NORTHERN ARIZONA UNIVERSITY | Ecological Restoration Institute

FACT SHEET

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Planning for and Implementing Prescribed Fire in Fire-Dependent Forests

Introduction

Implementing prescribed fire[1] is a complex process that requires the coordination of many different agencies. Prior to implementing a prescribed burn, the trade-offs and benefits (such as smoke) are carefully assessed and planned. Clear objectives, specific desired outcomes, application of best available science, public and firefighter safety, and best management practices are important elements of successful prescribed fire programs. This fact sheet details the steps required to conduct a safe and effective prescribed burn.

Prescribed Fire Plans

To permit a prescribed fire, agencies must first complete a comprehensive plan, e.g., Fire Management Plan, that provides general program objectives, and a Prescribed Fire Plan detailing site-specific strategies and prescriptions. The Prescribed Fire Plan identifies, or prescribes, the best conditions to burn unwanted forest debris, trees, and other plants to safely achieve the desired results. These plans consider factors such as temperature, humidity, wind, vegetation moisture, and smoke dispersal conditions. The plans are prepared and approved by qualified personnel, e.g., burn boss and agency administrator, and include criteria for the conditions and prescriptions under which the fire will be conducted. The Prescribed Fire Plan is reviewed and signed annually by the agency administrator to ensure the plan is current.

Project Area Description

The project area description is a detailed summary documenting all pertinent attributes, including descriptions of vegetation and fuels, unique features, and natural resources. The plan requires maps of the vicinity of the burn, project area, ignition units, and the location of values or assets at risk, e.g., homes, infrastructure, utilities.

Fire personnel review a project area prior to burn ignition. *Photo courtesy Verde Valley All Hazards Training Association and USDA Forest Service, Coconino National Forest*

Burn Prescriptions

Detailed prescriptions for each fire are prepared in advance, describing the objectives, fuels, area, precise environmental conditions under which the fire will be allowed to burn, and suppression conditions.

The Go/No-Go Checklist

Prescribed fire plans provide a written checklist that the burn boss certifies whether 12 critical requirements, conditions, and steps have been satisfied prior to ignition of the burn.

Pre-Ignition Considerations

Additional pre-ignition considerations are identified in an analysis developed to determine the complexity of the burn, mitigation options, and burn outcomes identified in the National Environmental Policy Act (NEPA) decision and plan.

[1] Prescribed fire, also referred to as a prescribed burn or controlled fire, is an intentionally ignited fire managed in accordance with applicable laws, policies, and regulations to meet specific objectives.

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Implementation: Striking the Match

Prescribed Fire Ignition Plan

Before ignition, prescribed fire specialists complete a Go/No-Go checklist and conduct a test fire. The test fire is ignited in a representative location where the fire can be controlled easily and the results are documented. The purpose of the test fire is to verify that the prescribed fire behavior characteristics will meet management objectives and to verify predicted smoke dispersion. Based on these observations, the prescribed fire burn boss determines whether to continue with active ignition.[2]

Firefighters discuss fire behavior and smoke dispersion during a prescribed burn. *Photo by ERI*

Contingency Planning

The contingency plan analysis is a part of the Prescribed Fire Plan. It considers low probability, high consequence events and identifies actions needed to mitigate them. Other important considerations include smoke management objectives, impacts to critical smoke receptors, burn staffing, and response plans for accidents or emergencies during the burn.

Managing Smoke

All prescribed burns must conform to the federal Clean Air Act requirements. Managing smoke emissions is a major objective. When acquiring burn permits and approvals, fire planners must identify smoke sensitive receptor areas, e.g., population centers, recreation areas, hospitals, airports, transportation corridors, schools, etc. This assessment typically includes computer modeling, mitigation strategies, and techniques to reduce the impacts of smoke production.

Unwanted Wildland Fire Declaration

A prescribed fire, or a portion of a prescribed fire, must be declared a wildfire by those identified in the burn plan with the authority to do so, when either or both of the following criteria are met:

1) Prescription parameters, such as predicted fire behavior, climatic conditions, and fuel evaluations, are exceeded and holding and contingency actions cannot secure the fire by the end of the next burning period; or,
2) The fire has spread outside the project area or is likely to do so, and the associated contingency actions have failed or are likely to fail, and the fire cannot be contained by the end of the next burning period.[3]

Action Reviews: Measuring Burn Success

After Action Reviews evaluate whether the planned actions accomplished desired outcomes. This review allows participants to discover what happened, why it happened, and how to improve performance and correct mistakes or weaknesses. After Action Reviews are effective when conducted with all resources involved. Documentation and experience from these reviews and shared lessons learned can be invaluable to help guide future prescribed fire planning and implementation.

This fact sheet summarizes information from the following ERI white paper:

Greco, B. 2018. Planning for and Implementing Prescribed Fire in Fire-Dependent Forests of the Intermountain West. ERI White Paper—Issues in Forest Restoration. Ecological Restoration Institute, Northern Arizona University.

[2] National Wildfire Coordinating Group (NWCG), Interagency Prescribed Fire Planning and Implementation Procedures Guide, https://www.nwcg.gov/sites/default/files/publications/pms484.pdf

[3] NWCG, Guidance for Implementation of Federal Wildland Fire Management Policy, http://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf

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