EOO Tool Instructions

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Summary
The EOO tool calculates the EOO for multiple species. The tool can only run with an ArcMap Advanced license on ArcMap version 10.1 or above.

The EOO tool creates a minimum convex polygon around either points or polygons of a species and produces a feature class which contains the EOO polygon and a field containing the EOO calculation in kilometres squared.

If the multiple species file contains many species (over 100) or the species have large ranging distributions the tool can take a long time to run.

There is an option within the tool which allows the EOO calculation to only use the values for presence (1-3) and seasonal (1-3) which complies with the IUCN Red List EOO calculation guidelines.
Instructions

1. Download the IUCN Red List EOO Calculator ArcMap ToolBox from the IUCN Spatial Data Resources page and unzip the file.
2. In ArcMap add the IUCN Red List EOO Calculator ArcMap ToolBox in the ToolBox menu.

3. If your folder are not already connected, connect to the folder on your computer select "Connect To Folder".
4. Navigate to the IUCN EOO Calculator toolbox and select open.

5. Once the tool has been added, select the option to “Overwrite the outputs of geoprocessing operations” within the Geoprocessing -> Geoprocessing Options... menu. Untick the “Enable” in Background Processing.
6. The tool required an output geodatabase location. To create a geodatabase, within the Catalog window right select a folder and select “New” -> “File Geodatabase”
7. Open the IUCN EOO Calculator tool

8. The inputs are species or species dataset, the species field requires the species name and the output geodatabase location.

9. The tick box to “Use IUCN spatial attributes...” allows the EOO only to be calculated for IUCN's values for Presence 1-2, Origin 1-2 and Seasonal values (1-3).
10. If species has a non-breeding range (Seasonal = 3) a non-breeding EOO will also be calculated as a separate feature class in the output geodatabase with “_NB_” in the name.
Outputs

When the tool has finished the outputs are within the geodatabase.

If the “Use IUCN spatial attributes...” was selected there will be different outputs depending on the values of the seasonal field being breeding (2) or non-breeding (3).

The EOO tool will calculate the breeding and non-breeding areas separately as a species would either be in one or the other (see step 9).
Summary Table

A summary table will also be created if the option was selected. This table will be in the “Output Geodatabase” you entered when starting the tool.

If “Create summary table” was selected:

a) The output for the summary table called "SpeciesEOOSummary" will be created within the geodatabase which will also contain the species EOO areas.

b) If the species has non-breeding areas (seasonal 3) then the summary table will also include the field "MINI_EOO_NB_SQKM" for comparisons of EOO areas in kilometres squared:
Troubleshooting

Error message 1

The “Overwrite the outputs of geoprocessing operations” has not been selected within the Geoprocessing -> Geoprocessing Options… menu. See step 3 above.

Error Message 2

The IUCN spatial attributes when the data does not contain them (e.g. Attributes are Presence, Seasonal and Origin):
To run the tool without using the IUCN spatial attributes untick the tick box in the tool before running the script, or add the required fields used by IUCN (Metadata document).

Error Message 3
The input shapefile or feature class does not have a spatial reference/projection defined:
To check this if the shapefile/feature class has been projected go to the shapefile/feature class properties. The coordinate system can be checked within the “Source” tab. If the Coordinate system is <Undefined> the projection needs to be defined.

To define the projection you need to use the “Define Project” tool available in standard ArcMap toolbox in Data management Tools -> Projections and Transformations -> Define Projection.
Use the Search to find WGS 1984 in the Geographic Coordinate Systems, select OK and run the tool.