

Rich Conifer Swamp ERA Plan

Deadman's Swamp



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Administrative Information

- Location:
 - This Ecological Reference Area is located within the Gaylord Forest Management Unit, Compartment 48, Stand 49 within the Jordan River Management Area.
 - It is in Township 31N, Range 05W, S1/2SW of Section 29 & N1/2NW of Section 32; Antrim County, MI
- Contact Information:
 - Plan Writers: Jennifer Kleitch, Wildlife Biologist, Gaylord Operations Service Center; Zachary Crew, Forester, Gaylord Field Office.
 - Local Forester(s) & Biologist(s): Lucas Merrick, Unit Manager, Jennifer Kleitch, Wildlife Biologist.
- State of Michigan lands – State Forest

Conservation Values

- The EO_ID is 18796, with an EO Rank of “C.” It was last surveyed by Michigan Natural Features Inventory on June 18th, 2020.

- Rich conifer swamp is a groundwater-influenced, minerotrophic forested wetland dominated by northern white cedar that occurs on organic soils (e.g., peat) primarily north of the climatic tension zone. The community is often referred to as cedar swamp. The forest should be mature and be all aged (exhibiting natural wind throw disturbance and vegetative layering), or older (>120 yrs) even-aged stands, with large diameter tree species. Natural regeneration and recruitment of the northern white-cedar, and minor components such as hemlock, are occurring and hydrology is intact. Optimally, rich conifer swamp ERAs will be inclusive of unfragmented, large wetland complexes including minerotrophic communities, such as northern fen, northern shrub thicket, northern wet meadow, and hardwood-conifer swamp and acidic communities such as poor conifer swamp where groundwater seepage dissipates. The upland area which feeds groundwater into the rich conifer swamps and maintains quality of groundwater (chemicals, nutrient levels, etc.) is intact, and if possible, consists of high quality or restorable upland communities such as mesic northern forest, dry-mesic northern forest, and dry northern forest.
- Deadman's Swamp is characterized by a rich carpet of sphagnum moss, a species rich herbaceous layer, a patchy low shrub layer, and a patchy to dense coniferous canopy. The rich conifer swamp is floristically diverse. The canopy is dominated by *Thuja Occidentalis* with canopy associates including *Larix laricina*, *Picea mariana*, *Abies balsamea* and *Fraxinus nigra*. The trees range from 20-40 cm DBH. Canopy closure ranges from 60-85%. *Thuja Occidentalis* regeneration is absent in the understory due to high deer browse pressure. Characteristic understory species include *Alnus rugosa*, *Abies balsamea*, *Cornus stolonifera*, *Illex verticillate*, and *Picea mariana*. The patchy low shrub layer is characterized by *Rhamnus alnifolia*, *Lonicera spp*, *Ribes spp*, *Vaccinium spp*. Characteristic species of the diverse herbaceous layer include *Carex spp*, *Rubus pubescens*, *Coptis trifolia*, *Cornus canadensis*, *Impatiens capensis*, *Circaea alpine*, *Mitella nuda*, *Clintonia borealis*, *Maianthemum trifolium*, *Trientalis borealis*, *Gaultheria hispidula*, *Linna borealis*, *Glyceria striata*, *Polygala paucifolia*, *Equisetum spp*, *Caltha Palustris*, *Geum rivale*, and *Calamagrostis canadensis*. Portions of the swamp with more open canopy tend to be wetter with increased importance of *Larix laricina* and *Carex*. The soils are characterized by deep saturated sapric peats that range from slightly acidic to circumneutral, over lay wet medium-textured circumneutral to alkaline sands.
- The Deadman's Swamp includes several indicator species including an occurrence of *Cornus Sericea*, *Illex verticillate*, *Calypso bulbosa*, and *Impatiens canadensis*. Of these species, *Calypso bulbosa* is listed as a state threatened species.

Threats Assessment

- Change in ownership (e.g., from state forest to military lands); if this ERA changes hands from state forest to other ownership, there is potential for hydrological changes to occur, which would threaten species composition.
- Invasive species establishment. Nonnative *Ela umb* is already present.
- ORV use; if access to ORVs is allowed, there could be negative impacts to this ERA.
- High deer browse pressure inhibiting and/or eliminating recruitment of *Thuja Occidentalis*.

- Impediments to natural hydrological flow.

Management Objectives

- Identify and eliminate illegal ORV access points.
- Identify and prioritize critical areas within the ERA to treat for invasive species.
- High diversity of native plants is desirable.
- Allow blowdown/windthrow and insect mortality to occur without salvage harvest.
- Determine if there are impacts to hydrological system.
- Assess forest regeneration within the planning period.
- Assess EO quality every 10-20 years.
- Work with adaptation specialist to determine threats associated with climate change.

Management Actions

(M= Maintenance action, R= Restoration action)

- If current data/knowledge are not available regarding the management goals, actions may address needed assessments (i.e. surveys may be needed) (M, R).
- Identify vectors of invasive species and reduce their introduction to the site (M, R)
- Remove invasive plants using appropriate control methods for that particular species (hand-pull, herbicide, Rx) (M, R).
- Reintroduction of missing associated native plant species (both canopy and ground flora) using local genotypes (R).
- Land acquisition to reduce fragmented ownership (R).
- Where forest regeneration is found to be inadequate: (R)
 - In cedar and/or hemlock, determine if lack of regeneration is caused by deer herbivory and if so, consider limiting winter cutting intended to feed deer adjacent to the ERA and explore other potential solutions.
- Close illegal roads and trails (M, R).
- Install culverts if necessary to restore natural hydrological flow (R).
- Retain an intact 100-foot buffer of natural vegetation surrounding the ERA to reduce the threat of negative hydrologic impacts. Minimize clearcuts adjacent to ERAs with existing significant deer browse pressure.
- Work with LED to increase patrols for illegal ORV activity and enforce state land use rules (M,R).
- Work with MNFI and other experts to update EO inventory (M, R).
- Update plan with additional knowledge as it becomes available (M).

Monitoring

- Monitoring is expected to generally occur on a 10-year frequency to match the 10-year planning cycle – deviations to this will be noted in individual plans.
- Control efforts to detect and remove invasive species before they become widespread are critical to the long-term viability this ERA.
- Specific monitoring should include:
 - Documenting representative and rare species occurrences
 - Documenting presence of rare animals
 - Documenting populations of invasive species- number and scope by species
 - Evaluating the effects of invasive species treatment
 - Evaluating for change in EO rank
 - Documenting Illegal ORV activity - Number of new instances and number of citations issued

Pictures



Aerial view of location



Forest site image

Site Map

