Catchy title

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Manual
Species distribution model ensemble tool
(beta version, Oct 2017)

1. Introduction

[Karin to write, based on original proposal]

1.1. Why create ensemble models?

[Karin to write, based on original proposal]

1.2. Structure of Manual

[Do this last]

1.3. Supported import file types

.CSV files

- [describe format]

Raster files

[describe format]

.SHP files

[describe format]

.Geodata files

[describe format]

1.4. Supported export file types

CSV files

[describe format]

.SHP files

[describe format]

KML files

[describe format]

1.5. Supported image download file types

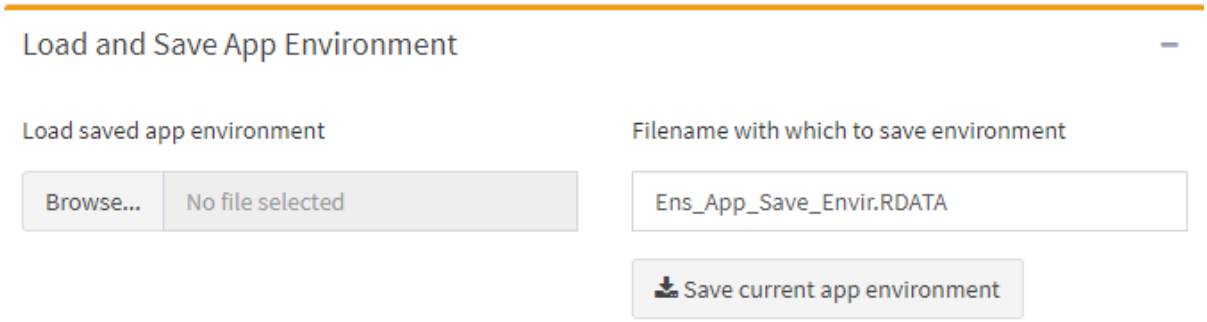
.JPG files
[describe format]

.PDF files
[describe format]

.PNG files
[describe format]

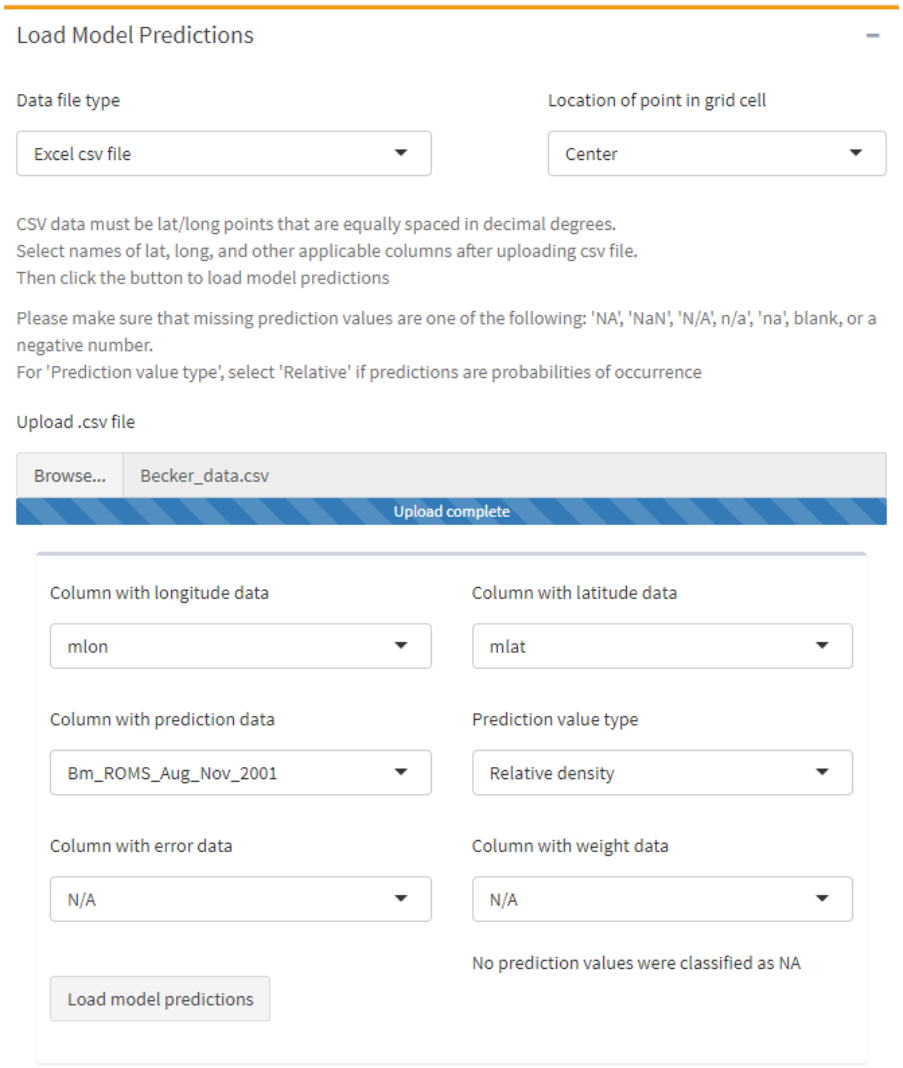
2. Load Model Predictions Tab

2.1. Load and Save App Environment



- *Load saved app environment*
  - Browse to .RDATA file created using tool.
- *Filename with which to save environment*
  - Name of .RDATA file that will be downloaded if the user clicks 'Save current app environment'.
- *Save current app environment*
  - Click to download an .RDATA file that stores files loaded in the current session of the ensemble modeling tool.
  - This file can be loaded using the 'Load saved app environment' and thus the user can functionally pick up where they left off in their last session.
  - Aspects of the app that are saved include but are not limited to: original model predictions, study area polygon, land polygon, overlaid model predictions, ensemble predictions, validation data, and calculated evaluation metrics.

2.2. Load Model Predictions



- *Data file type*: "Excel csv file"
    - *Location of point in grid cell*:
        - Specifies whether the longitude and latitude coordinates in the file represent the center, top right, top left, bottom left, or bottom right of each grid cell
    - *Upload .csv file*
        - Browse to and select the .csv file that contains the model prediction data you want to load into the app
        - This file must have headers
        - An error message will appear if you select a file that is not a .csv file
    - *Column with longitude data*
        - Select the name of the column with the longitude data
    - *Column with latitude data*
        - Select the name of the column with the latitude data
    - *Column with prediction data*
        - Select the name of the column with the prediction data
    - *Prediction value type*

        - Select “Absolute density” if the model predictions have had all necessary correction factors applied for the applicable study area, and thus can provide a true prediction of density
        - Select “Relative density” if the model prediction have **not** had all necessary correction factors applied for the applicable study area, and thus only accurately predict the density relative to the other model predictions
    - *Column with error data*
        - Select the name of the column with the prediction data
        - If you do not have error data for these model predictions, then select “N/A”
        - If you want to use error values as pixel-level spatial weights in a weighted ensemble, then use the ‘Column with weight data’ input
        - Currently there is no place within the app that this error data can be used, but a potential future use is creating maps of the error data
    - *Column with weight data*
        - Select the name of the column with the prediction data
        - If you do not have weight data for these model predictions, then select “N/A”
        - Weight data can be used as pixel-level spatial weights in a weighted ensemble in the “Create Ensemble Predictions” tab
    - *NA prediction values message*
        - A message detailing how many of the provided prediction values will be classified as NA
        - A prediction value will be classified as NA if the provided data is one of the following: 'NA', 'NaN', 'N/A', ‘n/a', 'na', blank, or a negative number
    - *Load model predictions*
        - Click this button in order to load model predictions from the loaded .csv file with the specified data into the app
- *Data file type:* “GIS raster”
    - *Band number of prediction data*
        - The band number of the prediction data within the loaded raster .tif file
    - *Upload raster .tif file*
        - Browse to and select the .tif file for the raster that contains the model prediction data you want to load into the app
        - An error message will appear if you select a file that is not a .tif file or if the selected raster does not have data at the provided band number
    - *Prediction value type*
        - See here
    - See *Prediction value type*
        - Select “Absolute density” if the model predictions have had all necessary correction factors applied for the applicable study area, and thus can provide a true prediction of density
        - Select “Relative density” if the model prediction have **not** had all necessary correction factors applied for the applicable study area, and thus only accurately predict the density relative to the other model predictions
    - *NA prediction values message*

        - A detailing how many of the provided prediction values will be classified as NA
        - A prediction value will be classified as NA if the provided data is one of the following: 'NA', 'NaN', 'N/A', ‘n/a', 'na', blank, or a negative number
    - *Load model predictions*
        - Click this button in order to load model predictions from the loaded .tif file with the specified data into the app
- *Data file type:* “GIS shapefile”
    -

2.3. Loaded Model Predictions

Insert text and screen shots here

3. Overlay Model Predictions Tab

3.1. Load Study Area Polygon

Insert text and screen shots here

3.2. Load Land Polygon

Insert text and screen shots here

3.3. Loaded Model Predictions

Insert text and screen shots here

3.4. Overlay Model Predictions

Insert text and screen shots here

4. Create Ensemble Predictions Tab

4.1. Overlaid Model Predictions

4.2. Create Ensemble Predictions

4.3. Created Ensemble Predictions

5. Evaluation Metrics Tab

5.1. Select Predictions to Evaluate

5.2. Load Validation Data

5.3. Calculate Metrics

5.4. Metrics

5.5. Metric Descriptions and References

6. High Quality Maps Tab

6.1. Select Predictions to Plot

6.2. Plot Parameters

6.2.1. Map range

6.2.2. Title and axis labels

6.2.3. Tick marks and tick labels

6.2.4. Color scheme of predictions

7. Export Predictions Tab

7.1. Select Predictions to Export

7.2. Export Predictions

8. Manual Tab

- Contains this manual

9. Submit Feedback Tab

- Fill out this Google form to:
    - Report errors in the tool. Please provide as much detail as possible
    - Describe functionality you would like to see in future releases
    - Comment on any facet of the tool