****DRAFT****

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: Mike Schafale **Date: May 3, 2004** **PNVG Code: SMAR**

Potential Natural Vegetation Group: Tidal Brackish to Freshwater Marshes
Geographic Area: Southeast Virginia to Texas (possibly farther north)

Description: Very wet flats along edges of estuaries, lagoons, and along tidally influenced rivers, flooded regularly or irregularly by lunar or wind tides. The water may brackish, oligohaline, or fully fresh. This model applies only to larger expanses of marsh connected to other land areas. Small or isolated marsh patches may have no ignition source and not be subject to natural fire.

Vegetation consists of dense herbaceous vegetation, usually dominated by large grass-like plants. Brackish marshes are usually strongly dominated by black needlerush (*Juncus roemerianus*). Oligohaline marshes may be dominated by giant cordgrass (*Spartina cynosuroides*), sawgrass (*Cladium jamaicense*), cattails (*Typha domingensis, Typha angustifolia, Typha latifolia*), or a mixture of smaller graminoids and forbs. Freshwater marshes may also be dominated by diverse mixtures of plants but may contain more forbs. Oligohaline to fresh marshes may contain sparse trees, or may have patches with young trees and shrubs that have grown up where fire has been absent. Brackish marshes are inhospitable to most woody plants and may stagnate in a condition of herbaceous dominance without shrub invasion.

Uncharacteristic vegetation includes marshes that have gone so long without fire that shrubs or trees have become robust. If burned, this vegetation may resemble natural early postfire vegetation, but sprouting is more vigorous and shrub dominance returns more quickly. Marshes dominated by the invasive *Phragmites australis* are also uncharacteristic; though they superficially resemble natural structure, wildlife usage apparently is different.

This model may apply to salt marshes as well.

Fire Regime Description: Fires are generally moderate in intensity, consuming the above-ground herbaceous vegetation and top-killing the woody plants. This model represents an average of widely varying fire regimes, because probability of ignition is affected strongly by the presence of open water channels, the presence or absence of connection to uplands, and the nature of adjacent upland vegetation. All fires are replacement fires for above-ground vegetation.

Vegetation Type and Structure

Class*	Percent of Landscape	Description
A: early seral	50	Recently burned marshes. Diverse herb layer including many smaller herbs; little litter buildup.
B: mid-seral	35	Dense herb layer dominated by larger species, with heavy litter buildup .
E: late- seral	15	Dense herb layer dominated by larger species, with heavy litter buildup, with invading shrubs and trees where salinity permits.
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	5 years	.2	99	Moderate to intense surface fires
Non-replacement fire	almost never	0.0001	1	
All Fire Frequency*	5	.2	100	

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

Model assumptions:
This model represents and average behavior of marshes that are well connected to flammable vegetation and hence have high probability of ignition. More isolated marshes or patches within marshes will have less frequent fire. Some marshes will not burn at all.

Woody invasion is strongly subject to effects of salinity. In brackish marshes, state E may not be different from state B.

All woody species are top-killed in all fires. Under reference conditions, woody species must reestablish from seed or from small, non-vigorous sprouts. Marshes that have burned little and have robust woody vegetation may return to state E more quickly after a single fire.

Explanation/justification of non-standard classes:
Marshes have essentially no vegetation whose above-ground parts can survive fire. All fires are replacement fires, making fire effects simple. However, the natural frequency of fire in marshes is complex due to barriers to fire spread.

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.

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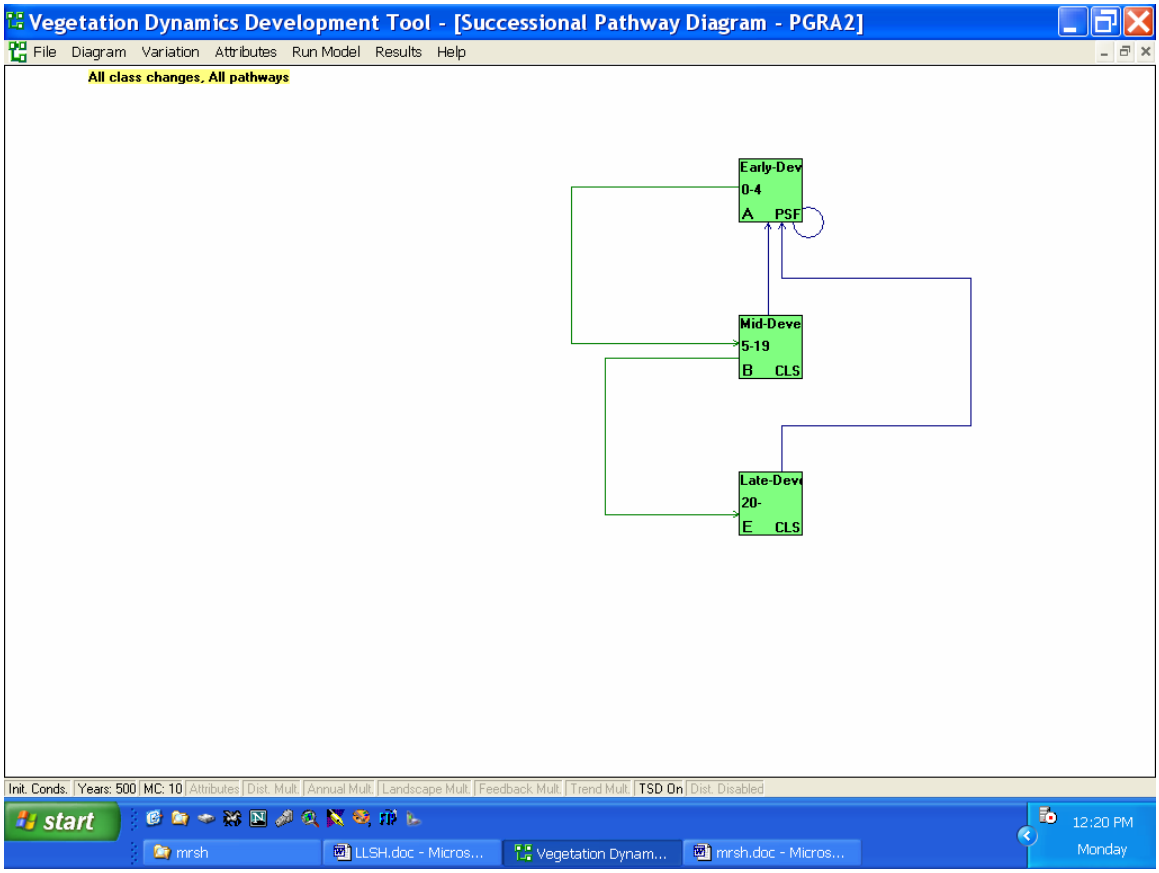
PERSONAL COMMUNICATION (if applicable):

VDDT File Documentation
Include screen captures (print-screens) from any of the VDDT graphs that were used to develop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B CLS
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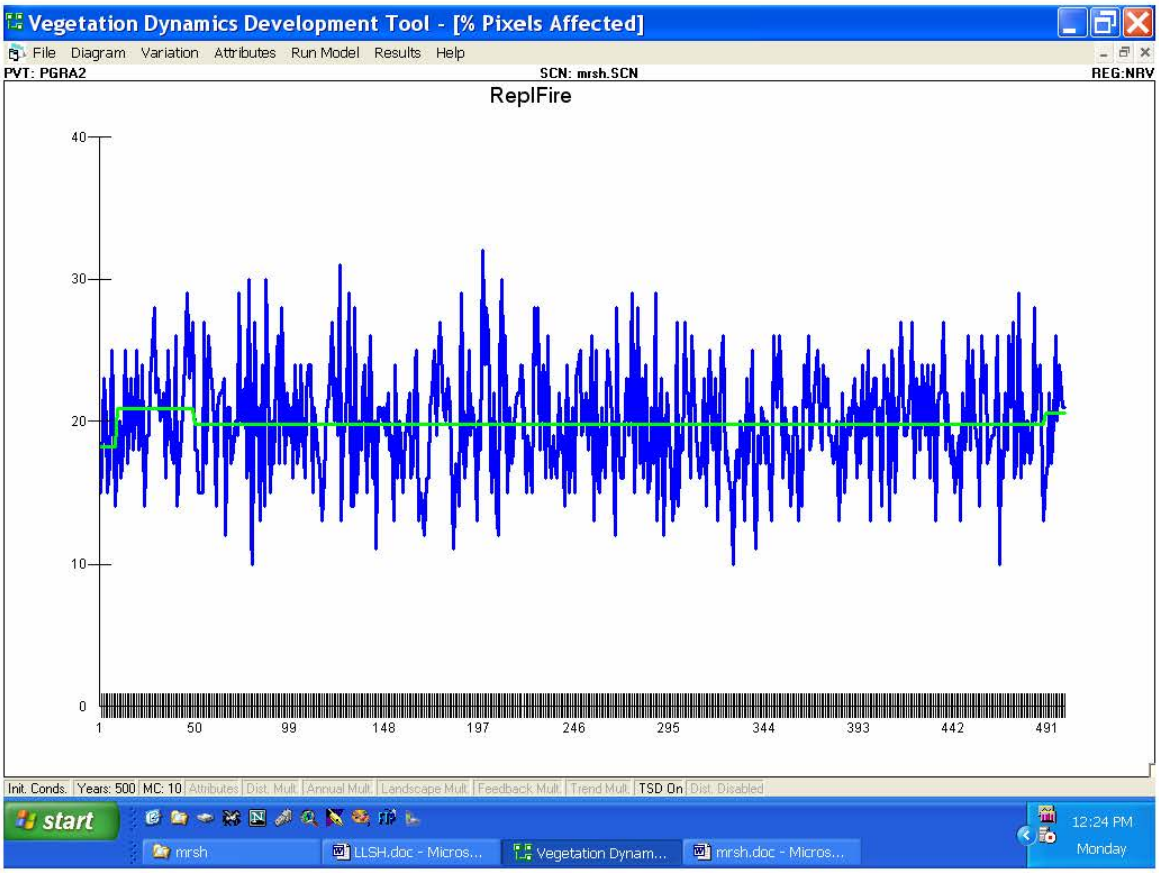
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SCN: mrsh.SCN
REG:NRV
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