

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

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Potential Natural Vegetation Group: Beech-Maple

Geographic Area: This forest type occurs in the northern tier of eastern states extending into southern Canada (southern Ontario). It spans from southern New England westward to the western extent of beech.

Description: The overstory of this forest type is dominated by sugar maple and beech. It typically occurs on fertile upland sites, preferring circumneutral, well- to moderately well-drained loams and silt loams. These are rich terrestrial ecosystems high in species richness and diversity and structural diversity.

Fire Regime Description: Fire regime V. Comprised of fire-sensitive species, this forest type occurred on those portions of the landscape protected by fire, including mesic uplands, ravines, coves, toeslopes. Wind disturbance was probably the main disturbance factor. Canopy disturbances are frequent but of low intensity, often forming single- or small, multiple-tree gaps. Indeed, gap-phase regeneration dominated these long-lived systems. Reciprocal replacement has been suggested for this forest type, whereby sugar maple established under beech and beech under sugar maple (Fox 1977, Woods 1979).

Vegetation Type and Structure

Class*	Percent of Landscape	Description
A: early-seral all	5	Young stand characterized by yellow birch, aspen, and red maple; < 20 years old.
B: mid-seral closed	20	Intermediate stand characterized by northern red oak and red maple, 20 - 100 yrs old
C late-seral closed	75	Mature sugar maple and Beech stand
Total	100	

*Formal codes for classes A-E are: AESP, BMSC, CMSO, DLSO, and ELSC, respectively.

Fire Frequency and Severity

Fire Severity	Fire Frequency (yrs)	Probability	Percent, All Fires	Description
Replacement Fire	1400	.0007	100	
Non-Replacement Fire				
All Fire Frequency*	1400	.0007	100	

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

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.

Fox, J.F. 1977. Alternation and coexistence of tree species. *American Naturalist* 111:69-89.

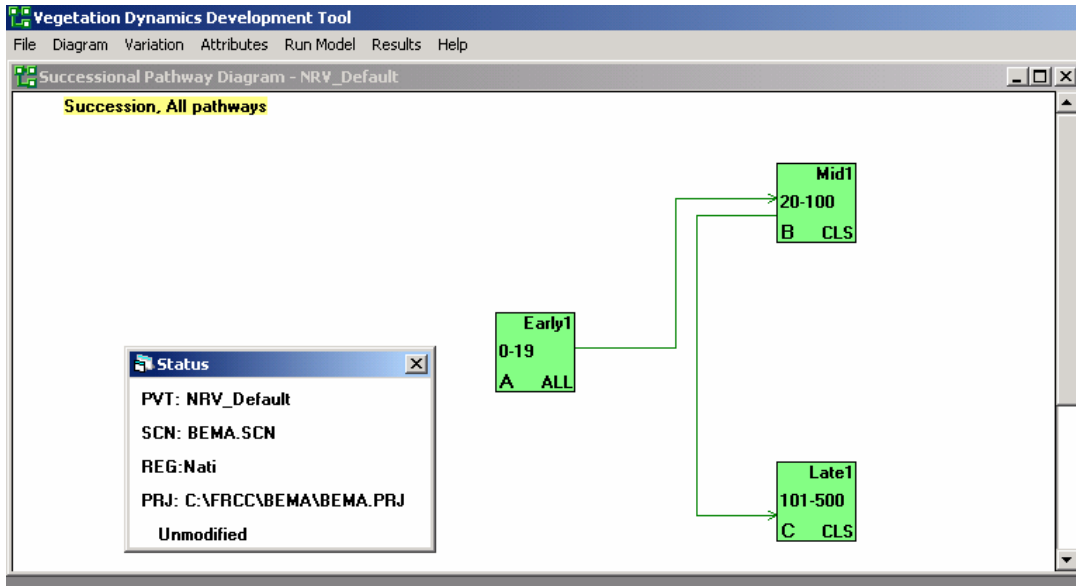
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Tech. Rep. RMRS-GTR-87. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 41 p. + CD.

U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, December). Fire Effects Information System, [Online]. Available: <http://www.fs.fed.us/database/feis/>.

Woods, K.D. 1979. Reciprocal replacement and the maintenance of codominance in a beech-maple forest. *Oikos* 33:31-39.

VDDT File Documentation: Model BEMA located in C:/FCCC/BEMA. Load VDDT text files into C:/FCCC for project file to work. Diagram shows succession only.



Disturbance probabilities by class: VDDT model NHF1

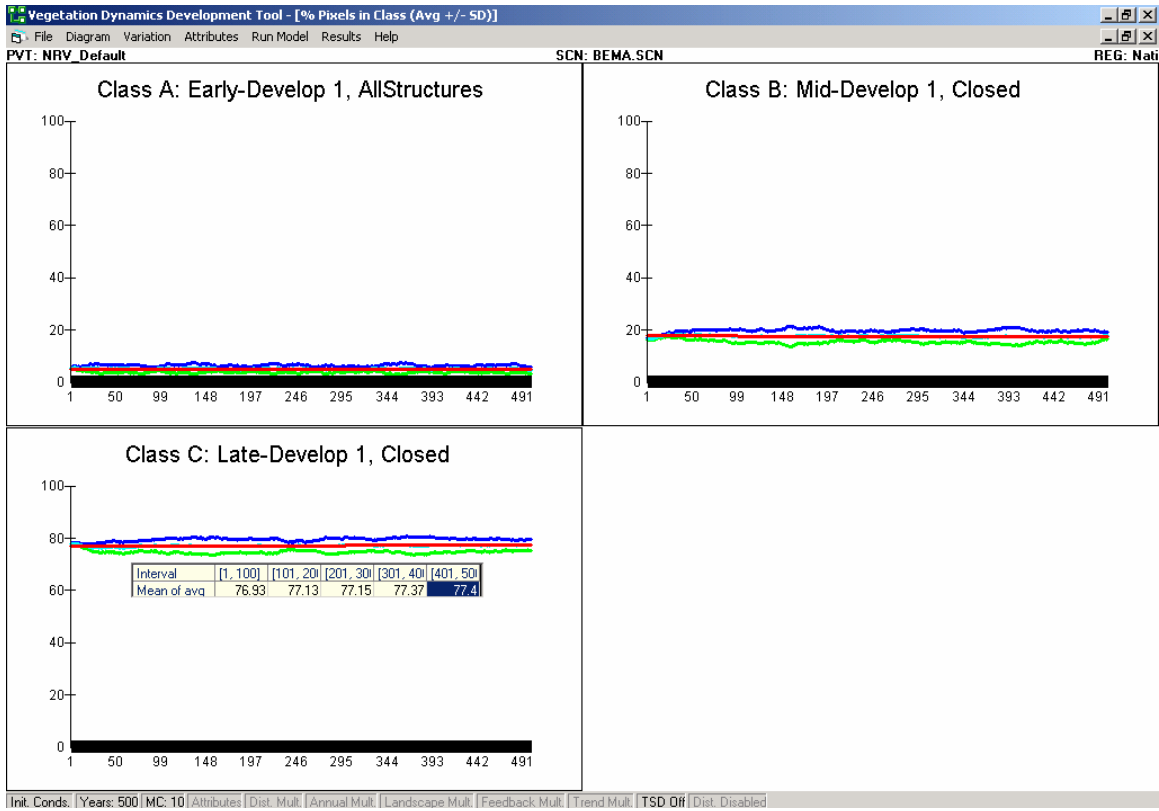
Class	To	Agent	Prob	TSD	Freq/ FRI	Rel Age
A	A	Replacement fire	.005	0	100	-20
A	A	Wind/weather/stress	.001	0	1000	0
B	A	Replacement fire	.0005	0	2000	0
B	A	Wind/weather/stress	.002	0	500	0
C	A	Replacement fire	.0005	0	2000	0
C	B	Wind/weather/stress	.002	500	1000	0

Class A - Young early seral: Replacement fire more prevalent due to fuels from wind events.

Class B - mid-seral: Replacement fire very rare and a result of long extended drought. Catastrophic wind events occur on approximately a 500 year rotation.

Class C - late-seral: Same as B. Small gap-scale disturbances maintain this condition.

Per cent acres by class: Based on a 500 year projection. Average value + or - 2 SD's



Replacement fire disturbance rate is .07%/yr (1400 yr rotation); Windthrow rate is 0.19% (525 yr rotation).

