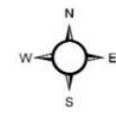


The Long and Winding Road

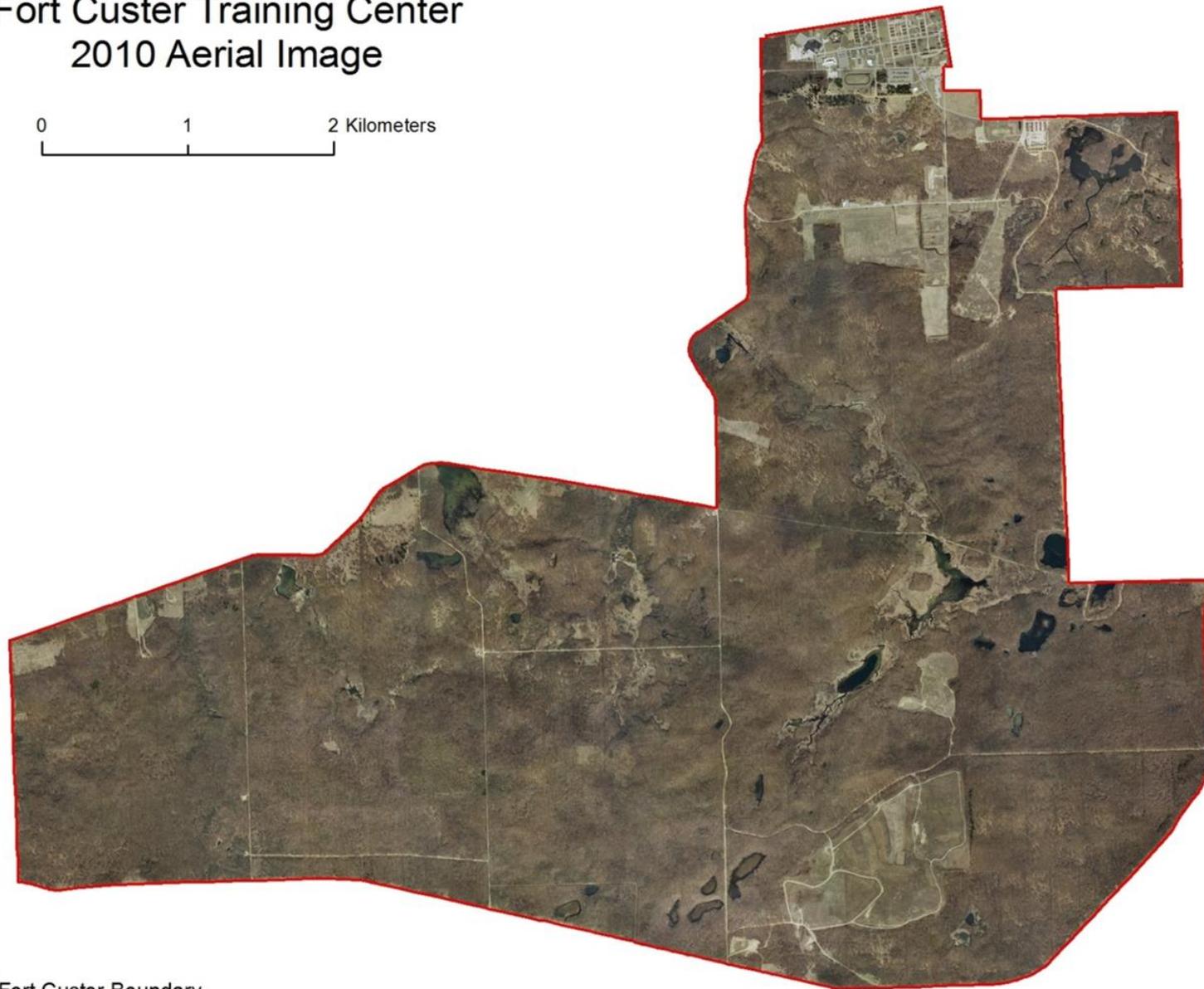
Of a fire monitoring program

Michele Richards, MI Army National Guard
Natural Resources Manager

Fort Custer Training Center 2010 Aerial Image

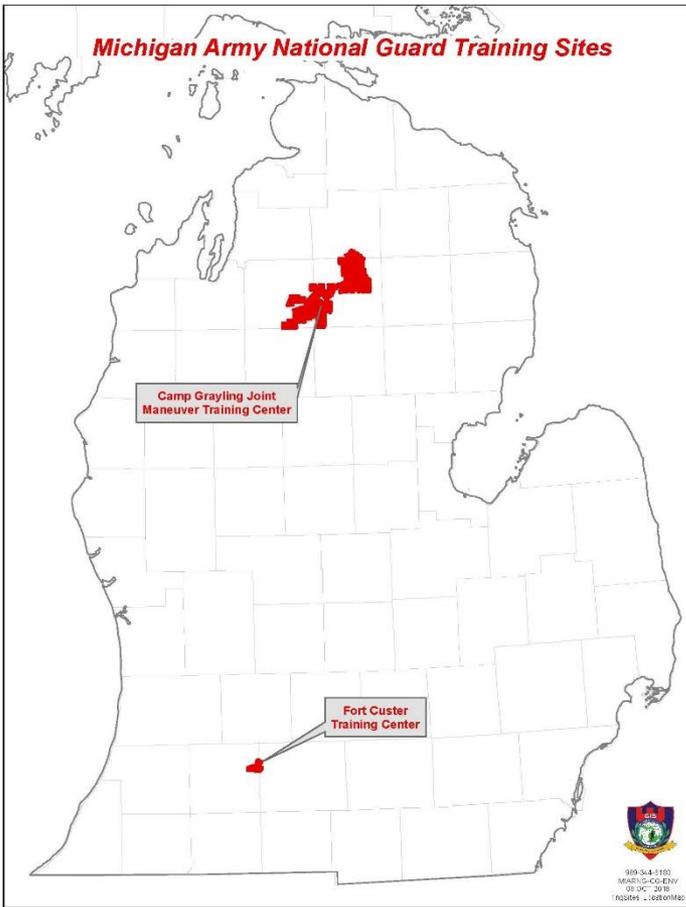


0 1 2 Kilometers



 Fort Custer Boundary

Michigan Army National Guard Training Sites



919.544.1103
MICHIGAN ARMY
01 DEC '20 10
TAGUAA - 1020100

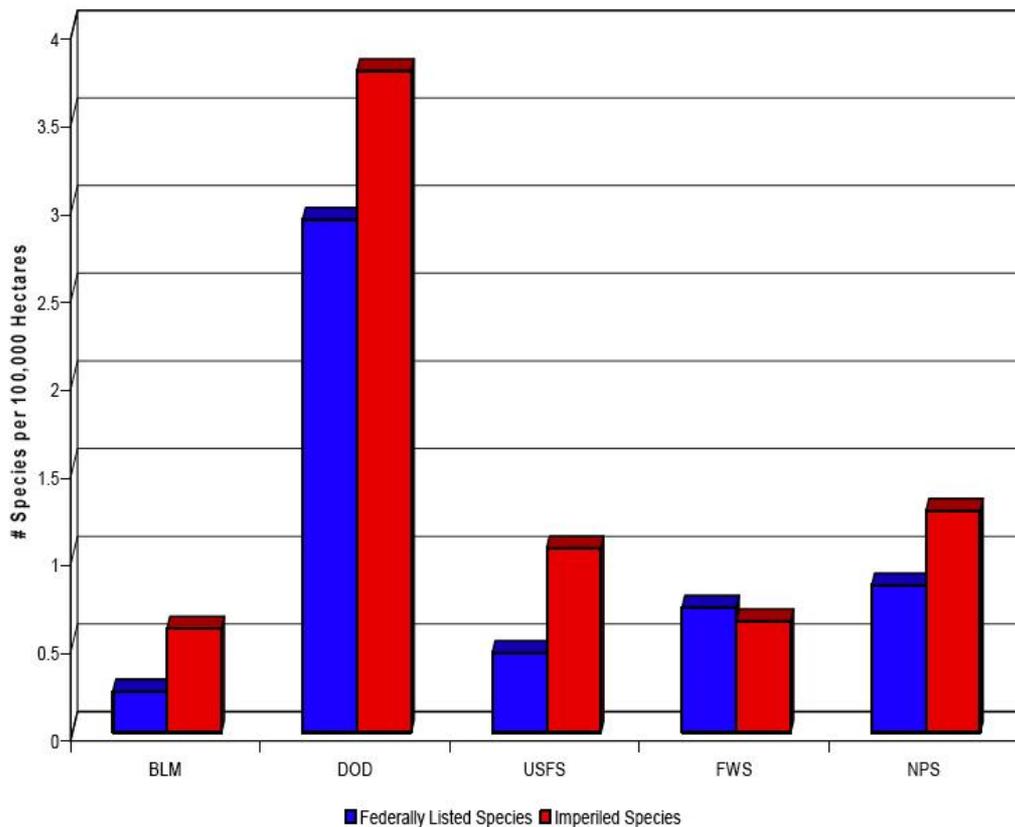


Our habitats



DoD and Biodiversity

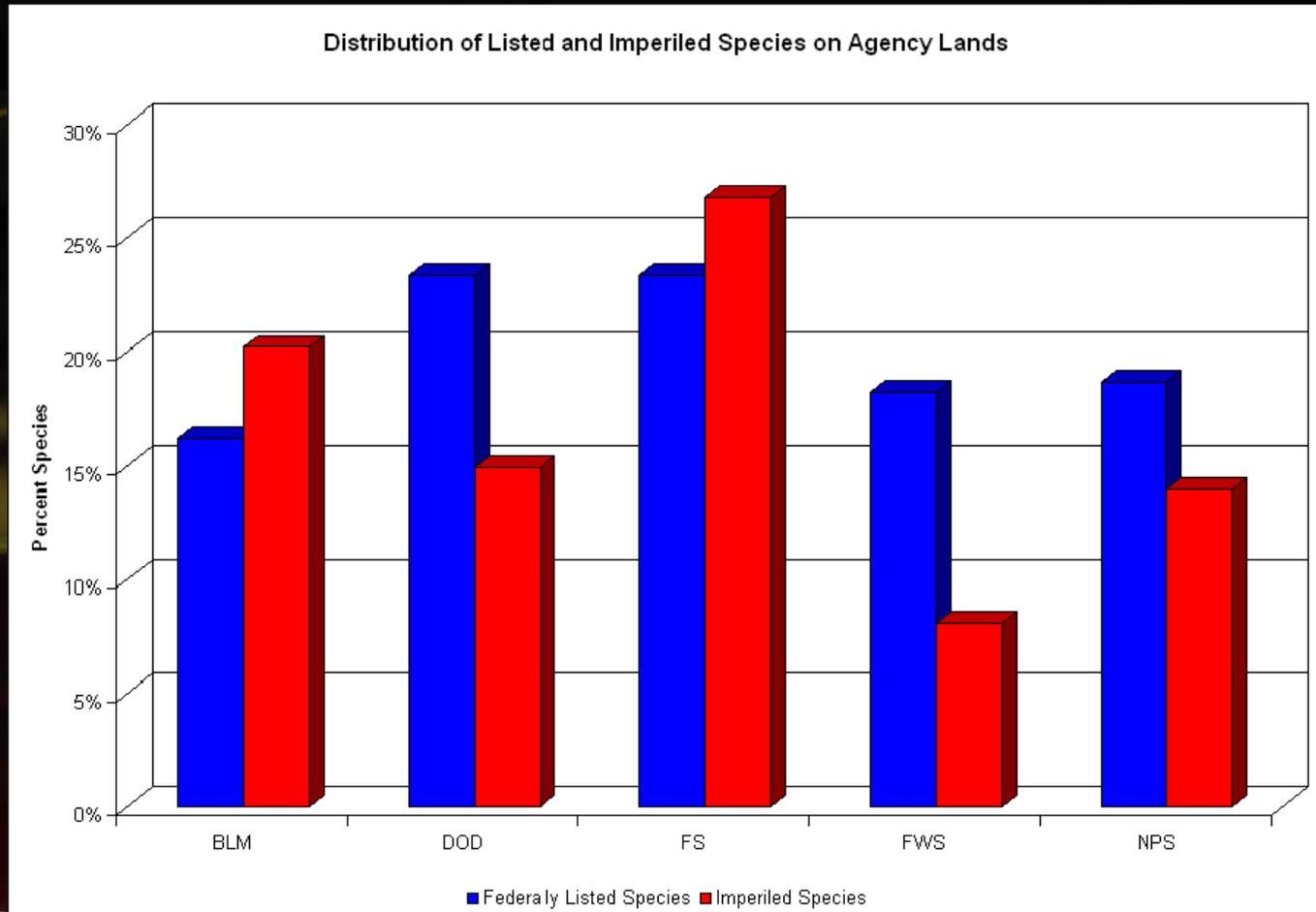
Density of Species on Agency Lands



DoD owns 29 million acres of land in the US

Listed and Imperiled Species

420 Listed Species on DoD lands





Why We Monitor

Round 1



Jump back, Kiss myself



(To quote James Brown)

Round 2 (and still going)



Objectives

- Measure conditions on the burn unit pre-fire and post-fire to understand the effects of the fire from each individual burn as well as the cumulative effects of repeated burns. This information will be used to assess the effectiveness of prescribed burning in reaching the stated objectives of each site.



Objectives

- O1 - Increase *Quercus* spp. regeneration in Oak/Hickory Forests
- O2 - Decrease invasive species cover in HQ areas
- O3 - Reduce fuel load by 50-80%



Methods

National Park Service
U.S. Department of the Interior



Fire Monitoring Handbook



Fort Custer Vegetation and Natural Features Survey 2007-2008 Report



Prepared by:
Joshua G. Cohen, Ryan P. O'Connor, Easba J. Barton, David L. Cuthrell, Phyllis J. Higman, and Helen D. Enander

Michigan Natural Features Inventory

P.O. Box 30444
Lansing, MI 48909-7944

For:
Fort Custer Training Center
June 30, 2009
Report Number 2009-04



MICHIGAN STATE
UNIVERSITY
EXTENSION

Cohen, J.G., R.P. O'Connor, B.J. Barton, D.L. Cuthrell, P.J. Higman, and H.D. Enander. 2009. Fort Custer Vegetation and Natural Features Survey 2007-2008 Report. Michigan Natural Features Inventory, Report Number 2009-04, Lansing, MI. 46 pp plus 2 appendices.

DLZ. 2005. Resource Management in High Quality Natural Areas, Fort Custer Training Center, Augusta, MI. Report submitted to the Michigan Department of Military and Veterans Affairs, Lansing, MI and in cooperation with Potawatomi RC & D, Marshall, MI. 30 pp. plus appendices and figures.

Environmental Systems Research Institute (ESRI). (2016). *ArcGIS Release 10.3*. Redlands, CA.

Fort Custer Training Center. Augusta, Michigan. 2012. Integrated Natural Resource Management Plan. Prepared by Michigan Department of Military and Veterans Affairs.

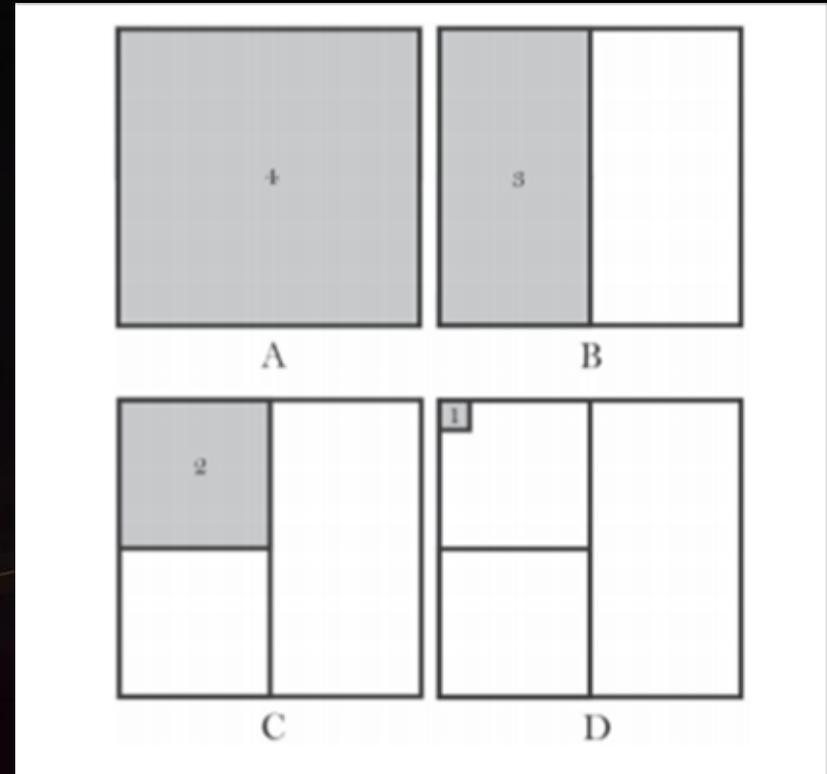
Lutes, D.C. 2006. FIREMON: Fire Effects Monitoring and Inventory System. United States Department of Agriculture, Forest Service, Rocky Mountain Research Station.

National Interagency Fire Center. 2016. "Federal Firefighting Costs (Suppression Only). https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf

The National Park Service's Fire Monitoring Handbook. 2003. National Park Service, U.S. Department of the Interior. <https://www.nps.gov/orgs/1965/upload/nps-fire-effects-monitoring-handbook.pdf>

Methods

- Qualitative
 - General plot description
- Quantitative
 - Cover frequency
 - Percent cover
 - Nested root frequency
 - Line intercept



Methods

Form 1. Plot Description Form

Examine the overall 20m radius plot from the centerpoint for general descriptions

Date		Recorder	
Plot Name		Elevation	
Notes on photopoint focus, access to site, etc.			

Lat (N)		Long (W)	
Datum		Soil Type	
Aspect	Degree	Direction	Slope

Percent Cover

Canopy Cover		Sapling Cover	
Seedling Cover		Total Shrub Cover	
Small Shrub Cover		Large Shrub Cover	
Litter Cover		Bare Ground Cover	
Other Ground Cover			

Dominant Species Percent Cover (write C for Co-dominant)

Canopy Dom 1		Canopy Dom 2	
Canopy Dom 3		Canopy Dom 4	
Subcanopy Dom 1		Subcanopy Dom 2	
Shrub Dom 1		Shrub Dom 2	
Shrub Dom 5		Shrub Dom 4	
Herbaceous Dom 1		Herbaceous Dom 2	
Herbaceous Dom 3		Herbaceous Dom 4	

Species-of-note (rare, interesting)	
General Description of Habitat	

Methods

Fire Observation Data Sheet	Date	Observer						Notes
	Time	Dry Bulb	Wet Bulb	RH	Wind	POI	Cloud %	
Site Name								
Burn Unit								
Acres planned								
Acres Burned								
Burn Unit Fuel Model*								
(Wx) Forecast**								
Days since last rain								
24 Hr Rainfall (in.)								
FFMC								
DMC								
DC								
ISI								
BUI								
FWI								
Fire behavior observations to include in timeline: Field observations of fire behavior. Rate of Spread (ROS) Flame Length Flame Depth Smoke Monitoring Fire progress/ignition Pattern Map an estimate of the fire perimeter. Impacts on plant and/or wildlife communities and habitats Measure qualitative changes in fuel complexes throughout the unit.				*(Anderson, Scott & Burgan, etc.) http://www.landfire.gov/fuel.php **CFFDRS FORECAST http://glffc.utah.edu/cgi-bin/gl.cgi				

Verizon LTE 14:19 23% Touch to return to call 04:04

Field Notes

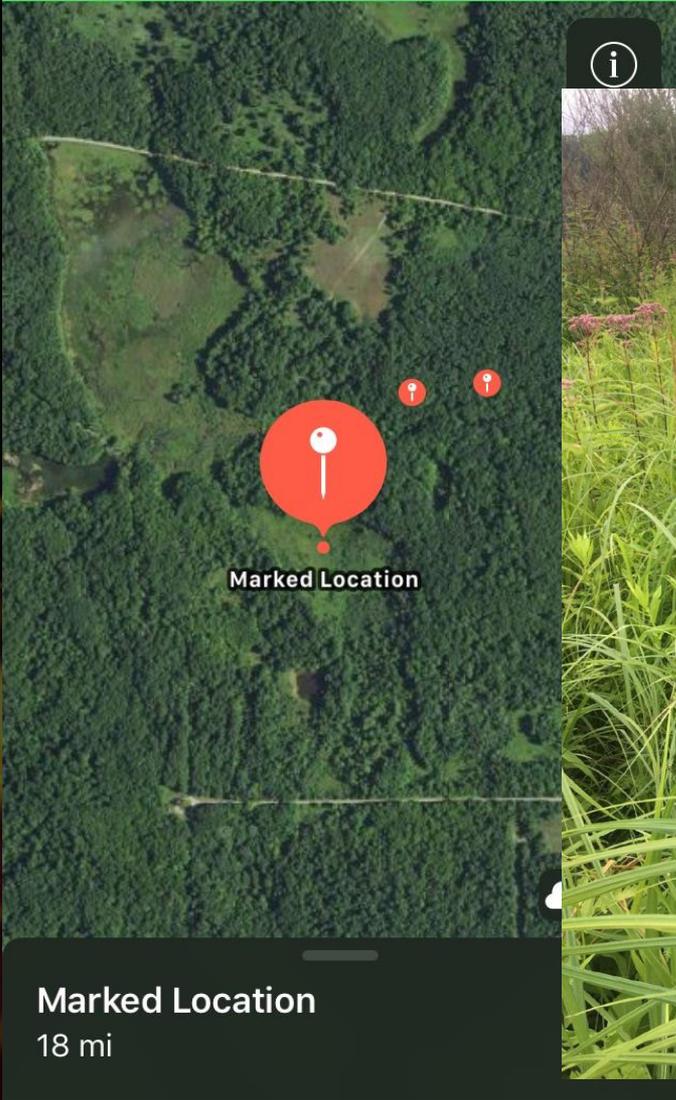


Photo Monitoring

Baseline July 2016



Post Burn July 2018



Photo Monitoring

Baseline July 2016



Post Burn June 2018

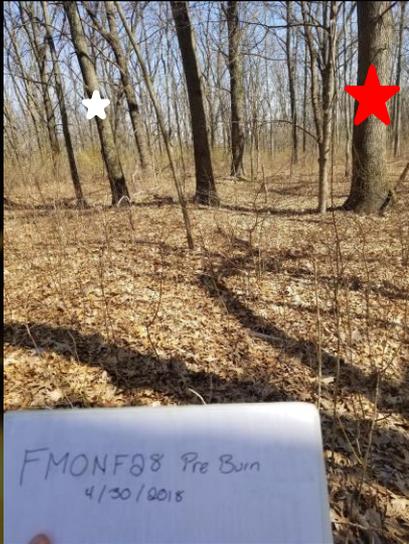


Photo Monitoring

Pre Burn April 2018

Post Burn May 2018

June 2018





Need long term data to make solid statements

- Reduction by half or elimination of litter in wetland, prairie, and forest sites
- Reduction of dense stands of bur reeds in wetland sites
- Reduction of large shrubs and elimination of small shrubs in wetland sites, especially Dogwood and Glossy Buckthorn
- Reduction of canopy cover in forest sites, especially Maples.
- Reduction of unwanted species saplings in forest sites (some resprouting)
- Reduction of species like Brambles, Multiflora Rose, Hophornbeam, Hackberry, Honeysuckle, and silverberry in forest sites.



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Center rkoziatek@naturecenter.org

