New York Rec Data Scripts README

This folder contains the scripts to calculate invasive species risk of trailheads based on town of origin of people, invasive species identified in that town and trailhead visited.

All scripts must be run with Python 3 or later

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**People Movement Scripts:**

*MatchOrigins.py*

This script matches the trail register trip data with the origin towns for groups (where people are from).

Inputs:

1. A csv of a shapefile of town boundaries that have a unique identifier for each town
2. A csv of all the trail register trips

Outputs.

1. A file of successfully matched trips that will have an Origin ID that matches the origin shapefile
2. A file with the list of unmatched trips. These are unmatched either because there were duplicate names matched in the town shapefile or because there were no matches

*MatchDestinations.py*

This script matches the trail register trip data to the trailhead locations

Inputs:

1. The csv of trailhead locations (the csv should have location information in it to be converted to a shapefile)
2. The trail register trip with the origin ID csv (the one produced from MatchOrigins.py

Outputs:

1. A csv of the matched trips with an additional field of the Destination ID
2. A csv of the unmatched trips.

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**Invasive Species Scripts:**

*convertCSVtoSHP.py*

converts large csv files into shapefiles. It was necessary to do this with the iNaturalist invasive plant data.

*EDDmapMerge.py*

adds states to eddmap shapefiles and then merges states into combined regional point and polygon featureclasses

*EDDmapPolyCentroid\_PointMerge.py*

*Important Note*: *Before this script is run the polygons that cross town boundaries must be split using ArcPro to ensure that if a feature spans multiple towns there is a point in each town.*

This script merges the centroids of the polygon feature class with the point feature class to create a single point feature class.

*iMapProcessing.py*

*Important Note*: *Before this script is run the polygons that cross town boundaries must be split using ArcPro to ensure that if a feature spans multiple towns there is a point in each town.*

This script converts iMap polygons and lines into points and then merges them into a single point dataset. necessary

*MergeInvasives.py*

This script merges the iMap, iNaturalist and EDDmap invasive species information into a single dataset. It removes the duplicate entries and also selects a subset of the data based on a csv file of species of interest.

Inputs:

* iMap, iNaturalist and EDDmap shapefiles (results from above scripts).
* Csv with list of species of interest. This must include common and scientific names of all species.
* Shapefile of towns (same as used for the trip origin information). Must have unique origin ID

Outputs

* Csv of invasive species with origin ID

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*finalScores.py*

this script calculates the final invasive species risk score for a given trailhead.

Inputs:

* Origin file: the town csv used for trip origins (MatchOrigin.py)
* Destination file: the csv of trailheads (input in MatchDestinations.py)
* Trip File: the result from MatchDestinations.py
* Invasives file: the result from MergeInvasives.py

Output: csv with invasive species risk scores for each trailhead.