DRAFT

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: David Brownlie **Date: 3/7/04** **PNVG Code: PDPN**

Potential Natural Vegetation Group: Pond Pine Palustrine Peatlands

Geographic Area: Lower Coastal Plain mainly from SE Virginia to South Carolina, but exists as inclusions in the lower Coastal Plain from southern NJ to GA, FL, and AL.

Description: Circa 1600. Typically confined to lower coastal plain terraces, on extensive flats. Very gently sloping areas with impeded soil drainage, where anaerobic growing season soil conditions allowed acidic surface organic (peat and muck) deposits to develop. Sites typically are saturated or intermittently to seasonally flooded, but the water table drops sufficiently to allow plant roots to contact underlying mineral sediments at least during periodic or seasonal droughts. Layers of charcoal are common within this organic layer. Pond Pine (*Pinus serotina*) dominates (55+%) the upper vegetation layer as relatively evenly spaced individuals, or sizeable patches of closed forest. Bays (*Gordonia lasianthus, Persea, Magnolia sp.*), red maple, swamp black gum, Atlantic white cedar, and bald or pond cypress are common canopy associates but collectively comprised <40% of the overstory. A dense understory dominated by herbs, especially switchcane (*Arundinaria gigantea*) and/or broadleaved evergreen "pocosin" shrubs (*Ilex sp., Myrica cerifera, Lyonia lucida, Smilax laurifolia, Cyrilla racemiflora, Zenobia pulverulenta*) and tree regeneration (same as overstory species) is common before prolonged canopy closure. Where fires have been particularly severe, and burned down through the shallow root zone in surface organic layers, the ground cover may be dominated by graminoids (*Andropogon glomeratus*, switchcane, sedges), ferns (*Woodwardia virginica*), and bog (often insectivorous) herbs (*Sarracinia sp., Drosera sp., Dionaea muscipula*) with scattered patches or individual low-growing broadleaved evergreen pocosin shrubs and bays, pond pine, and Atlantic white cedar seedlings. The type frequently occurred as part of/in association with a larger landscape mosaic that also included canebrakes and herbaceous or shrub bogs, high pocosin, Atlantic white cedar, and bay forest as described by Schafale and Weakley (1990) for North Carolina. Significant portions of Kuchler Types K112, K113, and K114 are represented. However, the most nutrient-limited conditions on the deepest, longest hydroperiod peatlands, where plant roots are unable to penetrate to underlying mineral sediments identified as Low Pocosin by Schafale and Weakley (1990), or on wet mineral soils identified as Wet Pine Flatwoods or Pine Savanna are not included.

Fire Regime Description: Group III, 35-100+ Years, Mixed Severity. Fire severity is variable, but post-fire recovery is normally rapid due to sprouting of shrubs and pond pine (from both epicormic and basal re-sprouting) following all but the most severe (peat consuming) fires. Serotinous cones produced at young ages (≤10 years) also play a role in post-fire recovery/site persistence by the pond pine component. Under extreme drought conditions, fires will burn deep into the surface organics through the root zone, resulting in stand replacement. Less than 5% of the landscape was completely protected by fire and fire compartments were typically large (1000+ Km^2), but seasonally wet growing season conditions prevent sustained spread through these sites for some fires entering from the higher fire frequency (1-6 years) surrounding uplands, especially in years with above average rainfall. The type occurs in an area where the mean return interval for Category 2-5 hurricanes is 10-30 years (20-50 years for Category 3-5). Frequent lightning was the primary ignition source throughout the area where the type occurred, and

anthropogenic burning was common on adjoining uplands but the Fire Regime Group would not differ from that for lightning-only ignitions.

Vegetation Type and Structure

Class*	Percent of Landscape	Description
A: post replacement	4	0-6 Years—Graminoids (e.g. Andropogon sp. and Arundinaria gigantea), insectivorous plants, bog herbs, ferns (Woodwardia virginica),and especially canebrake dominance indicates a severe, stand replacement fire within 4-6 years. Pond pine, bay, red maple, and AWC seedling/saplings and low evergreen shrubs cover ≤40% of the ground surface, but are common.
B: mid-seral closed	21	13-39 years, > 65% canopy cover from pond pine with Atlantic white cedar, bay, maple and gum stems and tall broadleaved evergreen shrubs. Overstory tree layer not readily distinguishable from a typically dense shrub layer, and grasses and other herbs may persist as remnants in small canopy gaps. Zenobia dominance in the understory shrub layer indicates recent fire. Category 3+ hurricanes (1/50 years) can damage/kill the tallest pines, but the typically smaller crowns and shorter height in this seral stage limit damage from Category 1-2 hurricanes.
C: mid- seral open	30	7-26 years, ≤ 65% canopy cover from pond pine and overstory associates including Atlantic white cedar, bay, maple and gum stems. Tall broadleaved evergreen shrubs and tree stems dominate the often dense understory, with patches of graminoids and or bog herbs in canopy gaps interspersed throughout.
D: late- seral open	30	28-52 years old, ≤ 65% canopy cover from pond pine with Atlantic white cedar, bay, maple and gum stems over dense, tall broadleaved evergreen shrubs. Overstory trees are readily distinguishable from the often dense, understory shrub layer, existing as scattered individuals or in patches. Graminoids and herbs may persist as remnant individuals in canopy openings.
E: late- seral closed	15	40+ Years old, > 65% canopy cover from pond pine with Atlantic white cedar, bay, maple and gum stems and broadleaved evergreen shrubs. The overstory tree layer is readily distinguishable from the understory shrub layer that may be in dense patches in scattered canopy gaps. Graminoids and other herbs are largely absent. Category 3-5 hurricanes (1/25 years) may damage/kill the tallest 30%+ of overstory pines, opening the canopy across the landscape.
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	18-28	0.0355-0.0556		All Classes. Severe fires burning through root zone 1/200 years, always yield Class A. More frequent (1/25 years) lower severity fires under moist soil conditions will maintain all classes due rapid post-burn recovery.
	22	0.0453	**60**	
Non-Replacement Fire	27-49	0.0203-0.0364		Mosaic (1/25 years) predominates and triggers open pathway from closed (ie B/E to C/D).
	36	0.0279	**40**	
All Fire Frequency*	12-16	0.0628-0.0865		14 year mean fire frequency with

	14	0.0733	variation due to droughts of variable
		100	severity and patches of dense fuels.

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

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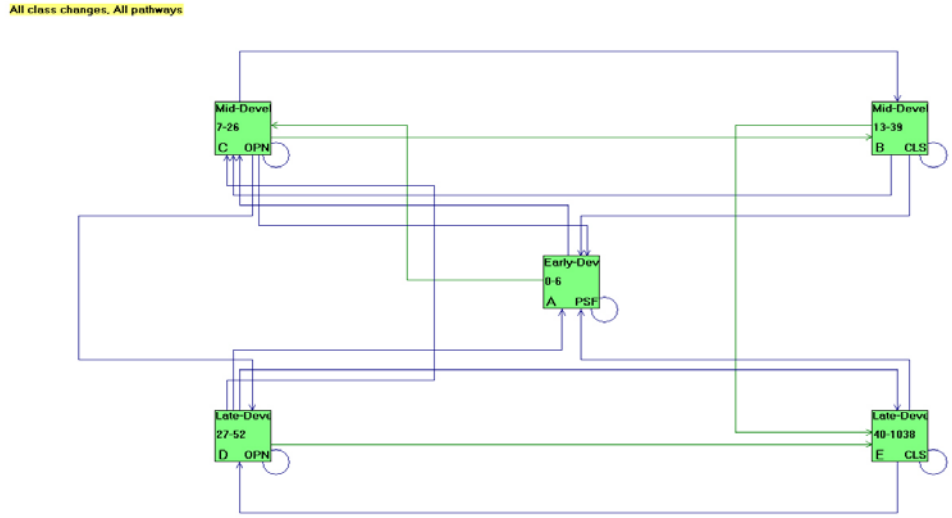
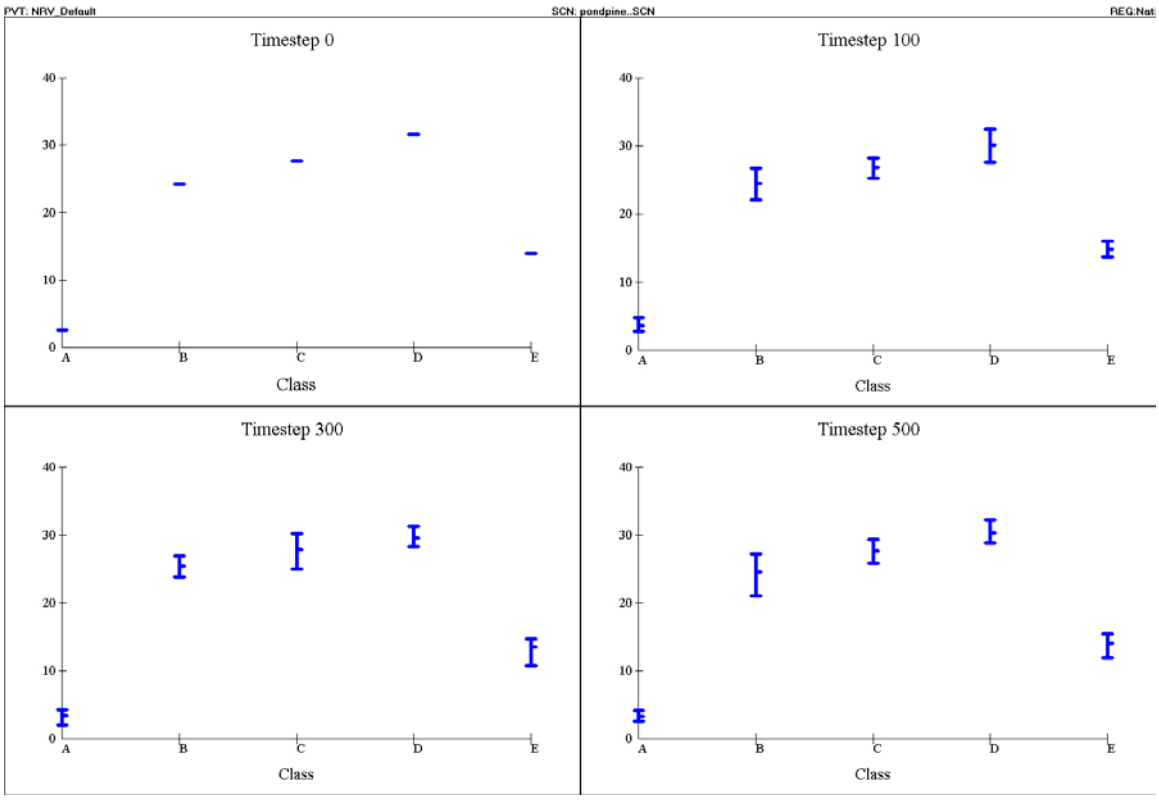
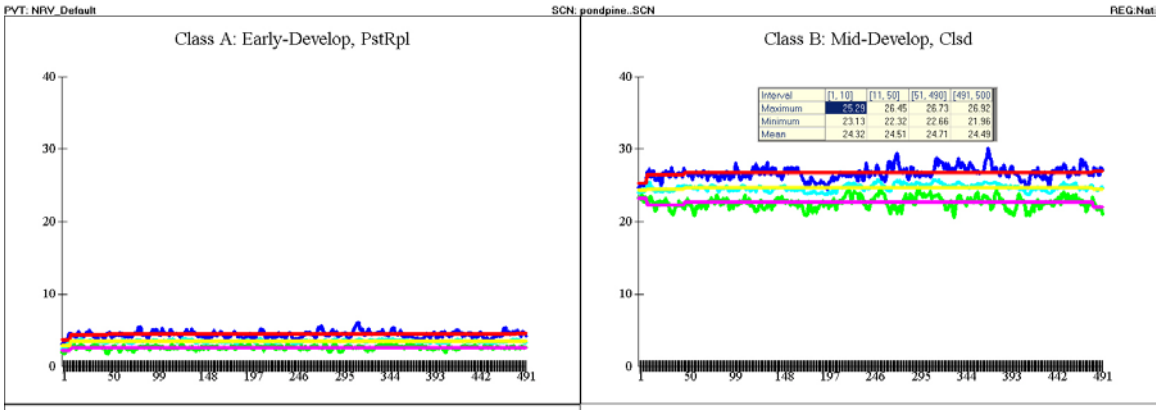
PERSONAL COMMUNICATION (if applicable):

VDDT File Documentation



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SCN: pondpine..SCN
REG:Nat
Class A: Early-Develop, PstRpl
Class B: Mid-Develop, Clsd
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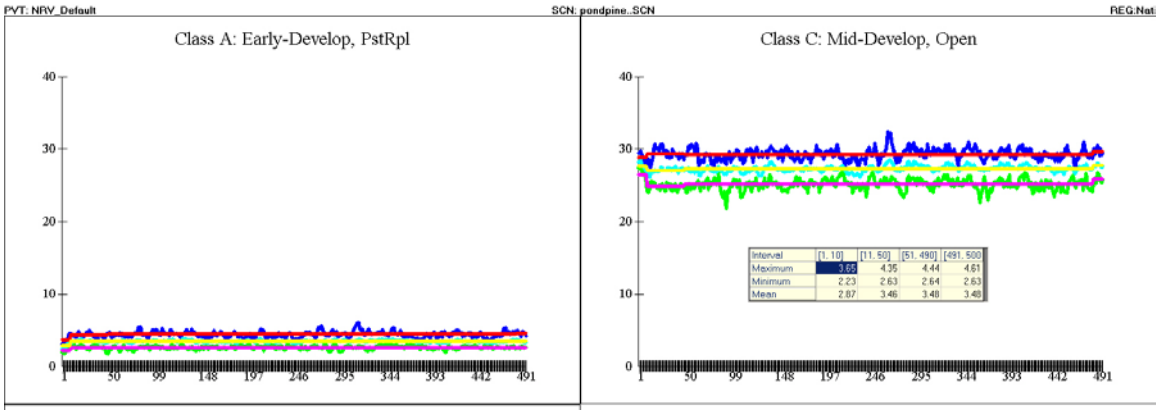
Maximum 25.28 26.45 26.73 26.92
Minimum 23.13 22.32 22.66 21.96
Mean 24.32 24.51 24.71 24.49
Class E: Late-Develop, Clsd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Class A: Early-Develop, PstRpl
Class C: Mid-Develop, Open
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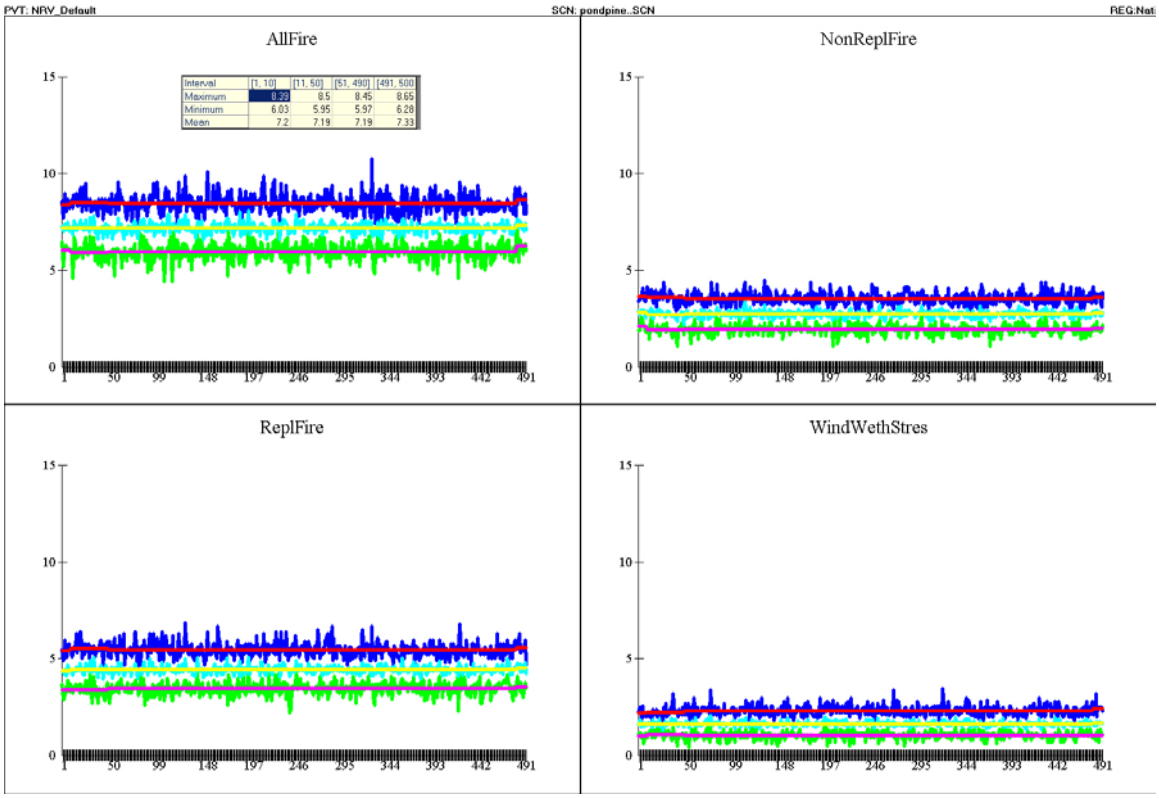
Maximum 3.65 4.35 4.44 4.61
Minimum 2.23 2.63 2.64 2.63
Mean 2.87 3.46 3.48 3.48
Class D: Late-Develop, Open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SCN: pondpine..SCN
REG:Nat
AllFire
Interval [1, 10] [11, 50] [51, 490] [491, 500]
Maximum 8.22 8.5 8.45 8.65
Minimum 6.03 5.95 5.97 6.28
Mean 7.2 7.19 7.19 7.33
NonReplFire
ReplFire
WindWethStres
15
10
5
0
1 50 99 148 197 246 295 344 393 442 491