

Mapping saltmarsh sparrow habitat in Connecticut

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What does this data set describe?

Title: Mapping saltmarsh sparrow habitat in Connecticut

Abstract:

This map predicts the probability of saltmarsh sparrow (*Ammodramus caudacutus*) presence and nesting for each 1 ha cell of a grid overlaid on the salt marshes of Connecticut. Sparrow presence and nesting were predicted from occurrence and nesting data collected at 60 1-ha study plots between 2006 and 2008. The presence of sparrows was predicted from spectral reflectance characteristics of the study plots, while nest presence was predicted using the proportion of high marsh that existed in the same study plots. The conditions of habitat at these plots were used to predict sparrow presence and nesting at the rest of the salt marsh areas in Connecticut. The predictions were then field tested in 2009. Cells that had a high prediction of probability for presence or nesting were more frequently occupied than cells with low predicted probability.

Supplemental Information:

Due to the irregular outlines of salt marshes, some grid cells are incomplete squares. All cells <0.2 ha have been eliminated from the map.

1. **How should this data set be cited?**

Susan Meiman, Department of Ecology and Evolutionary Bio, May 2011, Mapping saltmarsh sparrow habitat in Connecticut.

Online Links:

[<http://susanmeiman.org/home/saltmarsh-sparrow-habitat-maps/>](http://susanmeiman.org/home/saltmarsh-sparrow-habitat-maps/)

Other Citation Details:

Suggested citation: Meiman, S. 2011. Mapping saltmarsh sparrow habitat in Connecticut. Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, CT. On-line at: [<http://susanmeiman.org/home/saltmarsh-sparrow-habitat-maps/>](http://susanmeiman.org/home/saltmarsh-sparrow-habitat-maps/), accessed xx/xx/20xx.

2. **What geographic area does the data set cover?**

West_Bounding_Coordinate: -73.658431

East_Bounding_Coordinate: -71.831469

North_Bounding_Coordinate: 41.400587

South_Bounding_Coordinate: 40.957515

3. **What does it look like?**

4. **Does the data set describe conditions during a particular time period?**

Beginning_Date: 2004

Ending_Date: 2009

Currentness_Reference: ground condition

5. **What is the general form of this data set?**

Geospatial_Data_Presentation_Form: vector digital data

6. **How does the data set represent geographic features?**

a. **How are geographic features stored in the data set?**

This is a Vector data set. It contains the following vector data types (SDTS terminology):

- G-polygon (6179)

b. **What coordinate system is used to represent geographic features?**

Grid_Coordinate_System_Name: Universal Transverse Mercator

Universal_Transverse_Mercator:

UTM_Zone_Number: 18

Transverse_Mercator:

Scale_Factor_at_Central_Meridian: 0.999600

Longitude_of_Central_Meridian: -75.000000
Latitude_of_Projection_Origin: 0.000000
False_Easting: 500000.000000
False_Northing: 0.000000

Planar coordinates are encoded using coordinate pair
Abscissae (x-coordinates) are specified to the nearest 0.000000
Ordinates (y-coordinates) are specified to the nearest 0.000000
Planar coordinates are specified in meters

The horizontal datum used is North American Datum of 1983.
The ellipsoid used is Geodetic Reference System 80.
The semi-major axis of the ellipsoid used is 6378137.000000.
The flattening of the ellipsoid used is 1/298.257222.

7. How does the data set describe geographic features?

CT_Saltmarsh_Sparrow_habitat

FID

Internal feature number. (Source: ESRI)

Sequential unique whole numbers that are automatically generated.

Shape

Feature geometry. (Source: ESRI)

Coordinates defining the features.

GrID

Unique grid cell identification number used in processing. (Source: Meiman)

F_AREA

Area of polygon in square meters (Source: ESRI)

ProbNests

Predicted probability of saltmarsh sparrow nest presence for that cell (Source: Meiman)

ProbPresen

Predicted probability of saltmarsh sparrow presence for that cell (Source: Meiman)

Who produced the data set?

1. **Who are the originators of the data set?** (may include formal authors, digital compilers, and editors)
 - o Susan Meiman, Department of Ecology and Evolutionary Biology, University of Connecticut
2. **Who also contributed to the data set?**
3. **To whom should users address questions about the data?**

Susan Meiman
email: meimansue AT gmail.com

Why was the data set created?

This map was built to identify where saltmarsh sparrows are most likely and least likely to be found, and most likely and least likely to nest, within salt marsh areas of Connecticut.

How was the data set created?

1. From what previous works were the data drawn?

Hoover, 2009 (source 1 of 3)

Hoover, Mark D. , 2009, Connecticut's changing salt marshes: A remote sensing approach to sea level rise and possible salt marsh migration..

Other_Citation_Details: M. S. Thesis, University of Connecticut, Storrs, Connecticut

Source_Contribution:

This data set used a combination of digital aerial images, elevation data, extensive ground-truthing, and object-oriented classification to create a high-resolution (1 m) map of Connecticut salt marshes, organized by plant species into high and low marsh communities. Predictions of saltmarsh sparrow nest presence were then generated from the proportion of high marsh occurring in 1-ha cells.

NOAA and USGS (2004) (source 2 of 3)

National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, United States Geological Survey (USGS), and State of Connecticut, Department of Environmental Protection, 2004, Coastal Connecticut 2004 Color Infrared Orthophoto.

Online Links:

- o http://cteco.uconn.edu/guides/ortho_2004_coast_infrared.htm

Source_Contribution:

To predict saltmarsh sparrow presence, a classification was built based on spectral characteristics of 1-ha plots associated with known sparrow presence or absence. The spectral characteristics were drawn from a set of color infrared images from the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center and the United States Geological Survey (USGS). (2004) Coastal Connecticut 2004 color infrared images.

Meiman 2011 (source 3 of 3)

Meiman, Susan, 2011, Modeling Saltmarsh Sparrow Distribution in Connecticut.

Online Links:<digitalcommons.uconn.edu/gs_theses/72/>

Other_Citation_Details: M. S. Thesis, University of Connecticut, Storrs, CT, USA

Type_of_Source_Media: paper

Source_Contribution:

This details the development and evaluation of the models used to delineate saltmarsh sparrow habitat in Connecticut.

2. How were the data generated, processed, and modified?

Date: 01-Jun-2011 (process 1 of 2)
Date: 14-Jun-2011 (process 2 of 2)
Dataset copied.

Data sources used in this process:

- C:\Envirodata\Sue_data\Sparrow_presence_Web\CT_Saltmarsh_Sparrow_habitat
3. **What similar or related data should the user be aware of?**
-

How reliable are the data; what problems remain in the data set?

1. **How well have the observations been checked?**

Between 25 May and 25 August 2009, 72 cells from the gridded map were selected for field testing. We randomly selected cells from 3 categories of predicted probability of sparrow presence: Low probability (less than 50%), medium probability (50-95%), and high probability (>95%). 10-minute point counts were conducted in the middle of each sampled cell. After each point count, the surveyor slowly walked back and forth throughout the entire plot, and recorded any sparrows not detected during the point count. By walking through the plot, the surveyor also detected sparrow nests. Sites where no sparrows were detected were repeatedly surveyed, at least two weeks apart, either until sparrows were encountered or until four visits had been completed.

2. **How accurate are the geographic locations?**
3. **How accurate are the heights or depths?**
4. **Where are the gaps in the data? What is missing?**

Due to the irregular outline of salt marshes, some grid cells are incomplete squares. All cells < 0.2 ha were omitted from the map.

The sparrow prediction data set was developed from pre-existing digital sources and reflects the positional accuracy of these original data. Model testing did not focus on how well the processing of remote-sensing data created pixel-by-pixel representation of ground conditions. Rather, the focus of this study was to test how well the pixel-by-pixel processing results predicted saltmarsh sparrow presence and nesting at the 1-ha scale.

5. **How consistent are the relationships among the observations, including topology?**

How can someone get a copy of the data set?

Are there legal restrictions on access or use of the data?

Access_Constraints: None.

Use_Constraints:

This map should not be used to delineate any legal extent of salt marsh area or any property boundaries. While each cell represented in the map predicts a probability of presence or nesting, it does not indicate whether a sparrow or a sparrow nest actually occurred in the cell.

1. **Who distributes the data set?** (Distributor 1 of 1)

University of Connecticut Department of Ecology and Evolutionary Biology

2. **What's the catalog number I need to order this data set?**

Downloadable Data

3. **What legal disclaimers am I supposed to read?**

4. **How can I download or order the data?**

- **Availability in digital form:**

Data format: Size: 1.811

- **Cost to order the data:**
- **Special instructions:**

Download from <http://susanmeiman.org/saltmarsh-sparrow-habitat-maps/>

5. **What hardware or software do I need in order to use the data set?**

Viewable in ArcView or ArcGIS.

Who wrote the metadata?

Dates:

Last modified: 28-Nov-2011

Metadata author:

Susan Meiman

Department of Ecology and Evolutionary Biology, University of Connecticut
graduate student

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Storrs, CT, CT. 06269-3043

USA

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Metadata standard:

FGDC Content Standards for Digital Geospatial Metadata (FGDC-STD-001-1998)

Metadata extensions used:

- <http://www.esri.com/metadata/esriprof80.html>