

# Cooleys Meadowrue - Potential Habitat, December 2020 - NC Department of Transportation

## File Geodatabase Feature Class



### Tags

Cooley's meadowrue, *Thalictrum cooleyi*, Thal\_cool, Vascular Plant, Terrestrial, endangered, ecotone species, random forest model, Transportation, NRTR, NCDOT, Environment, Location, North Carolina, ATLAS, North Carolina

### Summary

This dataset was originally created in July 2019 as part of the Project ATLAS initiative at NCDOT to support the Environmental Analysis Unit (EAU) Mitigation and Modeling Unit with project delivery in the development phase.

The Cooley's meadowrue model is a Random Forest (machine-learning) model. As such, it returns the probability of potential habitat, based on the core assumption that current presence locations are representative of potential habitat within the state of North Carolina. For the purposes of ATLAS applications, this model is reclassified to a 3-level map product distinguishing 30-m raster grid cells with predicted low, moderate, and high probability of potential habitat.

This dataset supports the production of the Natural Resources Technical Report (NRTR). This dataset also contains information that may assist biologists in preparing background information for field surveys, in order to address protected species for Threatened & Endangered Species Survey Reports, and/or Biological Assessments.

### Description

The Cooley's meadowrue Potential Habitat dataset is a polygon layer depicting high, moderate and low potential habitat locations for Cooley's meadowrue in NC counties that have a USFWS "current" status listing.

Cooley's meadowrue, documented in the Pine Savanna natural community, occurs in circumneutral soils in sunny, moist to wet grass-sedge bogs, wet-pine savannas over calcareous clays, and savannah-like areas, often at the ecotones of intermittent drainages or non-riverine swamp forests. This rhizomatous perennial herb is also found along plowed firebreaks, roadside ditches and rights-of-way, forest clearings dominated by grass or sedge, and power line or utility rights-of-way. The species requires some type of disturbance (e.g., mowing, clearing, periodic fire) to maintain its open habitat. The plant typically occurs on slightly acidic (pH 5.8-6.6) soils that are loamy fine sand, sandy loam, or fine sandy loam; at least seasonally moist or saturated; and mapped as Foreston, Grifton, Muckalee, Torhunta, or Woodington series.

The three levels are: Low, Moderate, and High Probability of Potential Habitat (based on similarity of environmental conditions to those found at known occurrence locations). These levels represent the fact that given limited knowledge of species biology, continuously changing environments, and potential for gaps and error in both species and environment data, a model prediction dependent on remotely-sensed data can never predict species occurrence or habitat with absolute accuracy and precision. Thus, "Low" probability habitat represents regions and sites where biologists would be very surprised to find this species and its habitat (occurrence here should be extremely rare). In "High" probability habitat, biologists expect to frequently encounter areas that look like potential habitat based on visible environmental and vegetation community characteristics. The thresholds for this species are: Low-Moderate (0.28) and ModerateHigh (0.35).

For more information please click here <https://xfer.services.ncdot.gov/gisdot/Metadata/Atlas/TechDocs/>

Datasets developed under Project ATLAS do not replace any NRTR work for future projects and may not be used as a replacement for site visits / field surveys by qualified professionals and hence should be used only as a supporting platform for decision making. Use of this dataset for project scoping or screening is merely pre-decisional.

### Credits

The Environmental Analysis Unit (EAU) Mitigation and Modeling Unit within NCDOT was tasked to create this dataset. This dataset supports the production of the Natural Resources Technical Report (NRTR). Annual maintenance of this dataset is handled by the EAU.

Support and maintenance of the enterprise spatial database where this data resides is handled by NCDIT's Transportation GIS Unit.

### Use limitations

The North Carolina Department of Transportation shall not be held liable for any errors in this data. This includes errors of omission, commission, errors concerning the content of the data, and relative and positional accuracy of the data. This data cannot be construed to be a legal document. Primary sources from which this data was compiled must be consulted for verification of information contained in this data.

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### Extent

**West** -79.071748    **East** -77.088987  
**North** 34.992068    **South** 33.831272

### Scale Range

**Maximum (zoomed in)** 1:5,000  
**Minimum (zoomed out)** 1:625,000

### ArcGIS Metadata ►

### Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE    biota, geoscientificInformation, location, transportation, environment

\* CONTENT TYPE    Downloadable Data  
EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION    No

PLACE KEYWORDS    North Carolina

#### THESAURUS ►

TITLE    User  
CREATION DATE    2019-07-11 00:00:00  
PUBLICATION DATE    2020-12-16 00:00:00

*Hide Thesaurus ▲*

THEME KEYWORDS    Cooley's meadowrue, Thalictrum cooleyi, Thal\_cool, Vascular Plant, Terrestrial, endangered, ecotone species, random forest model, Transportation, NRTR, NCDOT, Environment, Location, North Carolina, ATLAS, North Carolina

#### THESAURUS ►

TITLE    User  
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[Hide Thesaurus ▲](#)

[Hide Topics and Keywords ▲](#)

## Citation ►

TITLE Cooleys Meadowrue - Potential Habitat, December 2020 - NC Department of Transportation  
CREATION DATE 2019-07-11 00:00:00  
PUBLICATION DATE 2020-12-16 00:00:00

PRESENTATION FORMATS digital map  
FGDC GEOSPATIAL PRESENTATION FORMAT vector digital data

[Hide Citation ▲](#)

## Citation Contacts ►

### RESPONSIBLE PARTY

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE originator

### CONTACT INFORMATION ►

PHONE  
VOICE 919-707-6136

### ADDRESS

TYPE physical  
DELIVERY POINT 4101 Capital Boulevard  
CITY Raleigh  
ADMINISTRATIVE AREA NC  
POSTAL CODE 27604  
COUNTRY US  
E-MAIL ADDRESS [ATLAS@ncdot.gov](mailto:ATLAS@ncdot.gov)

### HOURS OF SERVICE

9:00am – 5:00pm Monday - Friday

### CONTACT INSTRUCTIONS

Please send an email with any issues, questions or comments regarding the ATLAS Data Search Tool, ATLAS Screening Tool or ATLAS Workbench. If it is an immediate need, please call the contact number or indicate as such in the subject line in an email.

[Hide Contact information ▲](#)

### RESPONSIBLE PARTY

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE resource provider

### CONTACT INFORMATION ►

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CONTACT'S ROLE point of contact

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**Resource Details ►**

DATASET LANGUAGES English (UNITED STATES)  
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed  
SPATIAL REPRESENTATION TYPE vector

\* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.8.1.14362

CREDITS

The Environmental Analysis Unit (EAU) Mitigation and Modeling Unit within NCDOT was tasked to create this dataset. This dataset supports the production of the Natural Resources Technical Report (NRTR). Annual maintenance of this dataset is handled by the EAU.

Support and maintenance of the enterprise spatial database where this data resides is handled by NCDIT's Transportation GIS Unit.

[Hide Resource Details ▲](#)

## Extents ►

### EXTENT

#### DESCRIPTION

Data collection is complete.

#### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

WEST LONGITUDE -84.422111

EAST LONGITUDE -75.416034

SOUTH LATITUDE 33.730557

NORTH LATITUDE 36.617257

EXTENT CONTAINS THE RESOURCE Yes

#### TEMPORAL EXTENT

BEGINNING DATE 2019-07-11 00:00:00

ENDING DATE 2019-07-11 00:00:00

### EXTENT

#### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

\* WEST LONGITUDE -79.071748

\* EAST LONGITUDE -77.088987

\* NORTH LATITUDE 34.992068

\* SOUTH LATITUDE 33.831272

\* EXTENT CONTAINS THE RESOURCE Yes

#### EXTENT IN THE ITEM'S COORDINATE SYSTEM

\* WEST LONGITUDE 1978511.909862

\* EAST LONGITUDE 2572409.566553

\* SOUTH LATITUDE 35014.604378

\* NORTH LATITUDE 452042.176817

\* EXTENT CONTAINS THE RESOURCE Yes

[Hide Extents ▲](#)

## Resource Points of Contact ►

### POINT OF CONTACT

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

CONTACT'S POSITION Environmental Program Consultant

CONTACT'S ROLE originator

### CONTACT INFORMATION ►

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[Hide Contact information ▲](#)

[Hide Resource Points of Contact ▲](#)

## Resource Maintenance ►

RESOURCE MAINTENANCE  
UPDATE FREQUENCY as needed

SCOPE OF THE UPDATES dataset

### OTHER MAINTENANCE REQUIREMENTS

Maintenance of this dataset is handled by the Environmental Analysis Unit (EAU) Mitigation and Modeling Unit. Currently updating this dataset has not been planned. Support and maintenance of the enterprise spatial database where this data resides is handled by NCDIT's Transportation GIS Unit.

### MAINTENANCE CONTACT

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE originator

### CONTACT INFORMATION ►

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[Hide Contact information ▲](#)

[Hide Resource Maintenance ▲](#)

## Resource Constraints ►

### LEGAL CONSTRAINTS

#### LIMITATIONS OF USE

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### SECURITY CONSTRAINTS

CLASSIFICATION unclassified

CLASSIFICATION SYSTEM None

#### LIMITATIONS OF USE

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### CONSTRAINTS

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[Hide Resource Constraints ▲](#)

## Spatial Reference ►

### ARCGIS COORDINATE SYSTEM

\* TYPE Projected

\* GEOGRAPHIC COORDINATE REFERENCE GCS\_North\_American\_1983

\* PROJECTION NAD\_1983\_StatePlane\_North\_Carolina\_FIPS\_3200\_Feet

\* COORDINATE REFERENCE DETAILS

#### PROJECTED COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER 102719

X ORIGIN -121841900

Y ORIGIN -93659000

XY SCALE 3048.0060960121918

Z ORIGIN -100000

Z SCALE 10000

M ORIGIN -100000

M SCALE 10000

XY TOLERANCE 0.0032808333333333331

Z TOLERANCE 0.001

M TOLERANCE 0.001

HIGH PRECISION true

LATEST WELL-KNOWN IDENTIFIER 2264

#### WELL-KNOWN TEXT

PROJCS["NAD\_1983\_StatePlane\_North\_Carolina\_FIPS\_3200\_Feet",GEOGCS["GCS\_North\_American\_1983",DATUM["D\_North\_American\_1983",SPHEROID["GRS\_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Lambert\_Conformal\_Conic"],PARAMETER["False\_Easting",2000000.0026166666],PARAMETER["False\_Northing",0.0],PARAMETER["Central\_Meridian",-79.0],PARAMETER["Standard\_Parallel\_1",34.33333333333334],PARAMETER["Standard\_Parallel\_2",36.16666666666666],PARAMETER["Latitude\_Of\_Origin",33.75],UNIT["Foot\_US",0.3048006096012192],AUTHORITY["EPSG",2264]]

#### REFERENCE SYSTEM IDENTIFIER

VALUE 2264

\* CODESPACE EPSG

\* VERSION 6.12(9.0.0)

[Hide Spatial Reference ▲](#)

## Spatial Data Properties ►

#### VECTOR ►

\* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

#### GEOMETRIC OBJECTS

FEATURE CLASS NAME CooleysMeadowruePotentialHabitat

\* OBJECT TYPE composite

\* OBJECT COUNT 112590

[Hide Vector ▲](#)

#### ARCgis FEATURE CLASS PROPERTIES ►

FEATURE CLASS NAME CooleysMeadowruePotentialHabitat

\* FEATURE TYPE Simple

\* GEOMETRY TYPE Polygon

\* HAS TOPOLOGY FALSE

\* FEATURE COUNT 112590

\* SPATIAL INDEX TRUE

\* LINEAR REFERENCING FALSE

[Hide ArcGIS Feature Class Properties ▲](#)

[Hide Spatial Data Properties ▲](#)

## Data Quality ►

#### SCOPE OF QUALITY INFORMATION ►

RESOURCE LEVEL dataset

[Hide Scope of quality information ▲](#)

#### DATA QUALITY REPORT - COMPLETENESS OMISSION ►

##### MEASURE DESCRIPTION

After processing, the dataset is checked for drawing display and number of records and file sizes compared with source materials.



CONFORMANCE TEST RESULTS

TEST PASSED Yes  
RESULT EXPLANATION  
Pass

PRODUCT SPECIFICATION ▶

TITLE NCDOT Geospatial Data Specifications  
CREATION DATE 2019-07-11 00:00:00  
PUBLICATION DATE 2020-12-16 00:00:00

[Hide Product specification ▲](#)

[Hide Data quality report - Completeness omission ▲](#)

DATA QUALITY REPORT - CONCEPTUAL CONSISTENCY ▶

MEASURE DESCRIPTION

The dataset is converted to file geodatabase (FGDB) format using tools in ArcGIS. The geometry is checked, and if needed repaired

CONFORMANCE TEST RESULTS

TEST PASSED Yes  
RESULT EXPLANATION  
Pass

PRODUCT SPECIFICATION ▶

TITLE NCDOT Geospatial Data Specifications  
CREATION DATE 2019-07-11 00:00:00  
PUBLICATION DATE 2020-12-16 00:00:00

[Hide Product specification ▲](#)

[Hide Data quality report - Conceptual consistency ▲](#)

DATA QUALITY REPORT - QUANTITATIVE ATTRIBUTE ACCURACY ▶

MEASURE DESCRIPTION

Model Review and Improvements:

From November 2019 through February 2020, biologists conducted rapid field assessments of a binary classification (Potential Habitat and Non-Habitat) of the Version 1 continuous model predictions . A stratified sample of points were generated on "accessible lands" (generally public lands and right-of-ways) and biologists aimed to survey at least 10 points per county within the range. At each visited point, biologists characterized the site as "Potential Habitat" or "Non-Habitat", based upon their best professional judgment of the visible vegetation community and environmental characteristics. They also mapped the area as a polygon and provided site descriptions and photos to support their conclusion. If a single site, based on the scale of a 30-m grid cell, included both Potential Habitat and NonHabitat (e.g., differing habitat on either side of a road), two polygon entries were logged.

## CONFORMANCE TEST RESULTS

TEST PASSED Yes

RESULT EXPLANATION

Pass

## PRODUCT SPECIFICATION ►

TITLE NCDOT Geospatial Data Specifications

CREATION DATE 2019-07-11 00:00:00

PUBLICATION DATE 2020-12-16 00:00:00

[Hide Product specification ▲](#)

[Hide Data quality report - Quantitative attribute accuracy ▲](#)

[Hide Data Quality ▲](#)

## Lineage ►

### LINEAGE STATEMENT

Species Data Source:

Presence data was from multiple sources listed below, and rasterized to a 30-m scale to match environmental data. Any grid cell intersecting known occurrence points or polygons was attributed as "presence". No true absence data were available, so the remaining grid cells (areas without known occurrence) were attributed as "pseudoabsence".

1. US Fish and Wildlife Service (USFWS) Range Data: The model extent was defined based on USFWS current range data, applied through agreements between NCDOT and USFWS.
2. NC Natural Heritage Program (NCNHP) Element Occurrence (EO) Data: Observations evaluated for use in the model included all plant species records where STATUS=Current and ACCURACY=1-Very High, 2-High, and 3-Medium as of the most recent Tier 2 data release. Some, but not all, models included the medium accuracy data.
3. NC Department of Transportation (NCDOT) Field Pre-Validation Survey Data: Field surveys conducted to verify current EO status and improve the accuracy of EO records for several species. Survey resulted in new data for some species.
4. NCDOT Past NRTR Project Data: Data gathered from past project files provided 6 years of presence/absence polygons and up to 2 years of habitat/non-habitat polygons within NRTR study areas.
5. Expert Reviewer AGOL Desktop Review Data: Species experts completed a structured, spatially explicit review of a draft version of this model (see below). Experts' potential habitat/non-habitat judgments served as additional input for some models.

Within the USFWS range there are 11,642,310 30-m raster grid cells. From the intersection of these grid cells with the available occurrence data, was obtained:

- Presence: 762 cells attributed as high precision, current observations of Cooley's meadowrue. All presence locations were used to train the model, because the random forest model process includes randomized out-of-bag testing as part of development.
- Mediums: 99 cells attributed as moderate precision, but current observations. The use of these presence cells to train the model depended on how much noise versus signal they added. Medium cells were included from this version of the model.
- Historic: 4 cells attributed as historic (extirpated) observations. These observations were not used to train the model but were referenced during model review.

- Associates: 0 cells attributed as current, high precision observations of associated species, but without record of the Cooley's meadowrue. If present, these observations were not used to train the model but were referenced during model review.
- Target Taxa Group: 24,088 cells attributed as current, high precision observations of other plant species where the Cooley's meadowrue was not documented as present. Target taxa group cells were handled as a special class of pseudoabsence data.
- Pseudoabsence: No true absence data were available for this project, so random draws from the remaining grid cells served as pseudoabsence data. The number of points drawn for each model run was equal to the total number of presence points.

#### Environmental Data Source:

There was access to 70 environmental data layers across 6 thematic areas: Geology and Soils, Land Cover and Vegetation, Disturbance, Landform, Spectral, Climate. All data are in NAD 1983 State Plane North Carolina FIPS 3200 (US feet), 30-m spatial resolution, with statewide extent.

This model was initiated with a subset of 27 variables based on variable importance in earlier drafts (the reviewed draft initiated with all 52 layers available at that time), previously untested layers (new or updated data layers), reviewer feedback, and interpretation of patterns in earlier versions. The initial subset of variables presented to the model was further refined by testing for multicollinearity and performing model selection.

#### PROCESS STEP DESCRIPTION

##### Model Approach and Output :

Random forest models generate predictions through repeated construction of decision-tree style models. At multiple points during model construction and assessment, the random forest draws a random subset of presence and pseudoabsence data, as well as random subset of available environmental data. The model procedure tracks (1) how frequently sites are predicted to be presence vs absence, (2) which variables contribute most to accurate classification of presence vs absence sites, and (3) overall statistics about model performance. We ran the model in R using the randomForest (Liaw and Weiner 2002) and rfUtilities (Evans and Murphy 2018) packages. This document summarizes key aspects of the model specification and outputs, as well as results of a desktop review and field assessment.

The model predicts the probability of potential habitat for the species, given the assumption that the available presence data are representative of suitable habitat within the state.

The predicted probability of potential habitat (0 to 1) reflects the frequency with which a raster grid cell was classified as potential habitat versus non-habitat through all the permutations of random forests.

3-levels (low, moderate, and high probability of potential habitat) representation of the model prediction by setting probability thresholds at 0.28 (low/moderate) and 0.35 (moderate/high) were created. These thresholds were set through discussion with the expert biologists in reference to their observations of model strengths and weaknesses during the field assessments. The selection of a threshold is a judgement based on acceptable risk and desired level of precaution for a given application of the model. As a threshold is dropped, more area with decreasing similarity to known presence locations will be categorized as the higher level class (e.g., lowering the moderate/high threshold labels more habitat as high probability).

#### PROCESS CONTACT

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant

CONTACT'S ROLE originator

CONTACT INFORMATION ▶

PHONE

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[Hide Contact information ▲](#)

[Hide Process step ▲](#)

PROCESS STEP ▶

DESCRIPTION

Data was reviewed in ESRI's Data Reviewer tool to verify geometry.

PROCESS CONTACT

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CONTACT'S POSITION Environmental Program Consultant

CONTACT'S ROLE originator

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[Hide Process step ▲](#)

PROCESS STEP ►  
DESCRIPTION

Geodatabase was forwarded on to the GIS Unit for publishing as part of data for project ATLAS.

PROCESS CONTACT

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE originator

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[Hide Contact information ▲](#)

[Hide Process step ▲](#)

[Hide Lineage ▲](#)

## Distribution ►

DISTRIBUTOR ►

CONTACT INFORMATION

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE distributor

CONTACT INFORMATION ►

PHONE

VOICE 919-707-6136

ADDRESS

TYPE physical

DELIVERY POINT 4101 Capital Boulevard

CITY Raleigh

ADMINISTRATIVE AREA NC

POSTAL CODE 27604

COUNTRY US

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*Hide Contact information ▲*

*Hide Distributor ▲*

DISTRIBUTION FORMAT

\* NAME File Geodatabase Feature Class

VERSION 10.5

*Hide Distribution ▲*

## Fields ►

DETAILS FOR OBJECT CooleysMeadowruePotentialHabitat ►

\* TYPE Feature Class

\* ROW COUNT 112590

DEFINITION

Potential Habitat areas for Cooleys Meadowrue in NC.

DEFINITION SOURCE

NCDOT

FIELD OBJECTID ►

\* ALIAS FID

\* DATA TYPE OID

\* WIDTH 4

\* PRECISION 0

\* SCALE 0

\* FIELD DESCRIPTION

Internal feature number.

\* DESCRIPTION SOURCE

Esri

\* DESCRIPTION OF VALUES

Sequential unique whole numbers that are automatically generated.

*Hide Field OBJECTID ▲*

FIELD Shape ►

- \* ALIAS Shape
- \* DATA TYPE Geometry
- \* WIDTH 0
- \* PRECISION 0
- \* SCALE 0
- \* FIELD DESCRIPTION  
Feature geometry.
  
- \* DESCRIPTION SOURCE  
Esri
  
- \* DESCRIPTION OF VALUES  
Coordinates defining the features.

*Hide Field Shape ▲*

FIELD CommonName ►

- ALIAS CName
- \* DATA TYPE String
- \* WIDTH 100
- \* PRECISION 0
- \* SCALE 0
- FIELD DESCRIPTION  
Common Name of Species
  
- DESCRIPTION SOURCE  
NCDOT

*Hide Field CommonName ▲*

FIELD SciName ►

- ALIAS SName
- \* DATA TYPE String
- \* WIDTH 150
- \* PRECISION 0
- \* SCALE 0
- FIELD DESCRIPTION  
Scientific Name of Species
  
- DESCRIPTION SOURCE  
NCDOT

*Hide Field SciName ▲*

FIELD PotHabitat ►

- ALIAS PotHab

\* DATA TYPE String  
\* WIDTH 25  
\* PRECISION 0  
\* SCALE 0  
FIELD DESCRIPTION  
Model Output - Low, Moderate or High potential habitat

DESCRIPTION SOURCE  
NCDOT

LIST OF VALUES  
VALUE Low  
DESCRIPTION Low Potential  
ENUMERATED DOMAIN VALUE DEFINITION SOURCE NCDOT

VALUE Moderate  
DESCRIPTION Moderate Potential  
ENUMERATED DOMAIN VALUE DEFINITION SOURCE NCDOT

VALUE High  
DESCRIPTION High Potential  
ENUMERATED DOMAIN VALUE DEFINITION SOURCE NCDOT

*Hide Field PotHabitat ▲*

FIELD Shape\_Length ►

\* ALIAS Shape\_Length  
\* DATA TYPE Double  
\* WIDTH 8  
\* PRECISION 0  
\* SCALE 0  
\* FIELD DESCRIPTION  
Length of feature in internal units.

\* DESCRIPTION SOURCE  
Esri

\* DESCRIPTION OF VALUES  
Positive real numbers that are automatically generated.

*Hide Field Shape\_Length ▲*

FIELD Shape\_Area ►

\* ALIAS Shape\_Area  
\* DATA TYPE Double  
\* WIDTH 8  
\* PRECISION 0  
\* SCALE 0  
\* FIELD DESCRIPTION  
Area of feature in internal units squared.

\* DESCRIPTION SOURCE  
Esri

\* DESCRIPTION OF VALUES  
Positive real numbers that are automatically generated.



[Hide Field Shape\\_Area ▲](#)

[Hide Details for object CooleysMeadowruePotentialHabitat ▲](#)

[Hide Fields ▲](#)

## Metadata Details ►

METADATA LANGUAGE English (UNITED STATES)  
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset  
SCOPE NAME \*dataset

\* LAST UPDATE 2024-01-29

### ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0  
STANDARD OR PROFILE USED TO EDIT METADATA ISO19139  
METADATA STYLE ISO 19139 Metadata Implementation Specification

CREATED IN ARCGIS FOR THE ITEM 2024-02-01 14:10:04  
LAST MODIFIED IN ARCGIS FOR THE ITEM 2024-01-29 15:31:07

### AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes  
LAST UPDATE 2024-01-29 15:31:07

[Hide Metadata Details ▲](#)

## Metadata Contacts ►

### METADATA CONTACT

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE point of contact

### CONTACT INFORMATION ►

PHONE  
VOICE 919-707-6136

### ADDRESS

TYPE physical  
DELIVERY POINT 4101 Capital Boulevard  
CITY Raleigh  
ADMINISTRATIVE AREA NC  
POSTAL CODE 27604  
COUNTRY US  
E-MAIL ADDRESS ATLAS@ncdot.gov

### HOURS OF SERVICE

9:00am – 5:00pm Monday - Friday

### CONTACT INSTRUCTIONS

Please send an email with any issues, questions or comments regarding the ATLAS Data Search Tool, ATLAS Screening Tool or ATLAS Workbench. If it is an immediate need, please call the contact number or indicate as such in the subject line in an email.

[Hide Contact information ▲](#)

[Hide Metadata Contacts ▲](#)

## Metadata Maintenance ►

### MAINTENANCE

UPDATE FREQUENCY as needed

### OTHER MAINTENANCE REQUIREMENTS

Annual maintenance of this dataset is handled by the Environmental Analysis Unit (EAU) Mitigation and Modeling Unit. Support and maintenance of the enterprise spatial database where this data resides is handled by NCDIT's Transportation GIS Unit.

### MAINTENANCE CONTACT

ORGANIZATION'S NAME North Carolina Department of Transportation - EAU Mitigation and Modeling Unit  
CONTACT'S POSITION Environmental Program Consultant  
CONTACT'S ROLE originator

### CONTACT INFORMATION ►

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[Hide Contact information ▲](#)

[Hide Metadata Maintenance ▲](#)

## Metadata Constraints ►

### SECURITY CONSTRAINTS

CLASSIFICATION unclassified  
CLASSIFICATION SYSTEM None

### LIMITATIONS OF USE

The North Carolina Department of Transportation shall not be held liable for any errors in this metadata. This includes errors of omission, commission, errors concerning the content of the data,

and relative and positional accuracy of the data. This data cannot be construed to be a legal document. Primary sources from which this data was compiled must be consulted for verification of information contained in this data. Datasets developed under Project ATLAS do not replace any NRTR work for future projects and may not be used as a replacement for site visits / field surveys by qualified professionals and hence should be used only as a supporting platform for decision making. Use of this dataset for project scoping or screening is merely pre-decisional.

#### CONSTRAINTS

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[Hide Metadata Constraints ▲](#)