



Introduction to Prescribed Fire

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Course Instructions

To successfully complete this course, both the online and field portions must be completed.

Online Portion:

- Review all materials provided in this three-hour presentation, including readings and videos.
- Complete the attached worksheet: [Intro to Rx Fire Worksheet](#)
- Once finished, email your completed study guide to the instructor at rmay16@unl.edu.
- Submitting the study guide will ensure your name is added to the Field Day contact list.

Course Instructions

Field Portion:

- Field days opportunities will be announced via email by the instructor, typically with 1-3 days' notice, depending on weather conditions.
- Each field day will last five hours and will have a maximum capacity of eight students. Spots will be on a first come first serve basis.
- Field day opportunities will extend from October through May.

Course Introduction

Welcome to the Introduction to Prescribed Fire. In this course you will learn the basics of why prescribed fire is conducted, and how to conduct prescribed fire safely. Upon completion, you will have the knowledge to safely participate in prescribed operations as a member of the line crew.

This course consists of two parts: three hours of online learning followed by five hours of hands-on, live fire training.

The video's presented in this course have been generously provided by our partners at Nebraska Pheasants Forever, Nebraska Quail Forever, and Platte Basin Timelapse.

Learning Objectives

By the end of this course, students will be able to:

1. Define prescribed fire and distinguish it from wildland fire.
2. Explain the ecological and land management uses of prescribed fire, particularly within the context of the Great Plains.
3. Identify the primary factors that influence fire behavior, including weather, fuel, and topography.
4. Describe the command structure and fireline roles specific to UNL-prescribed fire operations.
5. Demonstrate knowledge of common tactics used to safely and effectively implement prescribed fire.
6. List and understand the personal protective equipment (PPE) required for participation in UNL-prescribed fires.
7. Identify specialized tools used in prescribed fire and explain their functions.
8. Understand the expectations and responsibilities of individuals participating in prescribed fire events hosted by UNL.

Contents

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10. What to Expect on a Burn at 9MP
11. What to bring on a Burn at 9MP

1) What is Prescribed Fire and Why is it Important

- Prescribed fire is the intentional, planned application of fire to a specific area under defined environmental conditions in order to achieve management goals, such as reducing hazardous fuels, improving wildlife habitat, or increasing forage production.
- Unlike wildland fire, prescribed fire is carefully managed from pre-ignition planning through to declaring the fire is out. It operates within a written prescription that outlines specific weather, fuel, and safety parameters to ensure control and effectiveness.



2) Fire Uses and Benefits



1) Video Summary- Fire Uses and Benefits

- History of Fire
- Benefits of Fire
- Fire Frequency

2) Fire Behavior



2) Video Summary- Fire Behavior

- What is Fire Behavior
- Fire Triangle
- Fire Behavior Triangle
- Primary Fuel Groups of Nebraska
- Critical Fire Weather

3) Tactics



3) Video Summary- Tactics

- Types of Fire
- Ring Fire Technique
- Firing Tactics
- Wet Lining
- Holding and Patrolling
- Mopup

4) Command Structure

- Command structure refers to the organized hierarchy of roles and responsibilities on a prescribed fire.
- While each organization may have its own version of a command structure, most follow a similar chain of command to ensure safety, communication, and effective fire operations.



Altman/Platte Basin Timelapse (2023)

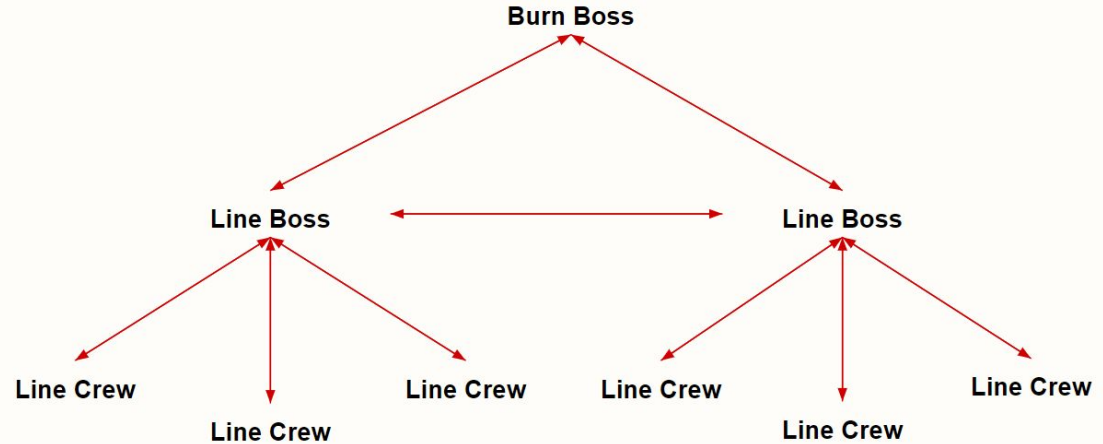
4) Command Structure

- **Burn Boss:** Oversees all aspects of the prescribed fire. This includes planning, coordinating personnel, directing operations, and making real-time decisions based on fire behavior and conditions.
- **Line Boss:** Manages a specific section of the fireline. They lead the line crew, relay instructions from the Burn Boss, and ensures their line operates safely and effectively.
- **Line Crew:** Carries out direct fire operations such as ignition and holding. They follow the guidance of the Line Boss and communicate conditions and needs along the fireline.



5) Communications

- Each role in the command structure has specific communication responsibilities.
- To maintain proper span of control, communication must follow the chain of command.
- Line Crews communicate with their Line Bosses.
- Line Bosses communicate with each other and the Burn Boss.
- Communication also flows in reverse from the Burn Boss to Line Bosses, and from Line Bosses to the Line Crews.



5) Communications

- Clear and consistent communication is one of the most critical factors in ensuring the safety of all personnel during prescribed fire operations.
- Most communication during these events takes place through:
 - Face-to-face conversations
 - Two-way radios
 - Mobile phones



5) Communications

When using radios:

- Keep radio communication concise and accurate- radios are for talking, not thinking.
- Begin all radio transmissions by stating the recipient's name, followed by your own. Once the recipient acknowledges, proceed with your message.
- All radio communications must reflect the professionalism and standards of the University of Nebraska- Lincoln.



6) Personal Protective Equipment (PPE)

- Personal Protective Equipment (PPE) includes any gear worn to protect individuals from fire-related hazards and reduce overall risk during operations. When participating in prescribed fire activities within the University of Nebraska-Lincoln, wearing the required PPE is mandatory.
- Required PPE includes:
 - 100% cotton or wool clothing, including undergarments
 - *(These natural fibers will burn rather than melt when exposed to fire, reducing the risk of severe burns.)*
 - All-leather boots, when possible
 - All-leather gloves
 - Nomex overshirt ("yellows")
 - Bullard fire helmet



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7) Equipment



7) Equipment

During prescribed fire operations at Nine-Mile Prairie, we will utilize the following tools and equipment:

- Vehicle-mounted skid units
- Backpack pumps
- Drip torches
- Flappers
- McLeod tools



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7) Equipment: Vehicle Mounted Skid Units

Skid units are mounted on vehicles and allow for water to be transported to areas that are not accessible by hydrants. They play a critical role in prescribed fire operations and are used for:

- Wetlining
- Mopup
- Refilling backpack pumps

Operational controls and safe usage of skid units will be covered during the field training portion.

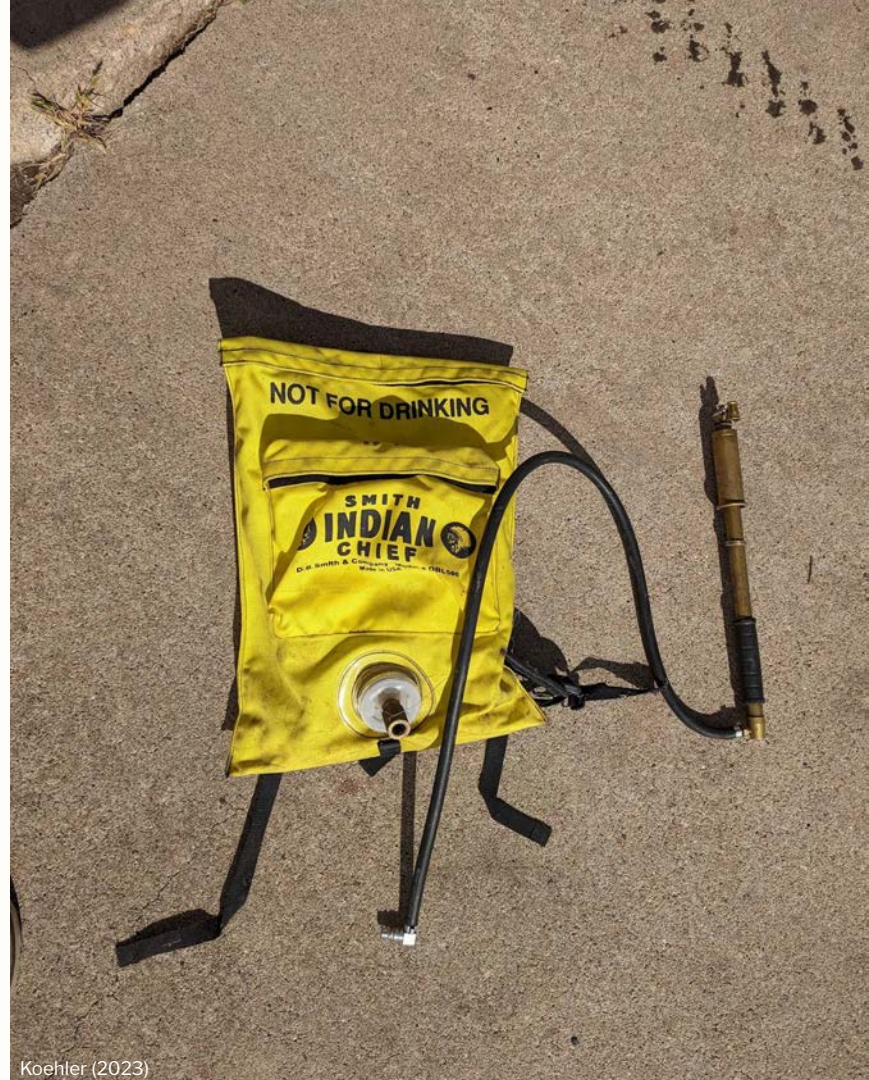


7) Equipment: Backpack Pump

Backpack pumps are soft-bodied, foldable five-gallon water tanks equipped with a brass piston hand pump. They function similar to a large water gun.

- Nozzle settings:
 - Mist
 - Jet
- Primary Uses:
 - Wetlining
 - Mopup

These pumps provide mobility and flexibility in fire suppression, especially in areas where vehicles cannot go.



7) Equipment: Drip torch

The drip torch is the most commonly used ignition tool in prescribed fire operations. It uses a mixture of diesel and gasoline to apply fire quickly and precisely where needed.

Safety Guidelines:

- PPE must be worn at all times when handling or operating the drip torch.
- When the torch is lit, the nozzle must remain inside the unit to prevent unintentional ignition from dripping fuel.



7) Equipment:

Flapper

The flapper (also known as a swatter) is a firefighting hand tool designed to smother flames by removing oxygen- not fuel. Despite its name, the flapper is not used for flapping or swatting.

Proper Use:

- Gently drag the rubber flap across the fire to smother the flames.
- DO NOT swat or hit the fire- this will only introduce more oxygen to the fire and can cause sparks or flames to spread unpredictably.



7) Equipment:

McLeod Tool

The McLeod is a versatile wildland firefighting hand tool featuring two functional sides:

- Grubbing face (horizontal blade)
 - Used to cut through vegetation, sod, and roots. Ideal for creating firebreaks or clearing down to mineral soil.
- Rake face (tined side)
 - Used to pull fuels either away from or into the fire, depending on the tactic.



8) Why We Burn at Nine-Mile Prairie

Nine-Mile Prairie, like all prairies, requires active management to maintain biodiversity, promote habitat heterogeneity, and control woody encroachment. One of our primary tools is prescribed fire, which helps restore and sustain healthy grassland ecosystems.

Our management goal is to apply fire to each grassland unit every three years. To meet this objective, our burn season generally spans from October through May, depending on whether conditions fall within our burn prescription.



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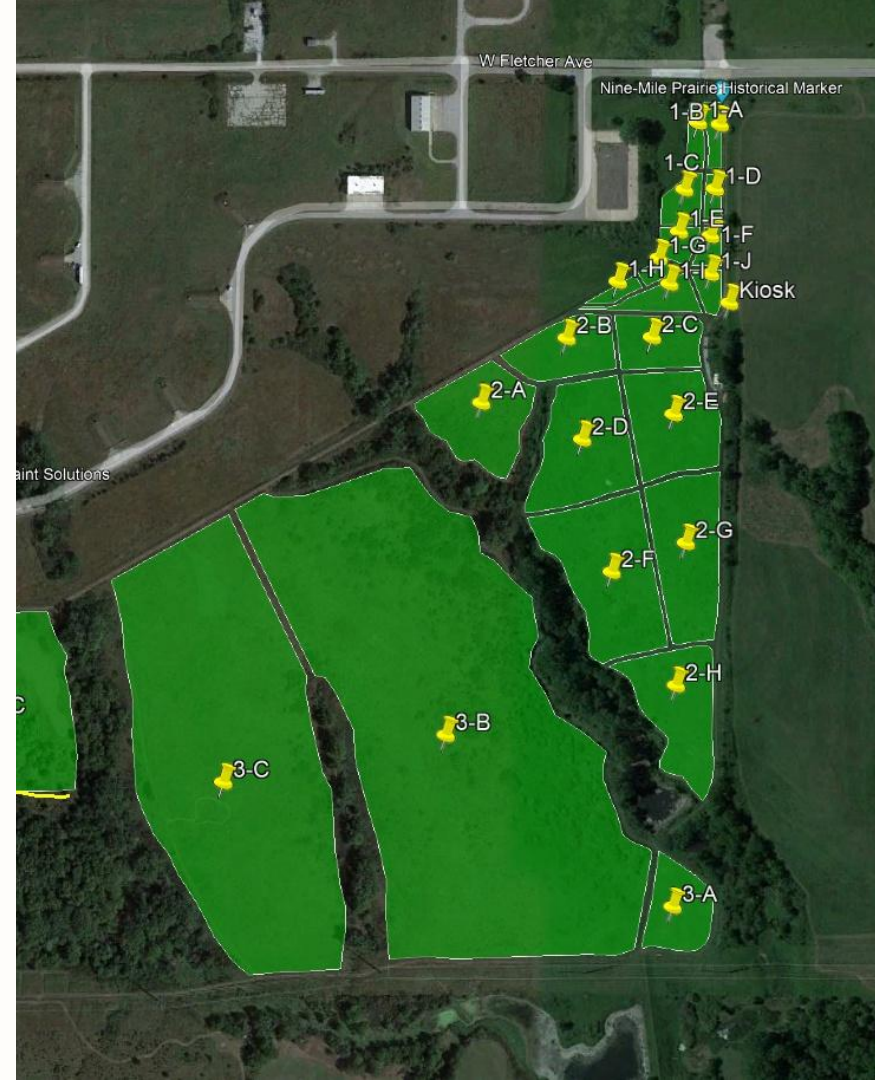


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8) Why We Burn at Nine-Mile Prairie

The property is divided into large units and teaching units.

- Teaching units (less than 2 acres):
 - Used to introduce and educate students on prescribed fire practices
 - Provide a manageable and controlled environment for learning
- Large units (greater than 2 acres):
 - Used to implement prescribed fire at a landscape scale



9) What to expect at a Nine-Mile Prairie Burn

- On the day of the burn, we will meet at the Nine-Mile Prairie barn, at the predetermined time. We
- will prepare the equipment, then discuss the burn plan.
- We will cover the specific burn unit, communication plan, specific operation roles, weather, how the equipment will be used, and what will happen if something goes wrong.
- These burns are specifically done for educational purposes. As such, immediately communicate any questions or concerns you have and we will address them.



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10) What to Bring to a Nine-Mile Prairie Burn

What to Wear:

- All cotton clothing, including undergarments
 - Long-sleeve shirts and jeans are preferred
 - Flannels work well for layering
- All-leather boots, if available (no mesh or synthetic materials)

What to Bring:

- Water for the entire day (no potable water available on site)
- All-leather gloves
- Sunglasses (for eye protection and comfort)
- Snacks, if desired



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