

## Prescribed Burning (Acre) 338

### DEFINITION

Controlled fire applied to predetermined area.

### PURPOSES

- Control undesirable vegetation
- Prepare sites for harvesting, planting or seeding
- Control plant disease
- Reduce wildfire hazards
- Improve wildlife habitat
- Improve plant production quantity and/or quality
- Remove slash and debris
- Enhance seed and seedling production
- Facilitate distribution of grazing and browsing animals
- *Restore and maintain fire-dependant natural communities*

### CONDITIONS WHERE PRACTICE APPLIES

All lands as appropriate.

### CRITERIA

#### General Criteria Applicable to All Purposes

Ensure there are adequate procedures, equipment, and number of trained personnel to accomplish the intended purpose.

Comply with all applicable laws and regulations, including the Clean Air Act.

*The landowner is responsible for retaining all permits and clearances required by law. Visit the Michigan DNRE web site for burn permit information:*

[http://www.michigan.gov/dnr/0,1607,7-153-30301\\_30505\\_44539---,00.html](http://www.michigan.gov/dnr/0,1607,7-153-30301_30505_44539---,00.html)

*Time prescribed burning appropriately for soil and site conditions to maintain site productivity and minimize effects on soil erosion and soil properties (structure, soil moisture), and wildlife.*

Time prescribed burns based on all of the following: plant growth stage of species being burned, relative humidity, wind conditions, air temperature, and fuel conditions. See Table 1. Refer to “Managing Michigan’s Wildlife: A Landowner’s Guide,” Part V - Grassland Management, Prescribed Burning and the Michigan Prescribed Fire Council’s “Prescribed Fire in Michigan – Best Management Practices.”

*Integrate the expected weather conditions, human and vehicular traffic that may be impeded by heat or smoke, liability, safety and precautions into the timing, location and planned intensity of the burn.*

*Smoke management is an extremely important safety and health consideration in most prescribed burns. Use burning techniques and timing (based on weather conditions) to minimize the smoke effects on sensitive areas.*

*Monitor weather parameters that affect fire behavior and smoke effects throughout the burn.*

A weather outlook for the period of at least 24 hours following the burn is required prior to conducting a prescribed burn.

Establish firebreaks, including existing barrier such as lakes, roads, etc., around the perimeter of the burn unit prior to conducting the prescribed burn. Firebreaks must meet the NRCS Michigan Firebreak (394) practice standard in the eFOTG.

Prescribed burning in forest land is only permitted to reduce wildfire hazards, for invasive species control, or in fire-dependant natural communities, such as dry southern forest (oak-hickory forest), dry northern forest (mixed pine-oak forest), etc., or to restore such communities. Refer to the Michigan Natural Features Inventory’s (MNFI) Natural Communities Abstracts at <http://web4.msue.msu.edu/mnfi/communities/index.cfm> and Vegetation circa 1800s Maps at <http://web4.msue.msu.edu/mnfi/data/veg1800.cfm> for more information.

*Prescribed burning in forest land will be limited to low- or moderate-intensity surface fires. Fire must be kept away from snags (standing dead trees) and chimney trees (hollow trees) by reducing fuel near such trees and/or increased monitoring and suppression.*

*Do not conduct prescribed burning on forest land sites where significant “ladder fuels” – shrubs and other mid-level woody vegetation – pose a significant risk of initiating a crown fire.*

*To prevent subsurface fires, do not burn sites with organic soils, e.g., muck, and peat, except when soils are frozen or saturated.*

Prescribed Burn Plan Requirements:

Prescribed burns will only be conducted in accordance with a prescribed burn plan. These plans may be developed by landowners, consultants, or other qualified individuals. NRCS employees may not author a burn plan.

*Prescribed burn plans must be provided to NRCS for review and certification that they meet the practice standard. Prescribed burn plans should also be provided to the local fire department prior to conducting the burn, if possible.*

Prescribed burn plans are valid only for the area planned and for the burning season planned. *If there is a need to change the location or time frame of the burn, a new prescribed burn plan must be prepared prior to conducting the burn.*

*See the Plans and Specifications section of this standard for required prescribed burn plan components.*

NRCS Employees Role in Prescribed Burning:  
*Only NRCS employees with current Job Approval Authority (JAA) may assist clients with this practice. Refer to GM 190, Part MI413 (Supplement M11) for information on policy and JAA.*

Only NRCS employees acting within the scope of their work and with proper JAA may assist as follows:

Planning assistance:

- Provide information to the landowner during the planning process of the effects of a prescribed burn as an alternative treatment.
- Include Prescribed Burning (338) as an alternative in a conservation plan.
- Provide resource information such as soils, vegetation, production, maps, photos, climate data, etc. to assist in the development of the burn plan.
- Provide follow-up assistance in the evaluation of the prescribed burn.
- **NRCS employees may not author a burn plan.**

Application assistance:

- *Pre-firing activities such as equipment preparation, plan review, and site evaluation.*

- *Post-fire cleanup activities such as ensuring spot fires are extinguished.*
- **NRCS employees may not act as burn boss.**
- **NRCS employees may not ignite the fire or carry a burning drip torch or other ignition device.**

**Additional Criteria Applicable to Prescribed Burning to Improve Wildlife Habitat**

*Where wildlife habitat (including wetlands) is the primary concern, burn no more than 1/3 of the management unit in any one year to retain vegetation as nesting cover except when:*

- *management units are one acre or less,*
- *other nearby management units of the same vegetative cover under control of the landowner will be left unburned in the same year, or*
- *burning is required for initial establishment purposes.*

**CONSIDERATIONS**

*Prescribed burning often requires specialized equipment, skills and experience to plan and conduct effectively and safely. Consider using a prescribed burning contractor to plan and carry out prescribed burns. See the Michigan Prescribed Fire Council's list of burn consultants at <http://www.firecouncil.org/consultants>.*

Depending on the objective, faster burns may be less effective as they may not remove the desired amount of litter and unwanted species.

*Soil texture and slope influence soil erodibility following a burn. Burning on coarse textured sandy soils or on slopes greater than 20 percent can increase soil erosion rates until cover is reestablished.*

Weather has an overriding effect on prescribed burns. Consider the following:

- If relative humidity reaches below 50 percent, the dryness of the grass will create a very hot fire.
- If relative humidity reaches above 70 percent, excessive moisture will interfere with a successful burn.
- If temperatures reach below 32° F, grass mats will rarely burn; above 80° F, burning is hazardous. Temperatures between 40° and 80° F are ideal.

- Wind speed should be between three and *ten* mph (*on site, mid-flame height*) and the wind direction should remain steady; wind speed and direction are the most critical weather parameters.

Consider that, even though atmospheric conditions are often favorable, burning after dark can be extremely dangerous.

### **Considerations for Wildlife**

Burning should be managed with consideration for wildlife needs such as nesting and feeding cover.

Wildlife habitat can be improved for various species by burns of different sizes, frequencies, and intensities that create mosaic patterns and produce “edge effect.”

*For certain wildlife species, habitat can be improved, not by reducing the amount of brush, but rather by making it more available. Cooler fires should be used when burning root-sprouting brush species to burn the brush back to a height below the normal browse line of wildlife.*

### **Considerations to Improve Forage Production and/or Quality**

Plant response to burning results in increased palatability, quality, quantity, and availability of grasses and forbs; dead material low in nutrient value is removed, and new growth high in protein, phosphorus, and calcium becomes readily available.

Grazing management following the burn must be designed to allow for the desired response of forage species and to aid in accomplishing the burn objectives.

The soil rooting zone should have enough moisture to support recovery of the desired plant species following the burn.

In light fuel loads, continuity is more important for a continuous fire front than fuel loading.

### **PLANS AND SPECIFICATIONS**

*A written prescribed burn plan will be prepared for each burn. The client and the person designing the burn plan shall sign the burn plan. The burn plan must be reviewed and approved by an NRCS employee with Prescribed Burning JAA prior to conducting the burn. Use the Prescribed Burning*

*(338) Design and Certification Worksheet, in eFOTG Section IV to the document prescribed burn plan review.*

*All prescribed burn plans will include, at a minimum, the following:*

- Location and description of the burn area and firebreaks
- Resource management and prescribed burn objectives
- Dates and times targeted for burn
- An aerial photo indicating wind direction, fire lanes, contingency (back-up) fire lanes, firing sequence, and hazards such as roads, buildings, power lines, natural gas pipelines, etc.
- *Description of pre-burn vegetation cover*
- Required weather conditions for prescribed burn, including temperature, wind speed, wind direction and relative humidity
- *Checklist of parties to notify, and when to notify them*
- *Pre-burn preparation*
- *Post burn evaluation and management criteria*
- *Description of the burning method to be used, including ignition method and firing sequence*
- Job assignments and descriptions of responsibilities for all persons assisting with the fire patrol, containment, mop-up, and suppression of the burn
- Required equipment checklist
- *Smoke impacts and location of smoke-sensitive and other affected areas, including a forecast trajectory of smoke plume for the appropriate downwind distance*
- Contingency plan to suppress an escaped burn
- Approval signatures (client and plan author)

*See the National Range and Pasture Handbook, Appendix A, Example A-2 for an example prescribed burn plan.*

### **OPERATION AND MAINTENANCE**

*Maintenance shall include monitoring of the burned site and adjacent areas until ash, debris and other consumed material is at pre-burn temperatures.*

The site should be monitored for erosion problems following the burn until it is adequately revegetated.

**REFERENCES**

Managing Michigan’s Wildlife: A Landowner’s Guide. Michigan United Conservation Clubs, East Lansing, MI.

[http://www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners\\_Guide/index.htm](http://www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/index.htm)

Michigan Prescribed Fire Council website.

<http://www.firecouncil.org/>

Michigan Prescribed Fire Council Steering Committee. 2008. Prescribed Fire in Michigan – Best Management Practices.

[http://firecouncil.brakemandesign.com/app/webroot/files/uploads/RxFireinMichigan\\_BMPs\\_2008.pdf](http://firecouncil.brakemandesign.com/app/webroot/files/uploads/RxFireinMichigan_BMPs_2008.pdf)

Sargent, Mark and Carter, K.S., ed. 1999. Grassland Management (Part V): Prescribed Burning. *In*

USDA-NRCS. 1997. NRCS Policy on Prescribed Burning. p. Appendix A1-A9. *In* National Range and Pasture Handbook, 190-vi. <ftp://ftp-fc.sc.egov.usda.gov/GLTI/technical/publications/nrph/nrph-appendix.pdf>

**Table 1 – Suggested Prescribed Burn Timing by Objective and Vegetation Type**

<b>OBJECTIVE AND VEGETATION TYPE</b>	<b>TIMING OF BURN ACCORDING TO LIVE GROWTH HEIGHT</b>
Stimulate Warm Season grasses	1 - 3”
Distribute grazing of Warm Season grasses	1 - 3”
Stimulate Cool Season grasses	1 - 3”
Remove litter of Warm and Cool Season grasses	1 - 3”
Control woody plants	Variable methods, usually plants are in full leaf
Reduce Cool Season grasses	When <i>warm season</i> grasses are 1 - 3”
Improve wildlife habitat	When <i>warm season</i> grasses are 1 - 3”
Reduce wildfire hazard	When grasses are 1 - 3”
Stimulate forbs	Before forb growth
<i>Forest Fuel Reduction</i>	<i>Early spring or late fall</i>