

# Carpenter Creek Oak-Pine Barrens Ecological Reference Area (ERA) Management Plan



## Contents

Carpenter Creek Oak-Pine Barrens Ecological Reference Area (ERA) Management Plan.....	1
Administrative Information:.....	1
Conservation Values .....	2
High Conservation Values (HCV) attributes.....	3
Threats Assessment .....	3
Management Goals.....	3
Management Objectives.....	4
Management Actions.....	4
Monitoring .....	5
Imagery:.....	6
Research .....	7

## Administrative Information

- Carpenter Creek North and South Oak-Pine Barrens
- Location within state forest:
  - Traverse City Forest Management Unit
  - Boardman Plains Management Area
  - Compartments 61047, 61052, 61053
  - Stands
    - Compartment 61047: 184, 198
    - Compartment 61052: 72, 73, 74, 77, 78, 81, 82, 85, 86, 100
    - Compartment 61053: 64, 66, 75

- Geo-political location info
  - Grand Traverse County
  - T26N R09W Sections 10, 15, 22
- Contact information
  - Steve Griffith, Wildlife Biologist, DNR Wildlife Division, [griffiths1@michigan.gov](mailto:griffiths1@michigan.gov)
  - Pat Ruppen, Forester, DNR Forest Resources Division, [ruppenp@michigan.gov](mailto:ruppenp@michigan.gov)
  - Erin Victory, Planner, DNR Wildlife Division, [victorye@michigan.gov](mailto:victorye@michigan.gov)
  - Keith Kintigh, Forest Certification and Conservation Specialist, DNR Forest Resources Division, [kintighk@michigan.gov](mailto:kintighk@michigan.gov)
- Ownership information
  - 100% State owned (Michigan State Forest Land)
- Existing infrastructure/facilities
  - The Grand Traverse Motorcycle Trail cuts through both North and South units of this ERA.
  - Buried utilities run through the south end of the ERA in compartment 61047
- Other documents related to this ERA
  - 2009 MNFI Natural Community Survey of Carpenter Creek North and South
  - 2015 MNFI Natural Community Survey of Carpenter Creek North and South
  - MiFI Stand data

## Conservation Values

- Carpenter Creek North and South Oak Pine Barrens,
  - EO\_ID: 12308, EORANK: B, Last Observed July 27, 2015
  - LASTOBS data: Topography is level to gently rolling, more broken and undulating to N. Deep, droughty, loose sands. Two distinct sites separated by Carpenter Creek, its floodplain, and oak pine forest. A distance of about .5 mi. North unit with scattered *Pinus banksiana*.
  - Oak-pine barrens are ranked Global and State Rank: G3/S2.
  - This site is an extensive oak-pine barrens of variable physiognomy that occurs on level to gently rolling pitted outwash. The soils are characterized as moderately to slightly acidic Rubicon sands of medium to coarse texture, contain scattered gravel, and have low moisture-retaining capacity. The scattered canopy is dominated by white oak (*Quercus alba*) with white pine (*Pinus strobus*) and black cherry (*Prunus serotina*) as canopy associates and more dense patches dominated by jack pine (*Pinus banksiana*) and quaking aspen (*Populus tremuloides*). The tall shrub layer is scattered with clumps of black cherry and hawthorn (*Crataegus* sp.) and scattered serviceberry (*Amelanchier* sp.) and witch hazel (*Hamamelis virginiana*) in areas of denser canopy. Red maple (*Acer rubrum*) is also common in the understory. Recently burned areas have significant black cherry dieback. The low shrub layer is dominated by sweetfern

(*Comptonia peregrina*) and low sweet blueberry (*Vaccinium angustifolium*). Poverty grass (*Danthonia spicata*), little bluestem (*Andropogon scoparius*), and Pennsylvania sedge (*Carex pensylvanica*) are dominant in the herbaceous layer with scattered blazing star (*Liatris* sp.) and rough-leaved rice grass (*Oryzopsis asperifolia*). Weedy and non-native species are confined to roads and trails. Hill's thistle (*Cirsium hillii*, state special concern) and the non-native invasive leafy spurge (*Euphorbia esula*) were documented in the southern portion.

### High Conservation Values (HCV) attributes

- Oak-Pine Barrens Community
- Hill's Thistle (*Cirsium hillii*)
- Dusted Skipper (*Atrytonopsis hianna*)
- Wild turkey, white-tailed deer, American woodcock.
- There are no known cultural or archaeological sites within this community.
- The Grand Traverse Motorcycle Trail crosses this ERA several times. Traditionally, this area has seen multiple deer hunting camps. Spring turkey hunters may also visit this community.
- This community may attract bird watchers, berry pickers and wildflower enthusiasts.
- Timber products are limited to wood removed during restoration or expansion projects.

### Threats Assessment

- The invasive plant leafy spurge is common along the road through the southern portion in proximity to the population of Hill's thistle. Autumn olive (*Elaeagnus umbellata*) was also observed within the site. Spotted knapweed is found along the various two tracks within the ERA. Invasive species could spread along the newly established fire breaks.
- The potential for off-road vehicle damage has likely increased now that fire has helped reopen the site. To date, ORV damage has been minimal and limited to close proximity of two tracks and fire breaks.
- Without the use of fire or other methods that mimic natural disturbance regimes, non-forested communities such as barrens will succumb to encroachment from forest succession and loss of species diversity in its ground cover.

### Management Goals

Goals for the Carpenter Creek Pine Barrens include:

- Manage for a canopy closure variability ranging from around 5% to about 60%.
- Restore or expand ERA wherever possible.

- Increase or at least maintain plant species diversity for native plants including community indicator species as well as rare species.
- Reduce or eliminate the presence of invasive plant species.
- Reduce or eliminate other ecosystem threats such as woody encroachment, ORVs, etc.

### **Management Objectives**

- Expand active barrens management to the entirety of the MNFI delineated community boundaries within the next 10 years, or one inventory cycle.
- Expand active barrens management to additional stands that can enhance function, integrity, and/or aesthetics to the barrens community.
- Maintain fire on the barrens as a tool for the restoration and maintenance of the natural community.
- Conduct harvests only if needed to initially reduce the tree cover to levels that can be burned in a controlled manner.
- Identify and prioritize critical areas within the ERA to treat for invasive species.
- Identify and control illegal off-road use.
- Allow blowdown/windthrow, fire, insect induced mortality to occur without salvage harvest.
- Assess EO quality every 10-20 years.

### **Management Actions**

Actions will be prioritized and implemented based upon available resources.

- Use periodic prescribed fire to mimic natural ground fires to maintain the presence of native plant species, reduce invasive plants, and reduce woody encroachment.
  - Vary seasonality and intensity of fire to accomplish various goals such stimulating forbs vs. grasses or vice versa, reduction of woody encroachment, etc.
  - Incorporate burn refugia or stagger burn units across different years to provide for recolonization opportunity of invertebrates and native flora.
  - Avoid establishment of new fire lines within the ERA to reduce invasive species encroachment.
- Develop a future schedule for burns to restore and maintain the ERA.
  - To reduce the impacts of management on fire-intolerant species, it will be important to consider a rotating schedule of prescribed burning in which adjacent management units are burned in alternate years.
  - Some fire-intolerant species, or important other components, may be protected during prescribed burns with wet lines or other burn tactics.

- In the north unit of this ERA, incorporate relevant parts of stands 72, 74, 77, 78, 81, 82, 85, 86 of Compartment 61052 and stands 184 and 198 of Compartment 61047, into barrens management for this ERA via appropriate silvicultural and/or ecosystem management techniques.
- In the south unit of this ERA, incorporate relevant parts of stands 66 and 75 of Compartment 61053, into barrens management for this ERA via appropriate silvicultural and/or ecosystem management techniques.
- Consult with MNFI ecologists, WLD, FRD, PRD planners, and similar experts on priority plant species to reintroduce to the barrens community that will increase species diversity and robustness of community. Use specific genotypes applicable to this community and region.
- Remove invasive plants using appropriate control methods for that species (hand pull, herbicide, prescribed fire) using staff and volunteers.
- Work with Fire Protection Staff to investigate the application of Minimum Impact Suppression Tactics for ERAs to better utilize wildfire as a management tool.
- Avoid establishment of new fire lines within the ERA to reduce invasive species encroachment.
- Work with adjacent Forest Management Areas, local units of government, and non-governmental organizations (NGOs) to manage barrens on a landscape level.
- Limit off-road access. Post “No ORV” signs as appropriate. Use timber management activities as a way to relocate official ORV trails to outside of the ERA occurrence, or to community or stand boundaries.
- Update plan with additional knowledge as it becomes available.
- Consider educational signage to educate visitors and encourage protection of the community.

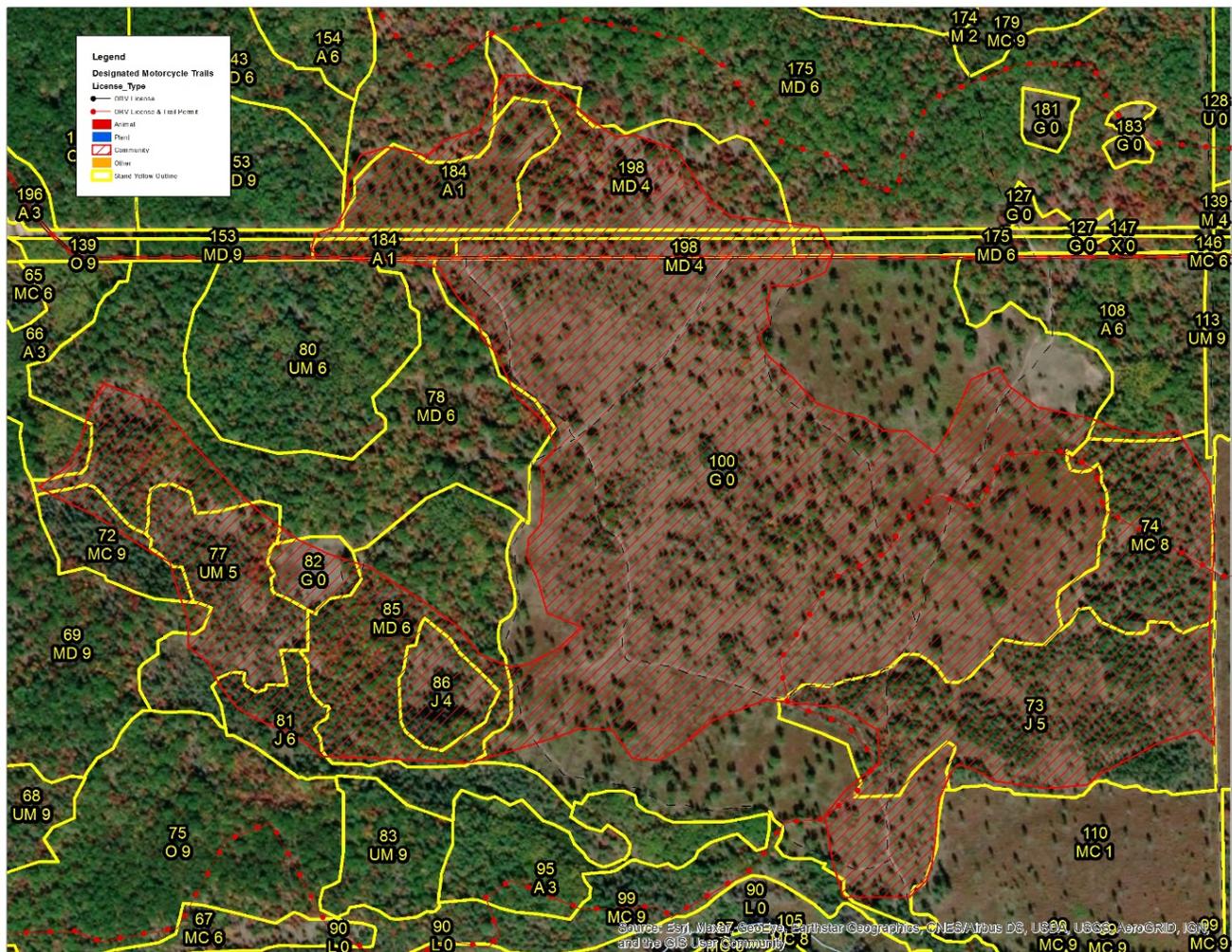
## Monitoring

Unless otherwise specified, monitoring is expected to occur once every 10-year inventory cycle.

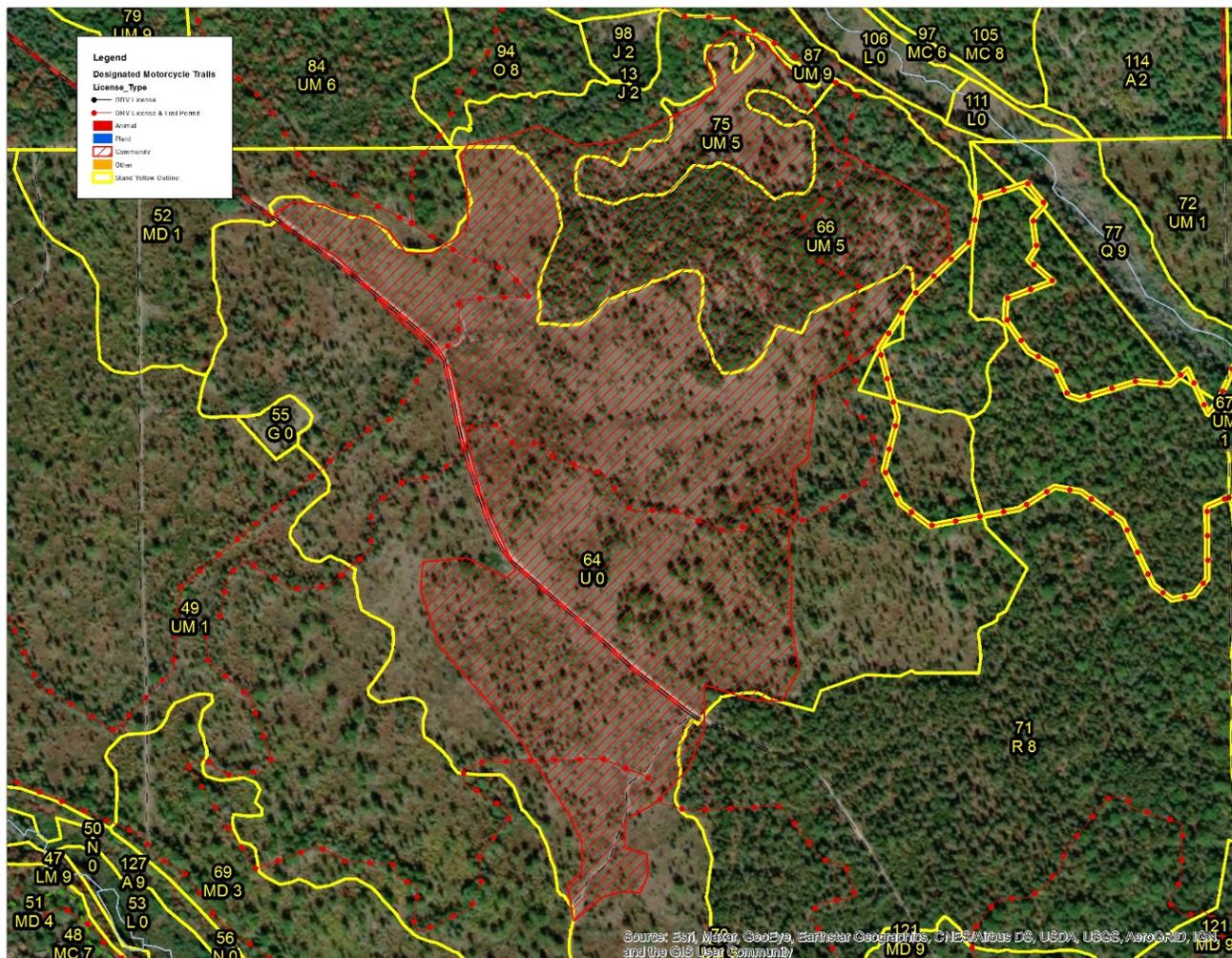
- The existing inventory will be updated with new information as the ERA is monitored.
- Work with MNFI to survey sites every 10 years to evaluate the progress of management efforts and determine if the EO ranking has changed
  - The representation of native plants, indicator species, and rare species will be surveyed to determine changes in abundance.
- Evaluate degree of fragmentation by surveying for illegal off-road use.
- Evaluate the effects of prescribed burn treatments and varying fire intervals and intensities on rare species.

- Evaluate the effectiveness of invasive species treatments the following growing season and for two successive years thereafter (dependent upon removal method and species).
- Evaluate herbivory effects on native plant community

## Imagery



Carpenter Creek Oak-Pine Barrens North Unit



Carpenter Creek Oak-Pine Barrens South Unit

## Research

- [https://mnfi.anr.msu.edu/abstracts/ecology/Oak-pine\\_barrens.pdf](https://mnfi.anr.msu.edu/abstracts/ecology/Oak-pine_barrens.pdf)
- Cohen, J.G. 2000. Natural community abstract for oakpine barrens. Michigan Natural Features Inventory, Lansing, MI. 7 pp.