NH Prescribed Fire Council - Prescribed Burn Plan Template

(Refer to instructions starting on page 8 for assistance with completing the template)

LANDOWNER INFORMATION		**LANDOWNER TYPE** (state, fed, private, etc.)
LANDOWNER NAME		
PRIMARY CONTACT		
ADDRESS		
CITY, STATE, ZIP		
PHONE		
EMAIL		
Rx BURN PLANNER INFORMATION		
PLANNER NAME		
AGENCY/ORGANIZATION		
ADDRESS		
CITY, STATE, ZIP		
PHONE		
EMAIL		
Rx BURN LOCATION INFORMATION		
PROPERTY NAME		
ADDRESS		
CITY, STATE		
GPS COORDINATES		

SIGNATURES: ***We the undersigned have reviewed and approved this burn plan for execution. Prescribed burning conditions established in the plan are firm limits. Actions taken in compliance with the approved Prescribed Burn Plan will be fully supported, but personnel will be held accountable for actions taken which are not in compliance with the approved plan. This burn plan was written to abide by current standards for prescribed burning in the State of New Hampshire.***

LANDOWNER:

_____	_____	_____
Signature	***Print Name***	***Date***

Rx BURN PLANNER:

_____	_____	_____
Signature	***Print Name & Affiliation***	***Date***

FIRE WARDEN:

_____	_____	_____
Signature	***Print Name***	***Date***

FOREST RANGER:

_____	_____	_____
Signature	***Print Name***	***Date***

DESCRIPTION OF PRESCRIBED BURN AREA:

Rx Burn Unit Designation	Acres	Fuel Model	Vegetation & Topography Description

SPECIAL CONSIDERATIONS (e.g., rare species, historic structures, etc.):

DESCRIPTION OF ADJACENT AREAS:

Area Designation	Fuel Model	Vegetation & Topography Description

GOALS:

MANAGEMENT OBJECTIVES:

PRESCRIPTION: (copy and paste additional tables as needed to cover all Rx fire units)

Burn Unit:		**Planned**		**Actual**
Fuel Model:				
Timing (Season/Time of Day)				
Prescription Limits		**Low**	**High**	**Actual**
Temperature				
Relative Humidity				
Wind Speed (20' Forecasted)				
Wind Speed (mid-flame)				
Wind Direction (mid-flame)				
Mixing Height (minimum only)		1500 feet	NA	
1 Hr. Fuel Moisture (%)				
10 Hr. Fuel Moisture (%)				
Days Since Rain				
FIRE BEHAVIOR PREDICTIONS USING BEHAVE				
Type of Fire (H, B, F, SH)				
Rate of Spread (Ch/hr)				
Flame Length (Ft)				

MINIMUM CREW & EQUIPMENT LEVELS: (add or delete rows as needed)

Position	Number Needed

Equipment	Number Needed

ACCESS:

IGNITION, CONTAINMENT & MOP UP PLAN:

CONTINGENCY PLAN:

Trigger Points	Actions Needed
Minimum Resources & Maximum Response Time	

SMOKE SENSITIVE AREAS & FACILITIES: (add or delete rows as needed)

Road Name	Distance	Direction

Facility Name	Distance	Direction

TECHNIQUES TO REDUCE/MITIGATE SMOKE IMPACTS:

POTENTIAL HAZARDS & MEASURES TO BE TAKEN TO REDUCE HAZARDS:

ESCAPE ROUTES & SAFETY ZONES:

NEARBY EMERGENCY FACILITIES: (add or delete rows as needed)

Name	Address	Travel Time (ground)	Phone	Heli-pad (Y or N)	Burn Center (Y or N)

WEATHER MONITORING:

PUBLIC/ABUTTER NOTIFICATION:

PERMITTING: NH State law (RSA 227:L-17) requires a burn permit for open burning. The Fire Leader or designated individual will obtain this permit, which also serves as a smoke management permit; on the day(s) burning is to occur. Note that state nuisance law exists. The state will be consulted when a complaint is received.

MAPS & OTHER FIGURES

Figure 1. Map of Rx Fire Units overlaid atop topographic map or aerial photo with roads, escape routes, and safety zones indicated.

Figure 2. Map of Rx Fire Units zoomed out to show smoke sensitive areas in the vicinity.

Add others if desired.

ATTACHMENTS

Prescribed Fire Complexity Rating Analysis

Pre-burn Go/No Go Checklist

Crew Briefing Checklist (for day of burn)

Add others if desired.

Pre-burn Go/No Go Checklist

Yes	No	Questions
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they it favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the prescribed fire plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the prescribed fire plan and will it meet the planned objective?

If all the questions were answered "YES" proceed with a test fire. Document the current conditions, location, and results.

Instructions for Completing the Burn Plan Template

Landowner Information – Name and contact information for property landowner. In case of an agency/organization, the landowner name would be the name of the agency/organization and the primary contact field would be filled in with the name of the person primarily responsible for overseeing the management of that property.

Rx Fire Planner Information – Provide contact information for the person completing the fire plan.

Rx Fire Location Information - Most conservation lands have a name associated with them (E.g., Bellamy Wildlife Management Area or Durham Town Forest). List the property name in the appropriate field. Include GPS waypoints for the center of the fire unit so they can be catalogued in GIS for future reference (e.g., accomplishment reports).

Signatures – Signatures indicate that the fire plan has been reviewed and approved by the landowner, fire planner, fire warden, forest ranger, and any other pertinent individuals (add additional signature fields if needed).

Description of Prescribed Burn Area

- **Rx Burn Unit Designation –** Insert name of burn unit.
- **Acres –** Insert acreage of unit to be burned.
- **Fuel Model –** Insert Scott and Bergen fuel model designation. See Chapter 4 for more information on fuel models.
- **Vegetation & Topography Description –** See Chapter 4 for more on how vegetation (i.e., fuels) and topography can influence fire behavior. The description should include the Scott and Bergen fuel model description supplemented with local information. Topography should include elevation, aspect, and percent slope.

  Example: Vegetation within the unit is generally closed canopy pitch pine-oak forest on sandy soils with associated leaf litter and needle cast covers 100% of the unit. Mid-story white pine is scattered across the unit, as well as less common red maples. A mostly continuous low ericaceous shrub layer of primarily huckleberry covers >90% of the unit. A small number of scattered scrub oaks are limited to a frost pocket in the extreme southeast corner of the unit. Herb layer across the unit is generally sparse.

  Elevations in the fire unit range between 155 and 240 feet. The unit does not feature a prevailing aspect, though some locations have slopes steep enough (up to 15%) to significantly influence fire behavior, such as the north-facing bowl near the south end of the unit. Other topographic features include several kettle holes, small knolls, plateaus and the draws between them. Several sections of the unit have large boulders that could pose a hazard.

Special Considerations – Describe any special considerations (e.g., rare species, exemplary natural communities, cultural resources, power lines, high density commercial or residential developments, etc.

within the burn unit or immediately adjacent to it that might be impacted (either positively or negatively) by the burn and describe how they will be dealt with.

Example: The Northern red-bellied cooter, federally listed as an endangered species, is known to nest on the property. The burn will be conducted after the Northern red-bellied cooter's June through July breeding season. The presence of the endangered turtle will be addressed during the pre-burn briefing, with personnel directed to take care to avoid harming any turtles discovered in the course of the burn day so long as doing so does not endanger crew safety.

The proximity of high tension transmission power lines to the east side of the unit is cause for caution with respect to smoke management. Smoke will be monitored, and ignition coordinated to minimize putting smoke on the power lines that could result in arcing. The towers are on concrete footings, and given the sparse, discontinuous fuels in the ROW, the structures are not vulnerable to heat from surface fire.

Description of Adjacent Areas – Describe vegetation, fuels, and topography in areas adjacent to the burn unit. See Chapter 4 for more on how vegetation (i.e., fuels) and topography can influence fire behavior. The description should include the Scott and Bergen fuel model description supplemented with local information. Topography should include elevation, aspect, and percent slope. ***"Area Designation"*** could refer to the burn unit designation for adjacent areas (if applicable) or could simply be the cardinal direction relative to the burn unit (e.g., S of burn unit). Note any concerns about potential fire spotting in adjacent areas.

Goals – Describe the goals for the burn for each burn unit. Refer to Chapter 3 for information and examples on how to establish effective goals.

Management Objectives - Describe measurable objectives for each burn unit. Refer to Chapter 3 for information and examples on how to establish effective objectives.

Prescription

- **Burn Unit –** Insert name of burn unit.
- **Fuel Model –** Insert Scott and Bergen fuel model designation. This is a reiteration of the fuel model identified in the "Description of Prescribed Burn Area" above.
- **Timing (Season/Time of Day)** – Indicate desired season (spring, summer, or fall), preferred date range (e.g., April 1 – May 30), and time of day (e.g., 0900-1600). Refer to Chapter 4 for more information on timing of prescribed burns.
- **Prescription Limits** – Indicate low and high ranges for prescription parameters listed. Minimum mixing height, height at which the smoke will begin to travel horizontally, should be 1500 feet to get smoke out of burn unit area and away from smoke sensitive areas as quickly as possible. Refer to Chapter 4 for more information on prescription parameters.
- **Fire Behavior Predictions Using Behave**

- **Type of Fire** – Indicate type of ignition pattern proposed for burn (i.e., strip head, backing, flanking, point source, or ring). See Chapter 9 for more information on these ignition techniques.
- **Rate of Spread** – List low and high ranges for rate of spread desired for the burn based on calculations derived from Behave Plus software (see Chapter 4).
- **Flame Length** - List low and high ranges for flame length desired for the burn based on calculations derived from Behave Plus software (see Chapter 4).

Minimum Crew & Equipment Levels – List NH Prescribed Fire Council or NWCG position titles and minimum number of each required to implement the burn. Likewise, list equipment type and number needed (***including radio frequencies***). Completing a prescribed fire complexity rating analysis will assist in determining crew and equipment needs. See Chapter 5 for information on completing the complexity analysis. See Chapters 6 and 7 for recommendations on crew and equipment levels.

Access – Provide directions on how the burn unit will be accessed, including feasibility of access with equipment that will be on hand the day of the burn (e.g,. engines), and actions that may need to be taken prior to the day of the burn to ensure suitable access.

Ignition, Containment & Mop Up Plan – Describe technique(s) to be used to ignite, contain, and mop up the prescribed burn. Refer to Chapter 9 for more information.

Example:

Ignition: A test fire will be ignited on the downwind side of the burn unit adjacent to a suitable anchor point. Holding personnel will have water and hand tools available to suppress the test fire should that be necessary. All water handling equipment will be tested prior to ignition.

A small area will be ignited, and the time of ignition will be documented by the burn boss or other individual assigned to take periodic weather measurements. Fire behavior will be observed for a long enough period of time for the burn boss to determine if the burn can be safely conducted, that smoke is adequately venting, and in a desired direction downwind, and if fire and resource objectives are being met. If the burn cannot be safely conducted, the test fire will be extinguished, the area mopped up, and the prescribed burn postponed.

If the decision is to move forward, the burn will proceed as follows. Ignitors will continue from the test fire area and establish an adequate blackline (20-30 feet) to reinforce a control line. One or two lighters will then work flanks and strip across the burn unit. Strip heads will be used to kill midstory pine and maple. Strip width will not exceed 60 feet to ensure the fire stays within prescribed parameters. This method of flank firing up to the next strip head will proceed until the unit is completely burned.

Containment:

Phase 1: Prior to Burn – The burn unit is bounded on all sides by dirt access roads approximately 12 feet wide, which will serve as the fire breaks for the burn. If needed, vegetation in and immediately adjacent to the access roads will be mowed back with a brush hog to a height < 6 inches. Vegetation too large for a brush hog will be hand cut.

Phase 2: Test Fire (Day of Burn) - Holding resources will assemble on the downwind side during test fire and the establishment of downwind line.

Phase 3: Back Fire - Resources will patrol the control line, extinguishing spot fires and coordinating with the Igniter and Burn Boss if fire intensity is causing control problems. After the downwind line is secure, the ignition crews will ignite the remainder of the unit.

Phase 4: Strip Heads - Holding resources will patrol the downwind line and flanks. Holding resources will be directed to portions of the burn unit that exhibit the greatest potential for escape or control problems to occur. If spot fires do occur, the size and location of the fire, as well as the need for additional resources, will be immediately reported to the holding boss and burn boss. Ignition will be immediately halted when spot fires occur and only the burn boss will give permission for ignition to resume once the spot fires are extinguished.

Mop Up:

During the Mop-Up phase, all snags, stumps, fuel jackpots, and other fuels that threaten the control line and/or pose smoke generation problems will be extinguished. Mop-up will be concentrated on the sides of the unit that border smoke sensitive areas, to limit smoke related impacts on private residences, public facilities, and road systems. Resources will patrol all unit control lines until there is no danger of spotting. The Burn Boss will release resources when 100% extinguishment is achieved. Burn units will be checked 1-2 days after ignition as a precaution.

Contingency Plan – List trigger points for when a contingency plan will be enacted or a wildfire declared, additional forces or actions needed to deal with the situation, and maximum allowable response time needed in case a prescribed fire does spread outside of the burn unit. Refer to Chapter 9 for more information.

Example:

Trigger Points	Actions Needed
1) Wind shifts of 90-180 degrees that result in undesirable fire behavior, or becomes a threat to the safety of personnel and/or property.	If it appears shift is temporary, move personnel off of affected flank until safe to resume. If wind or fire behavior does not change back and fire escapes, suppress, starting from safe anchor point.
2) Eye level wind speed increases, humidity drops, or the prescribed burn is otherwise out of prescription. 3) Resource objectives not being achieved by fire behavior.	Suppress Fire. If more resources are required to implement this action, a call will be placed by the Burn Boss for assistance from local Fire Dept.
4) There are too many spots that are igniting fuels outside the unit for the holding crew to put out and still maintain the integrity of the fire line.	Burn Boss will evaluate if burning out or if suppression is required to stop the spread. If more resources are required to implement this action a call will be placed by the Burn Boss to the local Fire

	Dept.
5) Smoke impacts to roads or residences.	Burn Boss to notify local police of smoke impacts. Response is determined by the agency with impacted jurisdiction. Burn Boss will evaluate if burn completion or suppression will be quickest way to reduce smoke impact.
6) An escaped fire (area burning outside defined project area) that cannot be extinguished with on-site resources within a reasonable length of time, depending on fuel type and weather conditions.	In the event of an escape the holding crew will begin suppression activities utilizing direct attack. The closest resources not committed to an area or in a previously burned area cooled enough to be released (discretion of the Holding Boss) will be directed to attack the fire and remain until no further threat exists. Firing Boss may be requested to halt ignition sequence; Ignition team may be reassigned to holding actions or suppression. If direct attack is impossible, indirect attack and burnout will be utilized with secondary lines taking advantage of natural barriers. Secondary lines will be noted on the detailed map of each burn unit, and discussed during the pre-burn briefing. At all times, firefighter and public safety shall come before resource considerations during attack.
7) Any escape greater than 2 acres and/or crown fire activity threatening the subdivision.	Immediate call out of on-site engines and local Fire Dept. by the Burn Boss.
Minimum Resources & Maximum Response Time	
See "Minumum Crew & Equipment Levels" for minimum required resources. If additional resources are required due to an escape the local fire departments will be relied upon. Local offsite resources would come from Plymouth F.D. Two stations are located within a five minute response time. Between the two stations there are two engines, one ladder, three breakers, and one tanker.	

Smoke Sensitive Areas & Facilities – Screen for smoke sensitive areas as described in Chapter 10 and list any smoke sensitive areas or facilities. Attach a smoke screening map at the end of the burn plan that also identifies the smoke sensitive areas.

Techniques to Reduce/Mitigate Smoke Impacts - Describe techniques that will be used to minimize or negate impacts to smoke sensitive areas.

Example:

Specific smoke mitigation measures for this unit are:

1. Prescribed wind directions were chosen to minimize smoke impacts.
2. Smoke signs (two) will be placed on downwind roads if necessary.
3. Thorough mop up will be accomplished primarily on downwind sides of the unit, primarily in the direction of public smoke receptors.

Contingency plan for adverse smoke impact:
In the event that unforeseen changes of meteorological conditions occur, in which adverse deviations of smoke plume spread, and/or dispersion indexes result, which impact or threaten to impact the above smoke sensitive targets, the burn boss will initiate an appropriate response which may include the following:

1. If needed, place patrol vehicles in area(s) affected. Patrol vehicles will have emergency lights engaged.
2. Maintain communication with the weather observer, NWS weather service station personnel and other predictive services.
3. Local law enforcement will be notified if the need for law enforcement personnel is needed for traffic control.
4. If needed, the burn will be terminated.

Potential Hazards & Measures To Be Taken to Reduce Hazards – Identify potential hazards to the public (other than areas identified through smoke screening) and crew in and around the burn unit and explain how those hazards will be mitigated.

Example:
Public safety: The property has a gated access road, which provides public entry by pedestrians. Signs indicating active burning will be posted to inform passersby.

Crew safety: All personnel will have full PPE and meet NH Rx Fire Council or NWCG qualifications for the position they are assigned to as well as having had annual safety refresher training and physical fitness testing. Team member rotation, in and out of heavy smoke areas, will be considered and monitored by the Burn Boss.

Stay ahead of the hydration curve to prevent dehydration/heat exhaustion. Inform your squad boss if you need to rotate out of smoke or take a break to cool down. Report any injury/illness immediately to next in command.

Be mindful of hazardous footing on firebreaks, and particularly inside the unit (stump holes, animal dens). Conduct a thorough tick-check after the burn due to Lyme disease hazard.

Brush breakers, tenders and engines will be on site, all of which have limited visibility, so care must be taken when working near this equipment.

With northwest winds, the power lines could be impacted if smoke density is high, creating the potential for arcing from smoke. If burning under a NW wind, ignition will be managed to prevent excessive smoke contact with the power lines on the eastern fire break.

Escape Routes and Safety Zones – Described escape routes and safety zones in case of an emergency. These should also be included on the burn unit map. Ensure that burn crew understand where escape routes and safety zones are located on the day of the burn.

Nearby Emergency Facilities – List nearby emergency facilities as directed. The Burn Boss and Crew Bosses should know how to reach those facilities by vehicle prior to the day of the burn.

Weather Monitoring - Discuss how weather will be monitored to ensure conditions are within set parameters. Refer to Chapter 12 for more information on weather monitoring.

Example: Local forecasting (NOAA weather channel) provides the necessary information to determine a potential burn day. The Burn Boss will monitor this along with other prescription elements. He will also monitor weather issued by the NH Division of Forest and Lands (NHDFL), and a fire weather forecast issued by the National Weather Service (NWS) Office, Gray, ME. Real time weather information for Concord, NH may be obtained at http://iwin.nws.noaa.gov/iwin/nh/nh.html. Also, the Concord Municipal Airport (CMA) has an automated weather station within unit A12, which can be accessed through radio frequency 132.32 or by calling 603-224-6558.

On the burn day(s) the Burn Boss (or as assigned) will obtain a spot weather forecast from the NWS. Also, site-specific weather will be monitored using a belt weather kit and Kestral 3500. This will include smoke direction and dispersal to ensure smoke sensitive areas are not being impacted. This will be done prior to ignition and every 30 minutes thereafter. The Burn Boss will monitor the NOAA weather channel every two hours to ensure conditions are as forecasted or planned for.

Public/Abutter Notification – Describe actions taken to notify the public and abutters about the burn. This should include notifications prior to the burn and required notifications the day of the burn, including contact information for the later. Refer to Chapter 11 for more information.

Pre-burn Go/No Go Checklist - Every Burn Boss should complete a new pre-burn (go/no-go) checklist prior to igniting a prescribed fire. The go/no-go checklist helps the Burn Boss evaluate whether conditions of the approved burn plan have been met prior to igniting a prescribed fire. If the conditions in the field do not meet those prescribed in the plan, the burn should be abandoned for the day.