

# Distribution Ranges and Ecological Niches of Leporids in Africa and Near East.

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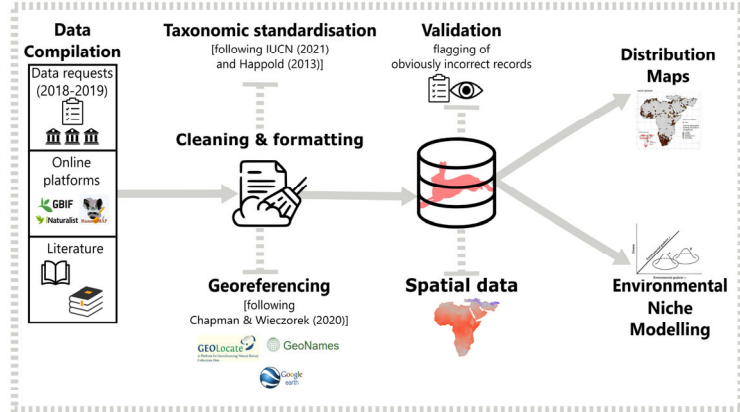


## 1. Objectives

- Analyse the distribution of African leporids, by compiling data from a range of sources such as literature, museum collections and online platforms.
- Investigate the availability of historic material, potentially usable for prospective molecular analyses of hare systematics.
- Examine environmental factors that do correlate with distribution patterns of African hares.\*
- Depict the resulting ecological niches of African hares of the genus *Lepus*.\*

\* upcoming; not considered in this presentation.

## 3. Workflow



## 2. Study area and taxa

- Africa (excluding Madagascar and other islands) and the Near East (including the Arabian Peninsula, Iran, Iraq, Israel, Jordan, Lebanon, Palestine, Syria and Turkey).
- Leporids that are native within the study area from the genera *Lepus*, *Pronolagus*, *Poelagus* and *Bunolagus*.

## 4. Overview - data compilation

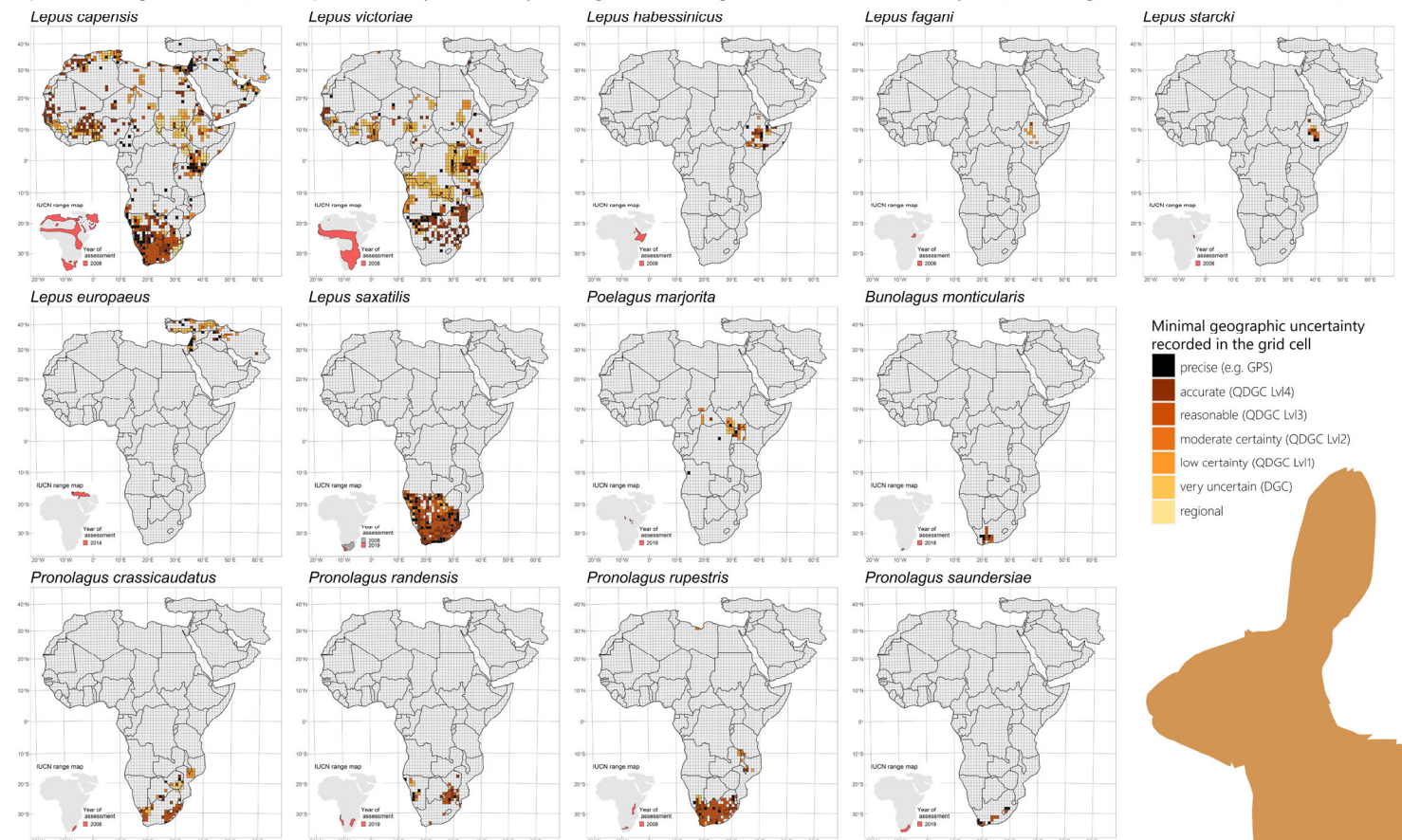
- 87 data sources, including those derived from online databases (i.e. 53 via GBIF, 5 via ARCTOS).
- 64 countries. Top five countries (# records): South Africa, Botswana, Zimbabwe, Namibia, Mozambique.

genus	species	# records	Basis of record [#]			
			observation	specimen	unknown	literature
<i>Lepus</i>	<i>capensis</i>	624	335	286		3
	<i>europaeus</i>	4,838	2,476	2,358		4
	<i>fagani</i>	11	1	10		
	<i>habessinicus</i>	103	10	93		
	<i>saxatilis</i>	5,688	3,168	2,516		4
	<i>starcki</i>	44	13	31		
	<i>victoriae</i>	1,569	498	1,019		2
		80	50	30		
<i>Pronolagus</i>	<i>crassicaudatus</i>	292	53	239		
	<i>randensis</i>	189	94	95		
	<i>rupestris</i>	746	487	259		
	<i>saundersiae</i>	66	65	1		
<i>Poelagus</i>		3		3		
	<i>marjorita</i>	146	29	112		5
<i>Bunolagus</i>	<i>monticularis</i>	453	439	14		
<b>Total:</b>		<b>15,075</b>	<b>7,732</b>	<b>7,275</b>	<b>13</b>	<b>55</b>

## 5. Spatial distribution of African Leporid records

Displayed maps exclude flagged records and country-scale records. Records with undefined uncertainty were included. IUCN range maps are given for comparison.

Map resolution: Degree Grid Cells [minimal spatial uncertainty is indicated by colouring of cells and categories are oriented to the QDGC-System (Quarter Degree Grid Cell; see Larsen et al. 2009)].



## 6. Summary

- Discrepancy between currently available range maps and acquired biodiversity data for several taxa.
- About half of georeferenced data based upon specimen records, highlighting the potential for reexamination and future molecular studies to resolve systematics of African leporids.
- Southern Africa best represented in terms of record availability; in agreement with estimates of unevenness and gaps in biodiversity data (Meyer et al. 2015).
- Pitfalls: taxonomic confusion and misidentification, lost specimens, inaccurate or ambiguous locality descriptions, georeferencing errors and sampling bias.
- Outlook: investigation and comparison of species distributions in environmental space using bioclimatic variables.

## References

ARCTOS (2020) [www.arctosdb.org](http://www.arctosdb.org); Chapman & Wieczorek (2020) Georeferencing Best Practices. GBIF Secr; GBIF.org (Global Biodiversity Information Facility) (2020); Happold, Kingdon & Happold (eds) (2013) Mammals of Africa Vol. 3 – Rodents, Hares and Rabbits; IUCN (2021) The IUCN Red List of Threatened Species. <https://www.iucnredlist.org>; Larsen et al. (2009) *Afr J Ecol* 47:382–392. Meyer et al. (2015) *Nat Com* 6.