Padre Island

National Park
Climate Change Atlas Tree Species
Current and Potential Future Habitat, Capability, and Migration

USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

	sq. km	sq. mi	FIA Plots
Area of Region	8,274.6	3,194.8	15

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	0
Hickory	0
Maple	0
Oak	2
Pine	0
Other	1
	3

Abundance	
Abundant	0
Common	1
Rare	2
Absent	12
	15

	Model Reliability	Adaptability
High	2	1
Medium	6	11
Low	7	3
FIA	0	
	15	**15**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	0	0
No Change	2	2
Decrease	1	1
New	6	6
Unknown	6	6
	15	**15**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	0	0
Good	0	0
Fair	1	1
Poor	2	2
Very Poor	0	0
FIA Only	0	0
Unknown	6	6
	9	**9**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	0	0
Infill	2	2
Migrate	2	3
	4	**5**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	72.6	74.0	75.5	75.8
	CCSM85	72.6	74.3	76.4	78.6
	GFDL45	72.6	78.0	76.9	78.2
	GFDL85	72.6	75.2	78.4	81.6
	HAD45	72.6	74.6	76.7	77.8
	HAD85	72.6	75.0	77.5	80.7
Growing Season May—Sep	CCSM45	82.4	83.6	84.7	85.1
	CCSM85	82.4	83.9	85.8	88.1
	GFDL45	82.4	88.7	87.3	88.8
	GFDL85	82.4	85.4	88.8	92.5
	HAD45	82.4	84.1	85.8	86.8
	HAD85	82.4	84.4	87.0	89.9
Coldest Month Average	CCSM45	56.3	58.2	59.2	59.4
	CCSM85	56.3	58.4	59.4	60.9
	GFDL45	56.3	59.3	59.7	59.8
	GFDL85	56.3	57.9	59.1	59.9
	HAD45	56.3	57.5	59.0	59.8
	HAD85	56.3	59.6	60.9	62.6
Warmest Month Average	CCSM45	85.0	86.1	86.7	86.8
	CCSM85	85.0	86.6	87.2	88.3
	GFDL45	85.0	88.3	89.2	90.0
	GFDL85	85.0	88.4	89.9	92.1
	HAD45	85.0	86.9	87.6	88.2
	HAD85	85.0	87.2	88.5	89.8

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	28.2	30.9	30.9	29.3
	CCSM85	28.2	30.4	30.3	27.0
	GFDL45	28.2	28.7	31.9	24.9
	GFDL85	28.2	27.9	27.7	26.6
	HAD45	28.2	29.2	28.0	28.6
	HAD85	28.2	30.2	30.1	29.2
Growing Season May—Sep	CCSM45	15.5	16.8	16.5	15.5
	CCSM85	15.5	17.7	16.4	14.0
	GFDL45	15.5	16.3	19.5	14.1
	GFDL85	15.5	16.2	15.7	15.4
	HAD45	15.5	14.7	14.2	15.0
	HAD85	15.5	17.3	15.7	14.6

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.

Cite as: Iverson, L.R.; Prasad, A.M.; Peters, M.P.; Matthews, S.N. 2019. Facilitating Adaptive Forest Management under Climate Change: A Spatially Specific Synthesis of 125 Species for Habitat Changes and Assisted Migration over the Eastern United States. Forests. 10(11): 989. https://doi.org/10.3390/f10110989.

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
live oak	Quercus virginiana	NDH	High	32.3	208.9	71.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	1
sugarberry	Celtis laevigata	NDH	Medium	4.8	1.8	6.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	2
post oak	Quercus stellata	WDH	High	4.3	0.6	1.7	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	3
pond cypress	Taxodium ascendens	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	4
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	5
pecan	Carya illinoinensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	6
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	7
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	8
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	9
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	10
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	11
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	12
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	13
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	14
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	15