

Chapter 18
FWS Fuels Management/Prescribed Fire Information

[Link to Redbook Chapter 18](#)

F. Prescribed Fire Plans

Each prescribed fire must have a complete and approved formal Prescribed Fire Plan before it is funded and can be implemented. A Burn Boss currently qualified at the appropriate level must prepare Prescribed Burn Plans. Prescribed Fire Plans should be prepared and developed in collaboration with an interdisciplinary team in which at a minimum at least one member has successfully completed the FWS Prescribed Fire Planning and Implementation or the NWCG Prescribed Fire Burn Boss training course. The Prescribed Fire Plan must discuss all key issues and concerns identified during refuge strategic and operational planning. The formal Prescribed Fire Plan is made up of many operational elements. Each element addresses a specific aspect of the prescribed fire operation. Certain key elements are listed below. If they do not apply, they should be noted as "N/A", they should not be omitted or not addressed. In some cases, special prescription elements, variables, or other requirements unique to the region or refuge will require additional entries. A standard Prescribed Fire Plan format is found in the Fire Management Preparedness and Planning chapter. Each regional office will determine whether the standard Prescribed Fire Plan format or a customized plan format will be used.

The following are key issues that **will** be addressed in all Prescribed Fire Plans.

1. Prescribed burn objectives and how they support the land use objectives for the area.
2. Expected fire behavior.
3. Buffer and safety zones.
4. Fire perimeter length and acreage burned limit.
5. Analysis of the cumulative effects of weather and drought on fire behavior. This should include a historical analysis of a drought index (i.e., Palmer, Keetch-Bryan, ERC, etc.).
6. Potential risks to and impacts on visitors, users, and local communities, both on and off site.
7. Considerations of environmental, economic, and social effects, both on and off site.
8. Regional and national fire activity are within planned limits.
9. The number of fires burning in the planning area at one time is within planned limits.
10. Items to be checked during the burn day go-no-go determination must include:
 - a. Predicted weather, environment, and fire behavior are within prescribed limits.
 - b. Availability of implementation personnel, contingency forces, equipment, and supplies are within planned limits.
 - c. Implementation personnel are briefed.
 - d. Required notifications are made.

The following are key Prescribed Fire Plan elements which will be in all Prescribed Fire Plans or other supporting documents:

1. Signature page: Provide spaces for signatures of those persons who prepared the plan, the prescribed fire burn boss, the reviewers and the final approval authority.
2. Burn unit description: Describe the physical and biological features of the burn unit including the location, topography, fuels, vegetation, slopes, and aspect.
3. Vicinity map: Include an overall map showing the position of the project in relation to the surrounding geographical area.
4. Project map: Provide a detailed map showing the project boundary, its topographic features, fuel types and/or loadings, potential hazards, areas of special concern, type and size of control line locations and ignition patterns.
5. Goals and objectives statements: State the goals and objectives for this specific burn. They must include the prescribed burn objectives, which should be measurable treatment objectives (i.e., tons per acre of fuel removed, percentage of plants killed, percentage of mineral soil exposed, etc.) that support the land use objectives.
6. NWCG Complexity: Identify the degree of difficulty in executing the planned fire.
7. Burn organization: List the essential qualified personnel who will be utilized and the positions that they fill. Specify the number of crew personnel that are needed.
8. Costs: Estimate the time and costs for the following categories: planning, pre-burn monitoring, preparation for the burn, including line construction; burning; holding; monitoring; mop up; and evaluation. Estimate the costs of equipment used for the burn, including tools, aircraft, supplies, and vehicles.
9. Scheduling: State the general time period in which the burn will take place. Show any periods during this time when the burn cannot take place. Provide space to enter the start date, date declared out, and date the DI-1202 is submitted.
10. Pre-burn considerations:
 - a Preparations on site: Include line to be built, line standards, snags to be felled or protected, equipment to be pre-positioned, special features to be protected, warning signs to be placed, weather recording and monitoring needs, etc.
 - b Preparations off site: Include equipment readiness, supplies to be purchased, signs to be made, personal protective equipment to be issued, etc.
11. Fire prescription: Describe in detail the acceptable ranges of fire behavior and parameters of weather and fuel moisture content or other site variables that are used to define the prescription, acceptable smoke duration and patterns of dispersal, seasons when the burns can be done, and other specific parameters. The use of fire behavior and smoke management prediction aids (e.g., BEHAVE, RXWINDOW, nomograms, SASEM, is recommended).
12. Firing/holding plan: Describe in detail the methods and procedures to be used during the firing and how the lines are to be held. This should include the number and types of personnel, equipment, and assignments. Include day, night, and weekend shifts. What are acceptable holding actions on this fire? What constitutes an escape? Contingency plan: Define what contingency

- actions constitute a significant departure from what was planned or expected and where conversion to a wildland fire is appropriate. Include procedures to be followed and actions to be taken if the fire exceeds the abilities of the holding crew to keep it within prescribed parameters and/or unit boundaries. Fuels both inside and outside (near and distant) the burn unit should be considered. Who is to declare the fire a wildland fire? Who is to be the incident commander after the fire is converted to a wildland fire? Define the number and type of contingency forces to be used as initial action. Who is to be notified of the conversion to a wildland fire? What role will the holding crew take? Should they remain on the burn or suppress the escape? Account for every person as either reassigned or released from the fire and identify who is to supervise those who are reassigned.
13. Weather information: Specify the weather information required during all phases of the project and the procedures for acquiring it. How and when will spot weather and smoke dispersal forecasts be requested? How long after the burn will forecasts be required? How is feedback to the Weather Service to be accomplished?
 14. Protection of sensitive features: Give instructions for the protection of sensitive features within and adjacent to the burn. These include cultural resources, streams, threatened and endangered species, sensitive soils, buildings and improvements, etc. Obtain necessary archaeological and other types of clearances before the area is disturbed.
 15. Smoke management and air quality: Identify potential smoke sensitive areas and management strategies for avoidance, emission reductions, and/or dilution to minimize environmental impacts including impacts on human health and welfare. Identify what air quality compliance steps must be taken and what permits are required, who is to obtain them, and when they must do so.
 16. Pre-burn coordination and public involvement: Establish responsibilities for the notification of other agencies, the public, and local landowners, including the notifications and coordination required in the regional preparedness plan. List and identify public information contacts, including local area personnel and press releases. Identify the official local agency public information specialist.
 17. Pre-burn notification: Formulate a call-up list of individuals and agencies, when they are to be contacted, how they are to be contacted, and assign responsibilities for making specified contacts. Include addresses, phone numbers, radio call signs, and frequencies.
 18. Public and personnel safety: Describe safety and emergency procedures. Specify that all personnel who are within the active burn area will have the personal protective equipment required for fire management. Identify safety hazards on the burn, measures taken to reduce those hazards, and EMS personnel on the burn. Specify emergency medical procedures, evacuation routes, and emergency facilities to be used.
 19. Monitoring: Include all monitoring, measurements, and frequency needed to determine if conditions for the burn are within prescription, both before it is started and while it is burning. Include the necessary measurements and observations to determine if the burn objectives were met.
 20. Reports: Provide for the documentation of the burn. Include a cost assessment and all required reports such as the DI-1202. Include a critique of the burn by the prescribed fire burn boss. Methods that worked or didn't work and the effectiveness of the prescription in achieving burn or smoke

- objectives should be evaluated, along with recommendations for future projects. Attach all observation and forecast forms, worksheets and data collected during the burn operation.
21. Rehabilitation: Describe in detail any rehabilitation that is to be accomplished, who is to do it, and when it is to be completed. These may include waterbars, trash removal, flush cutting of stumps, scattering or burning of line construction debris and other appropriate treatments.
 22. Briefing guide and NWCG format [Agency Administrator's "Go/No-Go Pre-ignition Approval](#) and ["Go/No-Go" checklist](#): A short, concise list of the things to be covered during the crew briefing before the fire is started and at the beginning of each operational period after that. Include a summary of conditions that must be met before the burn can commence and continue. These may include, but not be limited to, the presence of all personnel needed to implement the contingency plan, the presence of all required equipment in specified locations, that the fire behavior and expected weather meet the prescription, and that the required notifications have been made.
 23. Persons contacted: Retain a list of persons contacted during the development of the burn plan. Include Fish and Wildlife Service personnel, other agency personnel, concessionaires, inholders, special interest groups, refuge neighbors, concerned public, etc. Where appropriate record the date of contact.

Prescribed Fire Plan Review - All new or previously developed Prescribed Fire Plans will be subject to the established regional review process during the scheduled year of implementation including a new signature page for previously developed plans. Prescribed Fire Plan review must be based on the prescribed fire complexity analysis. At a minimum:

1. Low or moderate complexity prescribed fires will be reviewed by a NWCG Prescribed Fire Burn Boss Type 2.
2. High complexity prescribed fires will be reviewed by a NWCG Prescribed Fire Burn Boss Type 1.
3. For prescribed fires involving aviation operations, the appropriate NWCG Prescribed Fire Burn Boss reviewing the plan will also have prescribed fire operational aviation experience.

H. Safety and Qualifications

4. Qualifications

Prescribed Fire Burn Boss 3 (see Chapter 14) may be utilized to manage prescribed fires meeting all of the following criteria:

- Low complexity as determined by the NWCG complexity analysis process and,
- Low risk of escape and,
- Low potential for negative impacts should an escape occur and,
- Require low to moderate burning conditions and,

- Do not involve multiple fuel complexes or fuels which exhibit extreme fire behavior characteristics (such as California chaparral) and,
- Do not involve aerial ignition or aerial operations and,
- Are conducted by a crew of 2-6 personnel
- A Prescribed Fire Burn Boss 3 is identified as the appropriate Burn Boss type in the approved burn plan.

I. Monitoring

1. Prescribed Fire Monitoring

The Prescribed Fire Plan will include a monitoring section describing all monitoring, measurements, and frequency needed to determine if conditions for the burn are within prescription, both before it is started and while it is burning.

2. Fuel Management Effectiveness Monitoring

It is appropriate to use Hazard Fuel Reduction Operations and Wildland/Urban Interface (subactivity 9263 and 9264) funding to facilitate adaptive management when evaluating fuels management program and project effectiveness, and to ensure that refuge resource management goals and objectives are not compromised by the fuels management projects. The use of 9263 funds is limited to monitoring the first and second order effects of fuel management projects (prescribed fires, mechanical or chemical fuel treatments, etc.) on fuel and wildlife habitat composition and structure, as recognized and well-described as measurable objectives in the approved refuge Fire Management Plan and/or an approved refuge habitat management plan. Monitoring is limited to before and after treatment and at 1, 2, 5, 10, and 20 year after treatment intervals.

Although funding wildlife population inventories or fire effects research or management studies on wildlife is not an appropriate use of 9263 funds, evaluating fuel management treatment effects on wildlife habitat composition and structure is intended to complement these inventories, management studies and research projects.

Fuels management effectiveness monitoring requires the preparation and approval of a monitoring plan. This plan can be a separate Fuels Treatment Monitoring Plan or part of a holistic adaptive management program that integrates all refuge resource monitoring activities. Whether separate or integrated the plan should contain:

- a. A full description of the fuel and wildlife habitat monitoring attributes, monitoring objectives, approved monitoring protocol description in sufficient detail that a successor can continue the monitoring, and the approved refuge Fire Management Plan and/or habitat management plan reference identifying the monitoring need.
- b. Description of management actions to be taken when monitored habitat attributes reach established threshold levels.

- c. The refuge's commitment to implementing and completing the monitoring and management actions.

Regional Fire Management Coordinators will assure that before any fuel treatment monitoring (beyond the first order fire effects monitoring in the Prescribed Fire Plan) is approved for funding:

- a. The fuel and wildlife habitat monitoring activities are adequately described in the approved refuge Fire Management Plan and/or an approved refuge Comprehensive Conservation Plan or Habitat Management Plan.
- b. The monitoring protocols conform with regionally established fuel and wildlife habitat monitoring protocols established under Fulfilling the Promise WH-10(1) action item or the Service's [Fuel and Fire Effects Monitoring Guide](#).
- c. The regional fire ecologist and/or wildlife biologist to determine if the proposed protocols are the most cost effective and statistically defensible means of addressing monitoring objectives independently review the plan.
 - All stakeholders are aware of management changes that may result from the monitoring results.

J. Fuel Program Funding (9263, 9264, 9265)

In U.S. Fish and Wildlife Service Wildland Fire Business Management Handbook (underdevelopment)

K. Escaped Prescribed Fires

3. Reviews

All escaped prescribed fires will receive an appropriate review (see chapter 19 for review guidance). Reviews will be documented with a formal report that must be signed by the Refuge Manager, and forwarded to the Regional Fire Management Coordinator and the Fire Management Branch within 30 days of the escape. The purpose of the review is to determine why and under what circumstances a prescribed fire had to be reclassified as a wildland fire. At a minimum, the review will include the following elements:

- a. An analysis of seasonal severity, weather events, and on-site conditions leading up to the wildfire declaration.
- b. An analysis of the actions taken leading up to the wildfire declaration for consistency with the prescribed fire burn plan.
- c. An analysis of the prescribed fire burn plan for consistency with policy.
- d. An analysis of the prescribed fire prescription and associated environmental parameters.
- e. A review of the approving line officer's qualifications, experience and involvement.
- f. A review of the qualifications and experience of key personnel involved.

- g. A summary of causal agents contributing to the wildfire declaration.

It will identify the circumstances leading to the reclassification of the fire, what actions were taken after reclassification as a wildland fire, and possible future actions that need to be taken to avoid similar situations. Costs of the review will be charged to the account assigned to the fire with the approval of the RFMC.