

INDIANA

Projected changes in tree habitat suitability in the year 2100

A supplemental table for the Indiana Climate Change Impacts Assessment

Source: Prasad et al. (2014) and Phillips et al. (in review)

About: The below table shows projected changes in tree habitat suitability for 3 [physiographic regions in Indiana](#) (regions are based on Indiana Geological Survey special report 81). Projections are based on the average future climate in the year 2100 from three climate models using a medium-emissions scenario (RCP 4.5) and a high-emissions scenario (RCP 8.5). A projected species decline of >20% is classified as **Decrease**. A projected species increase of >20% is classified as **Increase**. Species with projected changes (increase or decrease) of < 20% are classified as **No Change**. Species are classified as **New Habitat** if not currently found in Indiana.

Factors not included in the Tree Atlas model, such as the ability to respond favorably to disturbance, may make a species more or less able to adapt to future stressors. The **Adapt** classification indicates if species might perform better or worse than simulated: + indicates species may perform better than modeled, · indicates species may perform similar to model projections, and medium adaptability, – indicates that species may perform worse than modeled.

Species Common_Name	Northern Moraine		Central Till Plains		Southern Hills		Adapt
	RCP 4.5	RCP 8.5	RCP 4.5	RCP 8.5	RCP 4.5	RCP 8.5	
American basswood	decrease	decrease	decrease	decrease	decrease	decrease	·
American beech	no change	decrease	decrease	decrease	decrease	decrease	·
American elm	increase	increase	increase	increase	increase	increase	·
American hornbeam	decrease	decrease	decrease	no change	increase	increase	·
bigtooth aspen	decrease	decrease	decrease	decrease	decrease	decrease	·
bitternut hickory	increase	increase	increase	increase	increase	increase	+
black cherry	decrease	decrease	no change	decrease	no change	no change	–
black hickory	new habitat	new habitat	new habitat	new habitat	new habitat	new habitat	·
black locust	no change	no change	increase	increase	increase	increase	·
black maple	decrease	decrease	decrease	decrease	decrease	decrease	+
black oak	increase	no change	increase	increase	increase	increase	·
black walnut	increase	increase	no change	no change	no change	no change	·
black willow	no change	increase	no change	increase	no change	increase	–
blackgum	decrease	decrease	no change	no change	increase	increase	+
blackjack oak	new habitat	new habitat	new habitat	new habitat	new habitat	new habitat	+
blue ash	no change	no change	no change	no change	no change	no change	–
boxelder	increase	increase	increase	increase	increase	increase	+

bur oak	no change	no change	no change	no change	decrease	decrease	+
butternut	na	na	decrease	decrease	decrease	decrease	-
cedar elm	na	new habitat	new habitat	new habitat	new habitat	new habitat	-
cherrybark oak	na	na	new habitat	new habitat	increase	increase	.
chestnut oak	na	na	increase	increase	no change	decrease	+
chinkapin oak	increase	increase	increase	increase	no change	no change	.
cittamwood	new habitat	new habitat	new habitat	new habitat	new habitat	new habitat	+
common persimmon	new habitat	new habitat	increase	increase	increase	increase	+
eastern cottonwood	increase	increase	increase	increase	no change	no change	.
eastern hophornbeam	increase	increase	increase	increase	increase	increase	+
eastern redbud	increase	increase	increase	increase	increase	increase	.
eastern redcedar	increase	increase	increase	increase	increase	increase	.
eastern white pine	decrease	decrease	decrease	decrease	decrease	decrease	-
flowering dogwood	no change	decrease	increase	increase	increase	increase	.
green ash	increase	increase	increase	increase	increase	increase	.
hackberry	increase	increase	increase	increase	increase	increase	+
honeylocust	increase	increase	increase	increase	increase	increase	+
loblolly pine	na	new habitat	new habitat	new habitat	new habitat	new habitat	-
mockernut hickory	increase	increase	no change	increase	increase	increase	+
northern red oak	increase	decrease	increase	decrease	no change	decrease	+
Ohio buckeye	no change	no change	increase	no change	decrease	decrease	.
Osage-orange	increase	increase	increase	increase	no change	no change	+
overcup oak	na	na	na	na	increase	increase	-
pawpaw	increase	increase	no change	no change	decrease	decrease	.
pecan	new habitat	new habitat	new habitat	new habitat	increase	increase	-
pignut hickory	increase	no change	increase	no change	no change	decrease	.
pin cherry	decrease	decrease	na	na	increase	increase	.
pin oak	no change	no change	increase	increase	increase	increase	-
post oak	new habitat	new habitat	new habitat	new habitat	increase	increase	+
red maple	no change	no change	no change	no change	decrease	no change	+
red mulberry	increase	increase	no change	no change	no change	increase	.
river birch	no change	no change	increase	increase	no change	no change	.
rock elm	na	na	no change	no change	decrease	decrease	-
sassafras	no change	decrease	no change	decrease	decrease	decrease	.
scarlet oak	na	na	no change	no change	no change	decrease	.
serviceberry	decrease	decrease	no change	no change	decrease	decrease	.
shagbark hickory	no change	decrease	increase	no change	no change	decrease	.
shellbark hickory	na	na	decrease	no change	increase	increase	.
shingle oak	no change	no change	no change	no change	increase	increase	.
shortleaf pine	na	na	increase	new habitat	increase	increase	.
Shumard oak	na	new habitat	new habitat	new habitat	no change	increase	+

silver maple	increase	increase	increase	increase	increase	increase	+
slippery elm	increase	increase	increase	increase	increase	increase	.
sourwood	na	na	increase	increase	increase	increase	+
southern red oak	na	increase	new habitat	new habitat	increase	increase	+
sugar maple	no change	no change	decrease	decrease	decrease	decrease	+
sugarberry	new habitat	new habitat	new habitat	new habitat	increase	increase	.
swamp chestnut oak	na	na	na	na	no change	no change	.
swamp white oak	no change	no change	no change	no change	decrease	decrease	.
sweetgum	new habitat	new habitat	increase	increase	increase	increase	.
sycamore	no change	no change	increase	increase	increase	increase	.
Virginia pine	no change	no change	no change	no change	no change	no change	.
water oak	na	new habitat	new habitat	new habitat	new habitat	new habitat	.
white ash	increase	increase	no change	no change	no change	no change	-
white oak	increase	decrease	increase	no change	no change	no change	+
wild plum	na	na	no change	no change	no change	no change	.
willow oak	na	na	na	na	new habitat	new habitat	.
winged elm	new habitat	new habitat	new habitat	new habitat	increase	increase	.
yellow-poplar	increase	increase	decrease	decrease	decrease	decrease	+

Cite As:

Phillips, R.P., Brandt, L., Polly, D., Zollner, P., Saunders, M.R., Clay, K., Iverson, L., and S. Fei. (in review). Towards an improved understanding of the ecological and economic consequences of climate change for Indiana forests. *Climatic Change*

Sources:

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Prasad, A.M., Iverson, L.R., Peters, M.P., and S.N. Matthews. (2014). Climate change tree atlas. Northern Research Station, U.S. Forest Service, Delaware, OH. <http://www.nrs.fs.fed.us/atlas>.

More information about the Indiana Climate Change Impacts Assessment is available online at www.IndianaClimate.org.