

## Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

**Modeler:** William A. Patterson III

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**PNVG Code:** NESF

**Potential Natural Vegetation Group:** NE Spruce-Fir Forest (Kuchler PNV #96)

**Geographic Area:** Maine, New Hampshire, Vermont and the Adirondacks of New York.

**Description:** Mesic to somewhat xeric sites over a broad range of topographic conditions including ravines, valley flats, sheltered low ridges, open north-facing slopes at high elevations, and steep, exposed slopes. Soils are usually acidic and species diversity tends to be low. The characteristic species are eastern red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*). Common, early-seral associates are paper birch (*Betula papyrifera*) and aspen (*Populus tremuloides* and *P. grandidentata*). Other common associates include sugar maple (*Acer saccharum*), yellow birch (*Betula allegheniensis*), beech (*Fagus grandifolia*), hemlock (*Tsuga Canadensis*), striped maple (*A. pensylvanicum*), red maple (*A. rubrum*), mountain maple (*A. spicatum*).

**Fire Regime Description:** Fire Regime Group V. Fire disturbances are severe and affect large patch sizes but are rare, at 150- to 300-year intervals. Fire may occur in the spring or later in the growing season under drought conditions, with the former favoring a pathway to early successional aspen-birch with less spruce-fir regeneration. Wind events, insect attack and ice storms - on a small patch to stand scale - are more important than fire, although they may predispose the forest to fire.

### Vegetation Type and Structure

| Class*                       | Percent of Landscape | Description  |
|------------------------------|----------------------|--|
| <b>A:</b> early seral open   | 5                    | Young stands characterized by paper and gray birch, trembling and big-tooth aspen and red spruce and fir in the understory; less than 10 yrs old   |
| <b>B:</b> mid-seral closed   | 10                   | Without fire. Intermediate stand dominated by paper birch and aspen with red spruce and fir in the understory; 10 – 70 yrs old   |
| <b>C:</b> early- seral open  | 10                   | Following fire in A. Young stands characterized by paper and gray birch, trembling and big-tooth aspen; without red spruce and fir in the understory; less than 10 yrs old.  |
| <b>D:</b> mid- seral closed  | 15                   | Without fire in B. Intermediate stand dominated by aspen and birch, initially without spruce and fir in the understory; spruce/fir invade beginning at age 30-70 yrs. 10-70 yrs old.   |
| <b>E:</b> late- seral closed | 60                   | Without fire in B or D. Closed spruce/fir stand 70-175 years. Fir drops out after age 70-100. Following small to large blow downs, regenerates to spruce/fir without fire or aspen birch (A or C) with fire. Spruce budworm also predisposes to fire (A or C), although will regenerate to D without fire. |
| Total                        | 100                  |  |

### Fire Frequency and Severity

| Fire Severity        | Frequency (yrs) | Probability | Percent,<br>All Fires | Description |
|----------------------|-----------------|-------------|-----------------------|-------------|
| Replacement Fire     | 175             | .0057       | 100                   |             |
| Non-Replacement Fire | none            | 0           | 0                     |             |
| All Fire Frequency*  | 175             | .0057       | 100                   |             |

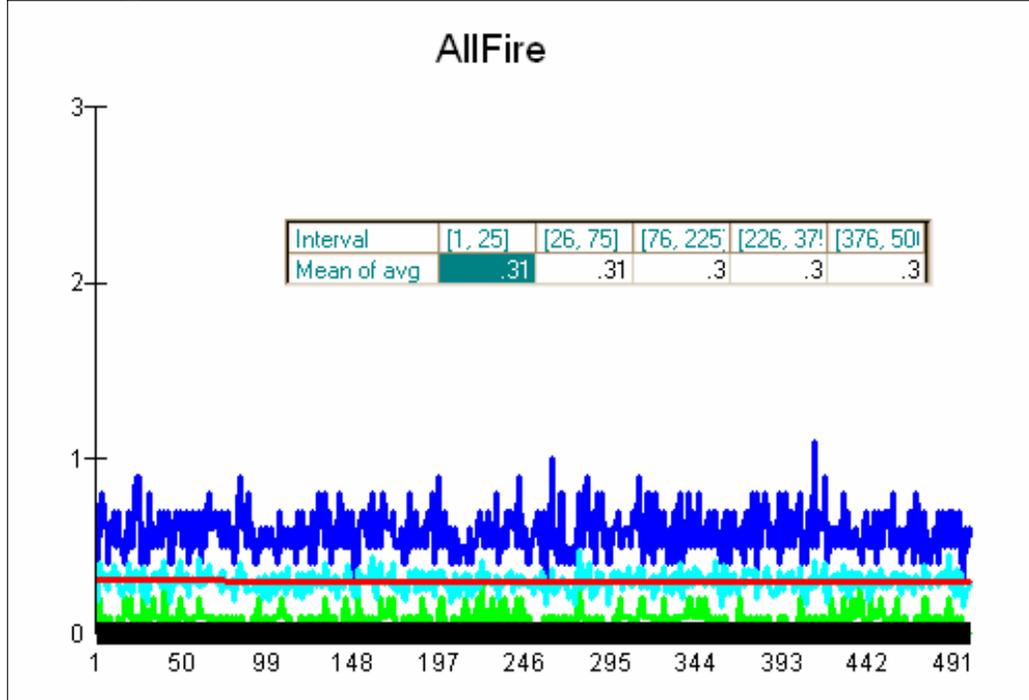
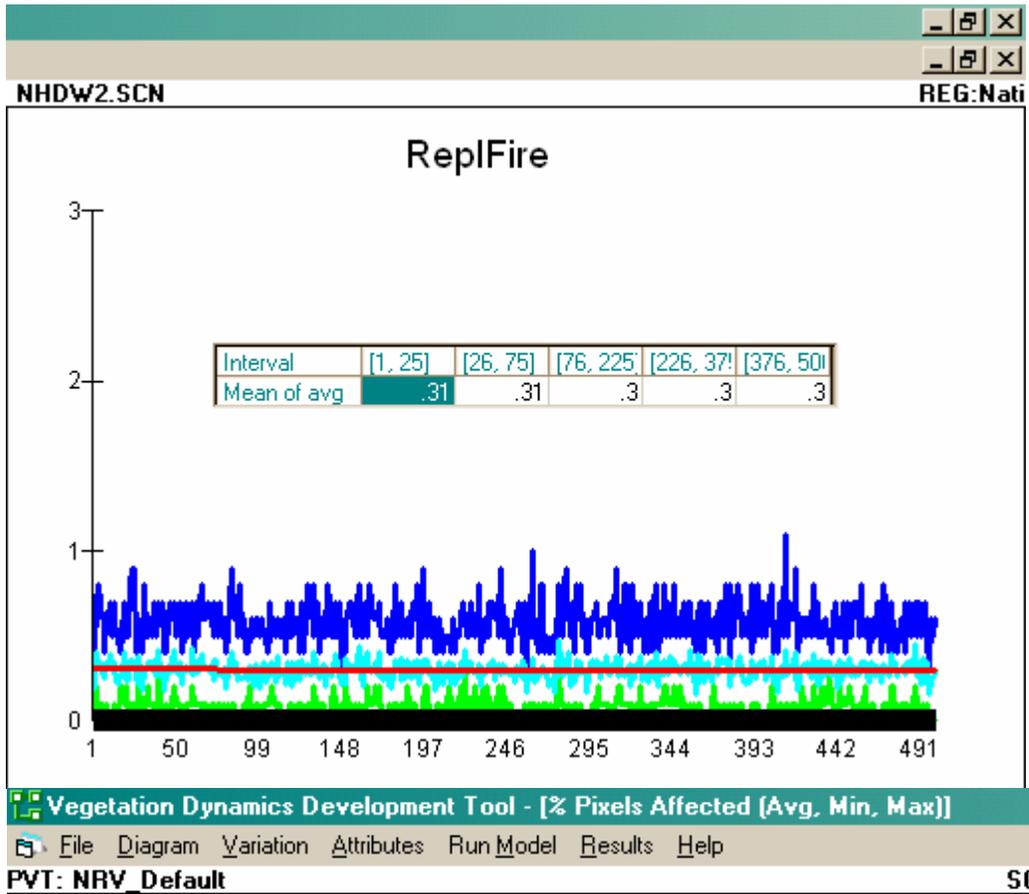
\*All Fire Probability = sum of replacement fire and non-replacement fire probabilities. All Fire Frequency = inverse of all fire probability (previous calculation).

*Assumptions:* Lightning-caused fire was rare but more important inland than along the coast.

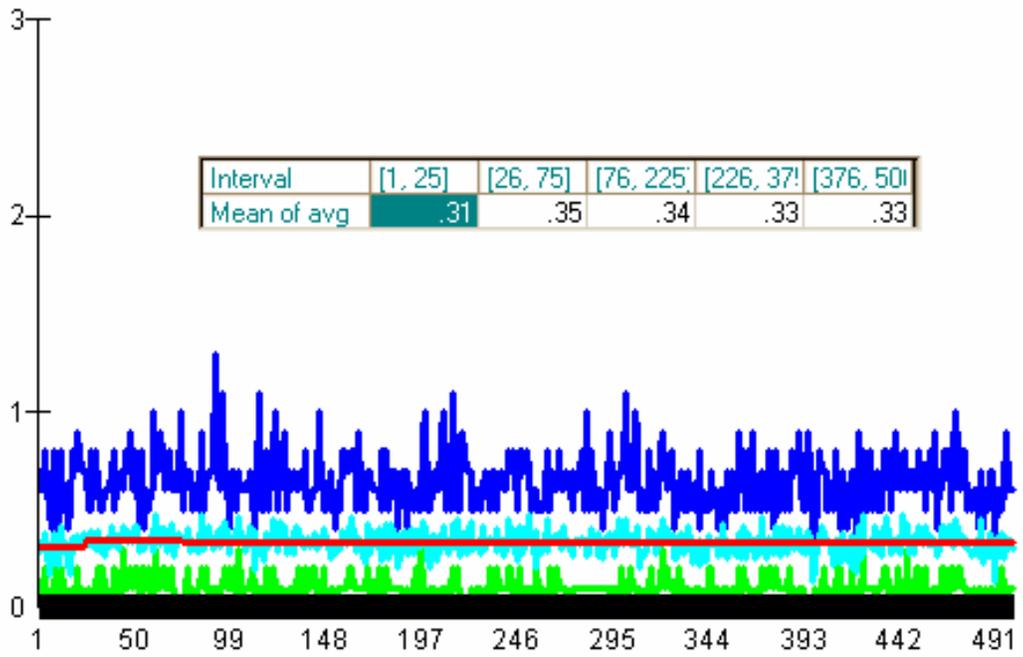
### References

- Brown, James K.; Smith, Jane Kapler, eds. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 p.
- Kuchler, A.W. 1964. Northern hardwoods (*Acer-Betula-Fagus-Tsuga*). #106 In: Manual to accompany the map Potential Natural Vegetation of the United States. New York, NY: The American Geographical Society. 156 p.
- Patterson, W. A. III, K. E. Saunders and L. J. Horton. 1983. Fire Regimes of the Coastal Maine Forests of Acadia National Park. USDI/NPS - North Atlantic Region Office of Scientific Studies Report OSS 83-3. 259 pp.
- U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, December). Fire Effects Information System, [Online 12 February 2004]. Available: <http://www.fs.fed.us/database/feis/>.

VDDT File Documentation



### WindWethStres



Init. Conds. | Years: 500 | MC: 10 | Attributes | Dist. Mult. | Annual Mult. | Landscape Mult. | Feedback Mult.