Summary (Abstract)

This tool can be used to create species pseudo-absence points and to merge them with species presence points into a single point feature. The merged Presence-Absence (PA) point feature is often a required input in presence-absence species distribution models (ex. Logistic regression, artifical neural networks).

The user may either input (1) a .CSV file with species presence points in decimal degree coordinates (WGS 1984) or (2) a point features Shapefile (.SHP) or File Geodatabase Feature Class.

Users are required to specify: (1) a species name (2) an output workspace (3) the number of randomly-placed absence points, and (4) the polygon feature in which to constrain random point placement.

Optional parameters include: (1) a buffer distance from presence points to exclude absence points, (2) the minimum distance that absence points must be placed from other random points, and (3) a projected coordinate system.

ppCSV

Species presence points may be inputted as a .CSV file with species presence points in decimal degree coordinates (WGS 1984). The column headers must be in any of the following formats: "latitude", "lat", "Lat", "Latitude", "LAT", "LATITUDE", "y", "Y".

ppFL

Species presence points may be inputted as a point features Shapefile (.SHP) or File Geodatabase Feature Class.

speciesNAME

Enter the species name which will be used as a file header for all outputs (ex. "NAME\_PA.shp).

outputWorkspace

Specify the output workspace.

coordSys

Outputs may be projected to the coordinate system specified by the user.

**\*NOTE:** If input presence points are in a geographic coordinate system and the options to create buffers and minimum distance between absence points are selected, it is **highly recommended** that the points be projected.

constrainPoly

Specify the polygon feature in which random absence points will be placed.

Examples: Study area boundary or administrative boundary (county, state, country, etc.).

buffDist

Specify the buffer distance from input presence points. Pseudo-absence points will be randomly placed outside the buffer zone(s) and within the Constraining Polygon feature.

numOfRandPoints

Specify the desired number of random absence points.

**\*NOTE:** The output PA feature may contain a smaller number of points than specified depending on the parameters specified for the constraining polygon, number of random absence points, and the minimum distance between random absence points.

minAllowedDistBtwP

Specify the minimum distance that absence points must be placed from other random points.

Example: If subsequent habitat modeling involves environmental variables in a 5 km resolution raster format, a minimum distance of 7.5 km could be specified to ensure that only one random absence point will correspond to a single pixel. This can reduce bias in the distribution of absence points in both geographic and environmental space.