Longleaf Pine Interactive Decision Support Tool User Guide

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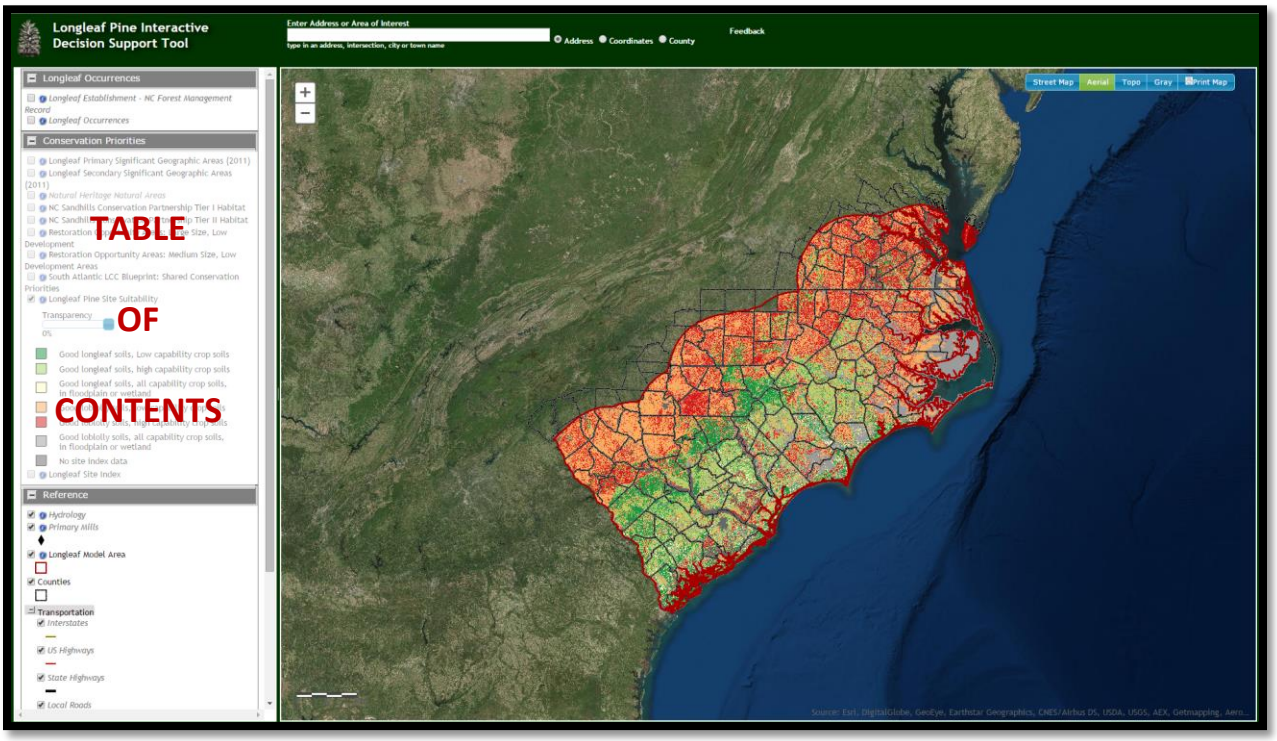
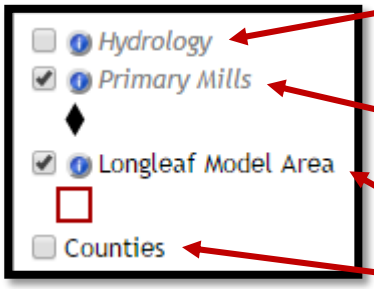
The Table of Contents (TOC) is located in the left section of the application.



Data Layer Visibility: The TOC is where you can turn on and off data layers. To see a data layer on the map, click the box next to the data layer in the TOC. Some data layers are only visible as you zoom in closer on the map. Data layers that are outside of their visible range (zoom levels) will show up as gray and italicized on the TOC.



Data layer is outside visible range. Data layer is not on. To view layer, click box beside layer and zoom in.

Data layer is outside visible range. Data layer is on and will appear on map as you zoom in.

Data layer is visible at this scale. Data layer is on.

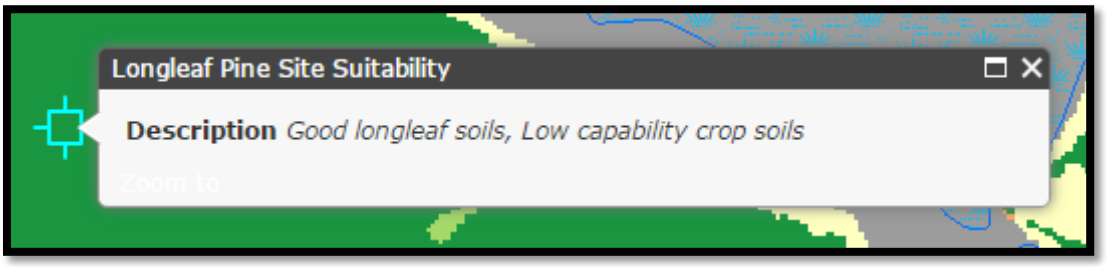
Data layer is visible at this scale. Data layer is off.

Navigating

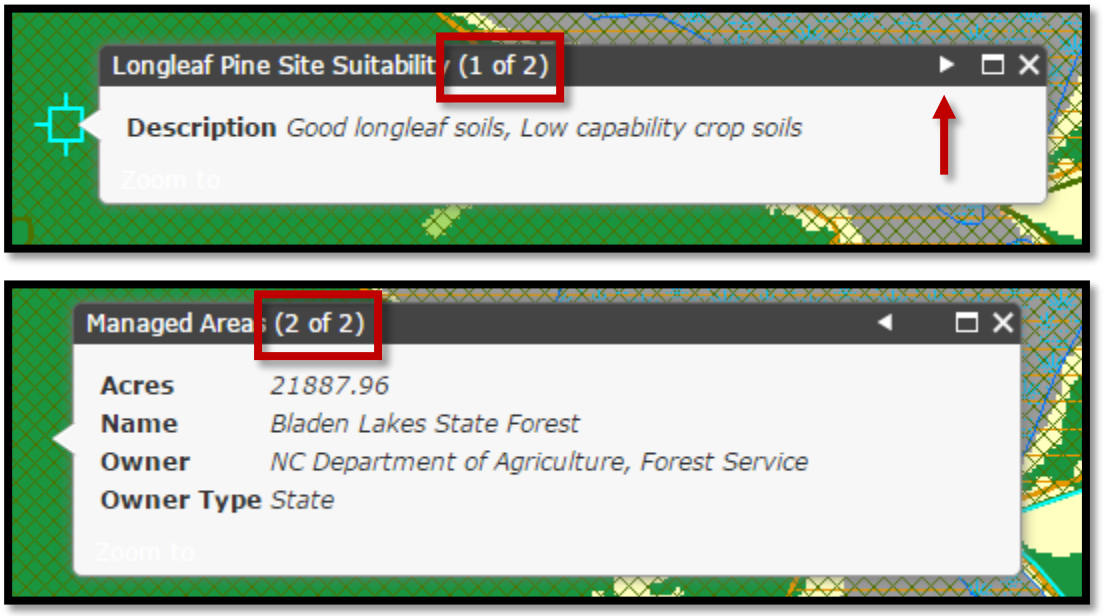
To zoom in and out on the map, use the plus/minus signs in the upper left-hand corner of the map or use the roller wheel on your mouse (forward will zoom in, backward will zoom out).

To move laterally on the map, left-click and hold as you drag the area of interest into view.

Left-click on the map to identify a feature and see it's attributes.



If more than one feature is present on the map where you clicked, this will be indicated by parentheses (1 of X). To see attribute information about the other features, click on the arrow in the title bar.



Data Information

For more information about the data layers included in the Longleaf Pine Interactive Decision Support tool, click the blue information button located next to the data layer name in the TOC.

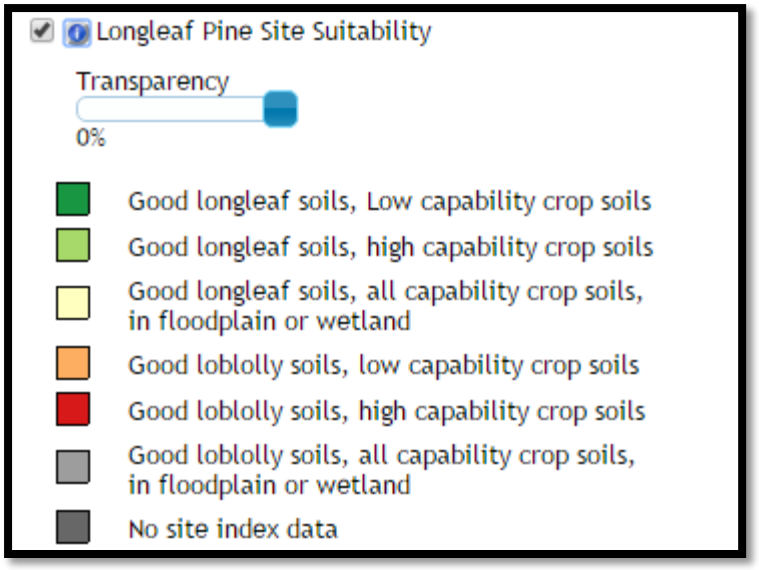
Longleaf Pine Site Suitability Model

The goal of the longleaf site suitability model is to identify areas where growing longleaf pine may be competitive economically as compared to other leading agricultural land uses, specifically loblolly pine plantations and cultivated crops, as well as areas where longleaf is more easily managed. The rationale for the model includes the following:

- **Lower Opportunity Costs**: Expansion of longleaf forests on land where the opportunity cost of growing longleaf is low may be particularly attractive for large landowners where investment in agricultural and/or timber products is one of the primary reasons for owning land.[1]

- **Increasing Working Forests and the Opportunity for Natural Regeneration**: Since the soils in areas that rank high for relative suitability are less agriculturally productive, it is possible that these areas have not been actively managed for either agricultural cultivated crops or timber in recent history. These areas may contain old longleaf pine in the overstory and thus present the landowner with the opportunity for some level of natural regeneration to lower establishment costs.

- **Long-term Conservation**: Targeting restoration in areas where competing agricultural land uses are less profitable may increase the chance that conservation efforts for longleaf pine endure over longer periods of time.



[1] McIntyre, R.K., and B.B. McCall. 2014. Longleaf Pine Economics: Large-Acreage Landowner Perspectives and Opportunities.

Model Area

The model area is a 50 mile buffer around the historic longleaf pine range[2] in North Carolina, South Carolina, and Virginia.

Inputs

Input 1: Competition with Loblolly Pine

Data used: NRCS SSURGO Site Index. Site index (SI) is the average height of the dominant and codominant trees in a stand at a reference age. SI is species dependent and is used as a measure of site productivity.

Rationale: Areas where the SI for loblolly pine is much greater than the SI for longleaf pine are likely to be planted in loblolly pine if timber management is one of the landowner's objectives. Additionally, in areas better suited for loblolly pine vegetative competition may be high and therefore more frequent and costly management interventions may be needed.

Implementation: We grouped soils into two groups, one where the SI for longleaf pine was either greater than or within twenty of the SI for loblolly pine, and the other where the SI for loblolly pine was more than twenty greater than SI for longleaf pine.

Input 2: Competition with Agricultural Cultivated Crops

Data used: NRCS Non-Irrigated Capability Class. Land capability classification is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time.[3] There are eight classifications:

- Class I (1) soils have slight limitations that restrict their use.
- Class II (2) soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- Class III (3) soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- Class IV (4) soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- Class V (5) soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class VI (6) soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class VII (7) soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to rangeland, forestland, or wildlife habitat.
- Class VIII (8) soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use mainly to recreation, wildlife habitat, water supply, or esthetic purposes.

[2] Little, E.L., Jr. 1971. Atlas of United States trees, volume 1, conifers and important hardwoods. U.S. Department of Agriculture Miscellaneous Publication 1146, 9 p., 200 maps.

[3] U.S. Department of Agriculture, Natural Resources Conservation Service. National Soil Survey Handbook. Available Online. Accessed July 2014.

Rationale: Areas with a high capability for producing common cultivated crops are more likely to remain in cultivated crops while those with lower capability are more suited to forestland.

Implementation: We grouped soils into two groups, higher capability (Classes I and II) and lower capability (Classes III, IV, V, VI, VII, and VIII).

Input 3: Floodplains and Wetlands

Data used: Floodplains (NC DENR) and wetlands (USFWS, NWI).

Rationale: Longleaf Pine does not grow well in frequently flooded bottomland soils and soils that are saturated for most of the year.

Implementation: Soils in the100-year floodplain, floodway, or a wetland, were separated out into two groups based on the SI groups.

Assigning Soil Map Units into Relative Suitability Groups

Once each soil map unit was assigned to a SI group, a capability class group, and a floodplain/wetland group, the groupings were multiplied against each other so that each soil fell into one of six categories (Table 1).

Table 1. Unique categories resulting from the multiplication of SI group by capability class group and floodplains/wetlands.

				In Floodplain or Wetland
		Capability Class		
		Lower Capability Classes(III-VIII)	Higher Capability Classes (I and II)	All Capability Classes
SI Group	SI for longleaf pine greater than or within twenty of SI for loblolly pine	Category 1	Category 2	Category 3
	SI for longleaf pine more than twenty less than SI for loblolly pine	Category 4	Category 5	Category 6

Category 1: Good longleaf soils, Low capability crop soils, Not in floodplain or wetland

Category 2: Good longleaf soils, High capability crop soils, Not in floodplain or wetland

Category 3: Good longleaf soils, All capability crop soils, In floodplain or wetland

Category 4: Good loblolly soils, Low capability crop soils, Not in floodplain or wetland

Category 5: Good loblolly soils, High capability crop soils, Not in floodplain or wetland

Category 6: Good loblolly soils, All capability crop soils, In floodplain or wetland

Disclaimers

- This model is not meant to dissuade individuals from planting longleaf if longleaf is their objective and their property does not fall into one of the "good longleaf categories."
- This model is not a substitute for an on-site evaluation by a natural resource professional.