and road segments already have public motor vehicle use. The addition of UTVs would not be expected to alter the effect on water resources (Higgins 2011).

## 3. Invasive Plants

During the preparation of the 2004 Forest Plan, the spread of non-native invasive species (NNIS) resulting from recreation/access activities, including ATV/ORV use on motorized trails and routes were evaluated (pp. 3-66 to 3-69). The total mileage of open roads and ORV trails, including ATV trails, was an indicator of the risk associated with risk of NNIS spread in the evaluation of the nine alternatives during the Forest Plan revision (USDA 2004b, p.3-69). Although a new classification of motorized vehicle (UTV) under the umbrella definition of ORV has emerged, the effects analysis regarding NNIS spread presented in the FEIS for the Forest Plan remains valid.

In the non-native invasive plants report for the 2011 MVUM, UTVs were anticipated to result in effects similar to the effects of ATVs. A UTV has characteristics more similar to an ATV than a full-size highway legal vehicle and they can navigate soft soils and muddy areas. They have low-pressure, knobby tires and are heavier than ATVs although the weight is distributed across a wider and longer frame reducing the ground pressure. Some of them have a chassis with an extensive metal plate underneath where mud can collect. Brzeskiewicz (2011) concluded that there will be no measurable increased impact on NNIS spread or introduction by adding UTVs to

these trails. The ability of UTVs to function as a vector for weed propagules is at least as great as for ATVs because they are a larger vehicle with greater surface area underneath and because most of them have perforated skid plates which may collect debris (e.g. mud, vegetation, worm eggs, etc). This capability notwithstanding, the riding style for UTVs is less likely to collect debris and transport it to other sites. UTVs brought in for repair/customization at the Hodag Honda dealership in Rhinelander, WI are generally free of such debris but ATV's are not usually so 'clean' (Honda mechanic, *pers. comm.* 6/15/2012).

#### 4. Wildlife and Plants (RFSS)

Roads and trails, as well as their use, can affect wildlife species in a variety of ways (*see* Trombulak and Frissell 2000). The literature documenting these effects is voluminous. A few studies have documented the differences in effects on wildlife species from different vehicle/user types. For example, Naylor et al. (2009) showed that elk in Oregon are more sensitive to the disturbance of ATV use than they are to mountain biking, hiking or horseback riding on trails in their habitat, possibly due to the noise of ATVs relative to the other three uses studies (p.334). No literature was found that explored the potential differences in effects to wildlife or sensitive plants from ATVs and UTVs. The effects of motor vehicles on both wildlife and sensitive plants were expected to result from disturbance resulting from the vehicle intruding in the habitat and from direct contact with individuals or populations (USDA 2004c, p. J-10, J-16) rather than being dependent on the wheel-base width of the vehicle.

Regarding the noise of ATVs, the average UTVs would be expected to be no louder, and probably quieter than the average ATV because of the lower travel speed and side-by-side occupant design lends itself to conversation when more than one occupant is in the vehicle (requiring quiet). Further, per Forest Plan standards (USDA 2004a; p. 2-28), off-highway vehicles operating on CNNF trails and routes are required to meet all sound attenuation requirements defined in Wisconsin statutes.

In the wildlife report prepared for the 2011 MVUM, UTVs were anticipated to result in effects indistinguishable from those of ATVs. While overall use of roads and trails could increase where UTVs are allowed, this type of use would not result in measurably different impacts to the wildlife and rare plant resource (Matthiae 2011). Many wildlife are sensitive to vehicle disturbance within their habitats; disturbance by ATV and UTV are not expected to be different.

#### 5. Cultural Resources

In the cultural resources resource report for the 2011 MVUM, the authorization of UTVs on Forest Service existing roads and trails was determined to have the potential to adversely affect cultural resources that occur adjacent to the existing roads if ground-disturbing modifications to the roads or trails (e.g. widening) are required to accommodate both the UTVs and ATVs (Mendoza 2011). Before such modifications would occur, a professional archaeologist would be consulted to ensure the protection of cultural resources as stated in 36 CFR 800, Protection of Historic Properties. This consultation process would occur, regardless of whether the trail is to be designated for use by ATVs, UTVs or any other motorized vehicle type.

#### 6. Recreation

During the preparation of the 2004 Forest Plan, the impacts of allowing ATVs on designated roads and trails were evaluated (USDA 2004b pp. 3-219 to 3-238). Conflicts between motorized (ATV/ORV) and non-motorized users were addressed (p 3-233) and is applicable to UTVs as a new classification of motorized vehicle (UTV) under the umbrella definition of ORV. In the recreation resources report for the 2011 MVUM, the authorization of UTVs on Forest Service existing roads and trails was expected to have a significant positive impact on recreation because during the summer and throughout the fall seasons, a great deal of motorized use occurs on the

Forest ATV trails. Allowing UTVs on ATV trails provides additional recreational opportunities, possibly allowing motorized access to users who are uncomfortable riding ATVs (Hong 2011). It remains unclear whether allowing UTV on trails currently designated for ATV will increase the amount of traffic overall on the trails.

## Conclusions

An interdisciplinary review of the environmental consequences of Utility Terrain Vehicles use on designated roads and trails on the CNNF discovered no unexpected environmental consequences outside the scope and magnitude of those analyzed for ATV-use in the FEIS for the 2004 Forest Plan. Overall, UTVs may be wider and heavier but the nature and magnitude of the impacts they have on the environment are not substantively different from the impacts of ATVs.

Environmental impacts of ORVs can be expected to be a function of the intensity of use rather than a function of the vehicle types involved (ATVs vs. UTVs).

Further, through this review, the following outcomes are achieved:

- The CNNF LRMP is compliant with applicable laws, regulations, Executive Orders, and policies relative to travel management.
- The CNNF Travel Management Project and CNNF Motor Vehicle Use Map are compliant with the CNNF LRMP.
- Federal and state ATV and UTV law enforcement is more consistent.

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