

SELECTING YOUR BURN DAY TO MEET SITE OBJECTIVES AND MANAGEMENT REQUIREMENTS

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1. Identify Your Site Objectives and Requirements

Ecological Characteristics and Resource Needs generally justify the investment in the burn. Start by recognizing the landscape disturbance pattern, identifying goals for species and structure patterns, and incorporating other objectives (fuel reduction, invasives control) as specified.



Common Sense Control & Safety Requirements are your social compact with the burn crew and the public at large. Evaluate potential impacts to residents and transportation corridors. Will these factors limit the wind direction or burn duration?



"Good Neighbor" Constraints ensure that burning will be supported in the community. Identify values at risk in and around the burn to plan for their protection. Document competing uses and avoid conflicts with



2. Frame Your Prescription

Season of the Burn Though fires have

burned these landscapes under many conditions, desired fire effects, as suggested by the table to the right, may dictate a dormant or growing season burn.

Frequency and Timing

Ecosystems needing restoration may require frequent burns. Each species of interest will have a characteristic reproductive phenology that may limit timing of the burn. Review fire's role in the "Fire Effects Information System," fs.fed.us/database/feis

Management Interest Other factors, such as rare and endangered species protections or invasives control, may dictate modified prescriptions. Fuel hazard reduction and other use conflicts may not be related to the

ecological factors above.

| | April-May | July-Aug | Sept | Oct-Nov | |
|-----------------------|-----------|----------|------------|------------|--|
| Grasses and sedges | | | | | |
| Warm season | 1 | 1 | \iff | 1 | |
| Cool season | 1 | 1 | 1 | ↓ ? | |
| Forbs | | | | | |
| Early-flowering forbs | 1 | 1 | 1 | ↓ ? | |
| Mid-flowering forbs | 1 | 1 ? | 1 | 1? | |
| Late-flowering forbs | 1 | 1 | 1 ? | 1 ? | |
| Legumes (Fabaceae) | 1 | 1? | 1 ? | 1 | |

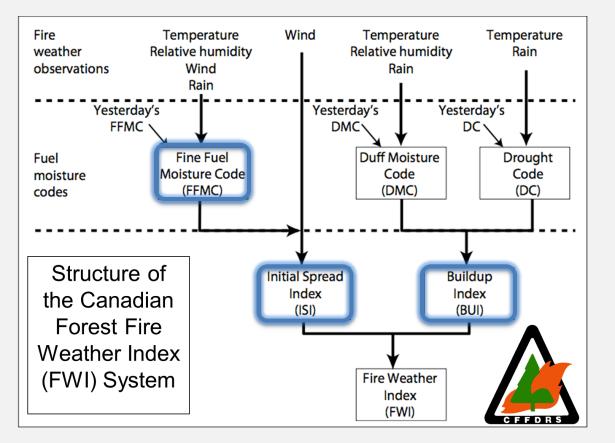
Fire Effects Information System (FEIS)-now spatially searchable FEIS synthesizes research about more than 1,200 plants (including invasives), animals, and lichens in the United States-biology, ecology, & relationship to fire. "Regular" home at www.fs.fed.us/database/feis Test the new user interface at feis-crs.org/beta

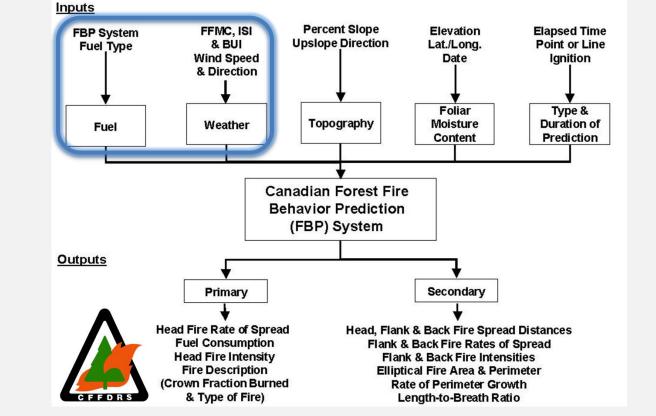




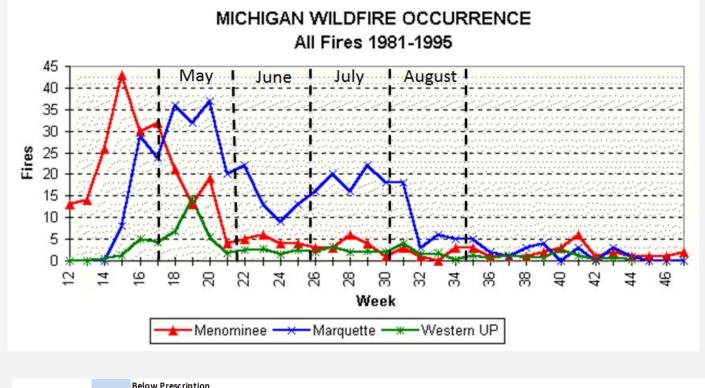
3. Frame Fire Behavior for Your Prescription

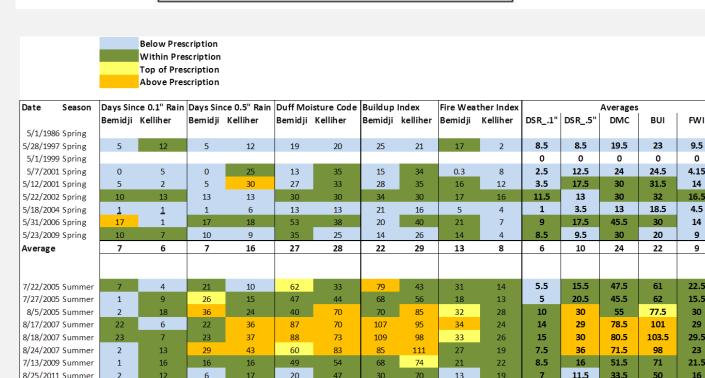
Canadian Forest Fire Danger Rating System





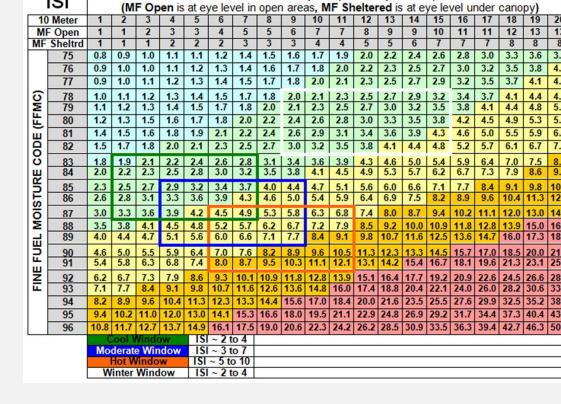
Is the prescription in the local fire history?

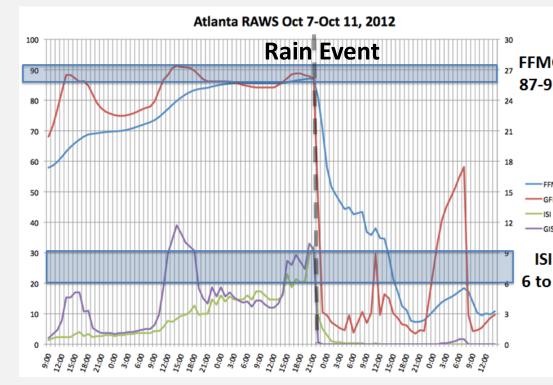




- A review of past wildfires and prescribed burns provides insight as the prescription is
- Learn about the seasonal trends for overall fire activity (graph to left) and identify which ecosystems burned under those conditions to suggest what is possible.
- Examine the local climatology to determine whether the window occurs frequently enough for sufficient opportunities to burn.
- Assess Burn severity to identify the changes that directly result from the fire. Tree and shrub mortality and duff reduction, among others effects, are a basis for evaluating the prescription and burn day conditions.
- Monitor individual burns in ongoing programs to compare the prescription limits and burn day conditions (table to left). Identify possible issues in the go-no go process and any need to alter the prescription.

Ignition and Spread



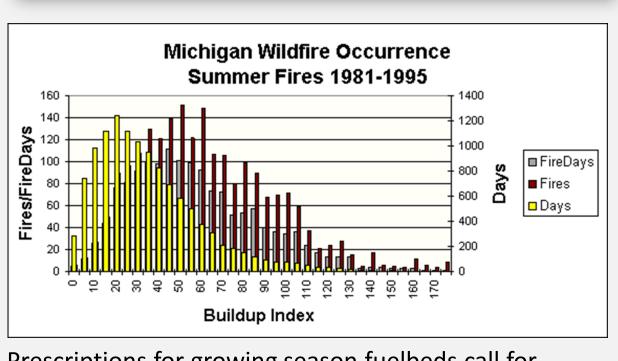


Fine Fuel Moisture Code (FFMC), Windspeed, and Initial Spread Index (ISI) combine to frame the daily and hourly variation in fire ignition and spread potential. The "Cool", "Moderate", and "Hot" windows identified above are subjective depictions of the current weather's contribution to fire behavior for a variable landscape as a whole.

| SUMMER SEASON PRESCRIPTION PARAMETERS | | | | | | | | | | |
|---------------------------------------|-------------------------------|------|------|------|---------|------|-------|--|--|--|
| Fuel Types: S1, C3 Fire Type: Head | | | | | | | | | | |
| FFMC | WIND SPEED: Eye Level (20 ft) | | | | | | | | | |
| TTIMO | Output: ISI | | | | | | | | | |
| | 2(3) | 3(5) | 4(6) | 5(7) | 5(8) | 6(9) | 7(10) | | | |
| 87 | | 4.2 | 4.5 | 4.9 | 5.3 | 5.8 | 6.3 | | | |
| 88 | 4.1 | 4.8 | 5.2 | 5.7 | 6.2 | 6.7 | 7.2 | | | |
| 89 | 4.7 | 5.6 | 6 | 6.6 | 7.1 | 7.7 | 8.4 | | | |
| 90 | 5.5 | 6.4 | 7 | 7.6 | 8.2 | 8.9 | 9.6 | | | |
| 91 | 6.3 | 7.4 | 8 | 8.7 | 9.5 | | | | | |
| 92 | 7.3 | 8.6 | 9.3 | | | | | | | |
| OTHER | OTHER LIMITS | | | JM | MAXIMUM | | | | | |
| ISI | | 4 | | 10 | | | | | | |
| FL | | | | 12 | | | | | | |
| BUI | | | | | 70 | | | | | |

Fuelbed Flammability





Prescriptions for growing season fuelbeds call for parameters that can characterize the effect of cumulative rainfall deficits and excessive evapotranspiration on living grasses, forbs, and shrub fuels as well as the duff and litter fuels beneath them. As shown in the graph above, summer fire occurrence in Michigan correlates well with **Buildup Index** (BUI), a code that is calculated each day.

The Burn Prescription

The prescription table to the left provides a fairly comprehensive prescription. It includes:

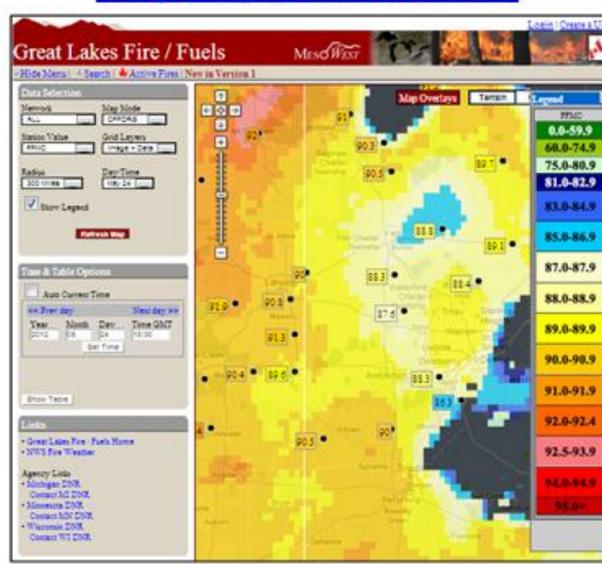
- The season of the burn (Summer) and the fuels of interest, S1-pine slash & C3-mature pine here. An acceptable range of current temperature/
- humidity/rainfall effects using FFMC (87-92). Acceptable fire spread potential, characterized by integrating FFMC and Windspeed and identifying
- the limits for ISI. Note ISI limits of 4 to 10 here. BUI to evaluating potential burn severity and fire effects. Note the maximum limit of 70 in this case.

4. Select Your Burn Day

Leverage the Weather Forecast

Great Lakes Fire /Fuels

http://glffc.utah.edu



NWS Fire Weather http://www.weather.gov/fire



Prescription parameters aid in selecting the day, the time period, and the ignition methods for the burn. They need to be forecasted for the days and periods being considered. Forecasts for FFMC, Windspeed (Wspd), ISI, and BUI are available and updated 4 times each day. Example forecasts for 5/24 and 5/25 shown in blue

| Station | Date | temb † | KII | w spu | rcp | PPWIC | DIVIC | | 101 | BOI | L. W.I | DSK | PDR(Fille) |
|------------------|-------------------------------------|----------------|----------------|----------------|----------------|----------------------|----------------|-------------------|--------------------|----------------|----------------|--------------|-------------------------------------|
| HIGH BRIDGE | 2012/5/25 2012/5/24 2012/5/23 | 71 77 70 | 45 41 39 | 11 16 14 | 0.17 0 0 | 76 89.8 89.2 | 38 50 45 | 190 191 184 | 2 15.2 11.9 | 50 60 56 | 6 32 27 | 1 13 9 | Moderate Very High Very High |
| REXTON | 2012/5/25 | 68 | 54 | 11 | 0 | 88.7 | 60 | 198 | 8.7 | 68 | 24 | 7 | Very High |
| | 2012/5/24 | 81 | 38 | 11 | 0 | 90.5 | 58 | 192 | 11.3 | 66 | 28 | 10 | Very High |
| | 2012/5/23 | 71 | 44 | 10 | 0 | 88.4 | 53 | 185 | 7.7 | 62 | 20 | 6 | High |
| SENEY | 2012/5/25 | 75 | 34 | 10 | 0.03 | 90 | 75 | 235 | 9.6 | 83 | 28 | 10 | Very High |
| | 2012/5/24 | 78 | 39 | 26 | 0 | 90.3 | 71 | 228 | 36.8 | 80 | 65 | 44 | Very High |
| | 2012/5/23 | 72 | 37 | 16 | 0 | 90.2 | 66 | 221 | 16.3 | 76 | 38 | 17 | Very High |
| <u>RACO</u> | 2012/5/25 | 71 | 40 | 13 | 0 | 91.2 | 56 | 207 | 14.7 | 67 | 33 | 14 | Very High |
| | 2012/5/24 | 82 | 30 | 15 | 0 | 92.3 | 52 | 200 | 20 | 63 | 40 | 19 | Extreme |
| | 2012/5/23 | 74 | 32 | 13 | 0 | 90.2 | 47 | 193 | 12.7 | 58 | 28 | 10 | Very High |
| SPINCICH LAKE | 2012/5/25 2012/5/24 2012/5/23 | 75 79 74 | 35 36 37 | 6 15 6 | 0 0 0 | 91.7 91.7 91.7 | 67 63 58 | 200 193 186 | 8.9 18.6 8.9 | 73 69 65 | 25 40 24 | 8 18 7 | Very High Very High Very High |

5. The Go/No Go Decision: A Continuous Process

Assess onsite weather and fuels by comparing local forecast and burn prescription before igniting

any fuels to establish the "Go"

prospect.

Conduct a test burn to calibrate fire behavior with prescription predictions and confirm a "Go" decision.



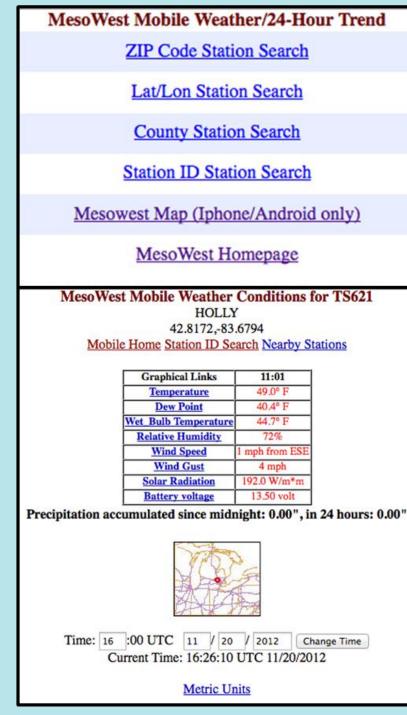
Observe fire behavior, anticipate changes and compare with prescription to validate the "Go" decision and adjust ignition as needed.



Continue monitoring onsite weather and track weather forecasts throughout ignition process to validate your decisions



http://mesowest.utah.edu/h tml/mobile/mobile.html



Should you continue burning? Ensure your ability to stop the burn effectively based on your assessment at any point in time.