Timucuan Ecological and Historic Preserve

National Park

Climate Change Atlas Tree Species

Current and Potential Future Habitat, Capability, and Migration

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	sq. km	sq. mi	FIA Plots
Area of Region	8,163.9	3,152.1	237

Species Information

The columns below provide breif summaries of the species associated with the region and described in the table on the next pages. Definitions are provided in the Excel file for this region.

Genus	Species
Ash	3
Hickory	2
Maple	1
Oak	11
Pine	5
Other	26
	48

Abundance	
Abundant	3
Common	17
Rare	28
Absent	17
	65

	Model Reliability	Adaptability
High	12	14
Medium	32	41
Low	23	13
FIA	3	
	70	**68**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	19	21
No Change	11	10
Decrease	15	14
New	8	8
Unknown	17	17
	70	**70**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	8	8
Good	10	11
Fair	5	6
Poor	11	11
Very Poor	7	6
FIA Only	3	3
Unknown	14	14
	58	**59**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	0	0
Infill	8	13
Migrate	0	4
	8	**17**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	67.7	69.2	70.9	70.8
	CCSM85	67.7	69.4	71.5	73.7
	GFDL45	67.7	70.4	72.1	72.8
	GFDL85	67.7	70.2	73.1	76.5
	HAD45	67.7	69.5	71.9	73.1
	HAD85	67.7	70.0	72.8	76.3
Growing Season May—Sep	CCSM45	78.3	79.5	80.8	81.1
	CCSM85	78.3	79.6	81.8	84.3
	GFDL45	78.3	80.9	82.5	83.5
	GFDL85	78.3	80.8	83.6	87.4
	HAD45	78.3	80.8	82.9	84.2
	HAD85	78.3	81.1	84.8	88.0
Coldest Month Average	CCSM45	51.3	53.5	54.4	54.0
	CCSM85	51.3	53.0	54.1	55.4
	GFDL45	51.3	53.9	54.2	54.9
	GFDL85	51.3	53.4	54.5	55.4
	HAD45	51.3	51.1	52.3	53.0
	HAD85	51.3	51.8	52.6	54.4
Warmest Month Average	CCSM45	81.4	82.7	83.6	83.7
	CCSM85	81.4	82.7	84.1	85.6
	GFDL45	81.4	83.4	84.2	84.9
	GFDL85	81.4	83.6	85.0	87.1
	HAD45	81.4	84.3	85.2	85.8
	HAD85	81.4	84.4	86.6	87.9

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	49.9	52.9	54.4	55.4
	CCSM85	49.9	52.4	54.0	54.8
	GFDL45	49.9	58.0	58.8	61.1
	GFDL85	49.9	54.7	61.9	60.1
	HAD45	49.9	47.2	45.6	49.3
	HAD85	49.9	47.1	45.2	44.2
Growing Season May—Sep	CCSM45	27.7	29.6	29.6	29.9
	CCSM85	27.7	28.7	30.4	30.1
	GFDL45	27.7	33.8	34.0	34.9
	GFDL85	27.7	32.2	37.1	36.5
	HAD45	27.7	26.3	24.8	24.7
	HAD85	27.7	25.4	22.3	21.1

NOTE: For the six climate variables, four 30-year periods are used to indicate six potential future trajectories. The period ending in 2009 is based on modeled observations from the PRISM Climate Group and the three future periods were obtained from the NASA NEX-DCP30 dataset. Future climate projections from three models under two emission scenarios show estimates of each climate variable within the region. The three models are CCSM4, GFDL CM3, and HadGEM2-ES and the emission scenarios are the 4.5 and 8.5 RCP. The average value for the region is reported, even though locations within the region may vary substantially based on latitude, elevation, land-use, or other factors.

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
slash pine	Pinus elliottii	NDH	High	88	4025.5	45.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
loblolly pine	Pinus taeda	WDH	High	45.9	934.5	20.5	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
red maple	Acer rubrum	WDH	High	64.9	529.7	7.7	No change	No change	High	Abundant	Very Good	Very Good			1	3
swamp tupelo	Nyssa biflora	NDH	Medium	62.9	414.8	6.3	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	4
water oak	Quercus nigra	WDH	High	55.9	349.1	6.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
laurel oak	Quercus laurifolia	NDH	Medium	61.2	328.6	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
sweetgum	Liquidambar styraciflua	WDH	High	54.2	270.6	5.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
live oak	Quercus virginiana	NDH	High	40.2	244.4	6.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	8
loblolly-bay	Gordonia lasianthus	NSH	Medium	47.1	242.0	5.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	9
pond cypress	Taxodium ascendens	NSH	Medium	31.6	218.6	6.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
longleaf pine	Pinus palustris	NSH	Medium	26.6	191.0	7.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
redbay	Persea borbonia	NSL	Low	53.5	182.4	3.2	No change	No change	High	Common	Good	Good			1	12
turkey oak	Quercus laevis	NSH	Medium	9.4	131.5	12.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	13
bald cypress	Taxodium distichum	NSH	Medium	17	115.5	6.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
pumpkin ash	Fraxinus profunda	NSH	FIA	6.7	112.2	11.2	Unknown	Unknown	NA	Common	FIA Only	FIA Only			0	15
sweetbay	Magnolia virginiana	NSL	Medium	44.4	104.5	2.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
pond pine	Pinus serotina	NSH	Medium	15.9	87.7	6.6	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	17
green ash	Fraxinus pennsylvanica	WSH	Low	13.4	80.3	5.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	18
water tupelo	Nyssa aquatica	NSH	Medium	6.1	52.6	8.6	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	19
cabbage palmetto	Sabal palmetto	NDH	Medium	13	50.9	3.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	20
southern magnolia	Magnolia grandiflora	NSL	Low	13.8	43.2	2.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	21
sand pine	Pinus clausa	NDH	High	2.1	34.0	13.2	No change	No change	Low	Rare	Very Poor	Very Poor			2	22
pignut hickory	Carya glabra	WDL	Medium	6.8	30.2	3.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	23
black willow	Salix nigra	NSH	Low	2.4	29.1	11.9	No change	No change	Low	Rare	Very Poor	Very Poor			2	24
blackgum	Nyssa sylvatica	WDL	Medium	7.4	27.6	2.1	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	25
American elm	Ulmus americana	WDH	Medium	10.3	25.3	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	26
yellow-poplar	Liriodendron tulipifera	WDH	High	4.8	14.8	3.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	27
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	9.4	12.9	1.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	28
post oak	Quercus stellata	WDH	High	4.9	12.0	2.5	No change	Lg. inc.	High	Rare	Fair	Good		Infill ++	2	29
American holly	Ilex opaca	NSL	Medium	12.4	9.6	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	30
sugarberry	Celtis laevigata	NDH	Medium	1.2	7.8	6.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	31
black cherry	Prunus serotina	WDL	Medium	8.9	7.4	1.2	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	1	32
water elm	Planera aquatica	NSL	Low	1.2	4.8	3.9	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	33
Carolina ash	Fraxinus caroliniana	NSL	FIA	2.4	4.7	1.9	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	34
common persimmon	Diospyros virginiana	NSL	Low	5.8	4.7	0.7	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			1	35
winged elm	Ulmus alata	WDL	Medium	1.2	4.2	3.4	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	36
ogeechee tupelo	Nyssa ogeche	NSLX	FIA	1.2	4.1	3.4	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	37
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	3.7	3.9	1.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	38
southern red oak	Quercus falcata	WDL	Medium	3.6	3.2	0.9	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	39
eastern redcedar	Juniperus virginiana	WDH	Medium	2.4	2.4	1.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	40
Shumard oak	Quercus shumardii	NSL	Low	1.1	2.2	1.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	41
bluejack oak	Quercus incana	NSL	Low	2.4	1.7	0.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	42
white oak	Quercus alba	WDH	Medium	2.4	1.7	0.7	Very Lg. dec.	Sm. dec.	High	Rare	Lost	Poor		Infill +	2	43
mockernut hickory	Carya alba	WDL	Medium	2.4	1.7	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	44
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.2	1.4	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
sycamore	Platanus occidentalis	NSL	Low	1.1	1.1	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	46
slippery elm	Ulmus rubra	WSL	Low	1.2	0.7	0.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	47

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overcup oak	Quercus lyrata	NSL	Medium	1.2	0.6	0.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	48
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	49
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	50
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	51
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	52
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	53
pecan	Carya illinoinensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	54
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	55
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	56
white ash	Fraxinus americana	WDL	Medium	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	57
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	58
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	59
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	60
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	61
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	62
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	63
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	64
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	65
black oak	Quercus velutina	WDH	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	66
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			3	67
sassafras	Sassafras albidum	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	68
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			0	69
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	70