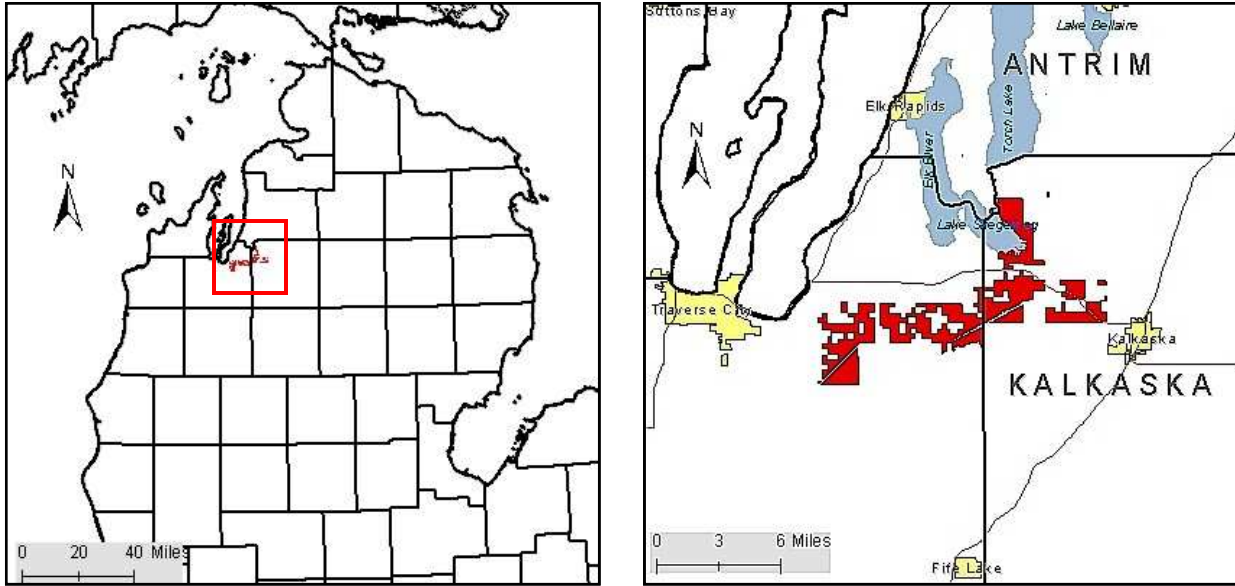


Williamsburg Moraines Management Area



Attributes

The Williamsburg Moraines Management Area is located on the east side of Grand Traverse County between the communities of Kalkaska and Traverse City and has approximately 16,800 acres of State Forest land. The primary attributes which were important in identifying this MA include:

- Ecological Classification - The MA falls mostly within the Williamsburg sub-region of the NLP Ecoregion as classified by Albert (1994).
- Cover Types - The historic composition was dominated by sugar maple and American beech. Current cover is predominantly aspen, upland hardwood and red pine with 17% lowland cover types.
- Landforms - The landform is more than 64% moraine ridges separated by outwash.
- Social and Economic - This management area is heavily used for recreation, and includes portions of the VASA single track, VASA ski trail and North Country Trail. There are numerous active and abandoned oil or gas wells associated with the Niagara and Antrim geologic formations and future oil/gas storage facilities may be located here.
- Ownership size and connectivity – The state land in this management area is fairly concentrated.

Major Cover Types

- Aspen - Aspen totals approximately 3,500 acres of the management area. Aspen (most commonly bigtooth aspen) is distributed throughout the management area including the moraine ridges, moraines and till on dry to mesic and poor to rich nutrient sites. There are several age class spikes of aspen including the 10-19, 30-39 and 70-79 year age classes and approximately 400 acres are greater than 80 years old.

- **Northern Hardwoods/Upland Hardwoods** – Upland hardwoods cover more than 3,400 acres of the MA on moraine ridges, moraines or till, dry-mesic to mesic and poor-medium to very rich nutrient sites. Nearly half of the upland hardwood acres are in stands with a basal area between 81-110 square feet indicating recent selection harvesting. Another 600 acres of upland hardwood can be found in denser stands of 111-170 square feet of basal area. Red oak is a frequent component in upland hardwood stands.
- **Red Pine** - Natural and planted red pine of generally high quality composes approximately 2,400 acres of the MA on high quality moraines. There is a pronounced age class spike between the ages of 40-59 which represents an era of active planting. Natural regeneration can be successful in this area. However, due to the lack of fire which is important in regenerating red pine, very little of the area has actually been naturally regenerated.
- **Oak** - White and red oak in this MA totals approximately 1,500 acres and is located on the moraine ridges and moraines. The age class distribution is dominated by the 70-99 age classes with over 200 acres greater than 100 years old. The vigor of the oak is good and it is an important contributor to wildlife habitat and forest diversity. Oak is a frequent component of aspen, upland hardwood, red pine and white pine types.
- **White Pine** – White pine, both natural and in plantations, covers approximately 1,100 acres of the MA. White pine is also a component of other cover types. Over 60% of the white pine is in the age classes from 40-59.
- **Grass/Upland Brush** - Upland brush and grass totals approximately 1,300 acres and is a result of the past management practices or natural processes of fire, frost or other disturbances which create openings in the forest canopy along with maintenance treatments to keep areas open.

Williamsburg Moraines			Age Class (Years)											Uneven Aged
Cover Type	Acres	%	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100+	
Aspen	3,497	21%	167	677	401	709	426	76	46	572	380	31	0	12
Upland Hardwoods	3,405	20%	0	188	0	38	0	17	72	28	273	504	0	2,285
Red Pine	2,467	15%	11	90	11	0	456	1,345	84	224	191	14	9	32
Oak	1,575	9%	0	0	0	0	22	76	57	162	607	421	230	0
White Pine	1,076	6%	0	0	0	25	385	292	0	122	0	9	68	175
Cedar	820	5%	0	0	0	0	0	6	0	446	101	34	233	0
Mixed Swamp Conifers	663	4%	0	4	0	0	0	0	10	0	0	60	589	0
Jack Pine	533	3%	58	121	0	19	0	292	0	43	0	0	0	0
Grass	726	4%	0	0	0	0	0	0	0	0	0	0	0	0
Water	650	4%	0	0	0	0	0	0	0	0	0	0	0	0
Upland Brush	572	3%	0	3	0	0	0	10	0	0	0	0	3	10
Other Types	902	5%												
Total		16,886												

Other Types include: Upland Mixed Deciduous, Bog, Swamp Hardwoods, Tamarack, Upland Mixed Conifers, Lowland Poplar, Lowland Brush, Marsh, Black Spruce, Hemlock, and Mixed Upland and Lowland Types.

Concepts of Management

- **Aspen (21% of the MA)** – Although it will not be possible to rectify age class spikes in the current management cycle, it is expected that most of the management activity will occur in the 40-49 and 50-59 year age classes. As shown by the spike of 70-89 year old aspen, steep terrain and/or visual quality limitations on treatments in proximity to the VASA single track

and trail has made some aspen unavailable for treatment and where desirable, aspen will be allowed to succeed to more shade-tolerant species.

- Northern Hardwoods/Upland Hardwood (20% of the MA) – Where suitable, selectively harvest almost all of the stands of greater than 111 square feet of basal area and in selected stands in the 81-110 basal area range. This is essentially a stand improvement practice and will allow continued management through selective harvesting as dictated by growth. Healthy red oak will be retained where possible for mast and stand diversity.
- Red Pine (15% of the MA) – Following the Red Pine Management Guidelines, address the age class spike of red pine and trough of regeneration. Harvest aggressively in the age class spikes between 40-59 years and regenerate suitable red pine areas through planting or prescribed fire to encourage natural regeneration. Allow selected areas of managed red pine to reach biological maturity. Following the Within Stand Retention Guidelines allow selected individual red pines in other cover types to become super canopy specimens.
- Oak (9% of the MA) – Where practicable, utilize regeneration harvests and prescribed fire to control competition and encourage oak regeneration. Utilize selection harvests to maintain an oak component where it is present in aspen, red pine, white pine and upland hardwood sites. Introduce pine into oak stands that are in decline due to the age, condition and the difficulty of replicating the cutover lands and catastrophic fires of the late 1800s and 1900s that was the genesis for the current oak resource.
- Grass/Upland Brush (7% of the MA) - Continue opening maintenance by prescribed burning and brush removal to sustain upland brush/grass at a level between 5-10% of the management area.
- White Pine (6% of the MA) – Continue thinning white pine plantations based on site suitability and allow selected plantations to become mixed stands with oak or other hardwood species. Utilize selection harvests to maintain white pine as a component of other cover types.