

Rapid Assessment Reference Condition Model

The Rapid Assessment is a component of the LANDFIRE project. Reference condition models for the Rapid Assessment were created through a series of expert workshops and a peer-review process in 2004 and 2005. For more information, please visit www.landfire.gov. Please direct questions to helpdesk@landfire.gov.

Potential Natural Vegetation Group (PNVG)

R9SFSP South Florida Slash Pine Flatwoods

General Information

Contributors (additional contributors may be listed under "Model Evolution and Comments")

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Vegetation Type

Woodland

General Model Sources

Literature

Local Data

Expert Estimate

Rapid Assessment Model Zones

California

Great Basin

Great Lakes

Northeast

Northern Plains

N-Cent. Rockies

Pacific Northwest

South Central

Southeast

S. Appalachians

Southwest

Dominant Species*

PIEL

SERE2

ARIST

SAPA

LANDFIRE Mapping Zones

56

Geographic Range

South Florida slash pine flatwoods occur in central and south Florida.

Biophysical Site Description

This PNVG occurs on poorly drained acid sands on ancient marine terraces. The terrain is level and flat.

Very slight changes in elevation result in significant changes in vegetation, and in numerous depression or flatwoods marshes scattered throughout the landscape.

Vegetation Description

The overstory consists primarily of south Florida slash pine (*Pinus elliottii* var. *densa*) with crown closure ranging from 10 to 50%. Common understory vegetation includes wiregrass (*Aristida beyrichiana*), saw palmetto (*Serenoa repens*), cabbage palm (*Sabal palmetto*), wax myrtle (*Myrica cerifera*), and various species of oaks (*Quercus* spp.) or other hardwoods.

Disturbance Description

This model typically exhibits a 1 to 4 year fire interval, with frequent, low intensity fires. Most acreage burned historically from April to June during the early lightning season. Less common moderately severe fires associated with drought occurred primarily from March through May. Anthropogenic fire was considered, but is not expected to change reference class composition. Stand replacement fires may occur as frequently as every 20-50 years in the closed classes because of the intense fire generated by the shrub understory, however, the trees are generally spaced far enough apart to prevent a true crown fire. Mortality frequently results from duff burning the root structure of the pines, sometimes followed by an increase in bark beetle activity on the stressed trees. Mixed fire that burns the shrub understory and reduces the overstory would result in a more open condition. Mixed fires resulting in a change in class would generally only occur in closed stands with abundant shrubs. Fires in extremely advanced stages of Class E are generally less intense due to the lack of fine fuels or shrubs to carry the fire.

*Dominant Species are from the NRCS PLANTS database. To check a species code, please visit <http://plants.usda.gov>.

Hurricanes frequently impact the landscape in south and central Florida. Storms occurring once every 10-50 may be intense enough to open up closed stands, resulting in a more open condition. Storms intense enough to return classes to the early post-replacement condition would occur less frequently.

Adjacency or Identification Concerns

The understory structure is similar to Palmetto Prairie (R9PAPR), the primary difference being the presence of a canopy layer of slash pine in this model. South Florida slash pine flatwoods often contain numerous depression marshes, which are vegetatively similar to floodplain marsh (R9FPMA). With a slight increase in elevation, sometimes common near rivers and streams, these flatwoods can transition into small patches of scrubby flatwoods.

Scale Description

Sources of Scale Data Literature Local Data Expert Estimate

This PNVG occurs on a landscape scale with stands reaching several hundred thousand acres. The point of transition from south Florida slash pine flatwoods to palmetto prairie would be hard to define, as the species composition is virtually identical, except for the presence of scattered south Florida slash pine. This can also be said about the transition to longleaf pine mesic flatwoods. There is a relatively large area within the transition zone where both longleaf and south Florida slash are found on these mesic sites. Because this PNVG is commonly found with numerous depression or flatwoods marshes and other wetlands scattered throughout and potentially acting as a barrier to fire spread, the size of disturbances would have ranged from a few hundred acres to 25,000 to 30,000 acres. Fire could reach much larger sizes under extreme conditions.

Issues/Problems

The natural fire regime is currently altered by urbanization, artificially controlled water levels, and extensive agricultural land use. Invasive exotics such as Brazilian pepper and melaleuca are increasingly common on wetter sites throughout this range.

Model Evolution and Comments

The original model was significantly revised following the editorial review and peer review.

Succession Classes**
Succession classes are the equivalent of "Vegetation Fuel Classes" as defined in the Interagency FRCC Guidebook (www.frcc.gov).

Class A 23%

Early1 All Struct

Description

Class A, 0-15 years, includes seedlings, saplings, and poles of south Florida slash pine. Individual tree gaps and clusters of dead or downed individuals are interspersed throughout the landscape. These are the result of mortality from wind or lightning. Under typical conditions, the vegetation will recover sufficiently to burn again within two years, and will burn vigorously 3 years post fire.

Replacement fires that kill the pine regeneration may occur in the

Dominant Species* and Canopy Position

PIELD Upper
ARBE7 Lower
SERE2 Lower

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 2

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	30 %
Height	Tree Regen <5m	Tree Short 5-9m
Tree Size Class	Pole 5-9" DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

The dominant lifeform in this class is most likely wiregrass or other herbaceous vegetation with canopy cover ranging from 25 - 75%.

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landscape once every 10-20 years. Hurricanes regularly impact slash pine communities. In this early post-replacement phase some tree mortality may occur from flooding or wind, however, this is not expected to return this class to the early post-replacement condition, and was not included in the model in this class.

Class B 1 %

Mid1 Open

Description

Class B, 15-75 years old, is characterized by a shift towards a shrub dominated community, usually by saw palmetto, gallberry, ericaceous shrubs, or various oak species. In the young stages of this class, wiregrass may still remain abundant. However, as the shrubs increase in cover, wiregrass and other forbs will disappear. After 20-30 years without fire or other disturbances, Class B becomes a dense, shrub dominated community with an overstory of slash pines.

Fires may occur less frequently in Class B due to the decline in fine fuels, however, they are typically intense when they occur, particularly in dense saw palmetto. Replacement fires may occur every 20-50 years, and kill the pine overstory, returning the site to the early post-replacement phase. Mixed fires occurring in this class may reduce the stature of the shrub understory and kill some of the overstory trees, resulting in a more open stand characteristic of Class C. However, the shrubs will quickly resprout from basal shoots. Hurricanes may impact by reducing the pine overstory and shrub understory.

Dominant Species* and Canopy Position

PIELD Upper
SERE2 Low-Mid
ARBE7 Lower

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 2

Structure Data (for upper layer lifeform)

	<i>Min</i>	<i>Max</i>
<i>Cover</i>	10 %	40 %
<i>Height</i>	Tree Short 5-9m	Tree Medium 10-24m
<i>Tree Size Class</i>	Medium 9-21"DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:

The dominant lifeform still remains wiregrass in the early stages of this class, but quickly shifts towards a shrub dominated condition in the absence of fire. The shrub canopy reaches may reach greater than 75% cover with a height of more than 2m.

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Class C 50 %

Mid1 Open
Description

Class C, 15-75 years old, is characterized by an open stand of slash pine with an understory dominated by wiregrass. Numerous other grasses and forbs are present in the understory. Shrubs, where present, are generally short in stature due to the frequent fire, and may range from 0.5m to 1m tall.

Dominant Species* and Canopy Position

PIELD Upper
ARBE7 Lower
SERE2 Lower

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 2

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	40 %
Height	Tree Short 5-9m	Tree Medium 10-24m
Tree Size Class	Medium 9-21"DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:
The dominant lifeform in this class remains wiregrass and other herbaceous vegetation, with canopy cover from 75% to 100%.

Class D 25 %

Late1 Open
Description

Class D, 75+ years old, is characterized by an open stand of slash pine with an understory dominated by wiregrass. Numerous other grasses and forbs are present in the understory. Shrubs, where present, are generally short in stature due to the frequent fire, and may range from 0.5m to 1m tall.

Dominant Species* and Canopy Position

PIELD Upper
SERE2 Low-Mid
ARBE7 Lower

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 7

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	40 %
Height	Tree Medium 10-24m	Tree Medium 10-24m
Tree Size Class	Medium 9-21"DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:
The dominant lifeform in this class remains wiregrass and other herbaceous vegetation, with canopy cover from 75% to 100%.

Class E 1 %

Late1 Open
Description

Class E, 75+ years old, contains a dense understory of shrubs, particularly saw palmetto, with very little herbaceous vegetation in the ground cover. In the absence of fire for long periods of time, oaks or other hardwoods will capture the canopy and only remnant pines will remain. In this condition, the overstory becomes so dense that the shrubs begin to disappear.

Dominant Species* and Canopy Position

PIELD Upper
SERE2 Low-Mid

Upper Layer Lifeform

- Herbaceous
- Shrub
- Tree

Fuel Model 4

Structure Data (for upper layer lifeform)

	Min	Max
Cover	10 %	50 %
Height	Tree Medium 10-24m	Tree Tall 25-49m
Tree Size Class	Medium 9-21"DBH	

- Upper layer lifeform differs from dominant lifeform. Height and cover of dominant lifeform are:
The tree canopy cover may reach 50% or greater in some cases, but the shrub layer generally remains dominant.

Disturbances

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Disturbances Modeled

- Fire
- Insects/Disease
- Wind/Weather/Stress
- Native Grazing
- Competition
- Other:
- Other

Historical Fire Size (acres)

Avg: 1000
 Min: 1
 Max: 10000

Sources of Fire Regime Data

- Literature
- Local Data
- Expert Estimate

Fire Regime Group: 1

- I: 0-35 year frequency, low and mixed severity
- II: 0-35 year frequency, replacement severity
- III: 35-200 year frequency, low and mixed severity
- IV: 35-200 year frequency, replacement severity
- V: 200+ year frequency, replacement severity

Fire Intervals (FI)

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is central tendency modeled. Minimum and maximum show the relative range of fire intervals, if known. Probability is the inverse of fire interval in years and is used in reference condition modeling. Percent of all fires is the percent of all fires in that severity class. All values are estimates and not precise.

	Avg FI	Min FI	Max FI	Probability	Percent of All Fires
<i>Replacement</i>	50	50	90	0.02	6
<i>Mixed</i>	2000	40	100	0.0005	0
<i>Surface</i>	3	1	6	0.33333	94
<i>All Fires</i>	3			0.35383	

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