Michigan Department of Natural Resources
Wildlife Division

Management Plan for the South Marquette County Grouse Enhanced Management System

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Introduction

Michigan is among the leading states in the nation for grouse hunting, and leads the nation in the number of active woodcock hunters and harvest. The South Marquette County Grouse Enhanced Management area (SMC GEM) was established in 2014. Similar areas are being developed across the Upper Peninsula (UP) and assembled into a Grouse Enhanced Management System (GEMS). These GEM's can be found on state owned property as well federal forest and commercial forest properties. The GEM areas provide hunting opportunities that are easy to access for the general public. These areas will act as destination sites for grouse hunting across the UP, providing a unique opportunity for hunting and wildlife viewing, and ultimately support local economies.

Within the GEMS, the Michigan Department Natural Resources (DNR) wildlife and forestry staff will intensively manage the (big tooth and trembling) aspen resource to maximize the availability of 10 to 20 year old aspen stands on a shortened rotation, in staggered age classes, and in smaller treatment sizes. While an emphasis will be placed on the availability of young aspen stands, another important component will be the creation and maintenance of openings within the boundaries of these GEMS. These openings may include long linear opening created by reclaiming or improving the skid trails and tote roads along with the log landing decks used during logging operations or naturally occurring forest meadows. Within these openings we will be planting mast producing trees and shrubs as well as planting clover and a mix of wildlife grasses. By limiting vehicle access and planting and maintain these same tote roads they will become the foundation for our grouse trail system providing walk-in access for hunters as well as a multitude of other outdoor recreation opportunities. While these areas will primarily benefit ruffed grouse and woodcock they will also provide habitat for other wildlife species including bear, deer, turkey, snowshoe hare and many non-game species.

These areas will be utilized by local grouse hunters, as well as non-resident hunters who enjoy traveling to the UP in pursuit of upland game birds. An added benefit to these GEMS will be their use as an effective tool for hunter recruitment and retention, as well as a showcasing high quality optimum grouse habitat. The ten UP GEMS will support our forest based economy and will further tie local communities to our natural resources by capitalizing and expanding the outdoor tourism industry. Michigan DNR Wildlife staff will build a reciprocal relationship with community leaders and local businesses by encouraging them to advertise the GEMS throughout the UP Region as a way to attract hunters and other outdoor enthusiasts to the area. Some hunters may elect to travel across the U.P. to hunt a different GEM area each day.

Inventory

The SMC GEM is located within Chain Lakes Moraine and Ralph Ground Moraine Management Areas in the Gwinn Forest Unit (Figure 1.; Appendix B and C). (Compartments 47, 50, 51, 52, 53, 57 and 58, or in sections 19 and 30 of T44N R25W and sections 14, 15, 21, 22, 23, 24, 25, 26, 27, 28, 34, 35 and 36 of T44N R26W) This GEM is approximately 5,895 acres in size with a perimeter of 16.2 miles, most of which was purchased with State Game Fund dollars (97%). The SMC GEM contains just over

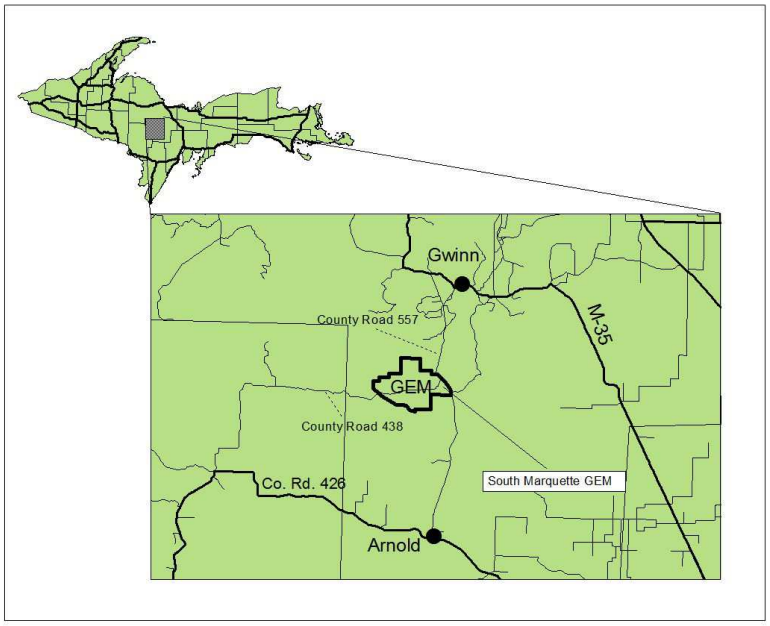

Figure 1. The South Marquette County Grouse Enhanced Management System.

2,000 acres of varying age classes of aspen. Additional acreage of early successional aspen will be available after mature stands of mixed conifer forest and hardwood (which contain a substantial aspen component) are harvested in the future. Other cover types within the SMC GEM include northern hardwood, northern white cedar, upland conifer, lowland conifer and grasslands, all of which are extremely important in meeting habitat requirements for a wide variety of game and non-game wildlife species.

Ruffed Grouse and American Woodcock Habitat Enhancement within the GEM

Throughout their life cycle ruffed grouse use various age classes of aspen (big tooth and trembling aspen). Grouse prefer young aspen stands (<25 years old) with high stem densities for breeding and rearing broods, while older aged stands provide nesting cover and areas for grouse to feed on buds, catkins, and leaves (Hammill and Visser, 1984). Ideally we are looking for aspen with very high vertical stem density that is approximately 20 feet in height. Optimum winter food is made up from the buds of several species of trees and shrubs which should be located within close proximity to the spring to fall habitat. To maintain year-round grouse habitat, only portions of the larger stands will be harvested to not only provide future hunting opportunities but to provide habitat for grouse throughout their life-cycle. Our goal over time will be to balance the age class distribution of aspen by staggering harvests and shortening the rotation age to approximately 40 years. Large stands will be harvested in stages to create multiple age classes within those stands over time. In accordance with MDNR retention guidelines, at least 3 to 10% of each mature stand will be retained to provide winter budding and catkin production. Conifer inclusions within aspen stands are an important as cover for grouse

so all stands will be managed to support a conifer component as well as a shrub layer such as beaked hazel.

The American woodcock is another highly prized migratory game bird in Michigan which also requires early successional forest particularly when it is associated with rich moist soils which support invertebrates, especially earthworms (Wildlife Management Institute, 2009). Within the GEM, lowland poplar stands will be managed in small blocks to encourage multiple age classes. In areas that primarily have a speckled alder (tag alder) or merchantable balsam poplar over-story, we will attempt to rotate areas by chipping those stands as operability, equipment availability, and funding allow.

Aspen Age Class and Its Importance to Other Wildlife

Aspen is a valuable habitat component to wide variety of wildlife. More than 70 wildlife species are associated with aspen to me their habitat requisites.

- Young aspen (< 30 years old) provides leaves, twigs, flower buds, and tender bark for other game species such as white-tail deer, moose, snowshoe hare, black bear, and beaver. Non-game species such as indigo bunting, golden-winged, chestnut-sided, and yellow-winged warbler use young aspen for breeding and foraging.

- Medium aged aspen (30 to 49 year old) provides food and building material for beaver and the undergrowth of mast producing shrubs which occurs in this stage provide foraging and cover for species like least flycatcher, yellow-bellied sapsucker, ruby-throated hummingbird, red-eyed vireo, ovenbird, pileated woodpecker, woodland jumping mouse, porcupine, deer and moose.

- Older aged aspen (> 50 years old) provide potential nest sites for pileated woodpeckers and other cavity nesting wildlife. Grouse use fallen trees for mating and territorial display sites (“drumming logs”). Raptors such as northern goshawk, red-shouldered hawk, and red-tailed hawk use large “fork crowned” aspen for nest trees. Snags and over-mature trees eventually fall to the ground and provide coarse woody debris for flying squirrel, white-footed deer mouse, and woodland jumping mouse. Where conifer cover is abundant species such as American redstart, American marten and fisher can be found.

Management Actions

Most aspen in the SMC GEM can be found in the 20-39 year age classes (Figure 2.). This acreage combined with the 40-60+ year age class of aspen will allow us to intensively manage aspen with smaller treatments on an increased rotation time-line to ensure a continual availability of optimum spring to fall grouse habitat (10-19 year old aspen) is maintained. In order to increase the age class diversification of aspen and lowland poplar stands we will manage these resources in small blocks in close proximity

to one another. Our management activities within the GEM will enhance the age class diversity by reducing individual stand or treatment sizes (Table 1).

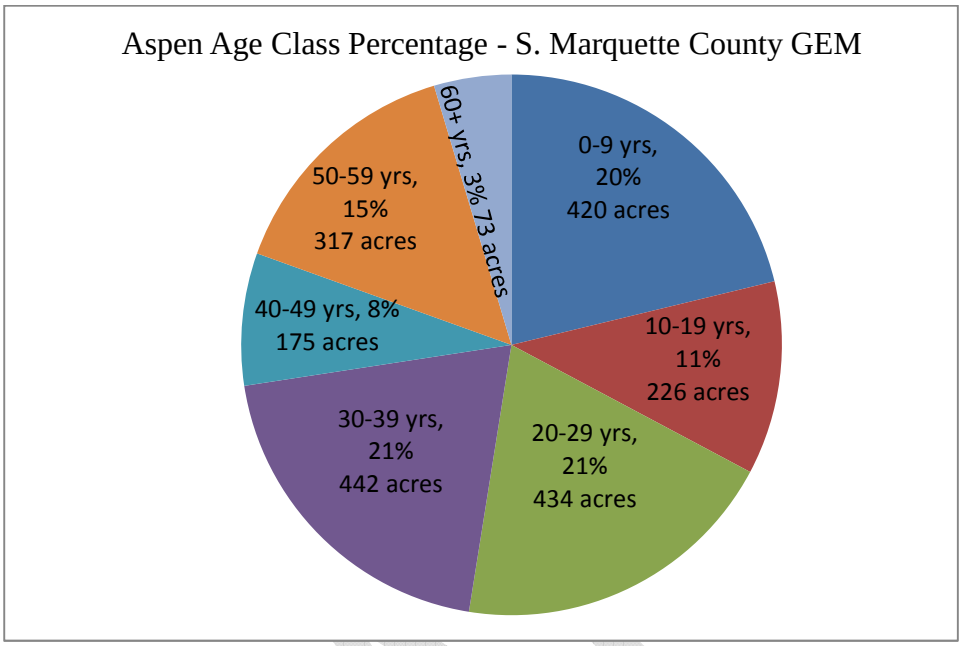

Figure 2. The age class and available acres of aspen within the South Marquette County GEM.

With the help from DNR Forest Resource Division staff, we will attempt to diversify the age class of aspen, poplar and birch stands within the SMC GEM by having up to eight age classes present at one time. To achieve this diversity, some areas may be treated early while other areas with healthily aspen may see a delay. In total eight different years of entry

Table 1. Harvest treatment rotation, year entry and acreage for aspen in the South Marquette GEM.

Rotation	Year of Entry	Acres to be harvested
1	2017	447
2	2022	384.1
3	2027	300.4
4	2032	263.5
5	2037	128.9
6	2042	158.7
7	2047	277.4
8	2052	202.6
9	no harvest	36.6
	Total:	*2,199*

have been identified and 116 different treatments have been created with an average stand/treatment size of 19 acres (Appendix A and B).

Along with the management of aspen, a conifer component within stand will also be a priority. These conifer inclusions within the aspen stands can provide escape cover from terrestrial and avian predators (Hammill and Moran 1986). When available conifer < 4 inches dbh may be left uncut to provide this habitat component.

Besides providing for food and cover another important aspect to creating the ideal grouse habitat is to provide drumming sites. In the spring male ruffed grouse attract females by drumming, and to define their territory and deter intruding males (Archibald 1975). Palmer (1963) found a fairly large range in drumming log selection (species, diameter), however he did note that grouse seemed to prefer a position about five feet from the larger end of the log near the stump. To satisfy this requirement when available one log per for every 2 acres should be provided which is ≥ eight inches in diameter and ≥ eight feet in length. Also this log should be left within 3 feet of the stump. Larger dead woody debris is also a benefit for a many other wildlife species such as small rodents and red-back salamanders.

To maximize species diversity, under-represented trees species like cedar, white pine and hemlock will generally be reserved from harvest. Other mast-producing species like oak, elm, black cherry, and yellow birch will be maintained and promoted.

Soft and Hard Mast Production

Grouse usually have a wide array of foods available to them but we will attempt to increase soft and hard mast production in the SMC GEM with a variety of trees and shrubs which are native or naturalized to Michigan. They may include but are not limited to: wild raisin, service berry, crabapple species, apple species, highbush cranberry, dogwood species, Michigan holly, mountain ash, thornapple, black cherry, red oak, burr oak and beaked hazelnut.

Grassland Opening Maintenance

Networks of small to moderately sized (0.4 to 12.6 acres) grassy openings are available within the aspen cover type in the SMC GEM (Table 2). There are just over 61 acres of openings not including trails and logging roads within the SMC GEM. These openings will be maintained as such through regular mowing if access allows and they may be planted with a forage mix consisting primarily of clover (Table 3). As budgets and time allow these areas may also be excellent sites to plant mast producing trees and shrubs.

The management actions described above which increase aspen harvest, smaller treatment / stand sizes, inclusion of a conifer component, a drumming log specification and finally increasing the available forage by planting mast producing species and clover will make this area attractive to not only ruffed grouse but will benefit many wildlife species i.e. American woodcock, turkey, snowshoe hare, deer, bear, and other game and non-game species.

Table 2. The compartment, stand number and size of the available openings within the aspen cover type in the South Marquette GEM.

Compartment	Stand	Acreage	Compartment	Stand	Acreage
44	403	1.7	51	410	4.8
44	404	0.7	51	411	0.4
44	406	3.6	51	403	4.9
44	408	2.3	51	404	0.8
44	409	0.5	51	405	1.5
44	410	1.7	51	406	0.9
44	411	2.2	51	407	1.4
47	401	1.0	51	400	1.3
47	403	2.3	51	401	2.3
47	404	1.6	51	402	2.6
47	405	7.8	57	401	0.6
51	408	12.6	57	405	1.2
51	409	0.7			

Table 3. Suggested Ruffed Grouse Society seed mixture.

Alsike white clover	27%
White Dutch Clover	27%
Haifa New Zealand White Clover	20%
Crimson Clover	13%
Jumbo II Ladino Clover	7%
Duration Red Clover	6%

Enhancing Recreational Opportunities

The SMC GEM is designed to enhance hunting opportunities, and create a destination for grouse hunting. Similar GEM areas are being developed across the UP primarily on state owned property along with a few on Federal and private lands. While ruffed grouse is the primary species of concern, the area will provide ample opportunity to pursue other species like woodcock, white-tailed deer, and snowshoe hare.

While the primary recreational purpose of the GEM is to increase hunting opportunities, this GEM and other across the UP will also be utilized by other outdoor enthusiasts interested in going to an area with an established trail network. Other none consumptive

users may include: hikers, X-country skiing, snow-shoeing, bird watching, photography, and berry/mushroom pickers.

South Marquette County GEM Access

The SMC GEM is a work in progress and will continue to offer more opportunities for a unique walk-in experience each year for the next 5 to 7 years as this area reaches its full potential. All active trails are gated to provide hunters with walk-in access, and as new trails become available gates will be installed.

Parking is currently available at all four active hunter trails and the GEM kiosk (Appendix C). The first trail located off of County Road 438 has two access points both with parking areas. Two more trails are located off of the Perrin Brothers road and also have an area to park two to three vehicles. The last active trail is located roughly a mile north of County road 438 and has a small parking area available.

A kiosk and main parking area, is located at the junction of the Perrin Brothers road and County Road 438 roughly in the center of the SMC GEM. This kiosk helps identify the hunter trails, recognize our local stakeholders, and clarify the access restraints for motorized vehicles. The kiosk has a large map of the entire SMC GEM which allows users to identify trail locations. To help identify the actual hunter trails and parking areas signs have been place at the gate locations. Currently, we have three gates installed however as the GEM evolves we have the potential to place roughly ten more gates, and add seven new trails located throughout the GEM to provide a quality, walk-in access only hunting opportunity (Appendix B).

Hunter Trails

The established hunter walking trail within the SMC GEM are made up of gated non-drivable woods roads and skid trails which are maintained and may be planted to a forage mix consisting primarily of clover (Table 3). When available we will attempt to make trails into a loop which help avoid the need for users to backtrack. Soft mast producing tree and shrub species may be planted along the trails and in the openings as budgets allow. Currently there is over 3 miles of trails that have been cleared and planted. All trails will require maintenance over time and this may include brushing, mowing, replanting of clover mix, adding gravel and other improvements.

Future Hunter Trails

We will be assessing the opportunity to create new hunter walking trails as timber harvest occurs by incorporating the logging tote (skid trails) roads into the walking trails system when practical. Currently, we have identified seven potential new trials which were originally created from previous logging activities. We plan to evaluate and incorporate them into the current active trails as staff time and budgets allow.

Funding and Partnerships

The SMC GEM will receive funding from a Michigan trust fund grant in the summer of 2015. This grant can only be used for improvements to the infrastructure of the SMC GEM (gates, gravel, parking areas, and trail creation) and must be spent within two years of the award.

Habitat improvement will be accomplished through yearly requests from the Pittman-Robertson funds to pay for habitat improvements within the SMC GEM. We are also exploring the possibility of a long-term partnership with the Ruffed Grouse Society to allow them to adopt a trail. Other financial opportunities will be explored when available, including ongoing partnerships with UP Whitetails, UP Bear Houndsmen Association, and the National Turkey Federation to name just a few.

Public information/outreach

This GEM was created within the context of promoting a destination for hunters. Public outreach will be needed to identify and promote the area, as well as to direct visitors to the site.

Identify the area

Various methods can be used to identify the area and direct people to the site. The SMC GEM is identified on the MI Hunt system, and it will be promoted as part of the UP GEMS. On-site, signs identifying the area will be placed at the main entrance at the junction of County Road 557 and 438. A directional sign will be placed both along County Road 438 and Perrin Brothers Road. Other directional signs may be placed in the future as the need arises.

Establish the site as a destination and an asset to the local economy

Establishment of the SMC GEM has already been and will continue to be communicated through various media outlets. Local businesses will be able to use the GEM as a tool to promote tourism to the area. Currently seven businesses provide discounts to folks who take a picture of the local support section located at the SMC GEM kiosk.

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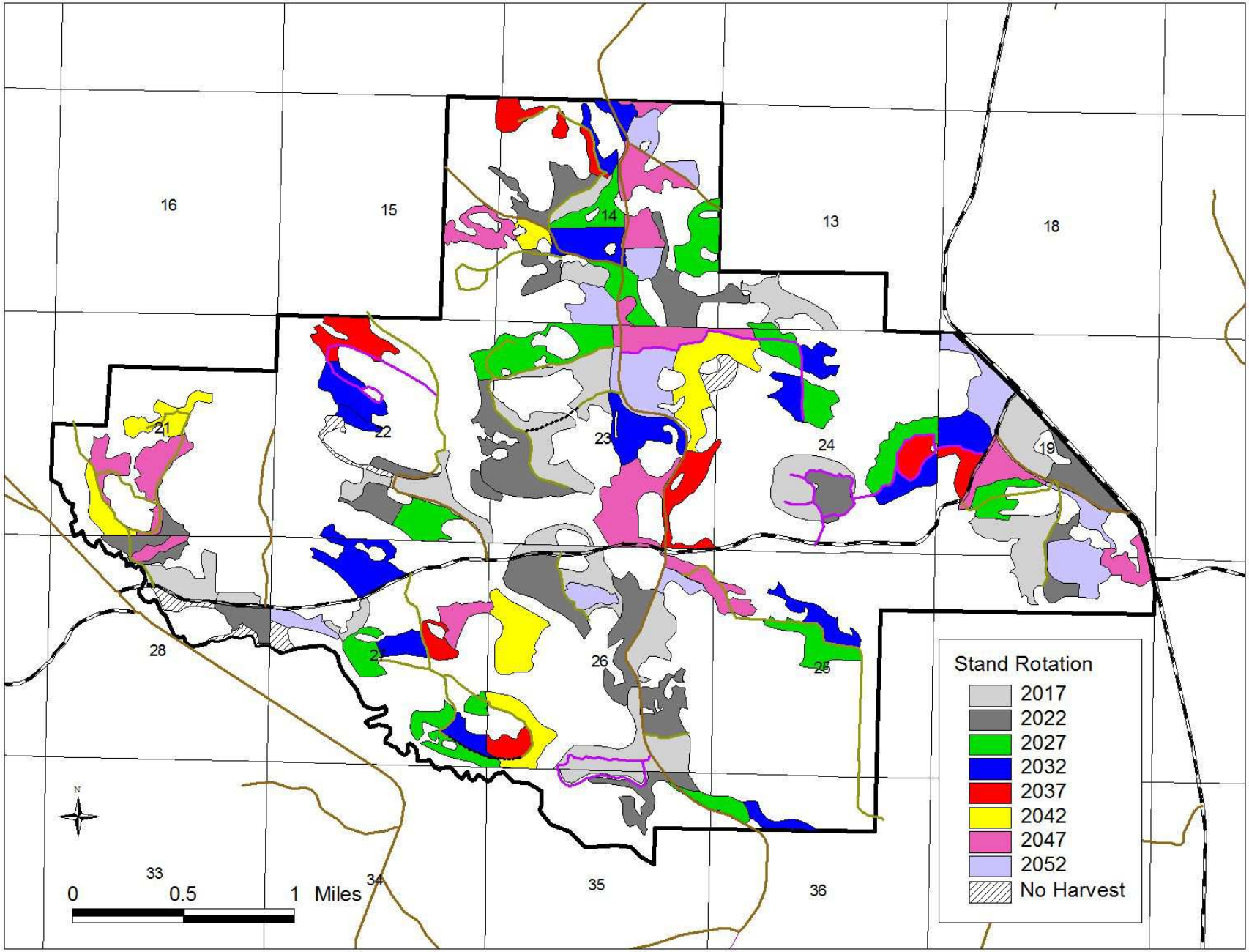
Appendix A. Forest compartment and stand numbers, rotation and year of entry for harvest treatments.

Compartment	Stand	Age Class	Rotation	Treatment year of Entry	Acres
47	24	30 to 39 yrs	1	2017	44.6
47	14	40 to 49 yrs	1	2017	36.0
50	24	60 plus yrs	1	2017	26.6
50	41	50 to 59 yrs	1	2017	12.0
50	49	50 to 59 yrs	1	2017	11.7
51	6	60 plus yrs	1	2017	8.6
51	50	60 plus yrs	1	2017	27.9
51	55	30 to 39 yrs	1	2017	8.5
51	37	40 to 49 yrs	1	2017	38.1
51	19	30 to 39 yrs	1	2017	33.5
51	19	30 to 39 yrs	1	2017	40.0
52	23	50 to 59 yrs	1	2017	10.5
52	74	50 to 59 yrs	1	2017	8.1
52	24	50 to 59 yrs	1	2017	19.2
52	33	50 to 59 yrs	1	2017	27.6
52	35	50 to 59 yrs	1	2017	36.8
52	35	50 to 59 yrs	1	2017	17.3
53	10	40 to 49 yrs	1	2017	7.3
58	46	40 to 49 yrs	1	2017	5.8
58	50	30 to 39 yrs	1	2017	26.9
47	24	30 to 39 yrs	2	2022	14.6
47	14	40 to 49 yrs	2	2022	26.5
50	63	60 plus yrs	2	2022	4.0
50	41	50 to 59 yrs	2	2022	21.6
50	49	50 to 59 yrs	2	2022	13.6
50	29	30 to 39 yrs	2	2022	35.3
51	11	50 to 59 yrs	2	2022	7.8
51	53	30 to 39 yrs	2	2022	6.1
51	37	40 to 49 yrs	2	2022	21.4
51	5	50 to 59 yrs	2	2022	16.2
51	19	30 to 39 yrs	2	2022	54.1
52	24	50 to 59 yrs	2	2022	38.2
52	33	50 to 59 yrs	2	2022	37.6
52	35	50 to 59 yrs	2	2022	26.5
53	24	40 to 49 yrs	2	2022	22.9
57	59	30 to 39 yrs	2	2022	5.6
58	49	40 to 49 yrs	2	2022	16.3
58	50	30 to 39 yrs	2	2022	16.0
47	23	20 to 29 yrs	3	2027	19.0
50	23	20 to 29 yrs	3	2027	2.0

Compartment	Stand	Age Class	Rotation	Treatment year of Entry	Acres
50	42	30 to 39 yrs	3	2027	21.5
50	42	30 to 39 yrs	3	2027	19.4
50	29	30 to 39 yrs	3	2027	29.0
51	41	20 to 29 yrs	3	2027	25.4
51	29	20 to 29 yrs	3	2027	15.1
51	38	20 to 29 yrs	3	2027	15.7
51	5	50 to 59 yrs	3	2027	23.2
51	19	30 to 39 yrs	3	2027	47.6
52	71	20 to 29 yrs	3	2027	5.6
52	13	20 to 29 yrs	3	2027	17.4
52	48	20 to 29 yrs	3	2027	23.8
52	69	20 to 29 yrs	3	2027	10.7
52	69	20 to 29 yrs	3	2027	0.0
52	69	20 to 29 yrs	3	2027	12.3
53	12	20 to 29 yrs	3	2027	12.7
47	10	20 to 29 yrs	4	2032	22.2
50	37	30 to 39 yrs	4	2032	9.7
50	39	20 to 29 yrs	4	2032	8.2
50	42	30 to 39 yrs	4	2032	28.1
51	24	10 to 19 yrs	4	2032	32.0
51	27	60 plus yrs	4	2032	6.6
51	47	20 to 29 yrs	4	2032	2.5
51	41	20 to 29 yrs	4	2032	15.8
51	29	20 to 29 yrs	4	2032	11.9
51	38	20 to 29 yrs	4	2032	13.1
51	8	20 to 29 yrs	4	2032	24.7
52	15	20 to 29 yrs	4	2032	36.0
52	13	20 to 29 yrs	4	2032	13.0
52	48	20 to 29 yrs	4	2032	18.7
52	69	20 to 29 yrs	4	2032	11.6
53	12	20 to 29 yrs	4	2032	9.2
47	10	20 to 29 yrs	5	2037	12.4
50	40	20 to 29 yrs	5	2037	3.8
50	67	20 to 29 yrs	5	2037	12.7
50	39	20 to 29 yrs	5	2037	5.6
51	34	10 to 19 yrs	5	2037	29.0
51	41	20 to 29 yrs	5	2037	14.6
51	8	20 to 29 yrs	5	2037	27.9
52	13	20 to 29 yrs	5	2037	10.3
52	18	10 to 19 yrs	5	2037	12.7
50	52	10 to 19 yrs	6	2042	8.9
51	28	0 to 9 yrs	6	2042	50.9

Compartment	Stand	Age Class	Rotation	Treatment year of Entry	Acres
52	27	10 to 19 yrs	6	2042	38.3
52	18	10 to 19 yrs	6	2042	23.1
57	53	10 to 19 yrs	6	2042	16.3
57	57	10 to 19 yrs	6	2042	21.1
47	15	0 to 9 yrs	7	2047	23.2
47	25	0 to 9 yrs	7	2047	16.6
50	56	10 to 19 yrs	7	2047	20.2
50	36	0 to 9 yrs	7	2047	5.3
50	34	0 to 9 yrs	7	2047	25.5
50	32	0 to 9 yrs	7	2047	16.2
50	45	0 to 9 yrs	7	2047	4.9
51	59	0 to 9 yrs	7	2047	47.6
51	28	0 to 9 yrs	7	2047	29.3
52	21	0 to 9 yrs	7	2047	14.6
52	41	0 to 9 yrs	7	2047	22.3
57	53	10 to 19 yrs	7	2047	15.4
57	57	10 to 19 yrs	7	2047	29.0
58	54	0 to 9 yrs	7	2047	7.4
47	6	0 to 9 yrs	8	2052	29.8
47	17	0 to 9 yrs	8	2052	33.3
47	25	0 to 9 yrs	8	2052	11.8
50	34	0 to 9 yrs	8	2052	12.7
50	34	0 to 9 yrs	8	2052	6.6
50	32	0 to 9 yrs	8	2052	12.5
50	45	0 to 9 yrs	8	2052	19.2
51	28	0 to 9 yrs	8	2052	45.5
52	2	0 to 9 yrs	8	2052	11.3
52	25	0 to 9 yrs	8	2052	12.0
52	40	0 to 9 yrs	8	2052	7.8
51	31	60 plus yrs	9	No Harvest	10.3
51	40	10 to 19 yrs	9	No Harvest	8.3
52	3	60 plus yrs	9	No Harvest	6.6
58	53	60 plus yrs	9	No Harvest	7.3
58	71	60 plus yrs	9	No Harvest	4.1

Appendix B. Forest treatment rotations for the South Marquette County Grouse Enhanced Management System.



Appendix C. Active hunter trails, parking areas, kiosk and potential new hunter trails.