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ERFP TF – Transboundary breeds in Europe

ERFP Task Force « Transboundary Breeds »

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1

- Overview of the work done
- Article submitted to GenRes Journal (is under review)
- Some findings
- Next steps – > Case studies
- Discussion

2

Background

- Transboundary breeds in Europe, could be an example for the cooperation between countries on the efficient conservation breeds improve data quality and utilisation of EFABIS through better monitoring of breeds' population

- Final Goal : Make the link between data and *in situ (and ex situ)* situations

Paper 1 *(under review in Genres Journal)*:

Aim

- to describe the current situation in Europe concerning the monitoring of transboundary breeds,

- analyse the different categories and understand the driving forces and the obstacles for the development of common breeding (and conservation) programs

- the role that ERFP could play in this direction

Draw a picture

- How many TB in Europe? Regional and international breeds / focus on regional > Pay attention to "small" populations that have been exported and reported in another region.

- Do we have countries without any TB breed?

- Nb of countries reporting these breeds (per breed -> Build a graph (Nb of breeds declared by 2 countries, 3, 4, more) Could show the importance of only 2 or 3 countries for these breeds.

- Repartition of TB breeds / risk status (SDG 2.5.2), build some categories (breeds endangered in all countries, breeds not endangered in one country but in the other one they are)

- Is there conservation programmes, in and ex situ?

- How many of these breeds are native for 0, 1, 2 or more countries? --> Responsibility

- How many TB are native/locally adapted? = TB but with some importance for the country
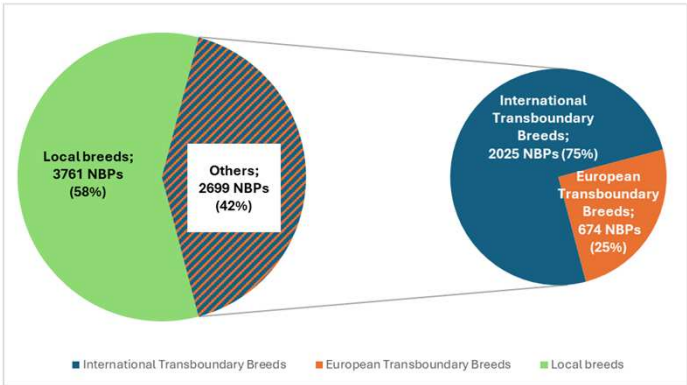
Paper 1 (under review in Genres Journal):

- Descriptive data and population data files, the transboundary list file were extracted from the FAO Information System for the Domestic Animal Diversity (DAD-IS), ("Data export" tool).
- The analysis considers all species (31) registered in DAD-IS in the 43 countries "Europe and Caucasus"
- Calculations are based on the most up-to-date current and historical data available in DAD-IS as of 8 August 2023.
- The basic unit of the analysis is the National Breed Population (NBP).
- The descriptive data refers to the complete characterisation of all the NBPs in DAD-IS, including details on the phenotypic and productive characteristics, risk status, geographic and adaptedness classification.
- The population data file contains detailed population sizes for all the breeds that a country has uploaded information, throughout the years.
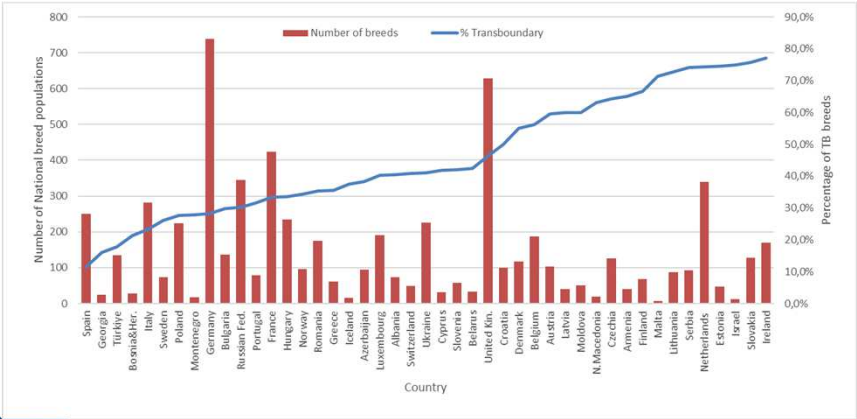
5

Repartition of the National Breed Populations following their geographical classification, their corresponding number of National Breed Populations (In brackets the corresponding proportions).

Local breeds; 3761 NBPs (58%)

Others; 2699 NBPs (42%)

International Transboundary Breeds; 2025 NBPs (75%)

European Transboundary Breeds; 674 NBPs (25%)

■ International Transboundary Breeds   ■ European Transboundary Breeds   ■ Local breeds

The 674 NBPs, which are linked to the **285 diverse Transboundary Breeds reported only in Europe**, reveals the importance of networking and coordination within European countries

6

Number of National Breed Populations and percentage of Transboundary Breeds declared per European country

The share of TBs among NBPs varies a lot, ranging from 11,6% (Spain) to 77,1% (Ireland).

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7

Breed classification (adaptedness)	Breed classification (geographic)		
	International	Regional	Total
Exotic	809 (39%)	177 (26%)	986 (36%)
Locally adapted	218 (10%)	53 (7%)	271 (10%)
Native	225 (11%)	184 (27%)	409 (15%)
Non-available	773 (38%)	260 (38%)	1033 (38%)
Total	2025 (100%)	674 (100%)	2699 (100%)

The high percentage of non-classified NBPs is attributed to several factors, reflecting the organization of AnGR management in each reporting country and specific, at country level, considerations on the definition of terms.

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8

		At Risk	Unknown	Total
Regional	Count	298	303	674
	Row N %	44,2%	45,0%	100,0%

9

Table 4. Transboundary Breed cases examples

Species	Transboundary Breed	Local Breed name	Country	SDG local risk status	adaptedness	regional risk status
Horse	Hutsul	Hucuł	Poland	at risk	native	at risk
		Hutsul	Romania	unknown	no info	
		Hucuł	Slovakia	at risk	locally adapted	
		Hucuł	Hungary	at risk	native	
		Huzule	Germany	at risk	exotic	
		Gutsul	Ukraine	at risk	no info	
		Huzule	Austria	at risk	native	
		Huculsky kun	Czechia	at risk	locally adapted	
Cattle	Podolian	Podolica	Italy	Not at risk	native	Not at risk
		Podolian	Serbia	at risk	locally adapted	
Sheep	Precoce	Merino Precoz	Spain	at risk	locally adapted	At risk
		Merina Precoce	Portugal	at risk	exotic	
		Mérinos précoce	France	unknown	native	
sheep	Ouessant	Ouessant	France	at risk	native	Not at risk
		Ouessant	Belgium	at risk	no info	
		Ouessant	Netherlands	at risk	exotic	
		Ouessant Schaf	Germany	at risk	exotic	
		Kesantská ovce	Czechia	at risk	exotic	
		Ouessant	Denmark	at risk	no info	

10

Several countries linked their National Breed Population to a Transboundary Breed			
European Risk Status	Not Endangered	Not Endangered	Endangered
Local Risk Status	Not Endangered in at least 1 country	Endangered/Unknown in all the countries (but the total lead to "Not Endangered" status at European level)	Endangered/Unknown in all the countries (and the total lead to "Endangered" status at European level)
Questions / Actions	OK for SDGs calculation as a Not Endangered Transboundary Breed	Do the countries work together? Is the Transboundary Breed is really Not Endangered? Should this breed be in SDGs calculations as "Not Endangered"?	Do the country work together? Do we know more about the genetic proximity within the different NBPs? OK for SDGs calculation as Endangered Transboundary Breed
		In Situ / Ex Situ cases studies	

11

Summing up

- Inconsistencies, (i.e. TBs linked to only one NBP) open the discussion on the **definitions of TBs** and the applied **criteria to link a NBP to a TB**.

  - Under which conditions, would be feasible to establish unified criteria, including historical data and genetic information?

- Gaps in data / problems : different names? Same names? are they all linked to "transboundary breed list name"?

- Environmental context: How many populations have a geographical description/adaptability to specific environment in DAD IS? In one or each country?

- Advances in genomics and the progress of relevant research could further enrich existing knowledge on Transboundary Breeds and support their sustainable management

- TBs cannot be examined exclusively through demographic data and genetic information. Several **technical, social and political aspects shape the future management opportunities**.

12

Summing up

- Focus Regional Transboundary breeds

- Specific case could be developed around small populations that are International but Native/Locally adapted from a European country.
The case study approach is recommended: *in situ* and *ex situ* cases of breeds that have common breeding programs or frequent exchange of breeding animals, either cases of breeds with common history, or raised in similar environments, but have no common activities yet.

- Specific breed cases could be also considered in connection with other relevant development initiatives, as could be the case of mountain TBs.

- This discussion is in accordance with the **recommendations of the AnGR Strategy in Europe**
  - promotes the *in situ* and *ex situ* strategies of TBs, specific actions are foreseen to improve the knowledge on TBs, support the exchange between actors involved in the conservation and breeding programmes of these breeds and promote cooperation on this field (ERFP, 2021).

13

Discussion

- Define case studies
- Setting up groups to work on specific cases
- Work on definitions / improve data recording

14