Roan Mountain Bluet - Potential Habitat, December 2020 - NC Department of Transportation

Geodatabase Feature Class

Tags Roan Mountain bluet, Houstonia montana, Hous_mont, Hedyotis purpurea var. montana, Hedy_mont, Vascular Plant, endangered, GIS based model, Terrestrial, Transportation, NRTR, NCDOT, Environment, Location, North Carolina, ATLAS

Summary

This dataset was originally created in August 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. Model output is binary, and includes the USFWS species range, excluding historic counties. The species model range is split between “High” and “Low” potential habitat. “High potential habitat” represents GIS based layer areas deemed suitable habitat, and “Low potential habitat” represents areas deemed low quality or non-habitat.
The Optimal survey window for Roan Mountain bluet is between June and July. Field surveys are valid for 2 years.
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 Roan Mountain Bluet Potential Habitat dataset is a polygon layer depicting high and low potential habitat locations for Roan Mountain Bluet in NC counties that have a USFWS "current" status listing. This model identifies all year-round potential suitable habitat for the species.

Roan Mountain bluet (*Houstonia montana*) occurs on thin, gravelly talus slopes of grassy balds, cliff ledges, shallow soils in crevices of rock outcrops, and steep slopes with full sun at the summits of high elevations peaks of the southern Blue Ridge Mountains. The plant is found at elevations of 4,200-6,300 feet above mean sea level, and often has a north, northwest, south, or southwest aspect. Known occurrences typically grow in gravel-filled, acidic, and metamorphic-derived soil pockets between underlying mafic rock. Fraser fir and red spruce dominate the forests adjacent to known occurrences. Blue Ridge goldenrod, Heller’s blazing star, and spreading avens are a few of its common associate species.

According to the recovery plan there are 8 populations on mountain peaks in northwestern North Carolina. Three of the eight are large populations - Grandfather Mountain, Roan Mountain, Bluff Mountains and 5 are small – Three Top Mountain, Paddy Mountain, Phoenix Mountain, Rich Mountain, and Hanging Rock. Caldwell County is not listed in the recovery plan and there are no occurrences within its borders. The Yancey population is located on Big Bald Mountain and is not included in the 8 populations identified in the recovery plan (last observed in 2008). There are 47 occurrences including 1 historical.

County Information - FWS listed current counties: Ashe, Avery, Caldwell, Mitchell, Watauga, and Yancey.

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

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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 -82.531225
East -81.225791
North 36.596696
South 35.692165

Scale Range

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

Topics and Keywords

Themes or categories of the resource Geoscientific, Location, Transportation, Environment, Biota

Content type Downloadable Data

Export to FGDC CSDGM XML format as Resource Description No

Theme keywords Roan Mountain bluet, Houstonia montana, Hous_mont, Hedyotis purpurea var. montana, Hedy_mont, Vascular Plant, endangered, GIS based model, Terrestrial, Transportation, NRTR, NCDOT, Environment, Location, North Carolina, ATLAS

Thesaurus

Title User
Creation date 2019-08-30 00:00:00
Publication date 2020-12-16 00:00:00

Place keywords North Carolina

Thesaurus

Title User
Creation date 2019-08-30 00:00:00
Publication date 2020-12-16 00:00:00

Citation

Title Roan Mountain Bluet - Potential Habitat, December 2020 - NC Department of Transportation

Creation date 2019-08-30 00:00:00

Publication date 2020-12-16 00:00:00

Presentation formats digital map

FGDC geospatial presentation format vector digital data

Citation Contacts

Responsible party - point of contact

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

Contact's position Environmental Program Consultant

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.

Responsible party - originator

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

Contact's position Environmental Program Consultant

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Responsible party - resource provider

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit
Contact's position Environmental Program Consultant
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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 10.5.1.7333

Credits

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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.

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 2019-08-30 00:00:00
Ending date 2019-08-30 00:00:00

Extent

Geographic extent

Bounding rectangle

Extent type Extent used for searching
West longitude -82.531225
East longitude -81.225791
North latitude 36.596696
South latitude 35.692165
Extent contains the resource Yes

Extent in the item's coordinate system

westBL 963021.999901
eastBL 1339398.000100
southBL 725092.000139
northBL 1043625.999881
exTypeCode Yes

Resource Points of Contact

Point of contact - originator

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit
Contact's position Environmental Program Consultant

Contact information

Phone
Voice 919-707-6136
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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 - originator
Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit
Contact's position Environmental Program Consultant
Contact information
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Voice 919-707-6136
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Resource Constraints

Legal constraints

Limitations of use

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Security constraints

Classification unclassified
Classification system None

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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

ProjectedCoordinateSystem

WKID 102719
XOrigin -121841900
YOrigin -93659000
XYScale 3048.0060960121918

ZOrigin 0
ZScale 1
MOrigin 0
MScale 1
XYTolerance 0.0032808333333333331
ZTolerance 0.001
MTolerance 0.001
HighPrecision true
LatestWKID 2264
WKT
PROJCS["NAD_1983_StatePlane_North_Carolina_FIPS_3200_Feet",GEOGCS["GCS_North_American_1983",DATUM["
79.0],PARAMETER["Standard_Parallel_1",34.33333333333334],PARAMETER["Standard_Parallel_2",36.16666666666

Reference system identifier

Value 2264
Codespace EPSG
Version 6.12(9.0.0)

Spatial Data Properties

Vector

Level of topology for this dataset geometry only

Geometric objects

Feature class name GdbGisuPubC.ATLAS.RoanMountainBluetPotentialHabitat
Object type composite
Object count 32718

ArcGIS Feature Class Properties

Feature class name GdbGisuPubC.ATLAS.RoanMountainBluetPotentialHabitat
Feature type Simple
Geometry type Polygon
Has topology FALSE
Feature count 32718
Spatial index TRUE
Linear referencing FALSE

Data Quality

Scope of quality information

Resource level dataset

Data quality report - Completeness omission

Data quality measure reference

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 2019-08-30 00:00:00

Publication date 2020-12-16 00:00:00

Data quality report - Conceptual consistency

Data quality measure reference

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 2019-08-30 00:00:00

Publication date 2020-12-16 00:00:00

Data quality report - Quantitative attribute accuracy

Data quality measure reference

Measure description

A model prediction file was shared with select reviewers on ArGIS Online (AGOL). Points were placed within the USFWS potential habitat as well as the model potential habitat in order to solicit feedback. Reviewers could place additional comments for consideration by modeler.
Independent data review was conducted. Current aerial imagery was used to determine if EO sites have been developed. Elevation data was used to confirm the elevations included in EO records.
EO6 is a multipart polygon occurrence with 10 parts. One part is found at elevation 4170 feet above sea level on a slope which is just outside of the selected habitat.

Conformance test results

Test passed Yes

Result explanation

Pass

Product specification

Title NCDOT Geospatial Data Specifications
Creation date 2019-08-30 00:00:00
Publication date 2020-12-16 00:00:00

Lineage

Lineage statement

ArcGIS Model Builder version 10.4.1 was used to build a model
Input Environmental data layers for model: DEM, ridges (geomorphon analysis) and county boundaries.
Input Layers
1) DEM (NC Floodplain Mapping Program 20-foot DEM acquired August 2018)
• Layer selection justification:
The data includes a grid of elevation values for the entire state although data is clipped to county boundary plus a buffer. Roan Mountain bluet is known to occur in a specific range of elevations. An upper limit was not selected as elevations within the listed counties are only slightly greater than elevations where the plant has been observed.
• "Habitat" versus "Nonhabitat" designations:
Areas with elevation greater than 4,200 feet above mean sea level were identified as habitat.
2) Ridges or Geomorphons (Geomorphon analysis was done using GRASS open source GIS software.)
Layer 1 (20-foot DEM) was used as the source raster to process terrain form into ten landform features. The ten features are flat, summit, ridge, shoulder, spur, slope, hollow, footslope, valley, and depression. Ridges, summits, spurs, and shoulders were then selected from this data set.
• Layer selection justification:
EO22 is located at a lower elevation than other element occurrences. In order to capture this occurrence as well as additional potential habitat similar to that found at EO22, ridges between 3,900 and 4,200 feet above sea level were added to the area including all land higher than 4,200 feet above sea level. Shoulders, spurs, and summits between 3,900 and 4,200 feet above sea level were also added in order to create a more continuous "ridge" between the high elevation peaks.
• "Habitat" versus "Nonhabitat" designations:
Areas on ridges, shoulders, spurs, and summits between 3,900 and 4,200 feet above mean sea level were identified as habitat.
3) County_Boundary (Select Ashe, Avery, Caldwell, Mitchell, Watauga and Yancey Counties from County Boundary shapefile)
• Layer selection justification:
Species listed in Ashe, Avery, Caldwell, Mitchell, Watauga, and Yancey Counties
• "Habitat" versus "Nonhabitat" designations:
Potential habitat Ashe, Avery, Caldwell, Mitchell, Watauga, and Yancey Counties.
Output of model:
Model output is binary, and includes the USFWS species range, excluding historic counties. The species model range is split between "High" and "Low" potential habitat. "High potential habitat" represents GIS based layer areas deemed suitable habitat, and "Low potential habitat" represents areas deemed low quality or non-habitat.

Process step

Description

From the DEM select all areas 4,200 feet above mean sea level.
Then select all areas between 3,900 and 4,200 feet above sea level located on ridges, shoulders, spurs, and summits as identified through the geomorphon analysis.
Combine both areas and clip to select counties.

Process contact - originator

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

Contact's position Environmental Program Consultant

Contact information

Phone

Voice 919-707-6136

Address

Type

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

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Process step

Description

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

Process contact - originator

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

Contact's position Environmental Program Consultant

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Process step

Description

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

Process contact - originator

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

Contact's position Environmental Program Consultant

Contact information

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Voice 919-707-6136

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Distribution

Distributor

Contact information - distributor

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit

Contact's position Environmental Program Consultant

Contact information

Phone

Voice 919-707-6136

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Distribution format

Name SDE Feature Class
Version 10.5

Fields

Details for object GdbGisuPubC.ATLAS.RoanMountainBluetPotentialHabitat

Type Feature Class
Row count 32718

Definition
Potential Habitat areas for Roan Mountain Bluet in NC.

Definition source
NCDOT

Field OBJECTID

Alias FID
Data type OID
Width 4
Precision 10
Scale 0

Field description
Internal feature number.

Description source
Esri

Description of values
Sequential unique whole numbers that are automatically generated.

Field Shape

Alias Shape
Data type Geometry
Width 4
Precision 0
Scale 0
Field description
Feature geometry.

Description source
Esri

Description of values
Coordinates defining the features.

Field CommonName

Alias CommonName
Data type String
Width 100
Precision 0
Scale 0
Field description
Common Name of Species

Description source
NCDOT

Field SciName

Alias ScientificName
Data type String
Width 150
Precision 0
Scale 0
Field description
Scientific Name of Species

Description source
NCDOT

Field PotHabitat

Alias PotentialHabitat
Data type String
Width 25
Precision 0
Scale 0
Field description

Model Output - Low or High potential habitat

Description source
NCDOT

List of values
Value High
Description High potential
Enumerated domain value definition source NCDOT
Value Low
Description Low potential
Enumerated domain value definition source NCDOT

Field Shape.STArea()
Alias Shape.STArea()
Data type Double
Width 0
Precision 0
Scale 0

Field Shape.STLength()
Alias Shape.STLength()
Data type Double
Width 0
Precision 0
Scale 0

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 2022-07-25

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 2026-08-26 13:47:09
Last modified in ArcGIS for the item 2022-07-25 17:48:38
Automatic updates
Have been performed Yes
Last update 2022-07-25 17:48:26

Metadata Contacts

Metadata contact - point of contact

Organization's name North Carolina Department of Transportation - EAU Mitigation and Modeling Unit
Contact's position Environmental Program Consultant
Contact information

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Metadata Maintenance

Maintenance

Update frequency as needed
Other maintenance requirements
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Maintenance contact - originator

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Metadata Constraints

Security constraints

Classification unclassified

Classification system None

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Thumbnail and Enclosures

Thumbnail

Thumbnail type

Image file