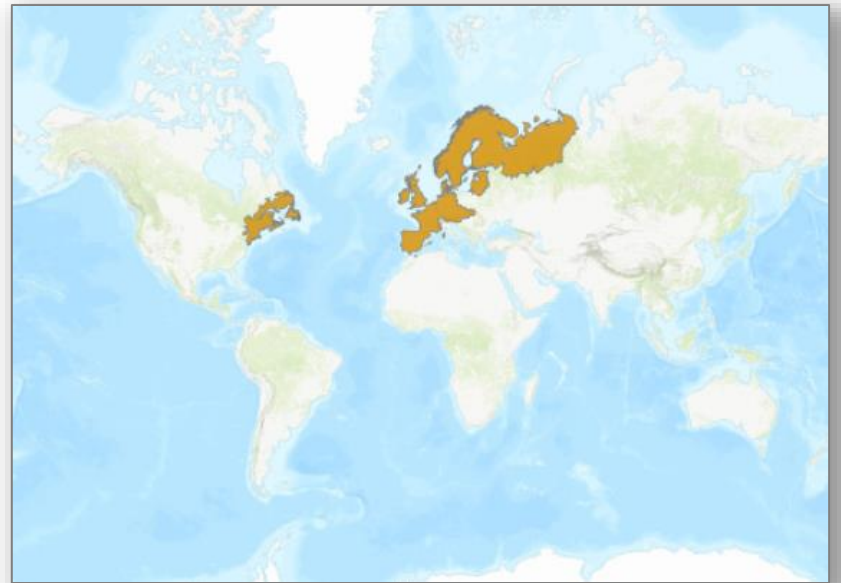
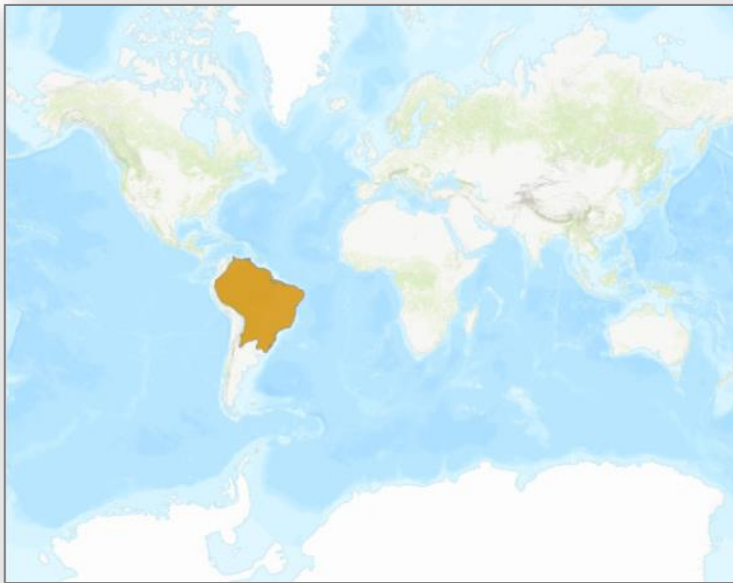


Mapping standards for IUCN Red List assessments





107,700+ species with spatial data on the IUCN Red List

The image displays a composite of three screenshots from the IUCN Red List website, illustrating the process of downloading spatial data.

Top Screenshot: Shows the main navigation bar with the IUCN Red List logo and a search bar. The 'Resources & Publications' link is highlighted with a yellow circle.

Middle Screenshot: Shows the 'Spatial Data Download' page. The 'Clarion Angelfish' (*Holacanthus clarionensis*) is featured as an example species. The 'Download' button is highlighted with a red circle.

Bottom Screenshot: Shows the 'Spatial Data Download' page with a grid of species results. The 'Download' button is highlighted with a red circle. The results include:

- Alophosia azorica** (Plantae, Bryophyta): Decreasing status, Global Europe range.
- Amphidium curvipes** (Plantae, Bryophyta): Stable status, Global Europe range.
- Andoa berthelotiana** (Plantae, Bryophyta): Decreasing status, Global Europe range.
- Slender Rock-moss** (*Andreaea alpestris*) (Plantae, Bryophyta): Unknown status, Global Europe range.
- Icy Rock-moss** (*Andreaea frigida*) (Plantae, Bryophyta): Decreasing status, Global Europe range.
- Brachythecium geheebii** (Plantae, Bryophyta): Stable status, Global Europe range.

The bottom screenshot also shows a map of the Caribbean region and a 'Feedback' button.

Required distribution information for Red List assessments

- Text describing the taxon's geographic range.
- Countries of occurrence, coded by presence, origin and seasonality.
- Distribution map.

RANGE DESCRIPTION

This is a Holarctic species, found in North America, Europe and through into Siberia. It has been declining throughout the European part of its range.

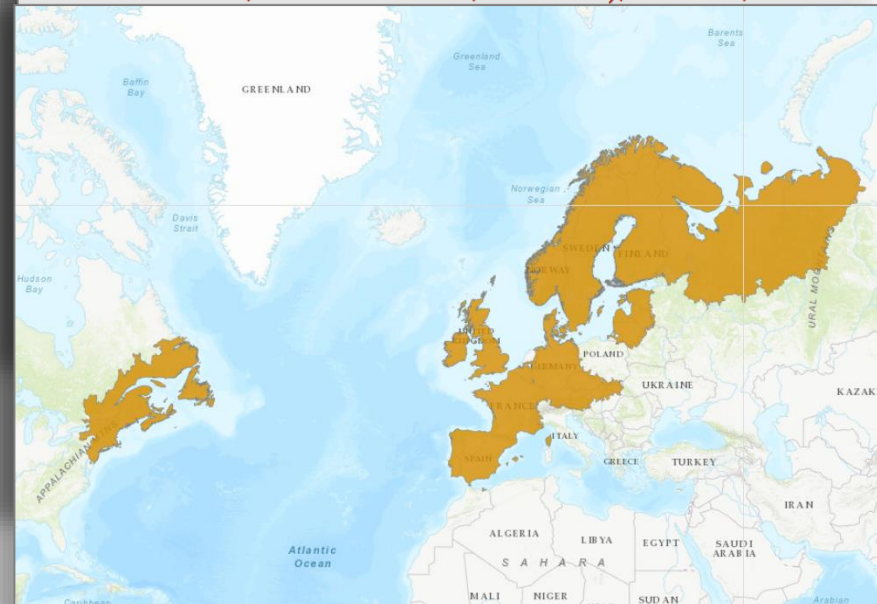
EUROPE

The following are the most recent revised estimates of current population status of *M. margaritifera* in Europe. The information is mainly from Geist (2005), and compiled by Geist partly based on data and references in Alvarez-Claudio *et al.* (2000), Araujo and Pardo (2000), Lopez (2001), Yousif *et al.* (2001a), Velasco-Munoz *et al.* (2002), Boix

NATIVE

Extant (resident)

Austria; Belgium; Canada (Québec, Ontario, Nova Scotia, Newfoundland I, New Brunswick, Labrador); Czechia;

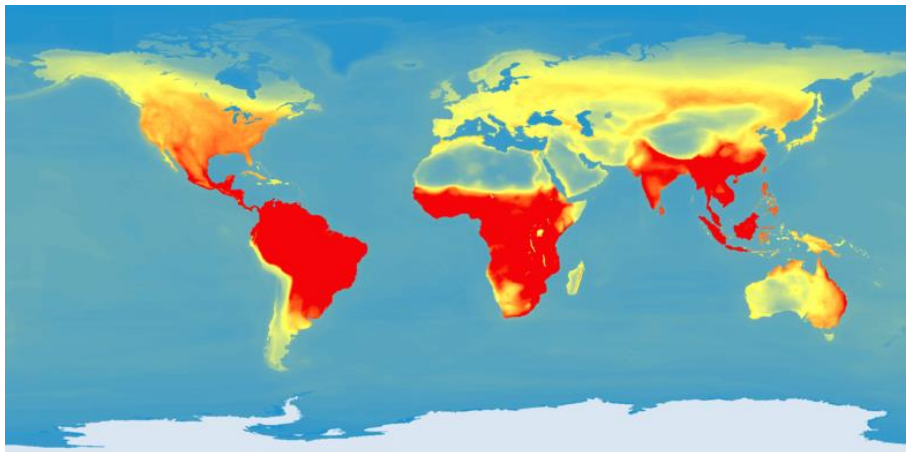


Purpose of distribution maps on the IUCN Red List

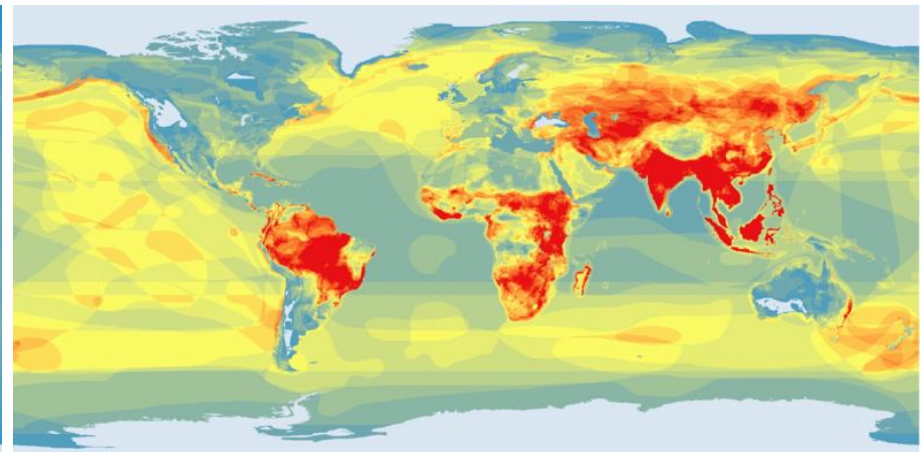
- Visual representation: individual species and groups of taxa.



Assessed amphibian, bird and mammal species richness

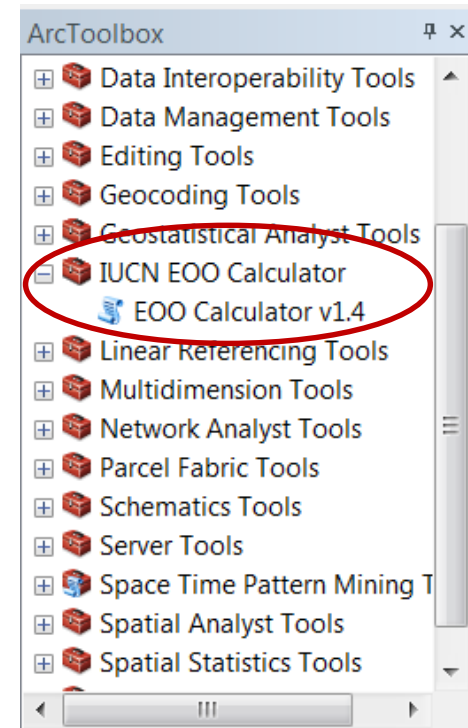
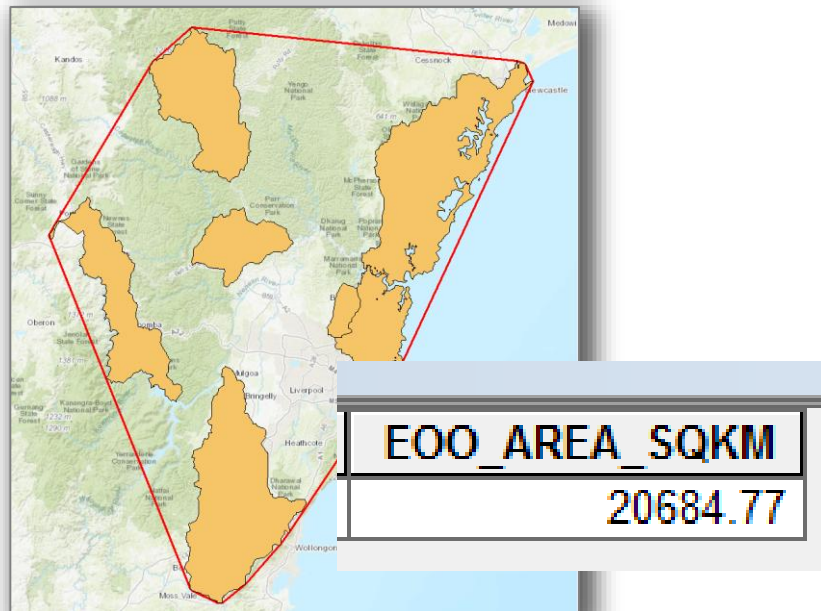


Threatened amphibian, bird and mammal species richness



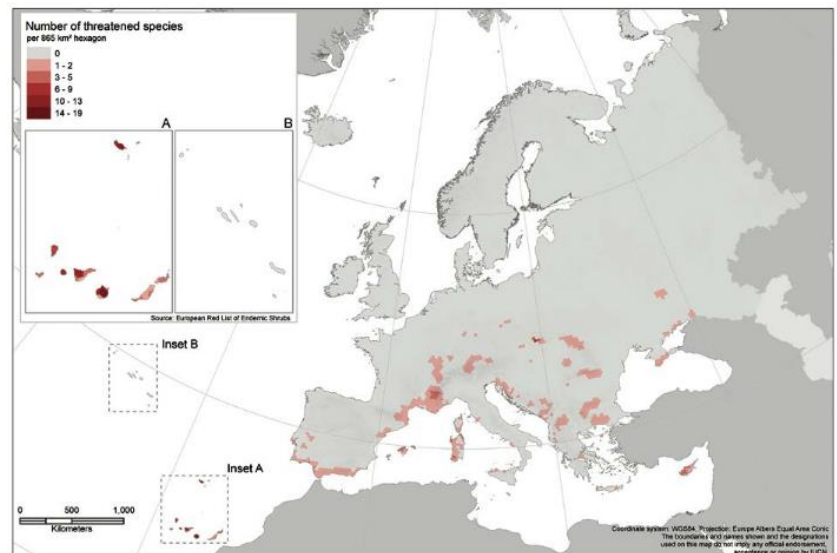
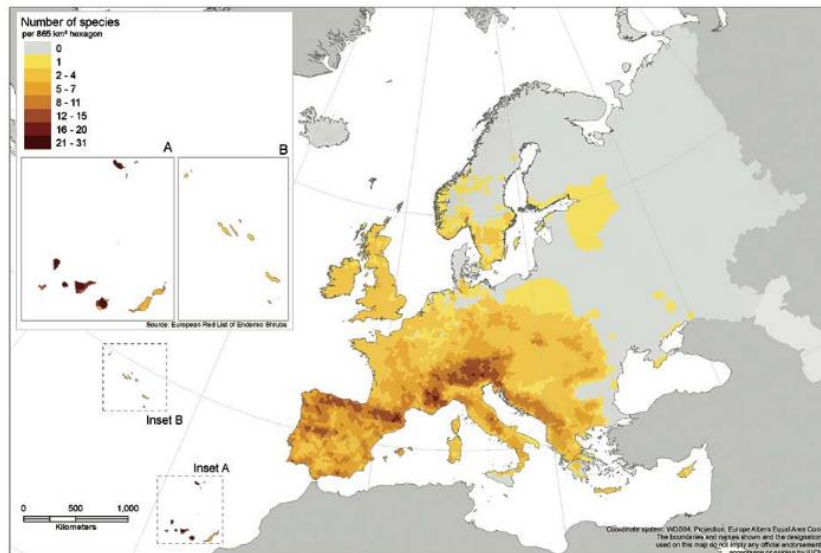
Purpose of distribution maps on the Red List

- Visual representation: individual species and groups of taxa.
- To inform Red List assessments



Purpose of distribution maps on the Red List

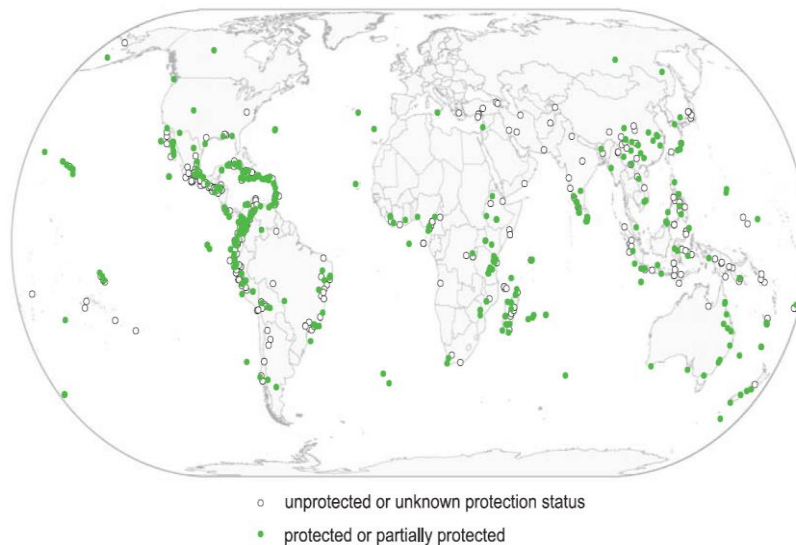
- Visual representation: individual species and groups of taxa.
- To inform Red List assessments.
- Data analyses.



Selected European endemic shrubs: maps showing species richness and distribution threatened species

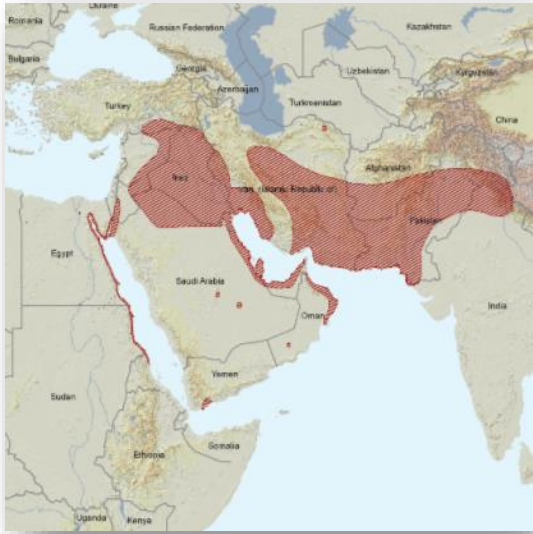
Purpose of distribution maps on the Red List

- Visual representation: individual species and groups of taxa.
- To inform Red List assessments.
- Data analyses.
- To identify conservation priorities



Protected and
unprotected
AZE sites

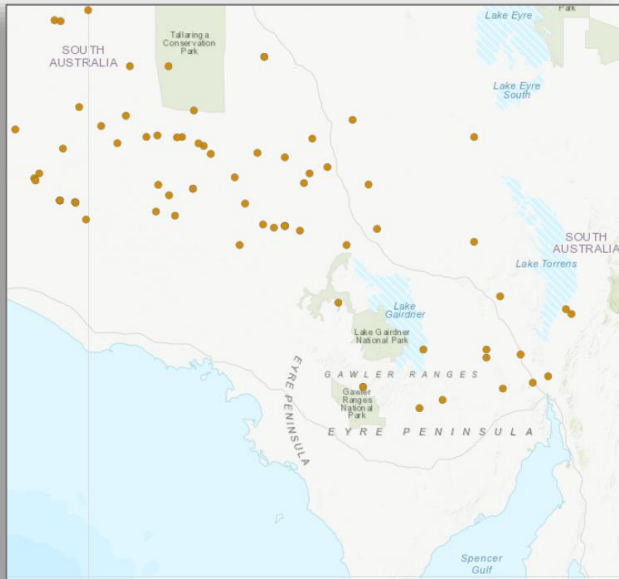
What are we mapping?



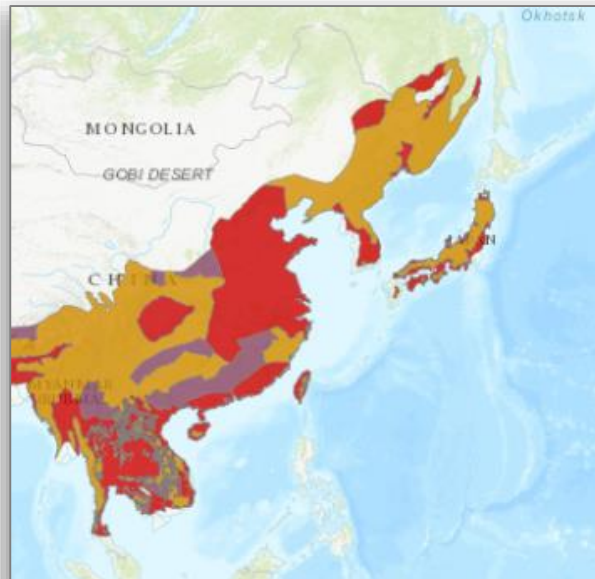
- Known or inferred limits of the species' distribution.
- Distribution depicted as points, polygons or a combination of points and polygons.
- **Polygons:**
 - The species probably only occurs within the polygons.
 - Does *not* mean species is distributed equally within the polygon or occurs everywhere in the polygon

Mapping Standards

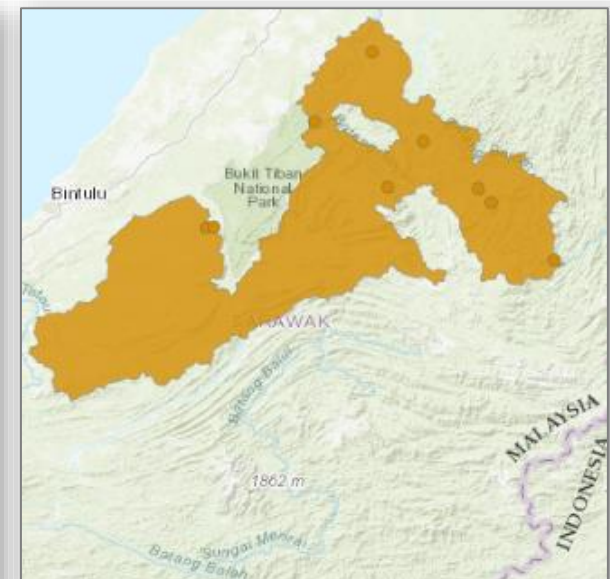
The preferred approach for preparing the map depends on the taxonomic group and the system in which the species occurs.



Plants



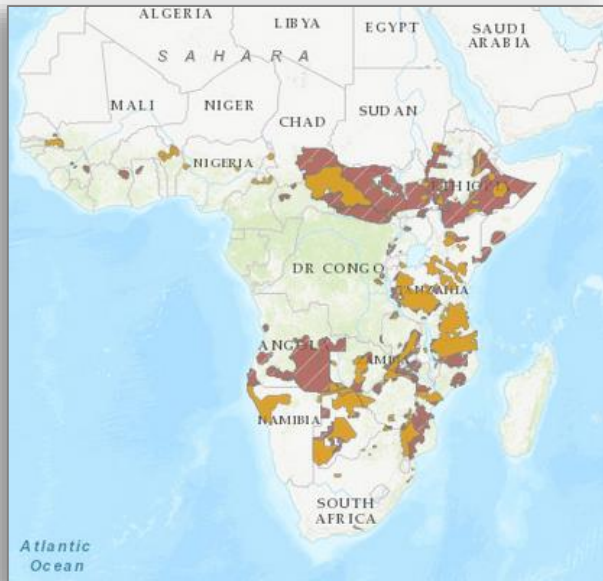
Vertebrates



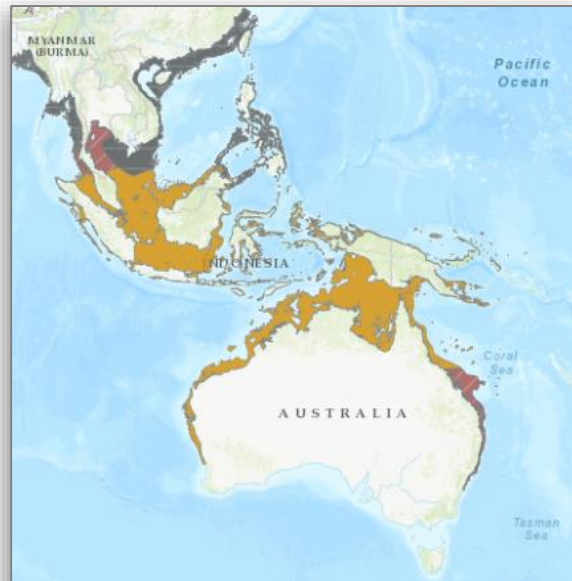
Invertebrates

Mapping Standards

Preferred approaches for preparing maps for depends on the taxonomic group and the system in which the species occurs.



Terrestrial



Marine



Freshwater

- points_data - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

Clipboard Font Alignment Number Styles Cells Editing

Comma [0]... Comma_poin... Currency [0]... Currency_poi... Normal_poin... Normal Bad Good Neutral Calculation

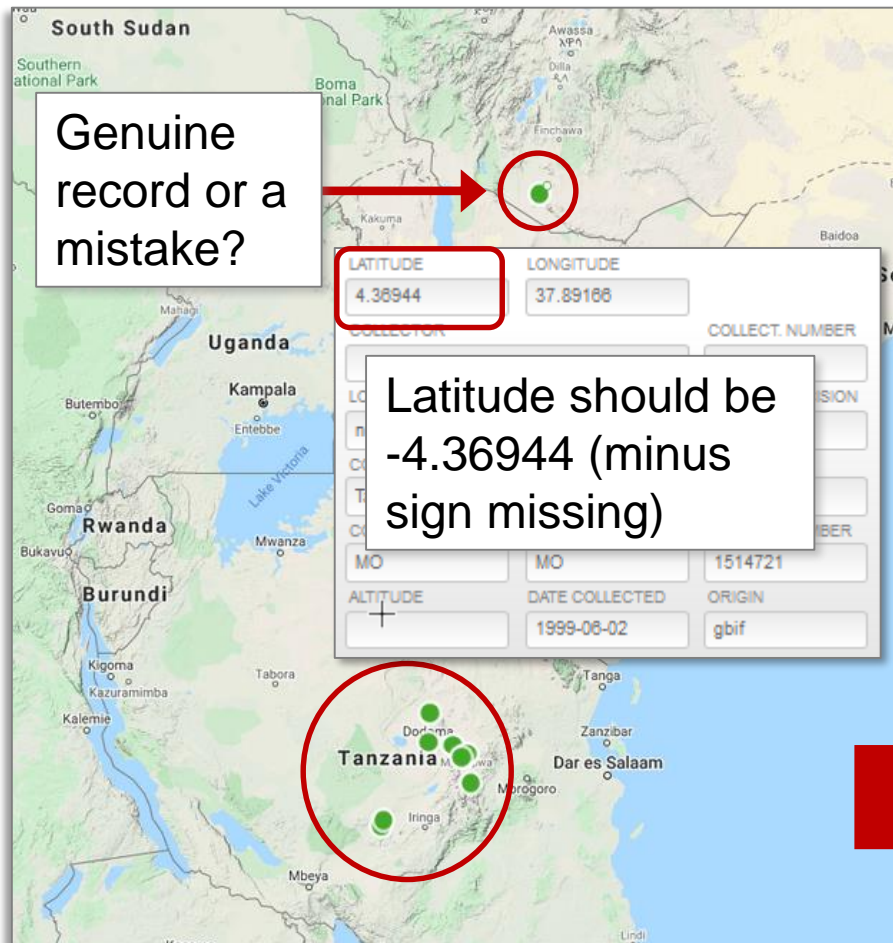
	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH
	taxonRank	scientificName	scientificName	countryCode	locality	stateProvince	currenceStat	individualCount	lishingOrg	decimalLatitude	decimalLongitude	coordinateUncertaintyInMeters	coordinatePrecision	elevation	stationAcc	depth	thAccur	eventDate	day	month	year	tax	
1	SPECIES	Blephariscus	Blephariscus	TZ	T5. Mpawampa District: 5				396d5f30	-6.366667	36.5							1988-04-09T00:00:00	9	4	1988	31	
2	SPECIES	Blephariscus	Blephariscus	TZ					a344ee9f									1964-04-23T00:00:00	23	4	1964	31	
3	SPECIES	Blephariscus	Blephariscus	TZ					a344ee9f									1988-04-09T00:00:00	9	4	1988	31	
4	SPECIES	Blephariscus	Blephariscus	TZ	T7, Iringa Distr: Ruaha Na				f314b0b0									1971-04-16T00:00:00	16	4	1971	31	
5	SPECIES	Blephariscus	Blephariscus	TZ	N Pare Mountains, ca. 6 km S of Kilimanjaro			3	90fd6680	-3.836389	37.6475			1010.0				2006-03-22T00:00:00	22	3	2006	31	
6	SPECIES	Blephariscus	Blephariscus	TZ	N. Kibakwe Division, Mbr Dodoma			5	90fd6680	-6.92138	36.57583			1920.0				2005-06-06T00:00:00	6	6	2005	31	
7	SPECIES	Blephariscus	Blephariscus	TZ	13Km S of Mpwapwa in Dodoma				90fd6680	-6.43333	36.43333			645.0				1990-06-04T00:00:00	4	6	1990	31	
8	SPECIES	Blephariscus	Blephariscus	TZ	Ikowa reservoir; Hill slope Dodoma				90fd6680	-6.2	36.23333			980.0				1975-11-07T00:00:00	7	11	1975	31	
9	SPECIES	Blephariscus	Blephariscus	TZ	Ikowa Reservoir. Hillslope Dodoma				90fd6680	-6.2	36.23333			990.0				1975-03-07T00:00:00	7	3	1975	31	
10	SPECIES	Blephariscus	Blephariscus	TZ	13 km S of Mpwapwa in Dodoma				90fd6680	-6.43333	36.43333			645.0				1990-06-04T00:00:00	4	6	1990	31	
11	SPECIES	Blephariscus	Blephariscus	TZ	Gulwe road Dodoma				90fd6680	-6.43333	36.4							1932-04-01T00:00:00		4	1932	31	
12	SPECIES	Blephariscus	Blephariscus	TZ	Chenene Forest Reserve Dodoma				90fd6680	-5.58333	35.8							1978-05-01T00:00:00		5	1978	31	
13	SPECIES	Blephariscus	Blephariscus	TZ	Mt. Mlimwa Dodoma			1	90fd6680	-6.15	35.766667											31	
14	SPECIES	Blephariscus	Blephariscus	TZ	Open to closed bushland Iringa				90fd6680	-7.63333	34.9			780.0				1970-04-29T00:00:00	29	4	1970	31	
15	SPECIES	Blephariscus	Blephariscus	TZ	Riverine fringe. Iringa				90fd6680	-7.75	34.86666			790.0				1970-04-06T00:00:00	6	4	1970	31	
16	SPECIES	Blephariscus	Blephariscus	TZ	3 miles S of Mpwapwa or Dodoma				90fd6680	-6.36666	36.5			950.0				1988-04-09T00:00:00	9	4	1988	31	
17	SPECIES	Blephariscus	Blephariscus	TZ	T 3. South Pare Mountain Kilimanjaro			6	90fd6680	-4.36944	37.89166			1550.0				1999-06-02T00:00:00	2	6	1999	31	
18	SPECIES	Blephariscus	Blephariscus	TZ	D.O.Afr. [Deutsch-Ost-Af				4e11d750					1300.0				1934-03-25T00:00:00	25	3	1934	31	
19	SPECIES	Blephariscus	Blephariscus	TZ	Tanganyika: Manyoni Dis	Dodoma			4c415e40					1234.0				1964-04-01T00:00:00		4	1964	31	
20	SPECIES	Blephariscus	Blephariscus	TZ					2cd829bb									1988-04-09T00:00:00	9	4	1988	31	
21	SPECIES	Blephariscus	Blephariscus	TZ	Tanzania: 25.03.1934, Le				57254bd														



The screenshot shows an Excel spreadsheet with a data table. The columns are labeled as follows: L (taxonRank), M (scientificName), N (scientificName), O (countryCode), P (locality), Q (stateProvince), R (currenceStat), S (individualCount), T (lishingOrg), U (decimalLatitude), V (decimalLongitude), W (coordinateUncertaintyInMeters), X (coordinatePrecision), Y (elevation), Z (stationAcc), AA (depth), AB (thAcc), AC (eventDate), AD (day), AE (month), AF (year), AG (tax). The data rows show various species (e.g., SPECIES, Blepharis, Blepharis) and their locations (e.g., T5, Mpawampa District, T7, Iringa Distr: Ruaha Na, N Pare Mountains, ca. 6 Kilimanjaro). The 'decimalLatitude' and 'decimalLongitude' columns contain numerical values. A red box highlights the 'decimalLatitude' and 'decimalLongitude' columns, with a red arrow pointing to the text 'Coordinates missing'.

Point maps

- Project the coordinates onto a base map to check they appear where they are supposed to.



Point maps

4. Format the data to match the IUCN Red List mapping standards.

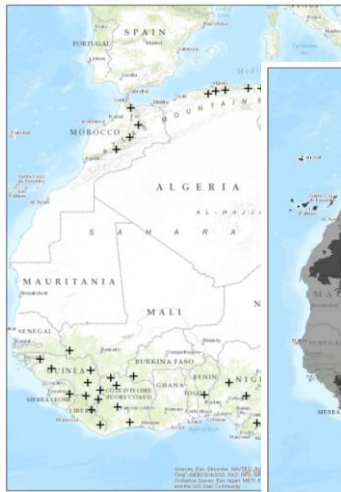
points_data - Excel

assessment_id	id_no	binomial	presence	origin	seasonal	compiler	year	citation	legend	subspecies	subpop	dist_comm	island	tax_comm	source	basisofrec	event_year	longitude	latitude
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	36.5758	-6.9213
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	34.8666	-7.75
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	35.8	-5.5833
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	37.8916	-4.3694
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	36.4333	-6.4333
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	35.7666	-6.15
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	36.4	-6.4333
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	36.2333	-6.2
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	34.9	-7.6333
754876	157966	Blepharisperrum xerothermum	1	1	1	East African Plant Red List Authority	2019	IUCN	Extant (resident)								0	36.5	-6.3666

Final csv or Excel file for point data
(alternatively, you can save this as a
point data shapefile)

Polygon maps

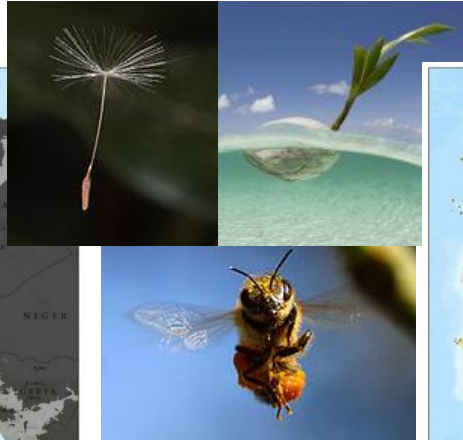
1. Plot observation and collection data points.
2. Create a polygon around the data points using information on habitat preferences, elevation limits, dispersal patterns, bathymetry (for marine taxa), and so on.
3. Refine the polygon, removing likely unoccupied areas (e.g., heavily degraded habitats, inappropriate altitudes, climate or temperature restrictions, etc.)



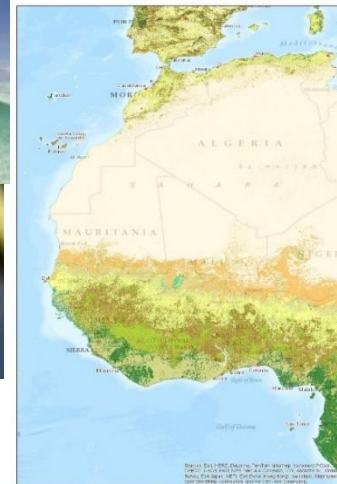
Point data



Habitat preferences,
elevation limits, etc.

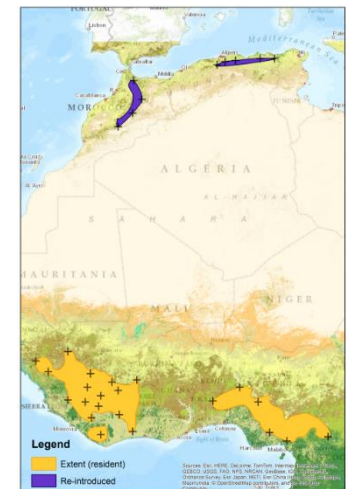


Biology and Ecology



Land Use

=

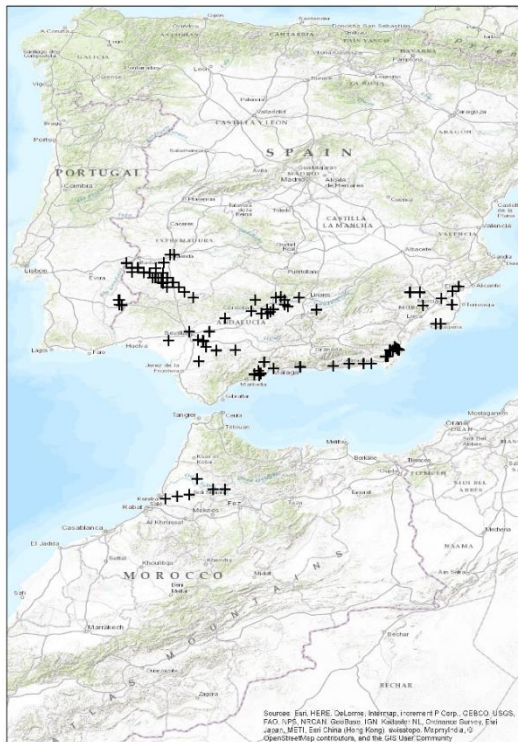


Final species
distribution area

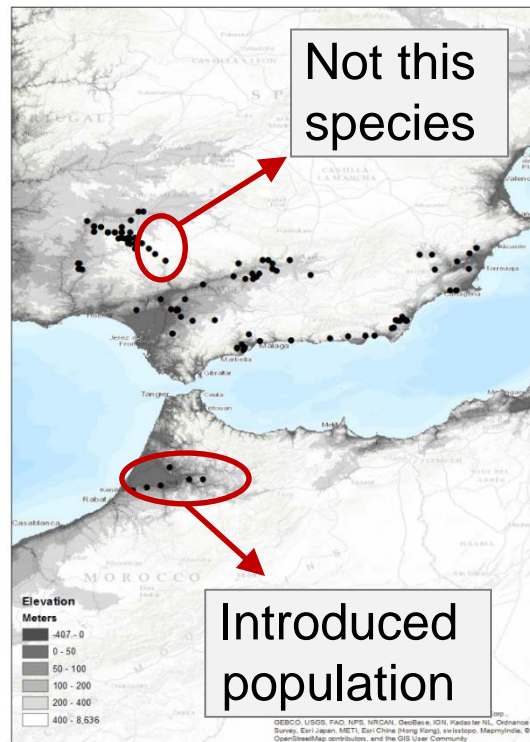
Polygon maps

species with elevation and ecology information

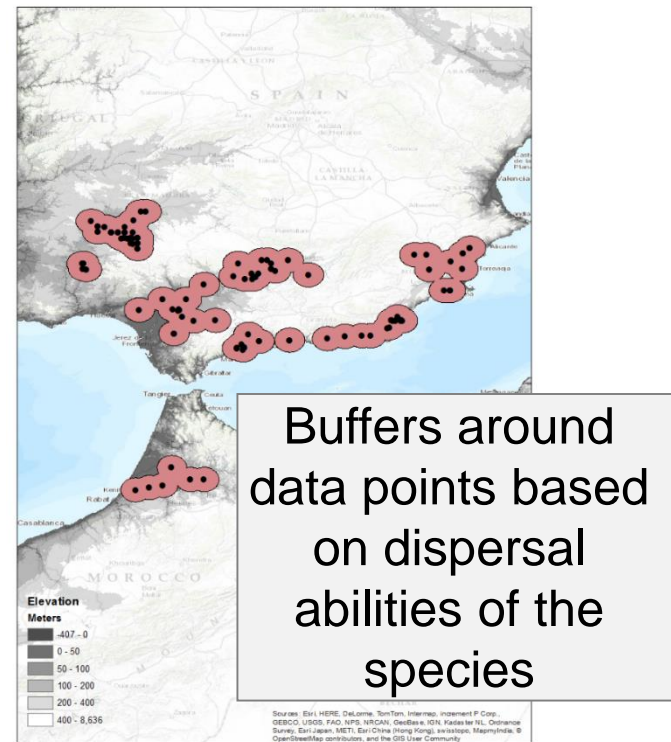
- Plot collection and observation records as data points.
- Check data points to identify current occurrences within the taxon's native range.
- Use information about the species to build and refine the polygon.



Point data



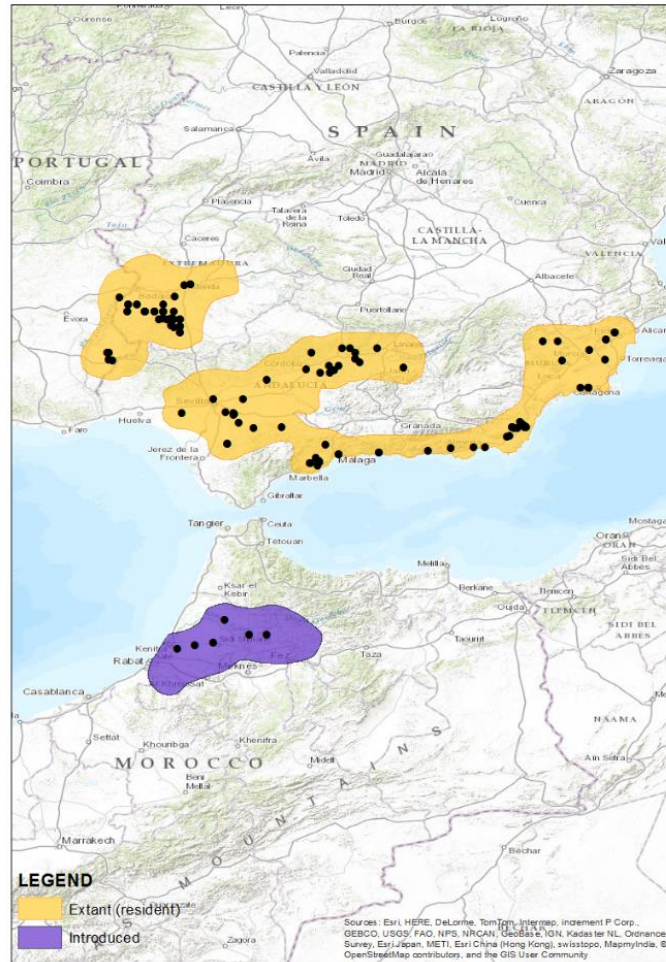
Altitude data



Buffered point data

Polygon maps

species with elevation and ecology information



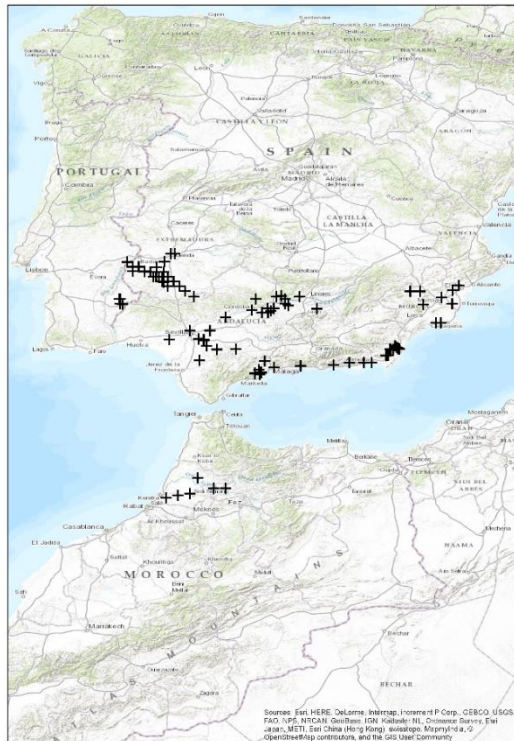
Polygon refined
based on elevation
and clipped to the
coastline

Final polygon map

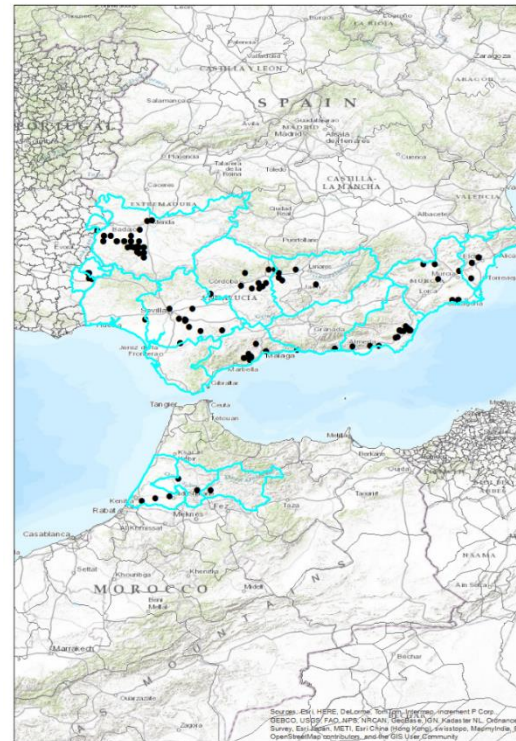
Polygon maps

species with no elevation, habitat or ecology information

Can prepare polygon maps based on administrative areas.



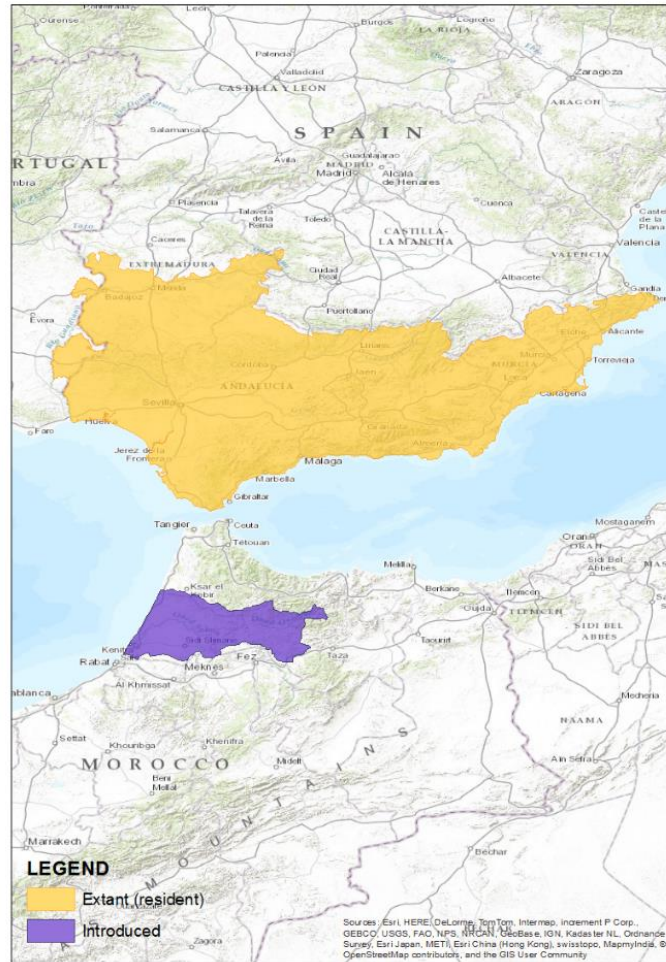
Point data



Selected administrative areas

Polygon maps

species with no elevation, habitat or ecology information



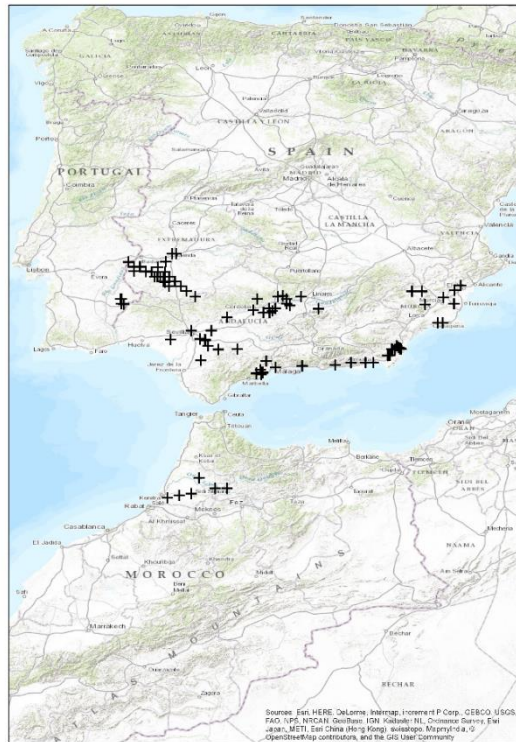
A very general polygon of administrative units within which the species occurs

Final polygon map

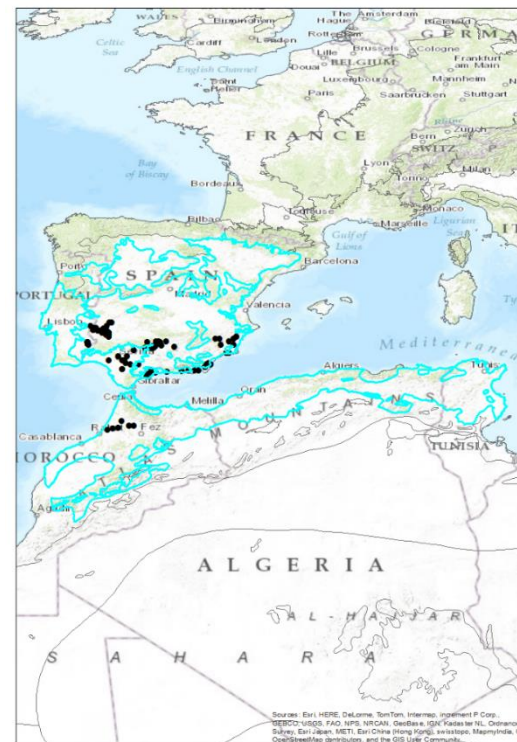
Polygon maps

species with habitat information

Polygons can also be based on Ecoregions.



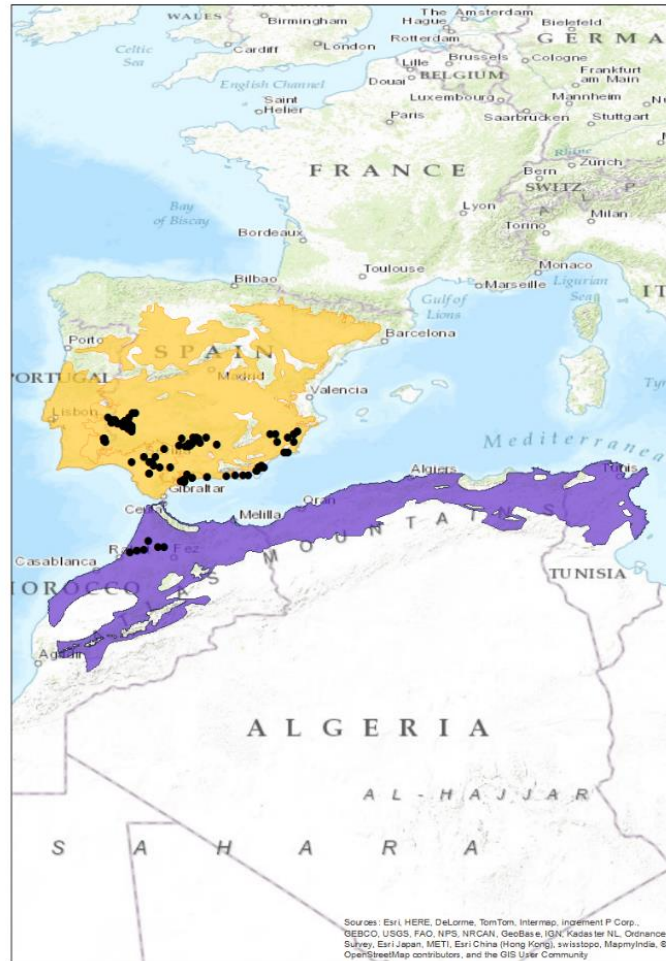
Point data



Selected
habitat areas

Polygon maps

species with habitat information

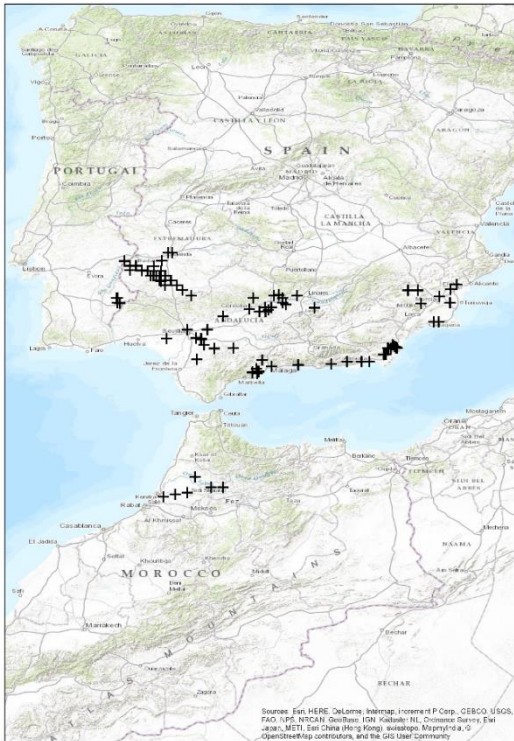


Final polygon map

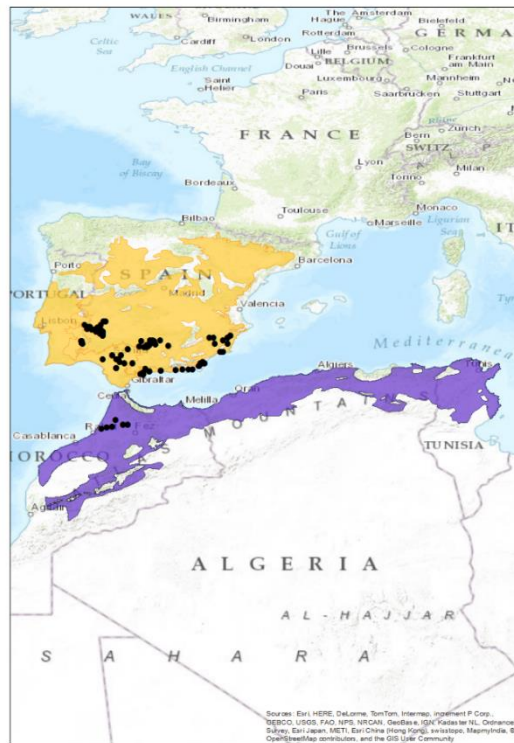
Polygon maps

species with elevation and habitat information

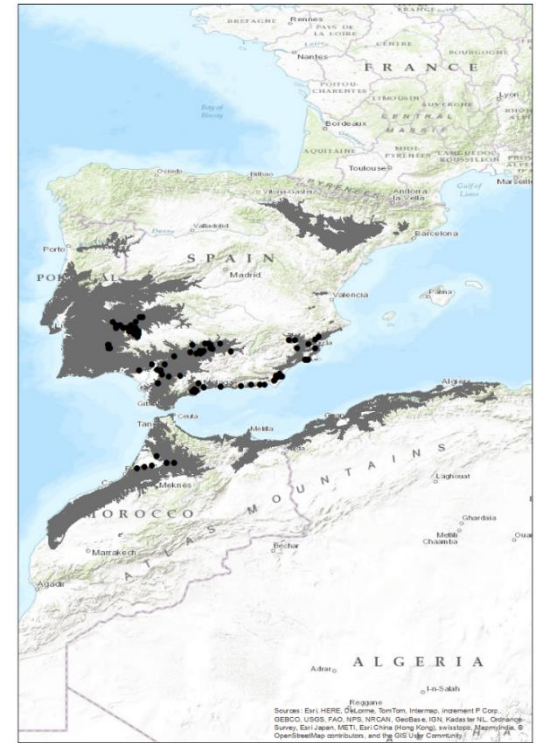
The more information you have about the species, the more refinements you can make to the polygons.



Point data



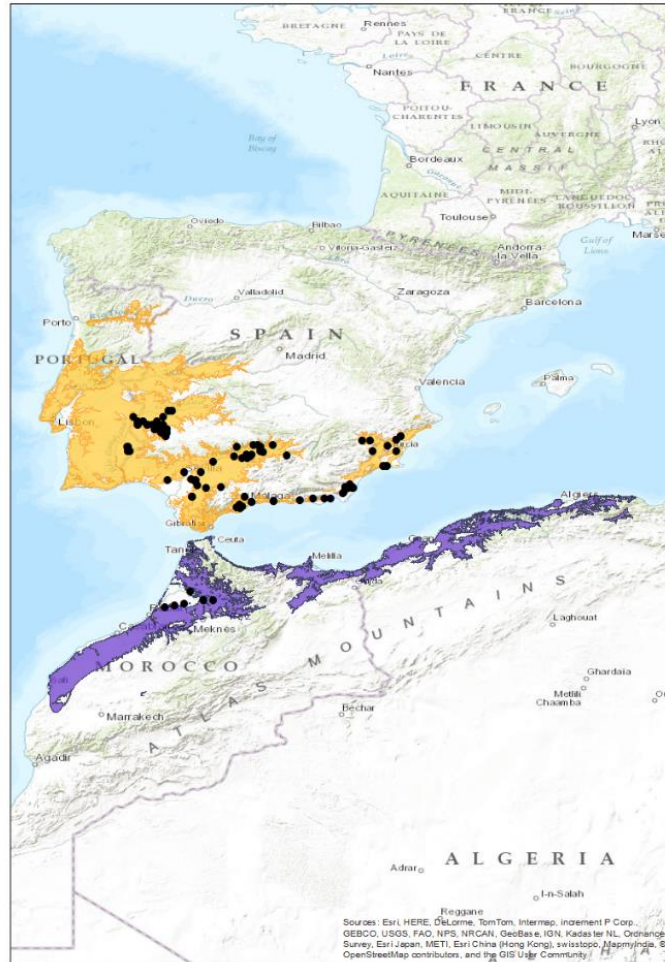
Selected
habitat areas



Selected altitude
range

Polygon maps

species with elevation and habitat information



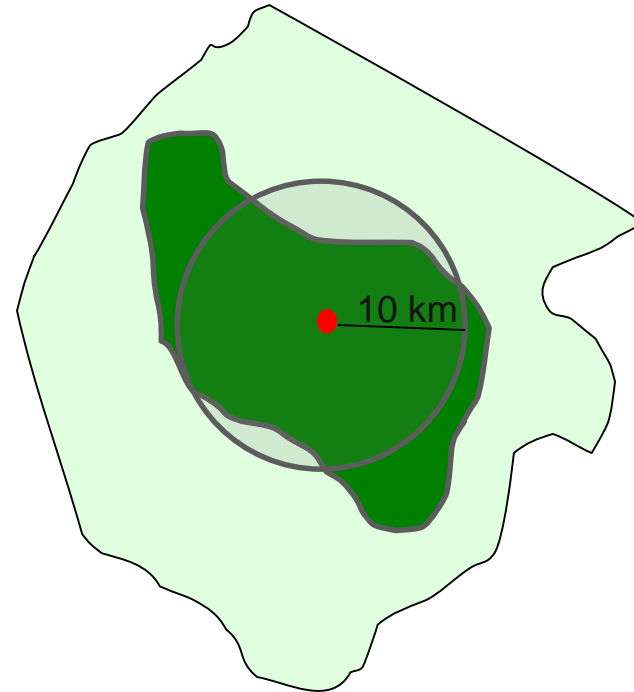
With more information, the polygon can be refined further

Final polygon map

Polygon maps

species with fewer than 3 data points

- Use habitat and ecology information to create the polygon.
- OR
- If no habitat or ecology data are available a 10 km radius circle can be drawn around data points.



- **For coastal terrestrial species,** clip the final polygon to the coastline (to exclude marine habitats).

Polygon maps

Freshwater species

Freshwater species are mapped to catchments as these are considered to be the minimum management unit for freshwater conservation.

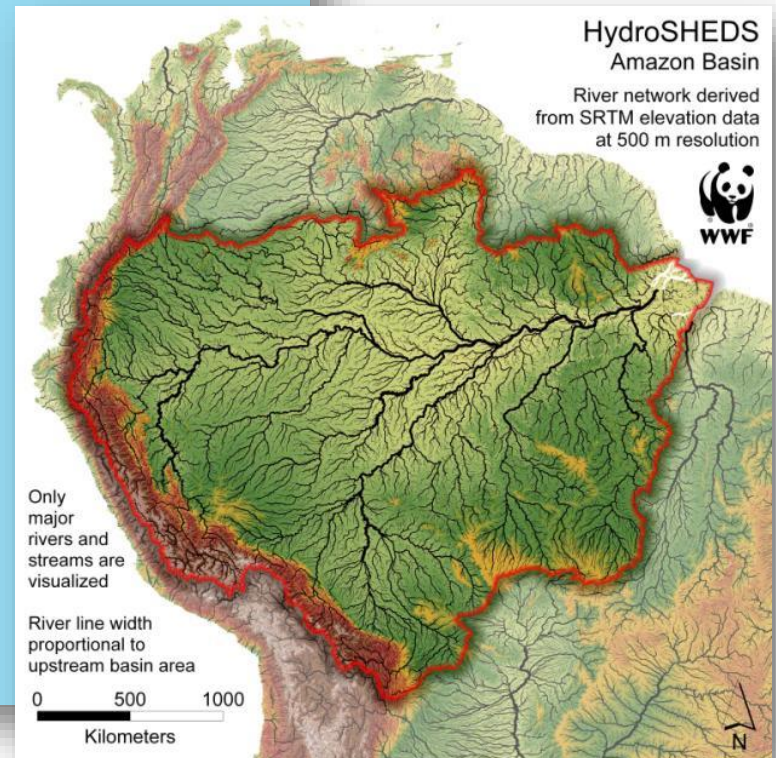


- Plot known observation and collection data points.
- Intersect points with catchments to identify areas where the species currently occurs.
- Use publications and expert knowledge to expand range to other potentially occupied catchments, if necessary.

Polygon maps

Freshwater species

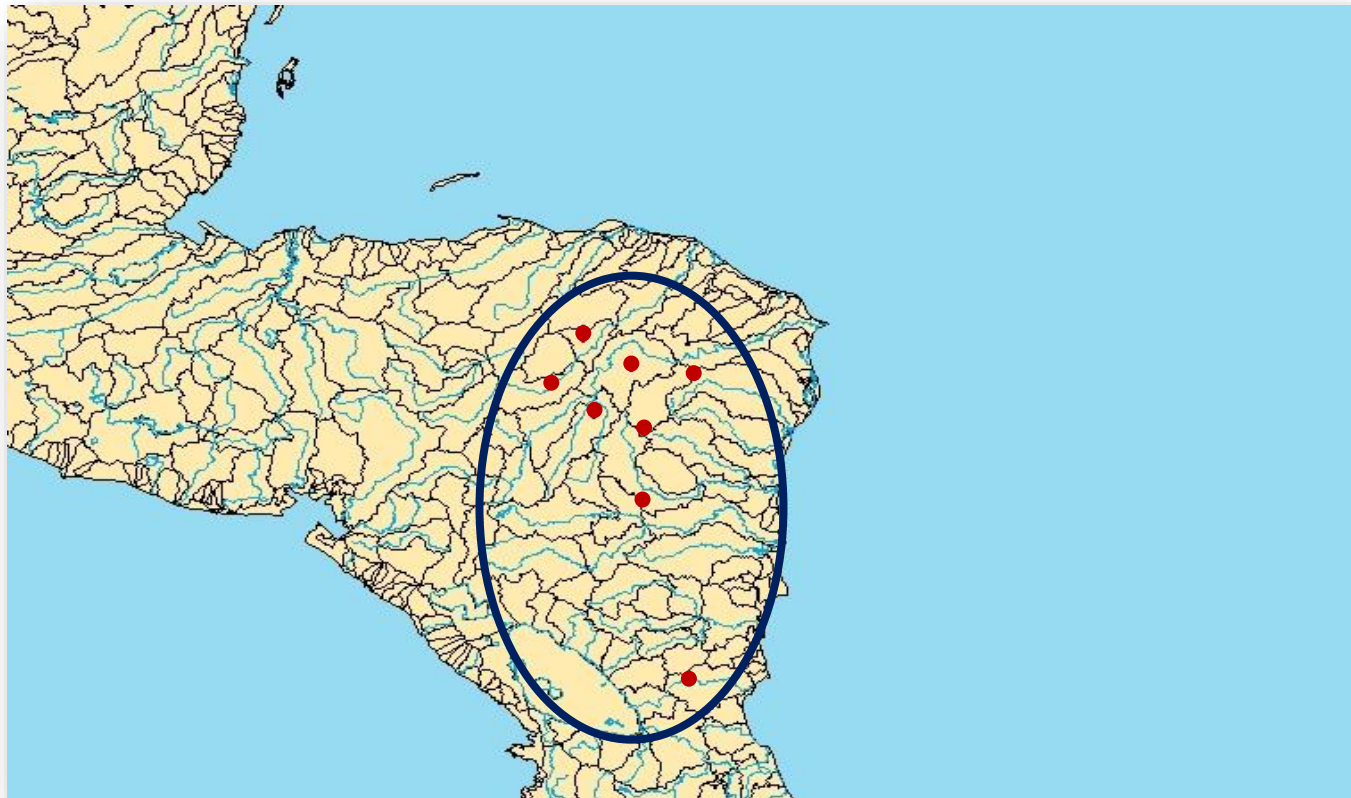
Base layer: HydroBASINS – a subset of the HydroSHEDS database developed by WWF <https://hydrosheds.org> (average basin size of 100 km²).



Polygon maps

Freshwater species

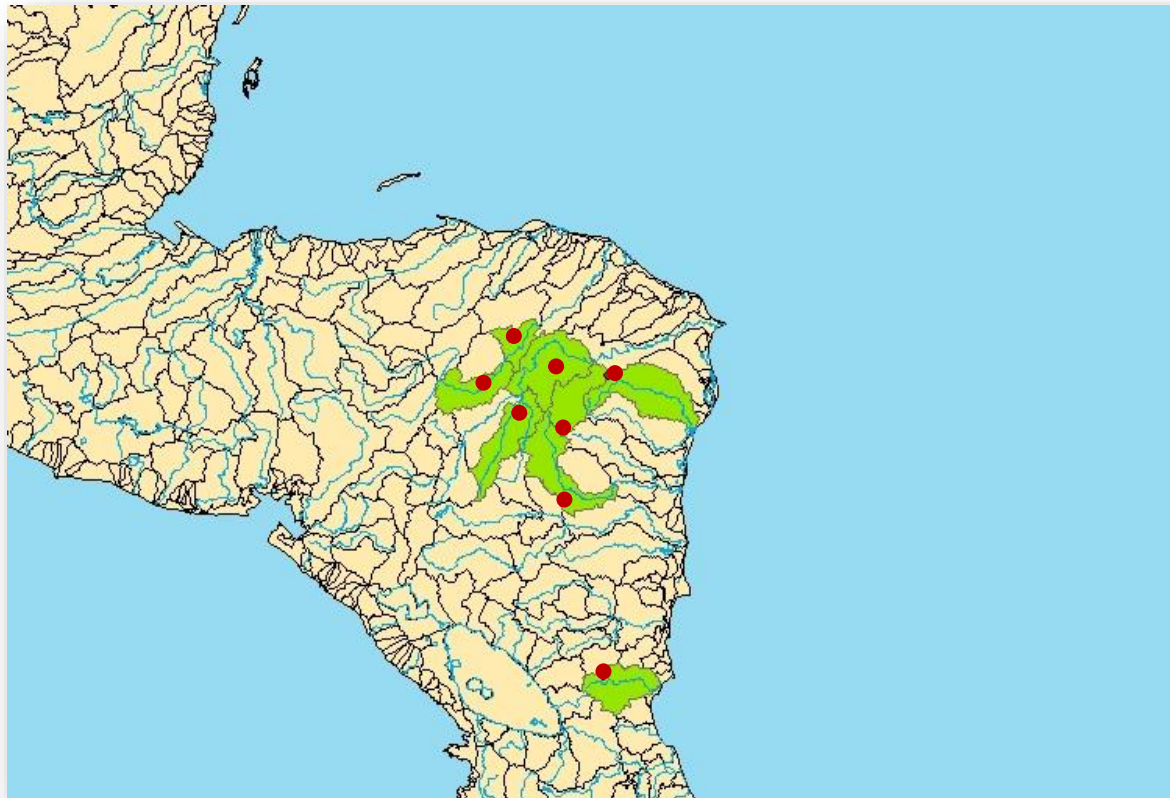
Plot observation and collection data points on the basins.



Polygon maps

Freshwater species

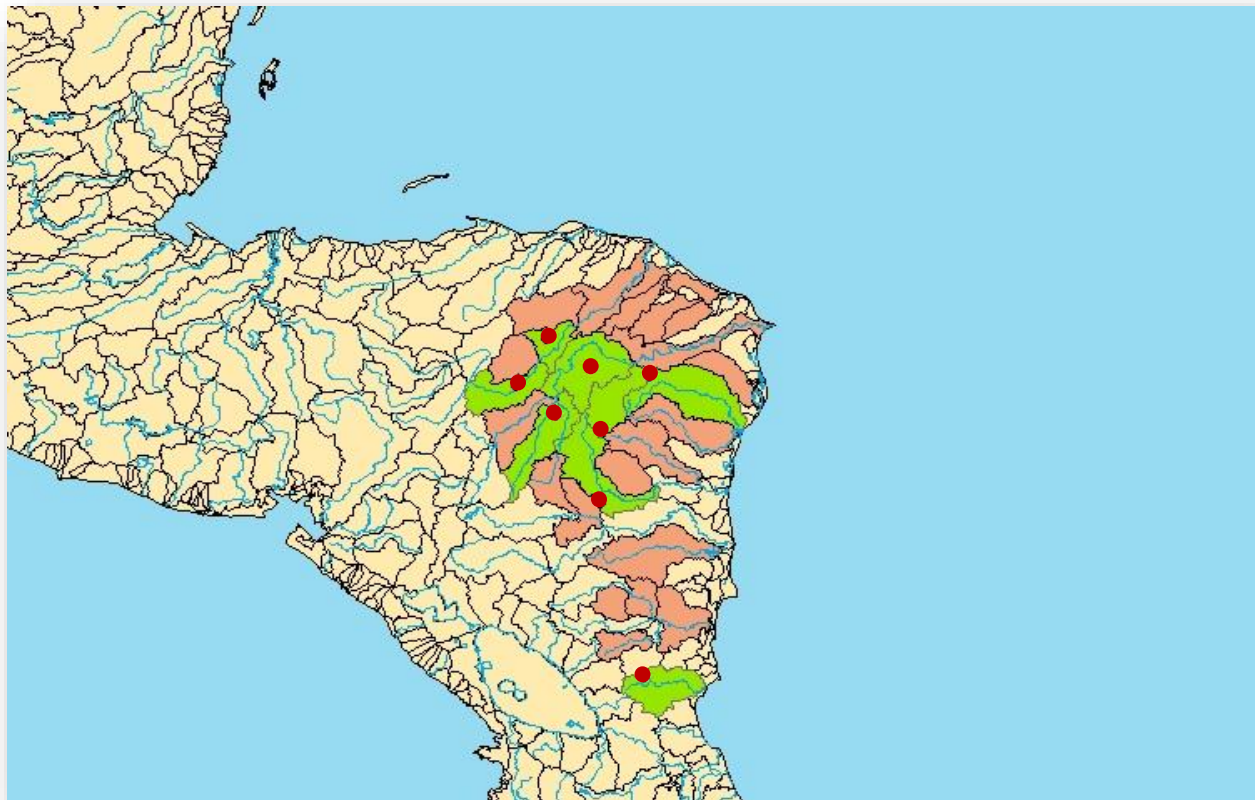
Select the HydroBASINs that intersect with the data points. These are the areas where the species is known to occur within.



Polygon maps

Freshwater species

Using publications and expert knowledge, add any HydroBASINs where the species has not yet been recorded but is likely to occur.



Final HydroBASIN map

Polygon maps

Freshwater species

The IUCN Freshwater Biodiversity Unit has developed a Freshwater Mapping Application (FWMA) for creating HydroBASIN maps.



Welcome to FWMA

Photo: TANAKA Juuyoh (田中十洋) (CC BY 2.0)

About FWMA

The Freshwater Mapping Application (FWMA) is a web based mapping application that can be used to produce distribution maps of freshwater species as part of assessments for The IUCN Red List of Threatened Species™. The FWMA provides an online platform to produce new distribution maps or update existing distribution maps for species with published IUCN Red List assessments. Users can upload external observation data (in the form of point, line or polygon data), which can be used to guide mapping. The application uses standardized base layers and follows the standard IUCN methods for mapping freshwater species, for calculating metrics such as extent of occurrence and area of occupancy, and for listing countries of occurrence. The application can be used to create maps anywhere with reasonable internet bandwidth. The maps can also be reviewed online and either approved or rejected, which greatly improves the efficiency of the assessment review process.

The FWMA is integrated with the existing IUCN Species Information Service (SIS) database, where data for IUCN Red List assessments are stored and managed. Users must, therefore, first have access to SIS to use the FWMA. The FWMA then allows users to edit the maps of species they have permission to edit in SIS.

Login

Username

Password

Login

Contact Information

IUCN UK Office, The David Attenborough Building
Pembroke Street, Cambridge CB2 3QZ, United Kingdom
Email : redlist@iucn.org

Useful Links

- IUCN
- The IUCN Red List of Threatened Species™

<http://mappingfw.iucnredlist.org/FWMA/>

Species with sensitive spatial data

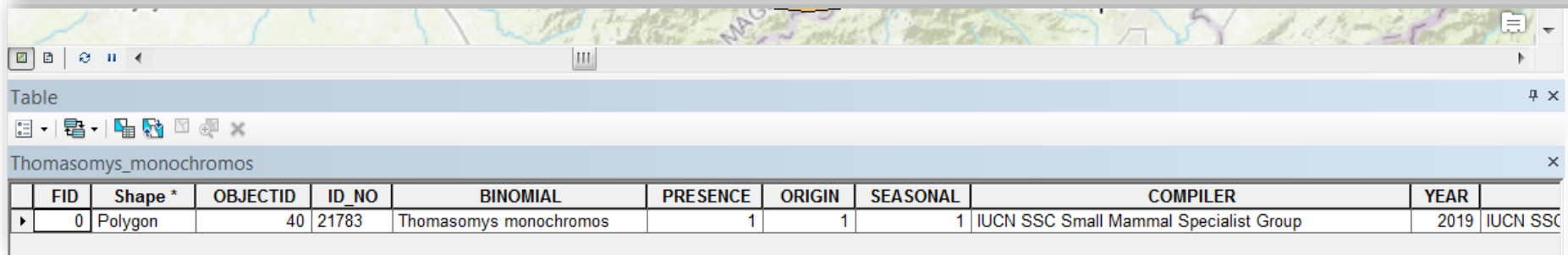
Some species should not have their exact locations published, but accurate spatial data must still be provided for analysis purposes. You can:

- withhold the map from the published assessment; **or**
- publish a generalised map that does not identify the exact location of the species.



Spatial Data Attributes

- **Attributes** = data attached to points and polygons.



The screenshot shows a GIS application interface. At the top is a map view. Below it is a table titled 'Table' with a toolbar. The table is titled 'Thomasomys_monochromos' and contains the following data:

FID	Shape *	OBJECTID	ID_NO	BINOMIAL	PRESENCE	ORIGIN	SEASONAL	COMPILER	YEAR	
0	Polygon	40	21783	Thomasomys monochromos	1	1	1	IUCN SSC Small Mammal Specialist Group	2019	IUCN SSC

- Attributes tell us:
 - the name of the species;
 - the exact location of the data point;
 - the identity of the HydroBASIN;
 - whether the species still exists in that area or if it is now extinct from there;
 - who compiled the data and when;
 - whether the species is data sensitive;
 - etc...
- There are minimum attribute requirements for maps supporting a Red List assessment.

Required Data Attributes

Field	Description	Polygons / Basins	Points
sci_name	Scientific name for the taxon	✓	✓
hybas_id	HydroBASIN ID (only if mapping HydroBASINs)	✓	
presence	Codes identifying whether the species is currently present in the area	✓	✓
origin	Codes identifying whether the species is native to the area	✓	✓
seasonal	Codes identifying which season(s) the species is present in the area	✓	✓

Required Data Attributes

Field	Description	Polygons / Basins	Points
compiler	Name of individual(s) or institution responsible for creating the map	✓	✓
yrcompiled	Year in which the map was created or last modified	✓	✓
citation	Name of individual(s)/institution responsible for providing the data	✓	✓
dec_lat	Geographical latitude, in decimal degrees (between -90 and 90)		✓
dec_long	Geographical longitude, in decimal degrees (between -180 and 180)		✓
spatialref	Ellipsoid, geodetic datum or spatial reference system upon which the geographic coordinates are based (WGS84 preferred)		✓

Required Data Attributes

Field	Description	Polygons / Basins	Points
subspecies	Subspecies name (only if a subspecies is being mapped)	✓	✓
subpop	Subpopulation name (only if a subpopulation is being mapped)	✓	✓
data_sens	Used to flag species with sensitive spatial data. Tells the Red List Unit to withhold the point or polygon from the web site.	✓	✓
sens_comm	Comments on why the data are considered sensitive (required if DATA_SENS = "1")	✓	✓

Recommended Data Attributes

Field	Definition	Polygon / Basin	Point
event_year	Year the observation was recorded or the specimen was collected.		✓
source	Primary source of the data	✓	✓
catalog_no	An identifier (preferably unique) for the record within a larger dataset or collection		✓
dist_comm	Distribution comments, referring directly to the polygon or point	✓	✓
island	Name of the island the point or polygon is on	✓	✓

Recommended Data Attributes

Field	Definition	Polygon / Basin	Point
tax_comm	Taxonomic community	✓	✓
generalisd	PreservedSpecimen	✓	
	FossilSpecimen		
	LivingSpecimen		
basisofrec	HumanObservation		✓
	MachineObservation		
	StillImage		
	MovingImage		
	SoundRecording		

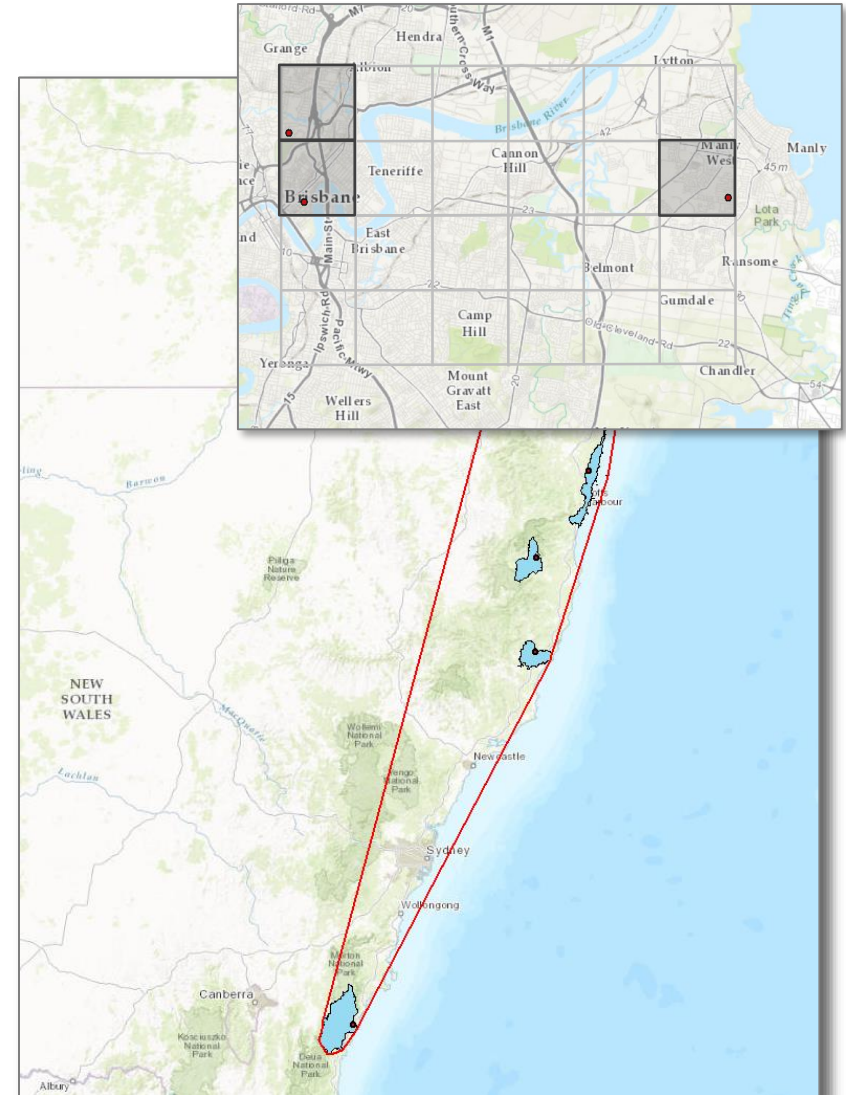
Codes for Presence, Origin and Seasonality

Code	Presence	Code	Origin	Code	Seasonality
1	Extant	1	Native	1	Resident
2	Probably Extant	2	Reintroduced	2	Breeding Season
3	Possibly Extant	3	Introduced	3	Non-breeding Season
4	Possibly Extinct	4	Vagrant	4	Passage
5	Extinct (post 1500)	5	Origin Uncertain	5	Seasonal Occurrence Uncertain
6	Presence uncertain	6	Assisted Colonisation		

Check that “presence”, “origin” and “seasonal” codes used in the map match up with the codes used in the countries of occurrence in the assessment.

Map versus EOO and AOO

- **Distribution map**
 - Data points (red dots)
 - Limits to distribution (blue polygons)
- **Extent of occurrence (EOO)**
 - Entire area within the minimum convex polygon
- **Area of occupancy (AOO)**
 - Total occupied 2x2 km grid cells

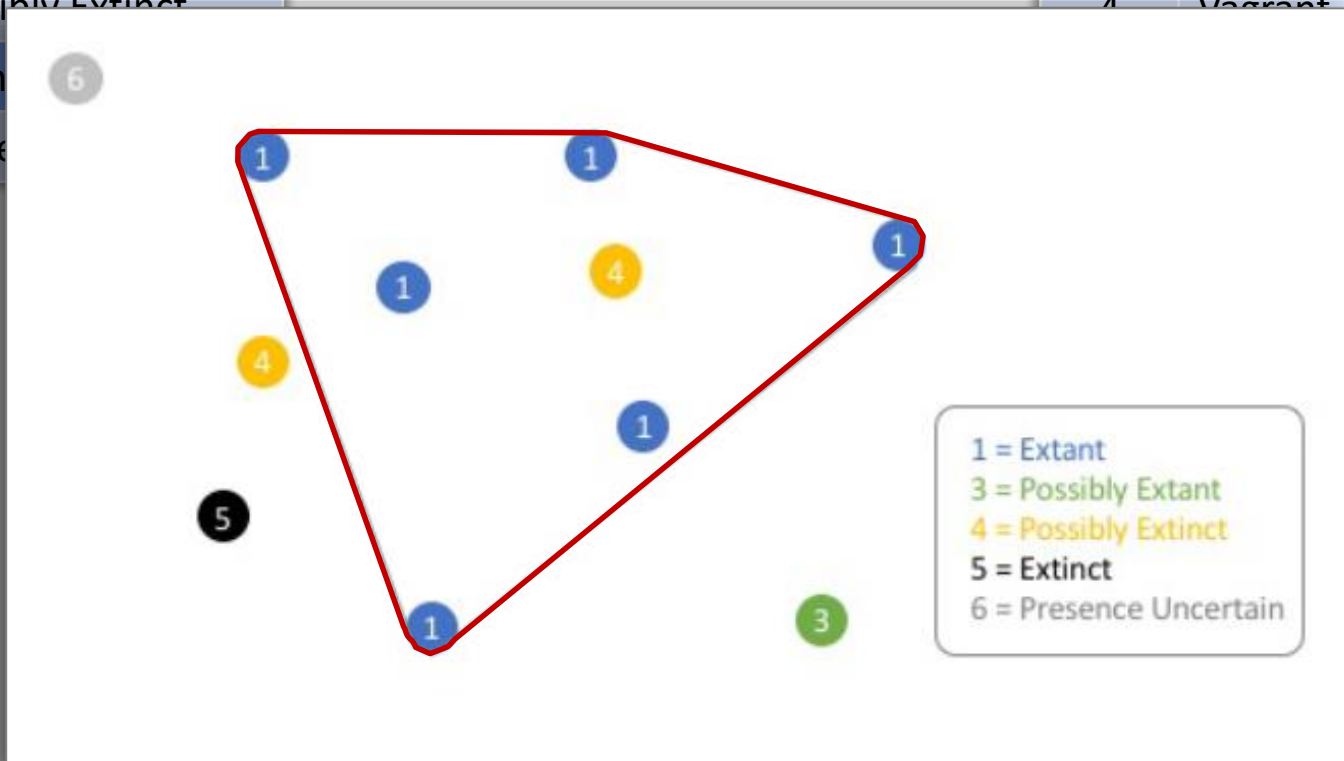


Presence/origin codes and EOO

Code	Presence
1	Extant
2	Probably Extant
3	Possibly Extant
4	Possibly Extinct
5	Extinct
6	Presence Uncertain

EOO
calculator
tool

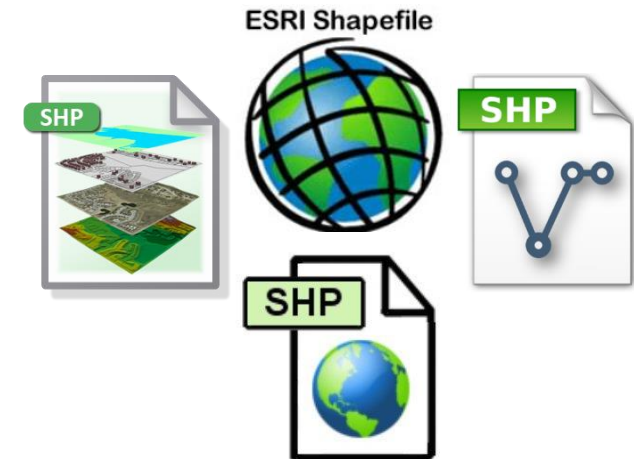
Code	Origin
1	Native
2	Reintroduced
3	Introduced
4	Vagrant
5	Uncertain
6	Colonisation



Submitting distribution maps for Red List assessments

• Format

- **Polygons:** Shapefile.
- **Points:** CSV, Excel file, or shapefile.
- Assessed subspecies, subpopulations: include in the species file AND provide separate maps.
- Multiple species combined into one file, or can submit species files individually.
- Ensure all required attributes are included.



ID_NO	BINOMIAL	PRESENCE	ORIGIN	SEASONAL	COMPILER	YRCOMPILED	CITATION	DEC_LAT	DEC_LONG	SPATIALREF	SUBSPECIES	SUBPOP	DATA_SENS	SENS_COMM
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	34.2265	-91.9	WGS84			N	
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	33.26666667	-93.6	WGS84			N	
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	33.28333333	-93.9	WGS84			N	
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	34.76666667	-91.88333333	WGS84			N	
44392674	Carex bulbostylis	3	1	1	Aubrey Robbit	2019	IUCN	33.7	-94.23333333	WGS84			N	
44392674	Carex bulbostylis	3	1	1	Aubrey Robbit	2019	IUCN	35.96666667	-94.23333333	WGS84			N	
44392674	Carex bulbostylis	5	1	1	Aubrey Robbit	2019	IUCN	35.75016667	-91.56666667	WGS84			N	
44392674	Carex bulbostylis	6	1	1	Aubrey Robbit	2019	IUCN	35.00016667	-93.41666667	WGS84			N	
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	33.98333333	-94.21683333	WGS84			N	
44392674	Carex bulbostylis	6	1	1	Aubrey Robbit	2019	IUCN	35.18333333	-91.23333333	WGS84			N	
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	35.85	-92.18333333	WGS84			N	
44392674	Carex bulbostylis	1	1	1	Aubrey Robbit	2019	IUCN	33.11666667	-91.25	WGS84			N	
44392674	Carex bulbostylis	1	3	1	Aubrey Robbit	2019	IUCN	31.76666667	-93.13333333	WGS84			N	
136532836	Icuria dunensis	1	1	1	Burt Carden	2018	IUCN	-16.231236	39.931543	WGS84			N	
136532836	Icuria dunensis	1	1	1	Burt Carden	2018	IUCN	-17.017748	38.792048	WGS84			N	

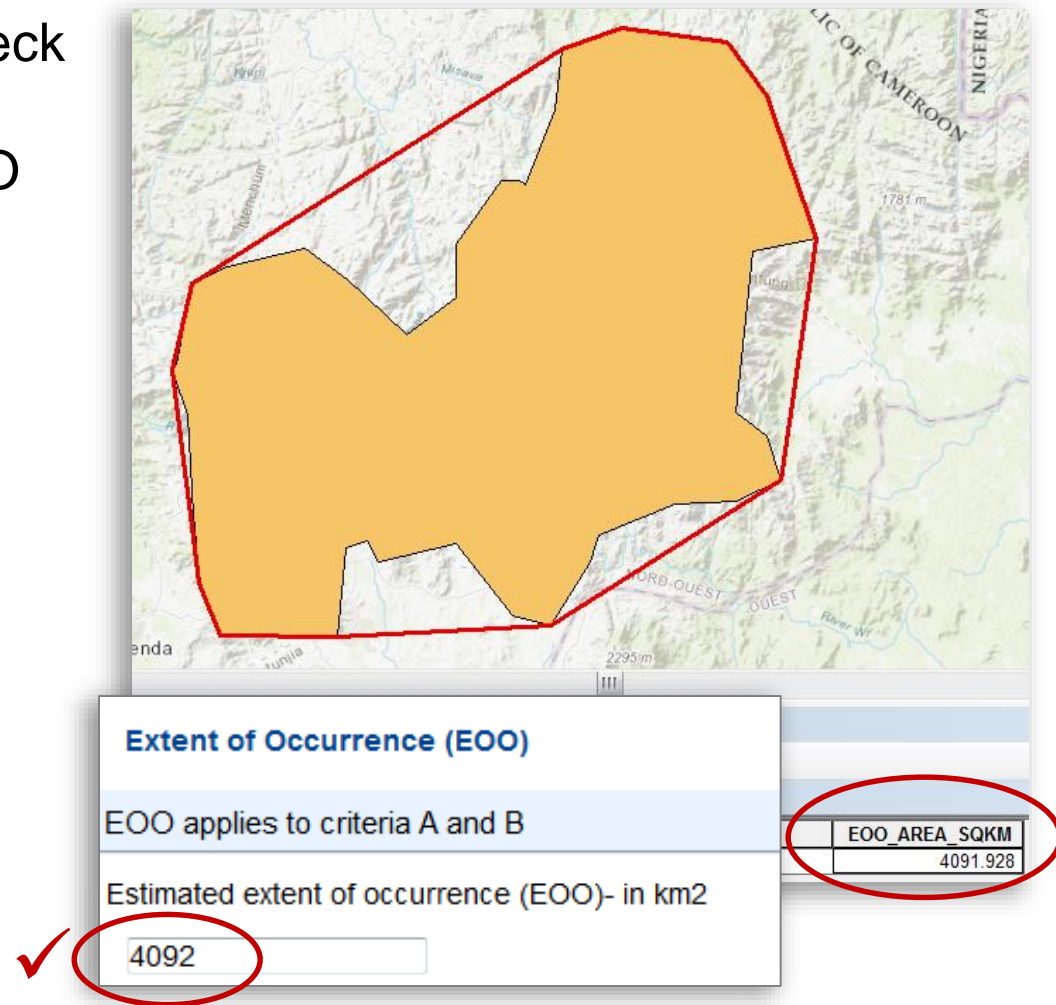
Submitting distribution maps for Red List assessments

- **Submission of spatial data**
 - Currently, submit map files to Red List Unit staff via an online file sharing mechanism such as WeTransfer, Google Drive, Dropbox or similar.
 - Can attach files directly to assessments in SIS; please **avoid this** if submitting lots of species maps at the same time.
 - Avoid email for large files; these may be undelivered and can get lost.
 - Development of a standard map data submissions system is being scoped out for future submissions.



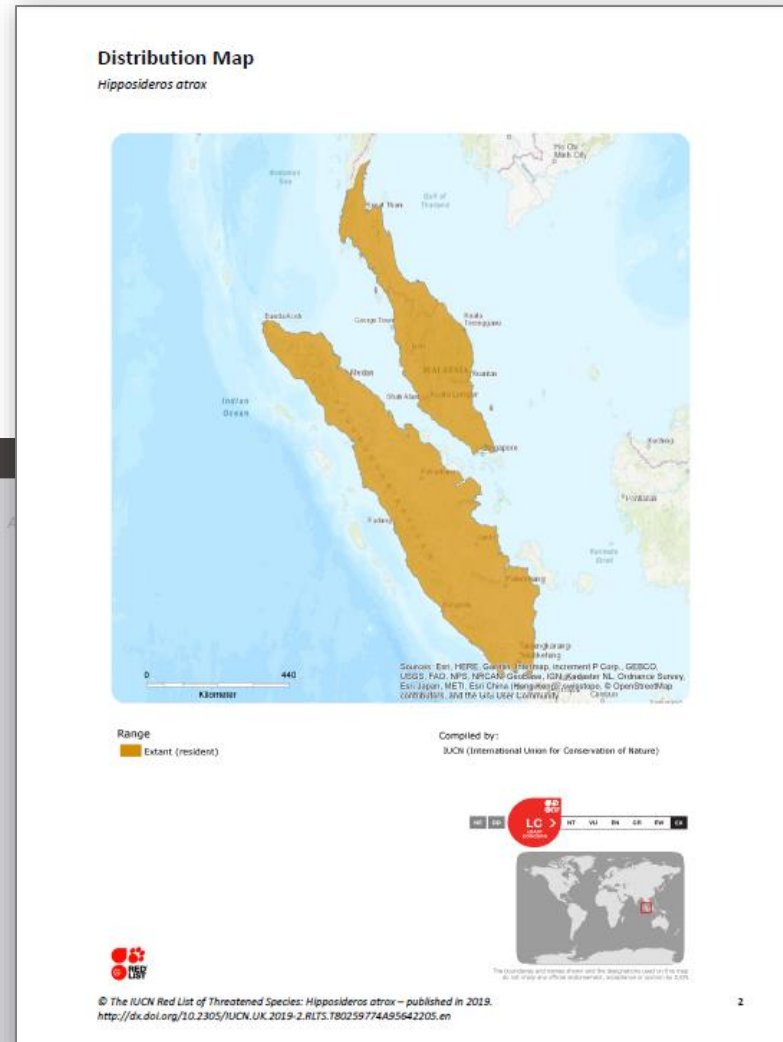
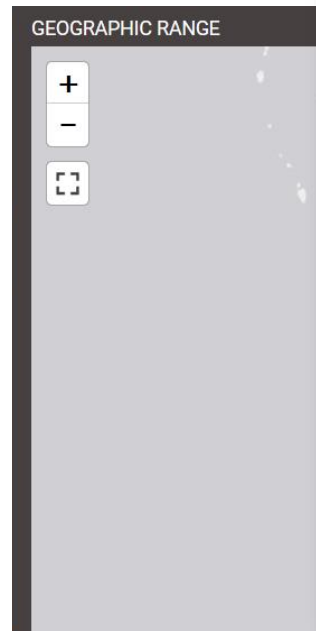
What happens to spatial data after submission to the Red List?

- Red List Unit may need to check that the EOO used in the assessment matches the EOO calculation on the map.



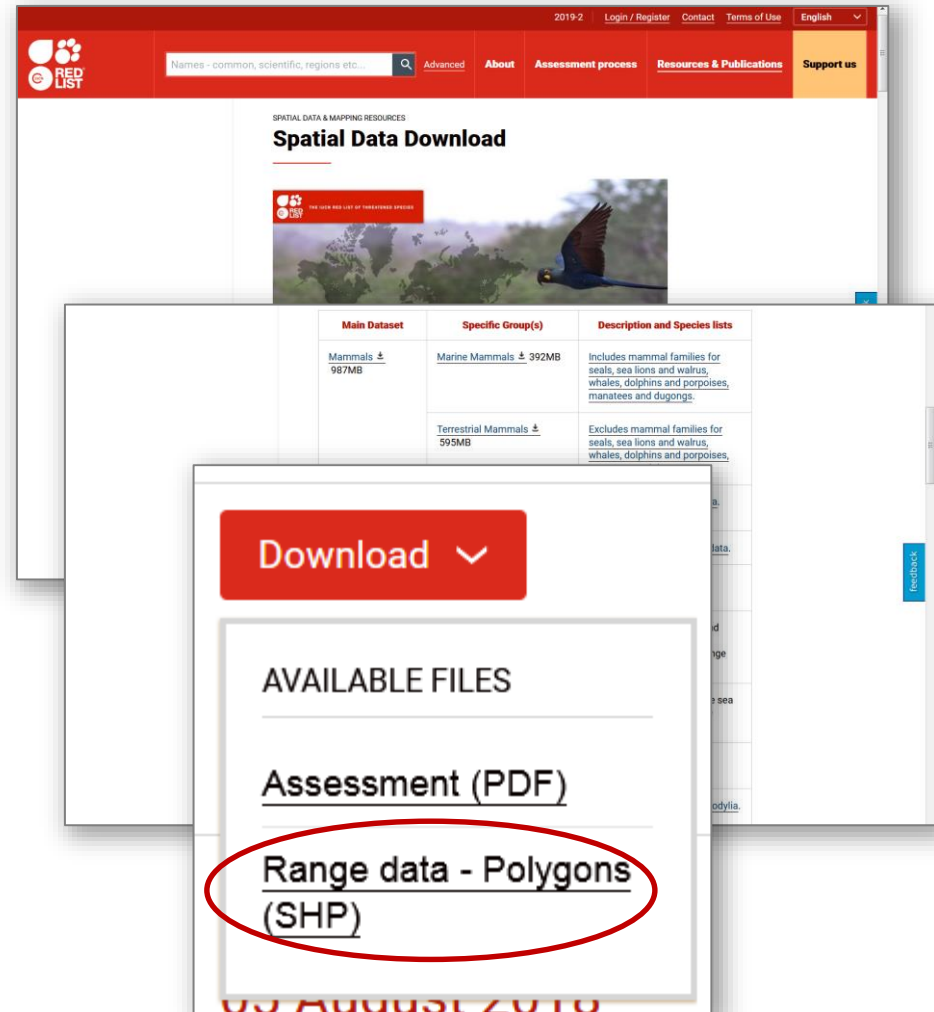
What happens to spatial data after submission to the Red List?

- Red List Unit may need to check that the EOO used in the assessment matches the EOO calculation on the map.
- The spatial data are used to create map images for display on the Red List web site.



What happens to spatial data after submission to the Red List?

- Red List Unit may need to check that the EOO used in the assessment matches the EOO calculation on the map.
- The spatial data are used to create map images for display on the Red List web site.
- The data are made available to download from the web site (for non-commercial use).

A screenshot of the Red List website's "Spatial Data Download" page. The page has a red header with the Red List logo and navigation links. Below the header, there's a section titled "SPATIAL DATA & MAPPING RESOURCES" with a sub-header "Spatial Data Download". A banner image shows a map of the world with a bird in flight. Below this is a table with three columns: "Main Dataset", "Specific Group(s)", and "Description and Species lists". The table lists "Mammals" (987MB), "Marine Mammals" (392MB), and "Terrestrial Mammals" (595MB). A red "Download" button is visible. Below the button, a list of "AVAILABLE FILES" includes "Assessment (PDF)" and "Range data - Polygons (SHP)", which is circled in red. The date "03 August 2018" is visible at the bottom.

Main Dataset	Specific Group(s)	Description and Species lists
Mammals ↓ 987MB	Marine Mammals ↓ 392MB	Includes mammal families for seals, sea lions and walrus, whales, dolphins and porpoises, manatees and dugongs.
	Terrestrial Mammals ↓ 595MB	Excludes mammal families for seals, sea lions and walrus, whales, dolphins and porpoises.

Download [▼](#)

AVAILABLE FILES

- [Assessment \(PDF\)](#)
- [Range data - Polygons \(SHP\)](#)

03 August 2018

What happens to spatial data after submission to the Red List?

- Red List Unit may need to check that the EOO used in the assessment matches the EOO calculation on the map.
- The spatial data are used to create map images for display on the Red List web site.
- The data are made available to download from the web site (for non-commercial use).
- Spatial data are also available via the Red List API

IUCN Red List API

You will also need a **token** before being able to use the API.

[API reference »](#)

[Citation and acknowledgement »](#)

IUCN Spatial Web Services

At present there are three web data services. The services can be found in the service directory at the url below.

http://mapservices.iucnredlist.org/arcgis/rest/services/IUCN_Spatial_API

Rest Service Description SpeciesRange_WM_API - All range projected to Web mercator (including extinct ranges) SpeciesRange_WM_API_Extinct_Excluded - Species Ranges projected to Web Mercator (excluding extinct and possibly extinct ranges) SpeciesRange_WGS_API - Species ranges in WGS 84 geographic coordinate system

The services also include a non-spatial table called 'species'. This table can be queried to find the extent of a species range or check if a species range exists or not. It is important to note that the range extents are calculated using the web mercator projection. See examples below.

Spatial API Login and Token Authentication

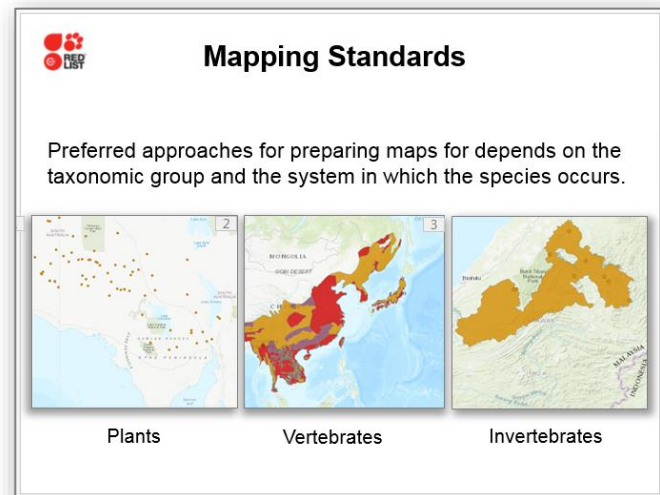
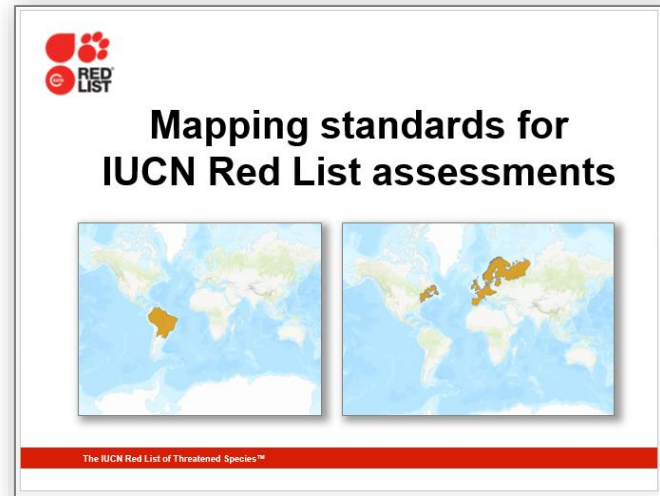
The Spatial API web services are secured and need to be accessed using login credentials. For the services to be called from an application a token will also need to be provided. It's a token specially for the Spatial API. This token can be provided by the Red List GIS team on request (RedListGIS@iucn.org).

We will need your HTTP Referer to generate the token i.e. the website URL on which you will be using the web services.

[more info on using tokens](#)

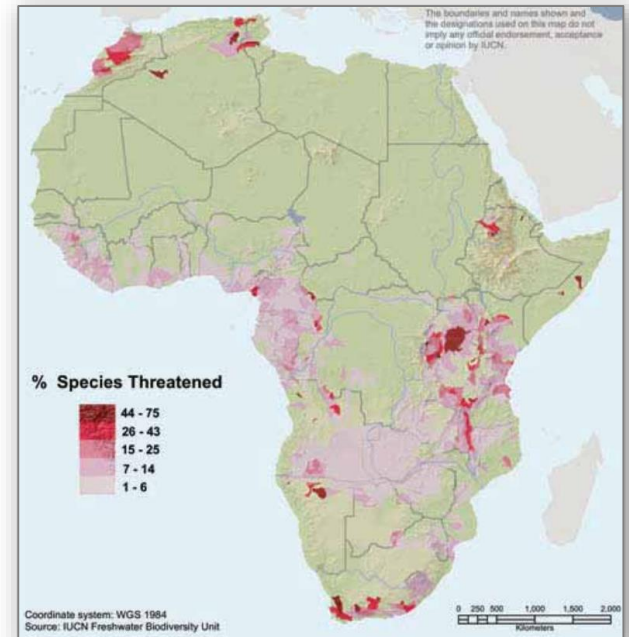
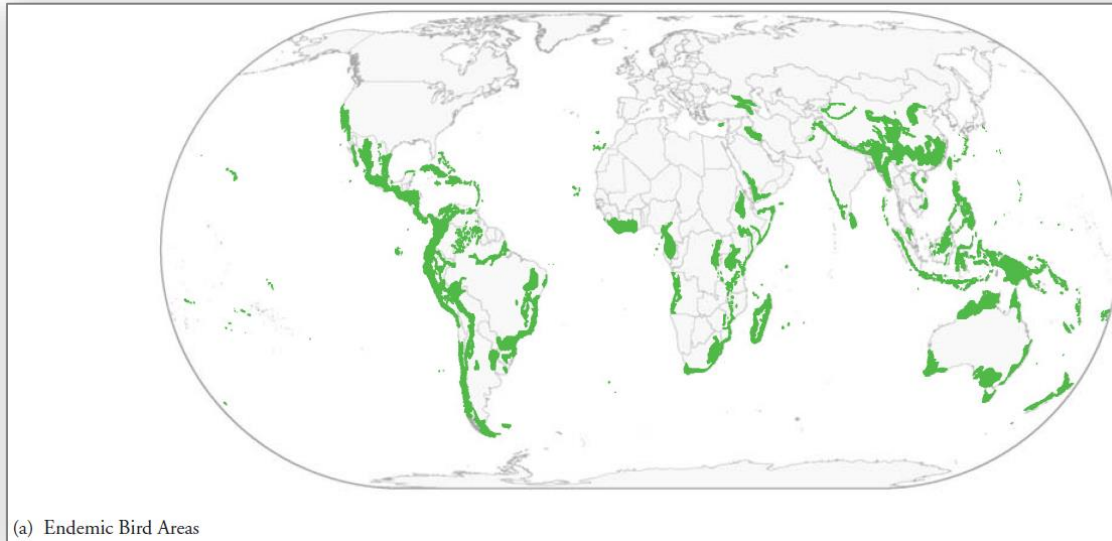
What happens to spatial data after submission to the Red List?

- Red List Unit may need to check that the EOO used in the assessment matches the EOO calculation on the map.
- The spatial data are used to create map images for display on the Red List web site.
- The data are made available to download from the web site (for non-commercial use).
- Spatial data are also available via the Red List API
- IUCN staff may use the map images for training materials, workshops, presentations, etc.



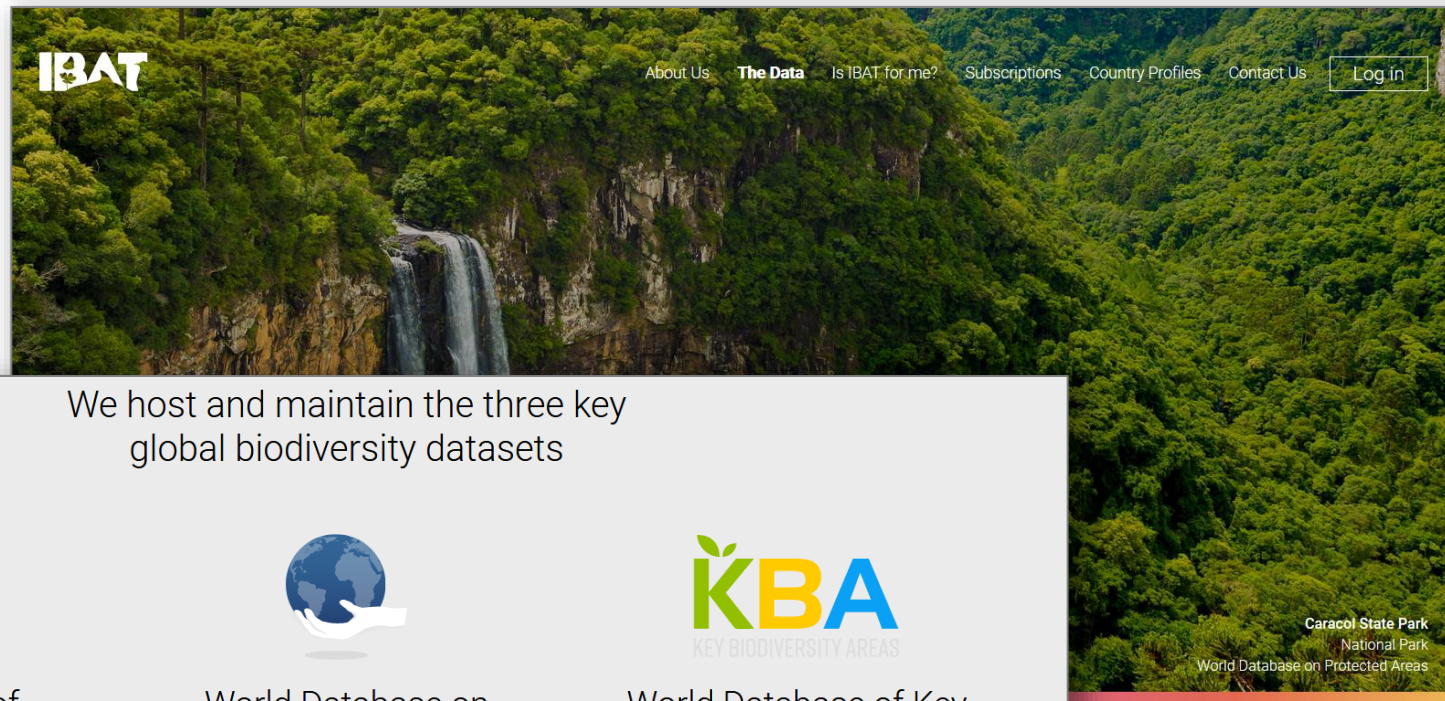
What happens to spatial data after submission to the Red List?

- The data are used in a wide range of analyses (species richness maps, climate change vulnerability projections, etc.)



What happens to spatial data after submission to the Red List?

- The data are used in a wide range of analyses (species richness maps, climate change vulnerability projections, etc.)
- The spatial data are also submitted to IBAT, which provides a basic risk screening on biodiversity.



We host and maintain the three key global biodiversity datasets



IUCN Red List of
Threatened Species



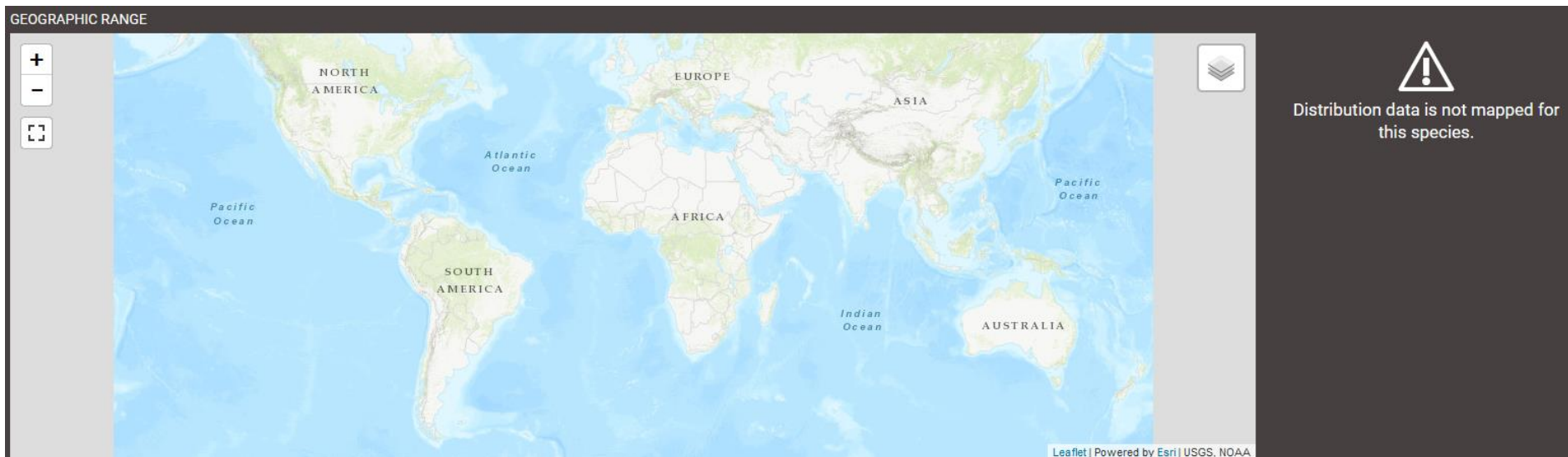
World Database on
Protected Areas



World Database of Key
Biodiversity Areas

What happens to spatial data after submission to the Red List?

- The data are used in a wide range of analyses (species richness maps, climate change vulnerability projections, etc).
- The spatial data are also submitted to IBAT, which provides a basic risk screening on biodiversity.
- Spatial data flagged as data sensitive (data_sens = “1”) are not displayed or made available without prior permission from the data provider.



Mapping tools and resources

There are several ways in which maps can be generated for Red List assessments. The preference is always for **digital** maps:

- **ArcGIS desktop.** IUCN can provide a license for this, under strict terms of use.
- **QGIS** (free open source software).
- **Google Earth Pro** (free software).
- **Google My Maps in Google Drive** (free software).



Mapping tools and resources



Mapping Standards and Data Quality for the IUCN Red List Spatial Data

Version 1.19
(May 2021)

Prepared by the IUCN SSC Red List Technical Working Group




Freshwater Species Mapping Standards for IUCN Red List Assessments

Version 6
(August 2019)

This is Annex 1 of the "Mapping Standards and Data Quality for IUCN Red List Spatial Data". Downloadable from: <https://www.iucnredlist.org/resources/mappingstandards>.

Mapping tools and resources

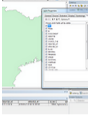
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Grid
List




SPATIAL DATA & MAPPING RESOURCES
Mapping Standards and Data Quality for IUCN Red List Spatial Data

The Mapping Standards and Data Quality for IUCN Red List Spatial Data is a guidance document explaining the required standards to follow when preparing distribution maps for publication on *The IUCN Red List of Threatened Species*™. The document is regularly updated: the current issue is **version 1.18 (August 2019)**. Please check you have the current version when preparing spatial data to be submitted as part of a Red List assessment.




SPATIAL DATA & MAPPING RESOURCES
IUCN Freshwater Mapping Application Manual

Manual for the online IUCN Freshwater Mapping Application (FWMA) which can be used to produce distribution maps for freshwater species based on HydroBasin layers for publication on *The IUCN Red List of Threatened Species*™ as part of a Red List assessment.




SPATIAL DATA & MAPPING RESOURCES
Spatial Data Download

Spatial data for species assessed on The IUCN Red List can be downloaded from this page.




SPATIAL DATA & MAPPING RESOURCES
METADATA for Digital Distribution Maps of The IUCN Red List of Threatened Species

Details of the metadata for digital distribution maps published on *The IUCN Red List of Threatened Species*™. Includes constraints on use of IUCN Red List spatial data and how to cite spatial data from the Red List.




SPATIAL DATA & MAPPING RESOURCES
GIS Tools, Software and Recommended Base data

The following tools, software and base data are available to help assessors create the spatial distribution maps as part of an IUCN Red List assessment.




SPATIAL DATA & MAPPING RESOURCES
ArcGIS: Mapping FAQ, Guidance and Tips Document

Advice and answers to frequently asked questions for creating species distribution maps using ESRI ArcGIS for inclusion in IUCN Red List assessments.



SPATIAL DATA & MAPPING RESOURCES
Google Maps: Mapping Using Google Maps and Google Earth

Instructions on how to use Google Maps to create species distribution maps for inclusion in an IUCN Red List assessment.




SPATIAL DATA & MAPPING RESOURCES
Species Richness and Range Rarity Data

Species Richness and Range Size Rarity data for download.

feedback











Mapping tools and resources












GIS tools and recommended base data		
<u>IUCN Red List Toolbox for ArcMap</u> (607 MB)	The ArcGIS IUCN Red List Species Mapping Toolbox.	

Red List Toolbox – for ArcGIS Desktop. Includes:


ArcToolbox

1. IUCN Species Mapping Tools

-  1. Create Point Feature Class
-  1a. Add Point Attribute Fields
-  2. Create Species Polygon
-  2a. Add Polygon Attribute Fields
-  3. Create Polygon Shapefile via Text file
-  4. Fill Binomial Field with shapefile name
-  5. Check Fields
-  6. Split Layer By Species Name
-  7. Fill Legend Field
-  8. Species Richness Count

-  9. Refine Species To Altitude
-  9a. Refine Species To Bathymetry
-  Add XY Coordinates
-  Clip
-  Define Projection
-  Delete Field
-  Dissolve
-  Erase
-  Merge
-  Project
-  Smooth Polygon

Mapping tools and resources

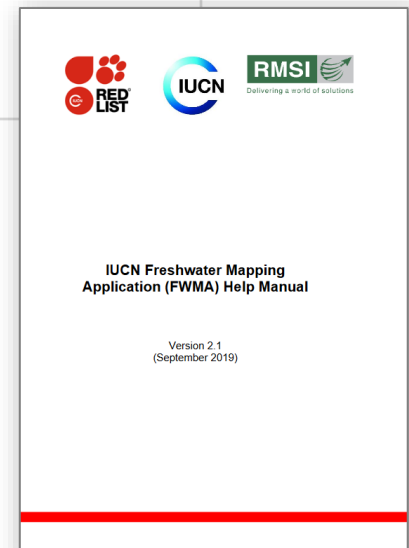
GIS tools and recommended base data		
<u>EOO Calculator</u> (53 KB)	Creates a minimum convex polygon to calculate extent of occurrence (EOO). For ArcMap 10.1 and above.	

EOO Calculator – automatically draws the minimum convex polygon and calculates EOO based on the mapped points and polygons.

Mapping tools and resources

<u>Freshwater Mapping Application (FWMA)</u>	A free, online mapping application developed to help users create distribution maps for inland water species, highlighting occurrence in HydroBASIN areas.
<u>Freshwater Mapping Application User Manual</u>	Guidance on how to use the FWMA. PDF document.

Freshwater Mapping Application



Mapping tools and resources

Software and online mapping tools	
<u>GeoCAT</u>	GeoCAT is a free online tool for mapping distributions using point data. Developed by RBG Kew.

GeoCAT – Free mapping tool developed by RBG Kew to create point data maps.

Mapping tools and resources

ABOUT HELP


GeoCAT

Geospatial Conservation Assessment Tool

Perform rapid geospatial analysis of species in a simple and powerful way.

[Start a new project](#)

or [import a .geocat /.rla file](#)



Simplified process, usable tool

- 1 Create a report from scratch or upload your previous work.
- 2 Manage your species data sources and work directly on the map.
- 3 Download or print your report and start sharing it.

Harnessing multiple data sources

GeoCAT synchronizes with [GBIF](#) and [Flickr](#) to display raw occurrence data.

Performs extent of occurrence (EOO) and area of occupancy (AOO) analysis.

Red List assessment compliant

Endorsed by Kew Gardens, ViBRANT and IUCN, GeoCAT supports the Red Listing process to help identify and conserve threatened species.

