****DRAFT****

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: Mike Schafale **Date: June 3, 2004** **PNVG Code: AWPS**

Potential Natural Vegetation Group: Atlantic Wet Pine Savannas

Geographic Area: Southeastern Virginia to Georgia

Description: Wet woodlands/savannas on wet mineral soils. Canopy dominated by Pinus palustris, sometimes mixed with Pinus serotina. There is generally little or no understory in reference condition, but a variety of hardwoods may occur with infrequent fire. The ground cover is dense and generally diverse. Grasses such as Aristida stricta, Sporobolus pinetorum, Ctenium aromaticum, and Sporobolus teretifolius dominate, and a large number of other grasses, sedges, and forbs including insectivorous plants are present. Shrubs are of fairly low density in reference condition but can become dense with fire exclusion.

Canopy trees are patchy in distribution, with regeneration in canopy gaps of ¼ acre or less in size, mid-successional clumps in similar size patches, and the oldest trees occurring as isolated individuals. The reference condition classes are aggregates of numerous patches well dispersed over the landscape. Canopy gaps are created by fire mortality, lightning, and wind throw at the scale of individual trees or several trees. Because of the irregular seed production of longleaf pine, canopy gaps may lack regeneration for several years.

This PNVG is distinguished from other longleaf pine-dominated by the presence of wetland herbs and shrubs. It includes the wet pine flatwoods of the Carolinas but not the Serenoa repens-containing flatwoods of the Gulf Coast region. It is abundant on remaining natural lands in the outer and middle Coastal Plain and occurs in small patches in the Fall Line Sandhills region.

Uncharacteristic vegetation types include even-aged canopy stands in which age structure has been homogenized by logging or clearing, examples where loblolly or slash pine have replaced some or all of the longleaf pine, examples where shrubs have become dense due to inadequate burning, and examples where the grass-dominated ground cover has been lost due to soil disturbance or past canopy closure. Full restoration to reference condition may take a number of burns, and may take many years if older trees are not present, but fire produces substantial ecological benefits before full restoration.

Fire Regime Description: Frequent surface fires, every 2-5 years, generally burn across large expanses. Fires are usually low intensity overall but will occasionally kill young regeneration patches and rarely kill individual older trees. Replacement fires in this model represent small patch mortality occurring in the context of extensive low intensity fires, rather than extensive stand replacement. Mosaic fire in the model represents the probability of a series of surface fires sufficient to move closed vegetation to open; single fires are generally ineffective.

Vegetation Type and Structure

Class*	Percent of Landscape	Description
A: canopy gaps	16	Canopy gaps, most single tree to quarter acre size, with pine regeneration up to 15 years old or lacking pine regeneration

		because no mast year has occurred since the gap opened. Native grassy ground cover dominated by Aristida stricta. Tree cover 0 to 50%.
B: middle-aged canopy with shrubs	4	Patches, mostly ¼ acre or less, with canopy pines 15-75 years old, with a substantial component of mid-story hardwoods or of shrubs encroaching in the absence of fire. Hardwood/shrub cover greater than 50%. Canopy pine cover 25-75%.
C: middle-aged canopy with herbs	38	Patches, most ¼ acre or less, with canopy pines 15-75 years old, with little hardwood component and only sparse shrubs due to frequent fire. Aristida stricta-dominated ground cover. Canopy pine cover 25-75%.
D: old canopy with herbs	39	Patches, most ¼ acre or less, with canopy pines 75 or more years old, with little hardwood component and only sparse shrubs due to frequent fire. Aristida stricta-dominated ground cover. Canopy pine cover 25-75%.
E: old canopy with shrubs	3	Patches with canopy pines 75 or more years old, with a substantial component of hardwoods and/or shrubs in either the overstory or understory. Ground cover shrubby or sparse. Hardwood/shrub cover greater than 50%.
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	100	.01	3%	Most replacement is in class A. Older pines are very fire-resistant and mortality is uncommon.
Non-Replacement Fire	3	.29	97%	Low intensity surface fires in all classes.
All Fire Frequency*	3	.30	100	

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

Modeling Assumptions:

Primary dynamic is the gap phase regeneration of longleaf pine. The model classes are small patches widely interspersed on the landscape. Replacement means death of longleaf pines as single trees or small clumps.

Most replacement fires occur in the earliest stage (class A). Older trees are very resilient to fire.

Secondary dynamic (closed vs. open path) is the invasion of shrubs and hardwood trees in patches that escape fire.

Once shrubs are established, they slightly decrease probability of fire, but increase the probability that fires will kill the canopy pines.

Once established, shrubs are not easily eliminated by single fires, but may sometimes be eliminated by multiple fires. We have simulated this by using mosaic fire to represent the last of a series of surface fires that eliminates invading hardwoods without killing canopy pines.

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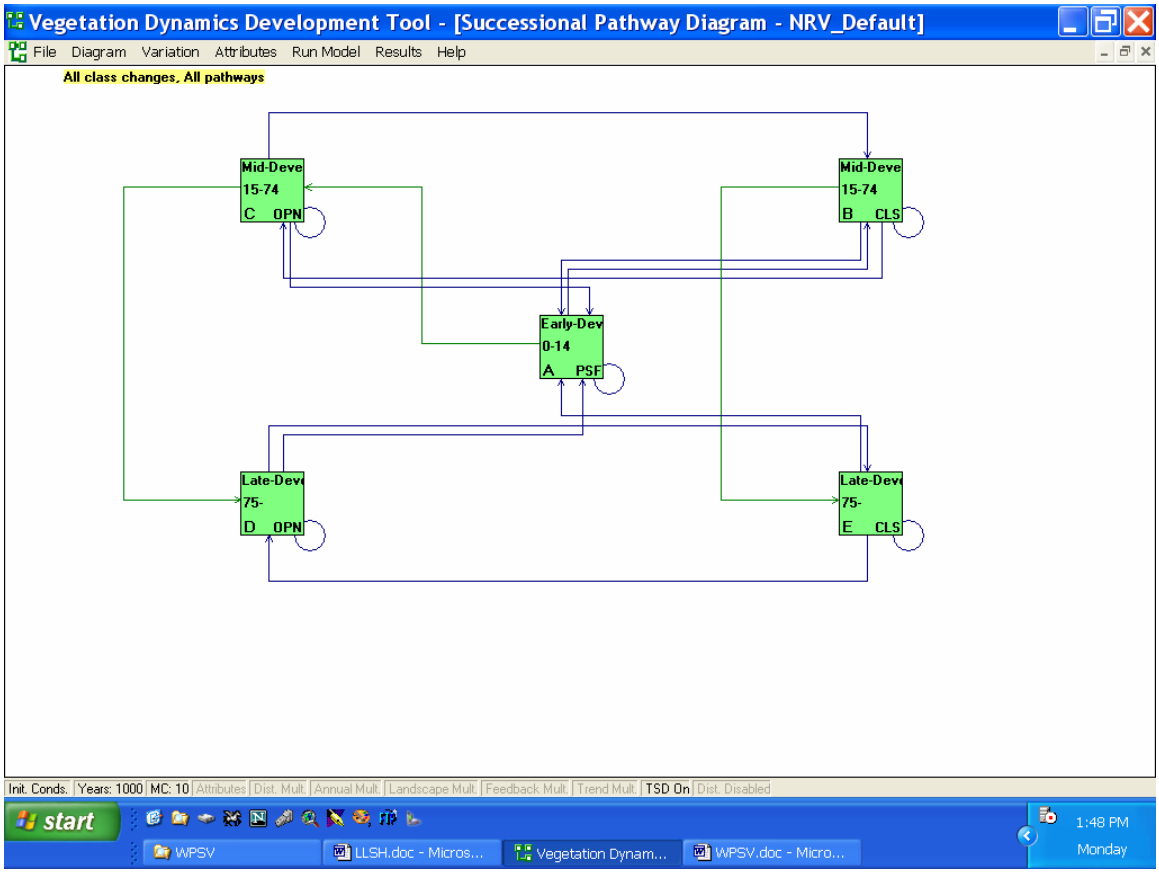
PERSONAL COMMUNICATION (if applicable):

VDDT File Documentation

Include screen captures (print-screens) from any of the VDDT graphs that were used to develop reference conditions.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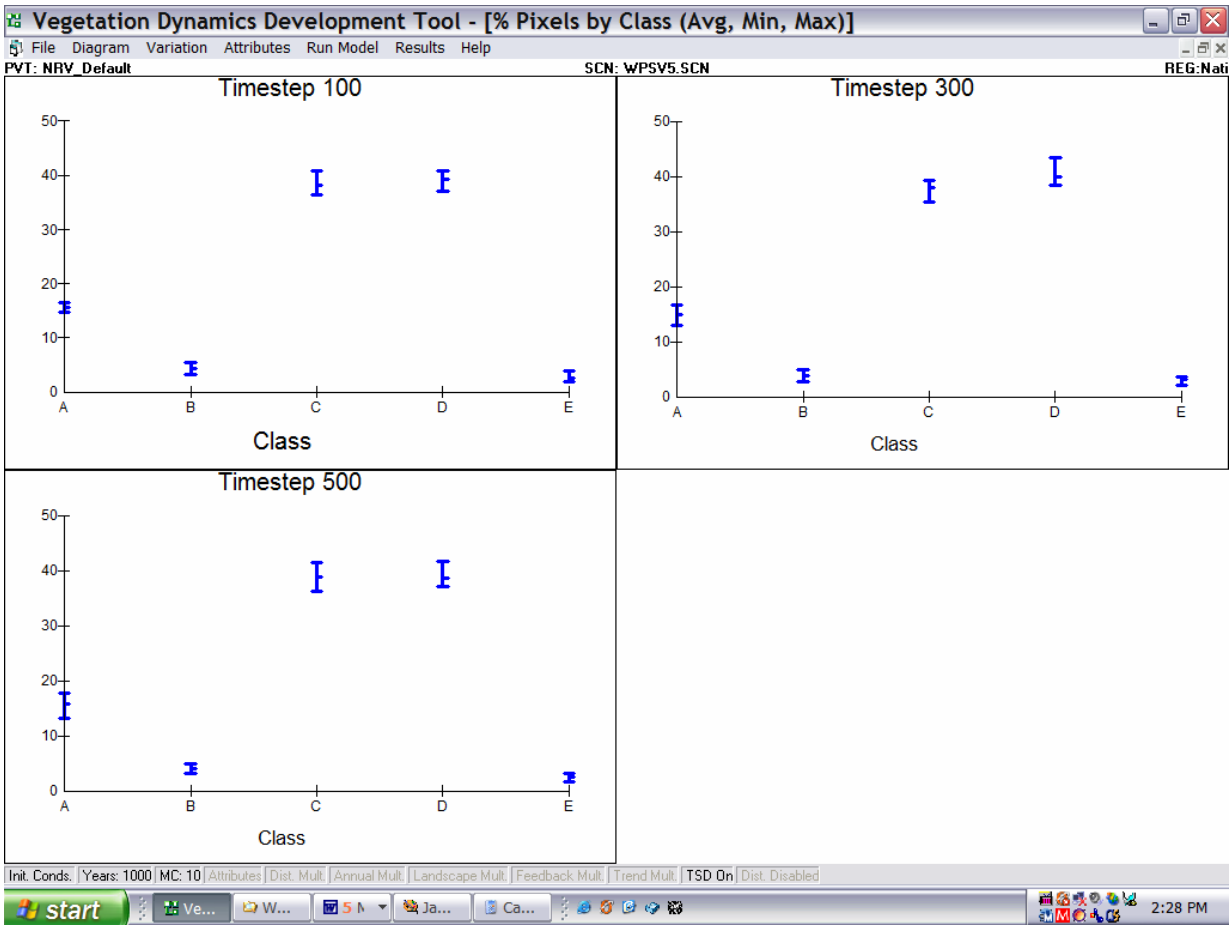
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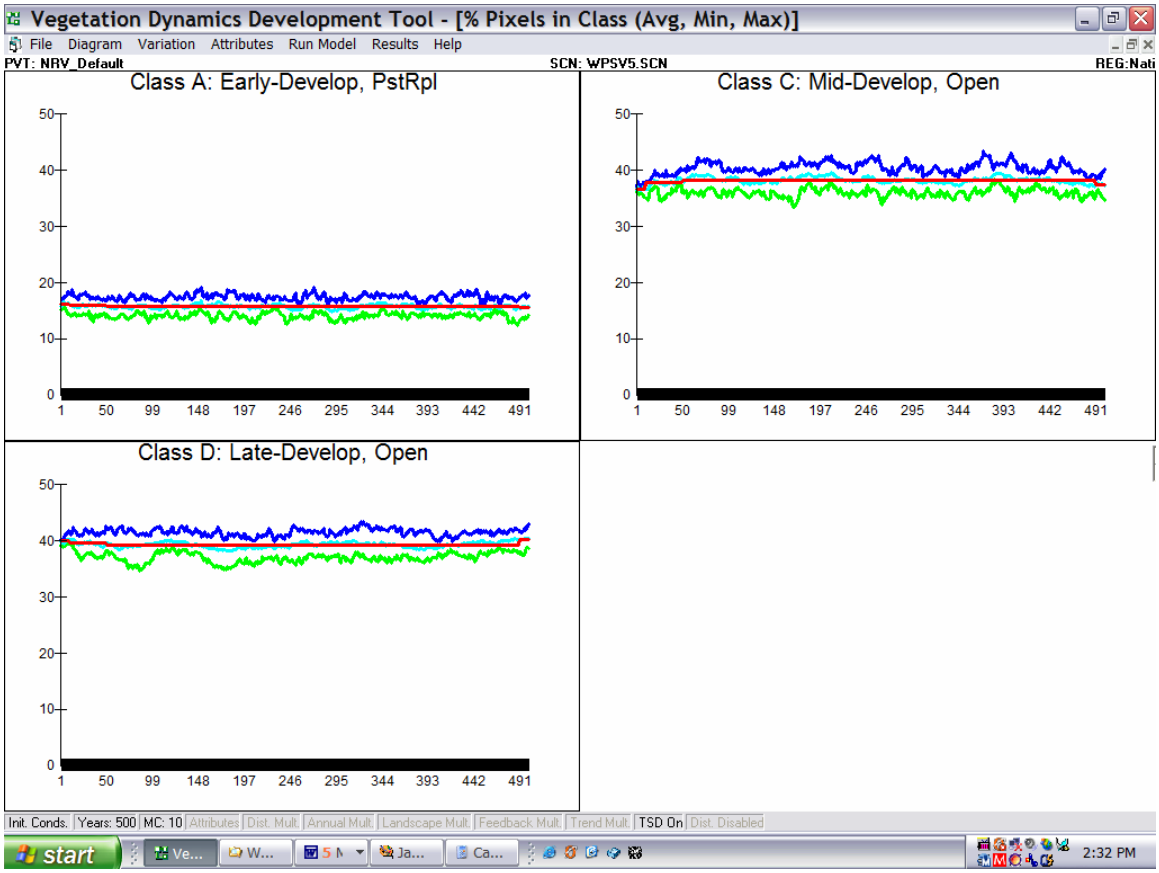
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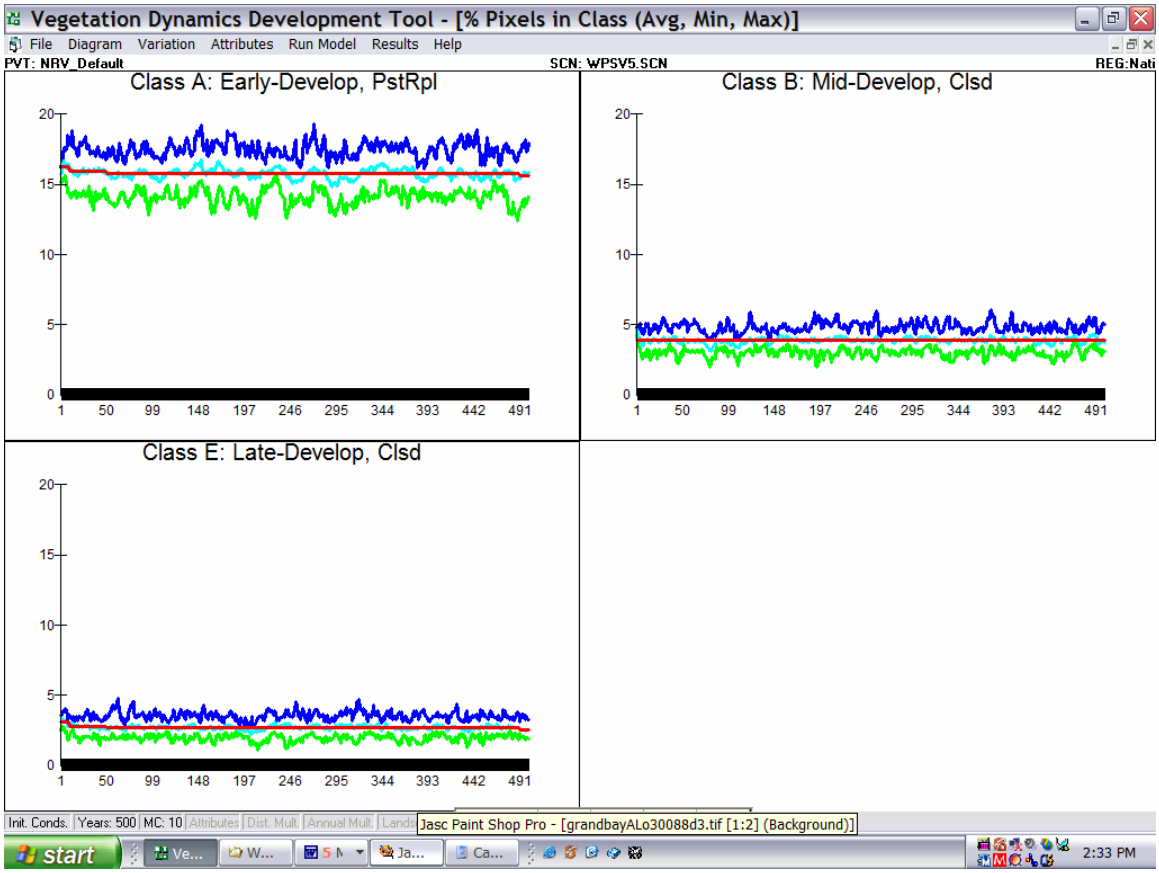
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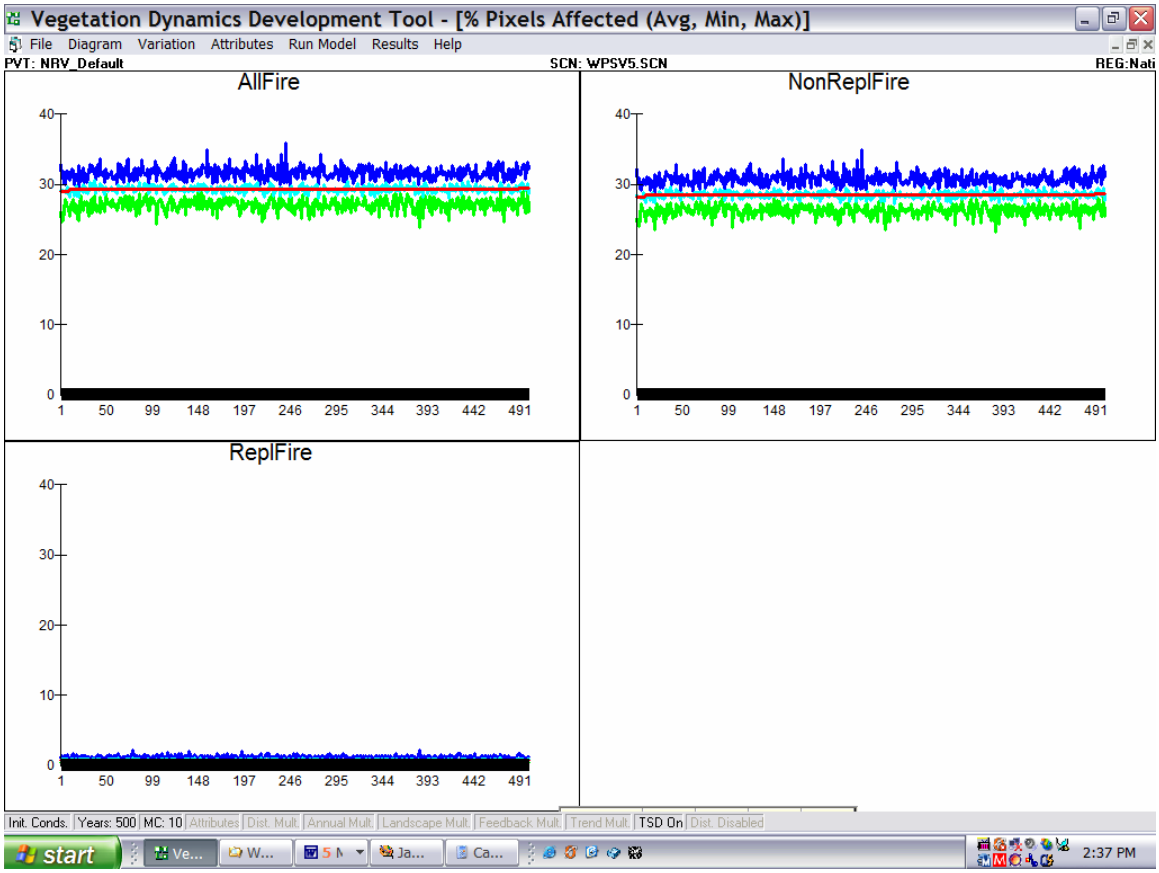
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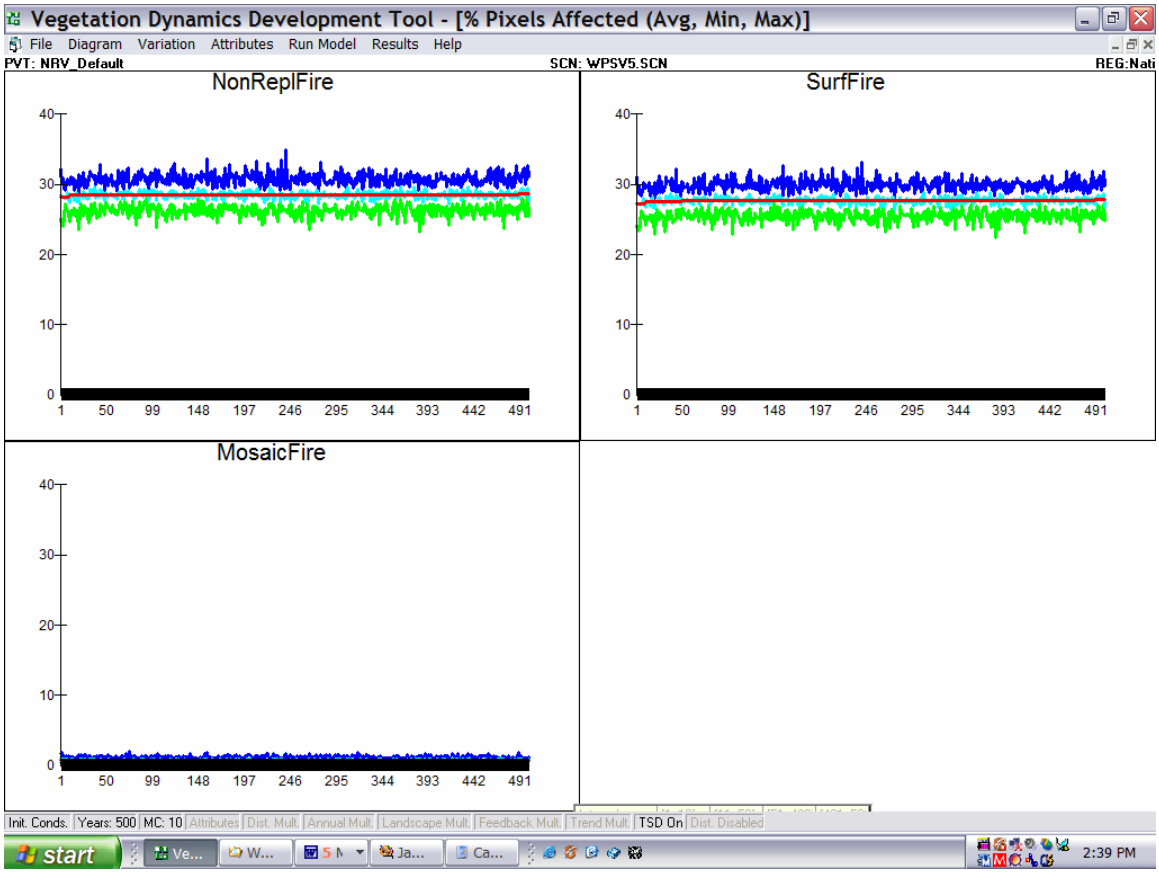
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