



Global Strategy for the Conservation and Use of Capsicum Genetic Resources

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The strategy

Barchenger D.W. and Khoury C.K. 2022.
*A Global Strategy for the Conservation and Use
of Capsicum Genetic Resources.*
Global Crop Diversity Trust. Bonn, Germany.
DOI: 10.5281/zenodo.8367264



**GLOBAL STRATEGY FOR THE CONSERVATION
AND USE OF *CAPSICUM* GENETIC RESOURCES**

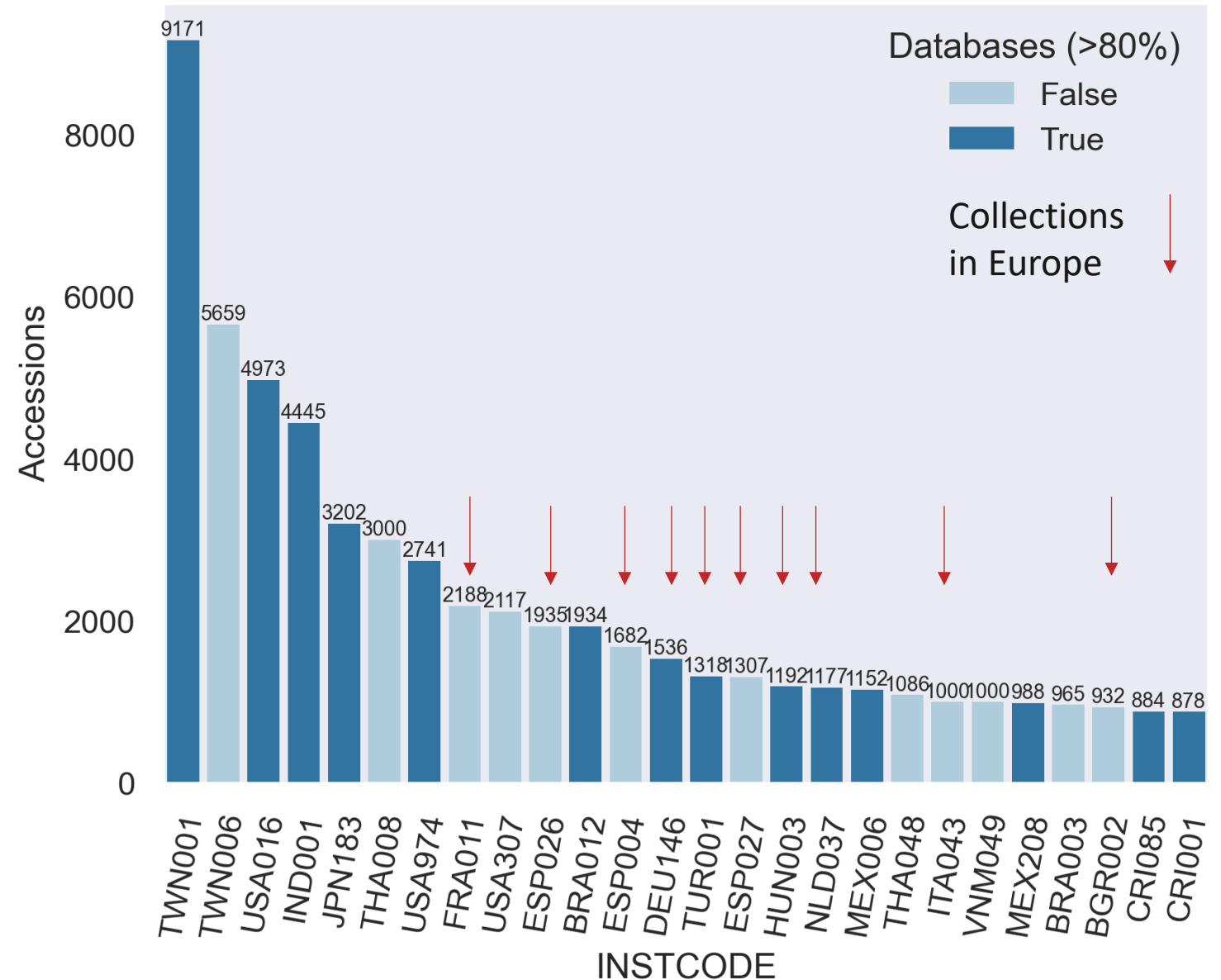
With support from





Global Ex Situ Holdings

- > 50K accessions globally
- Unknown how many of these are highly distinct/unique
- Large percentage of accession level data not yet in open databases
- TWN001, FRA011, USA016, NLD037, DEU146, ESP026 conserve material from more than 50 countries

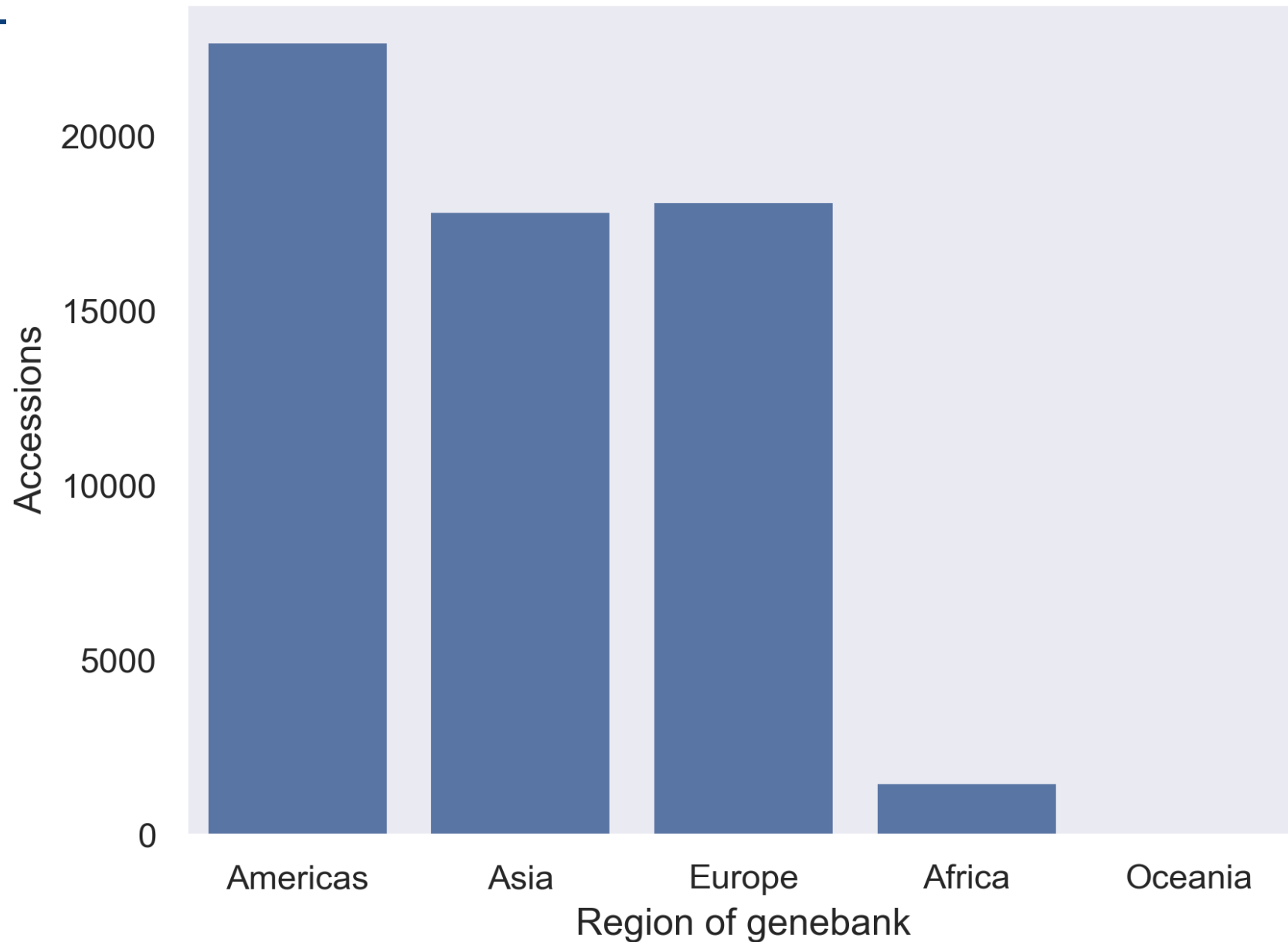


INSTCODE Accessions*			ACRONYM
FRA011	2188	Centre de Ressources Biologiques Légumes	INRA-AVIGNON
ESP026	1935	Universidad Politécnica de Valencia. -	BGUPV
ESP004	1682	Centro Nactional de recursos fitigenéticos	CRF
DEU146	1536	Leibniz Institute of Plant Genetics and Crop Plant Research-	IPK
ESP027	1307	CITA-HOR	
HUN003	1192	Institute for Agrobotany (RCA)	
NLD037	1177	Centre for Genetic Resources, the Netherlands Plant Research International -	CGN
ITA043	1000	Research Centre for Vegetable and Ornamental Crops	
BGR002	932	Maritsa Vegetable Crops Research Institute	
UKR021	754	Institute of Vegetable and Melon Growing (IOB)	
BGR001	746	Institute for Plant Genetic Resources ‘K.Malkov’ -	IPGR
MKD001	650	Dept. of Genetics and Plant Breeding Ss. Cyril and Methodius University	Skopje
CZE122	530	Crop Research Institute	CRI
MDA010	430	Laboratory for Plant Genetic Resources (LPGR)	
POL003	335	Plant Breeding and Acclimatization Institute (IHAR)	
PRT001	236	Portuguese Bank of Plant Germplasm	

*Source: Survey (2021) or open databases (Genesys and WIEWS)

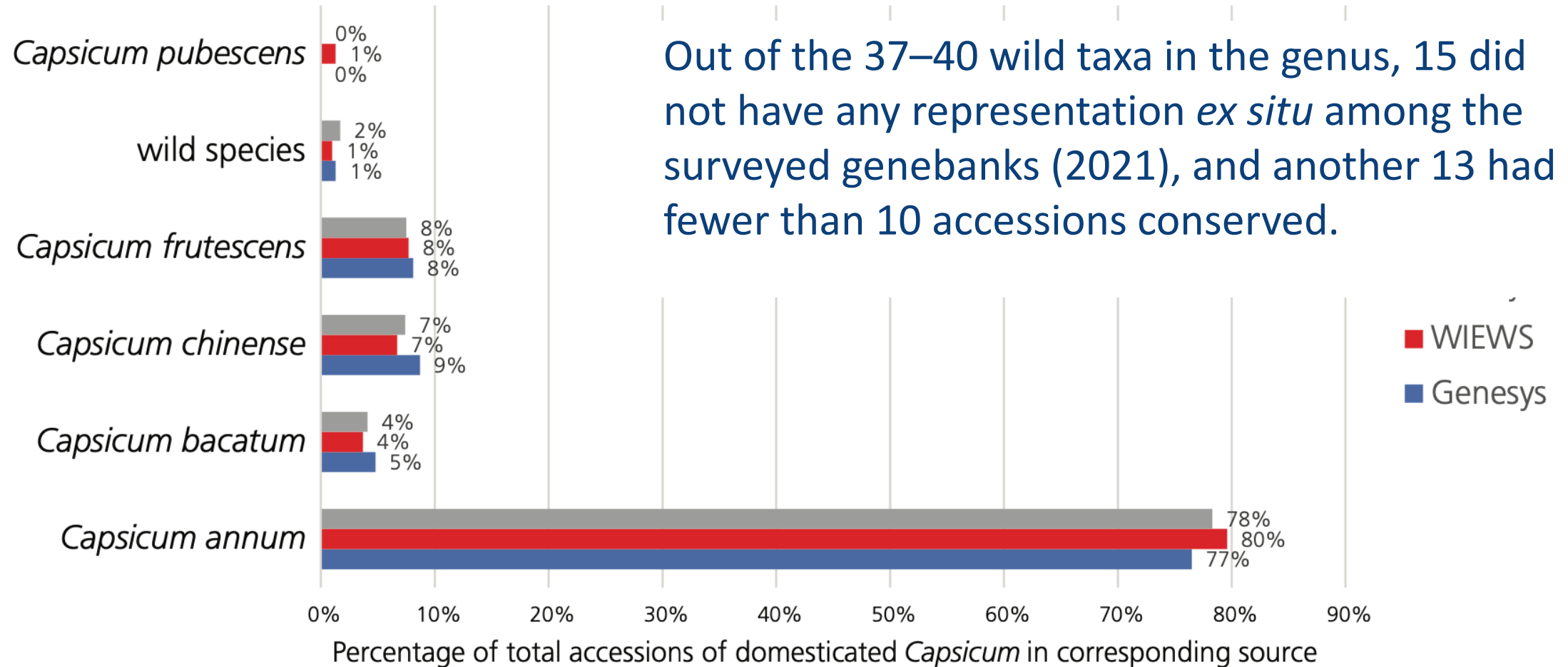


Global Ex Situ holdings by region of holding institute



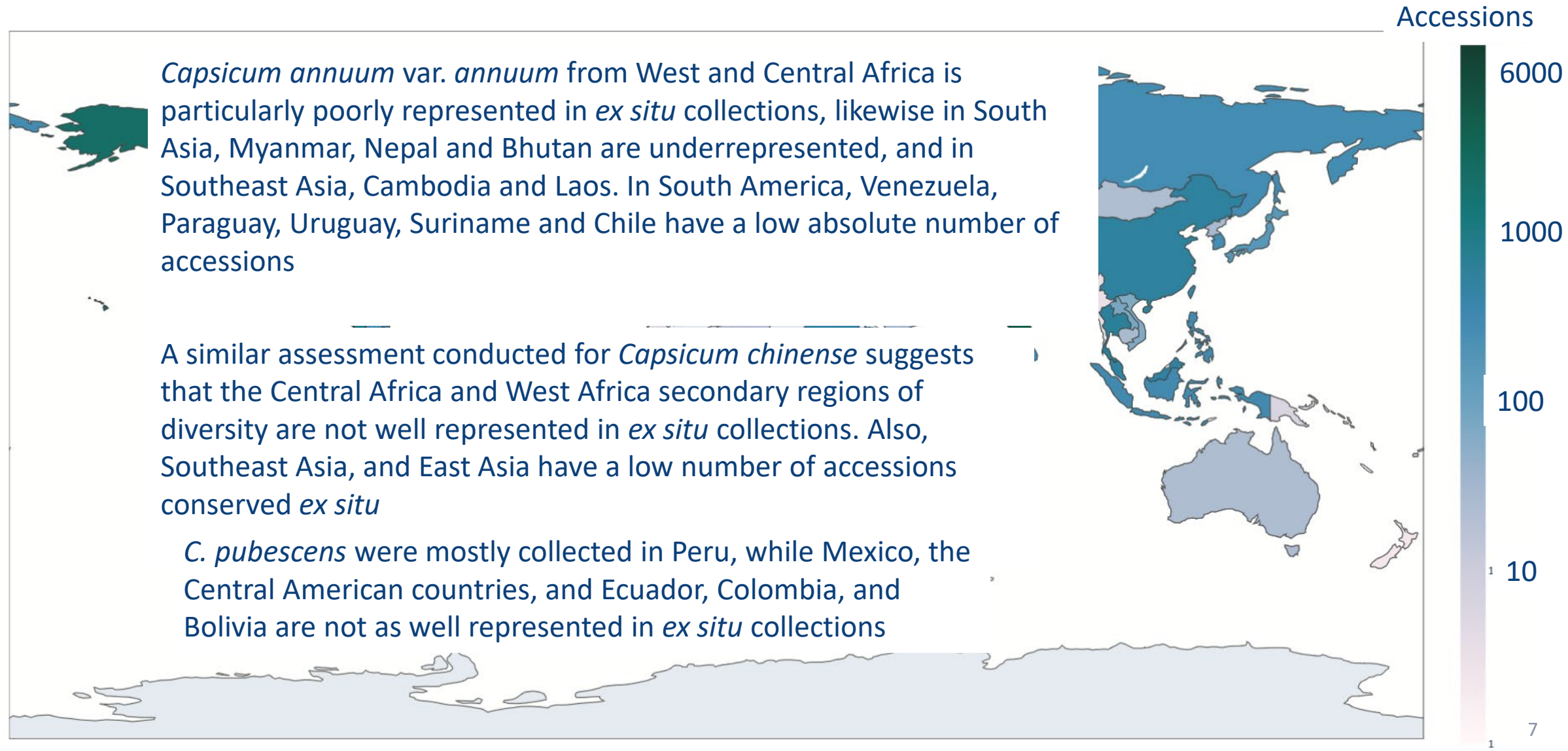


Global Ex Situ Holdings



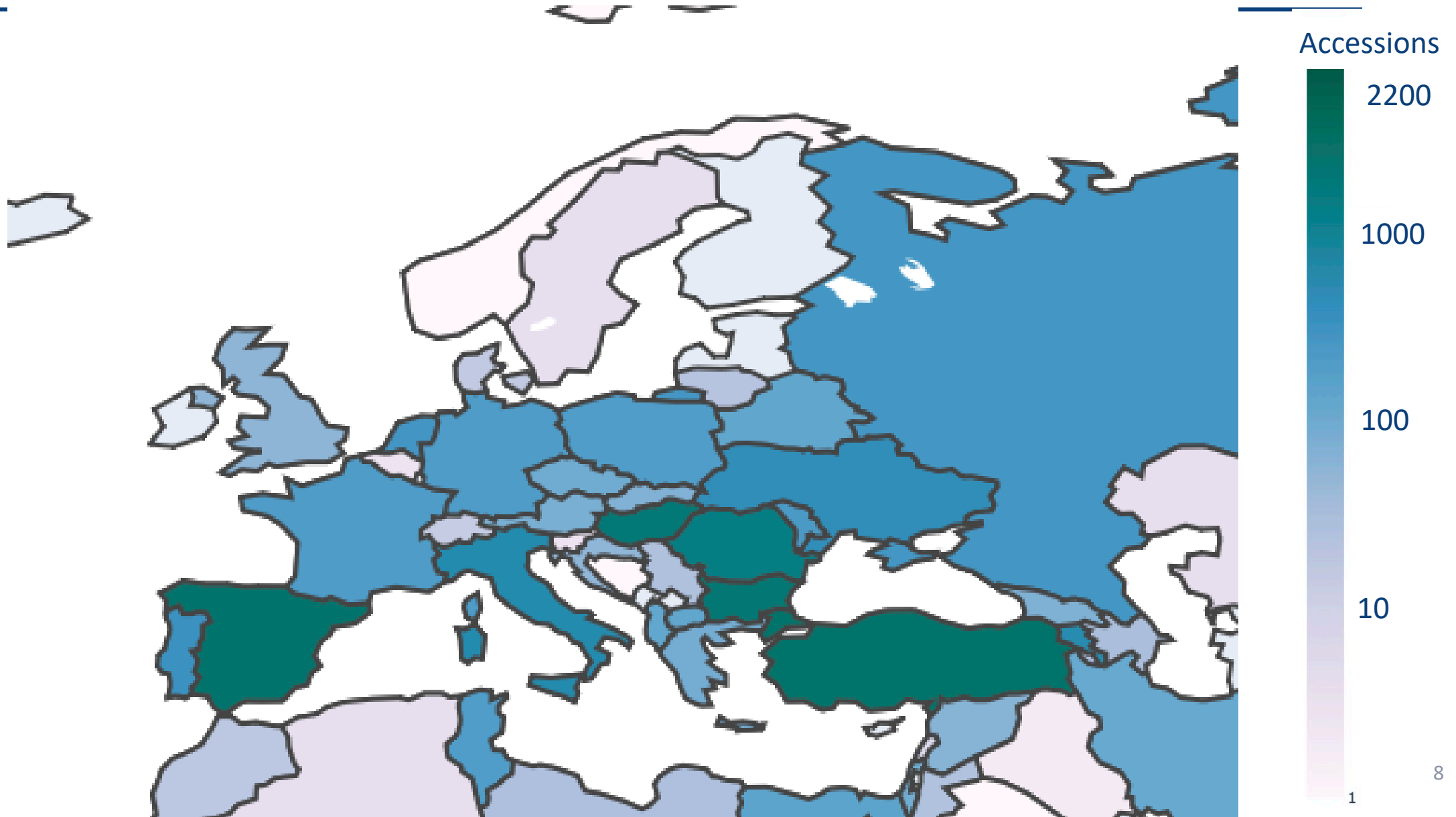


Global Ex Situ Holdings: origin of accessions





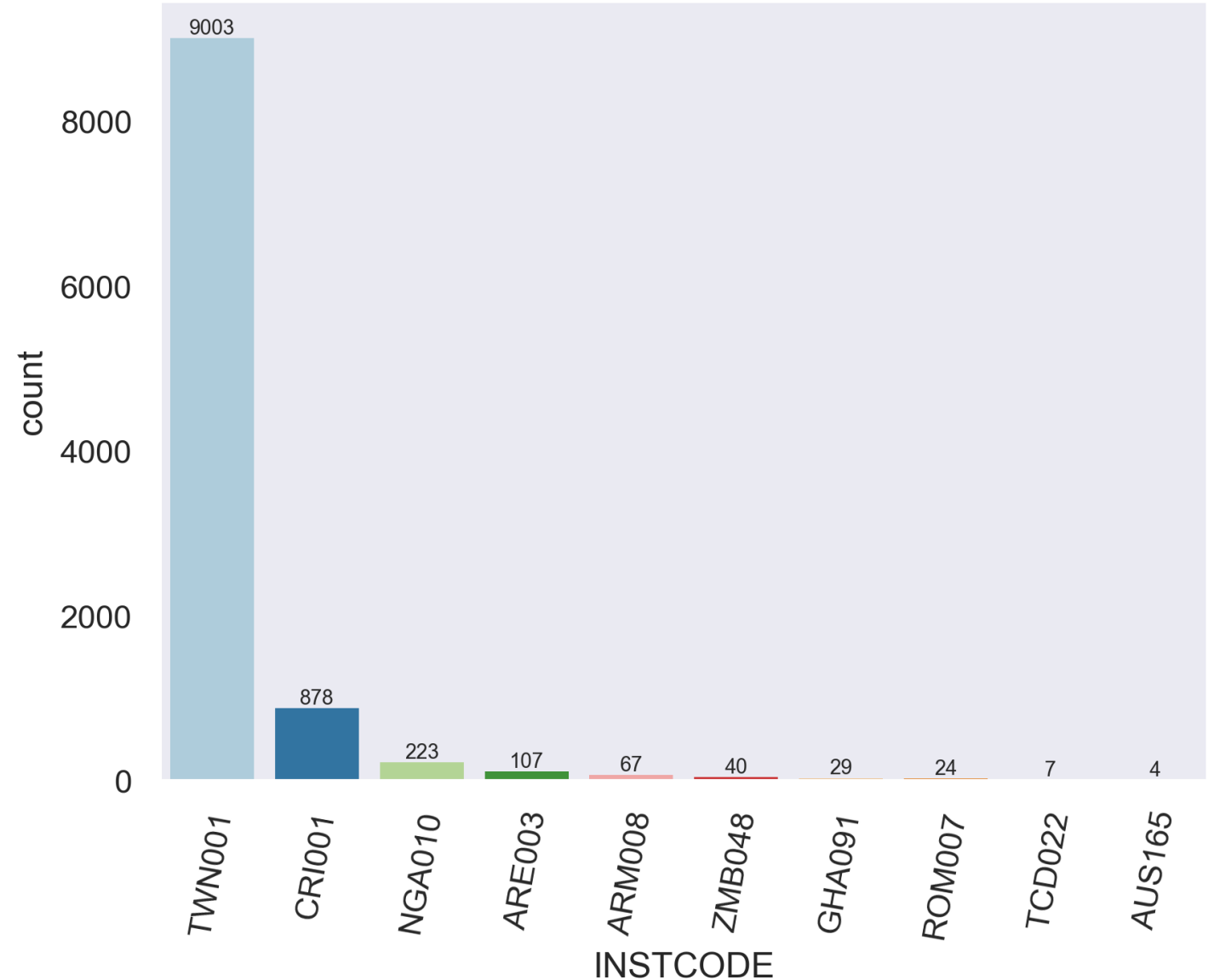
Global collection: origin of Capsicum accessions





Global Ex Situ Holdings: access

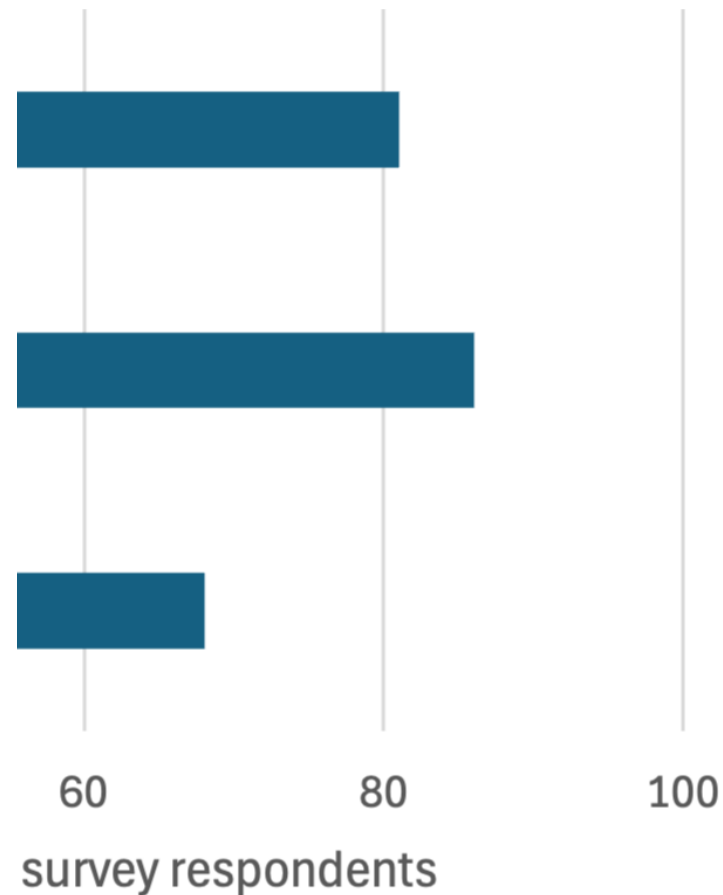
- 2012-2019
 - 7,992 exchanges of Capsicum via SMTA (Data Store)
 - 35,000 samples and 9,646 acc. Distributed (FAO WIEWS)
- 10,471 acc. included in MLS (GLIS 2025)
- Uneven distribution pattern
- The USDA-ARS is the largest distributor





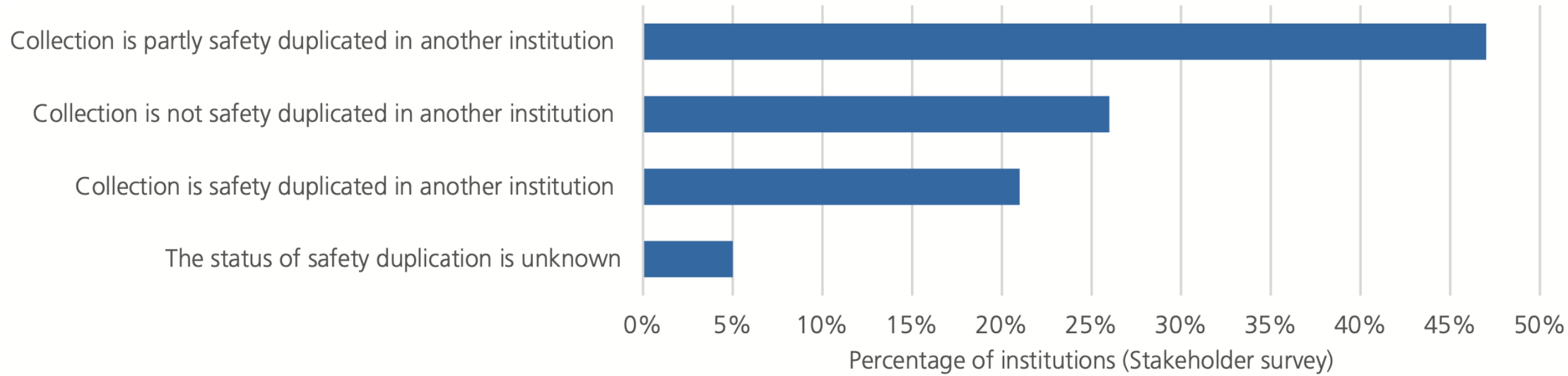
Storage of Capsicum PGR

- Some Capsicum wild species have recalcitrant seeds (Barchenger and Bosland, 2019).
- New Mexico State University maintains live plants of several recalcitrant wild Capsicum species to ensure they are not lost (P.W. Bosland, pers. comm.).





Survey: Safety duplication

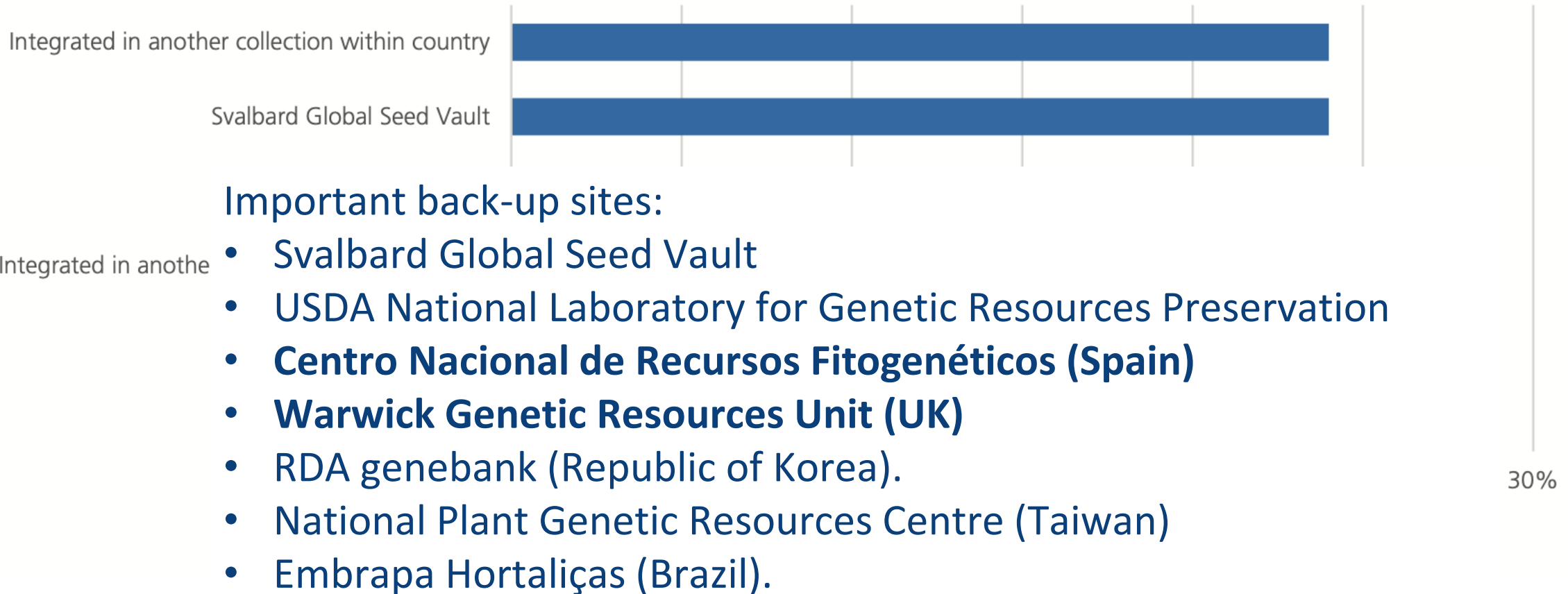


Source: Survey (2021) n = 40



Survey: Safety duplication

Location of the safety duplicates

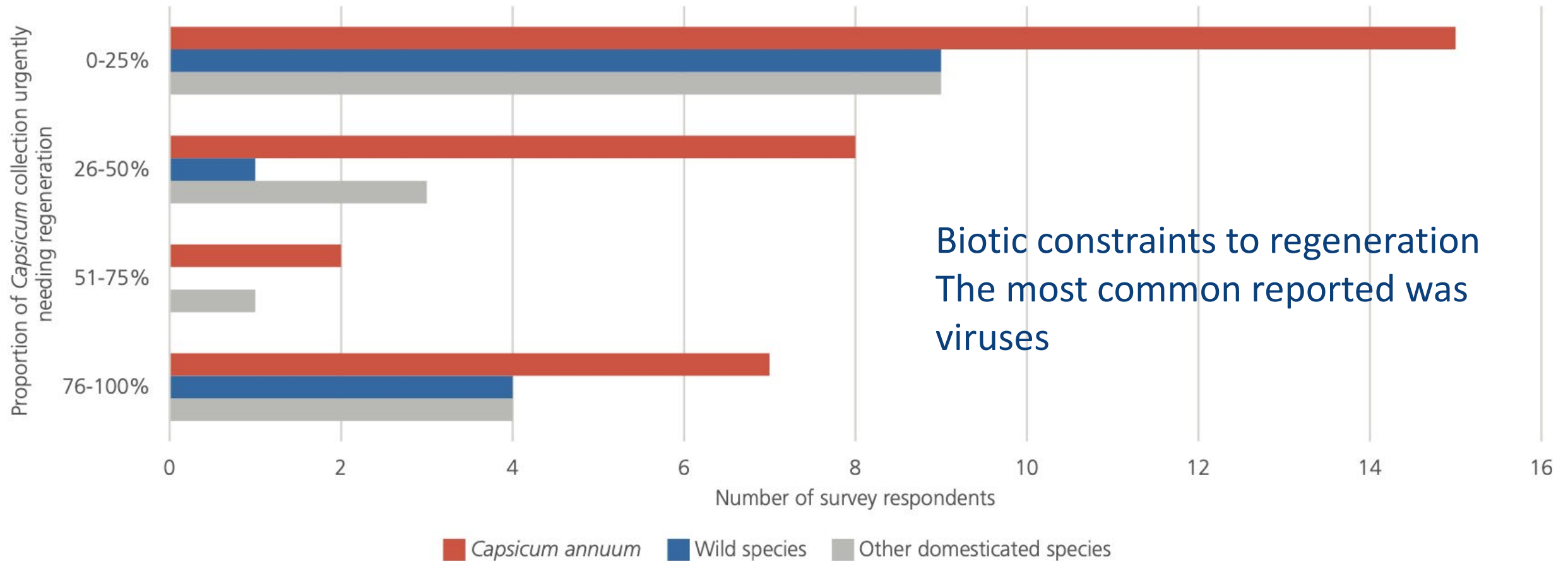


Capsicum accessions stored at SGSV 11,279 (22% of estimated global collection)

Source: SGSV Seed Portal 2025)



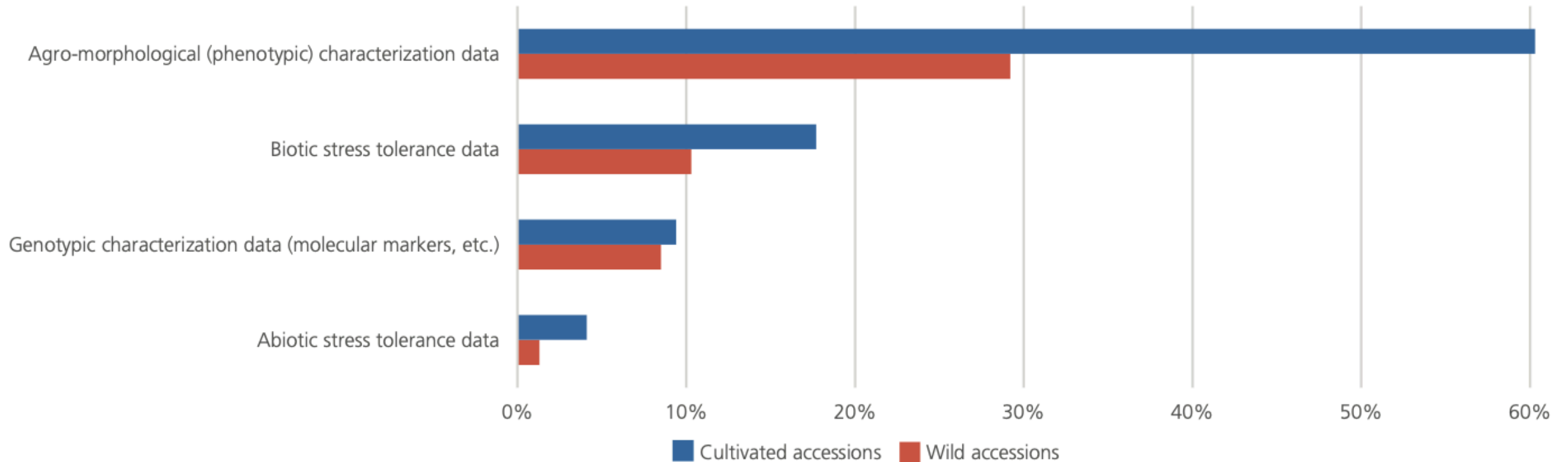
Regeneration



Source: Survey (2021) n = 40



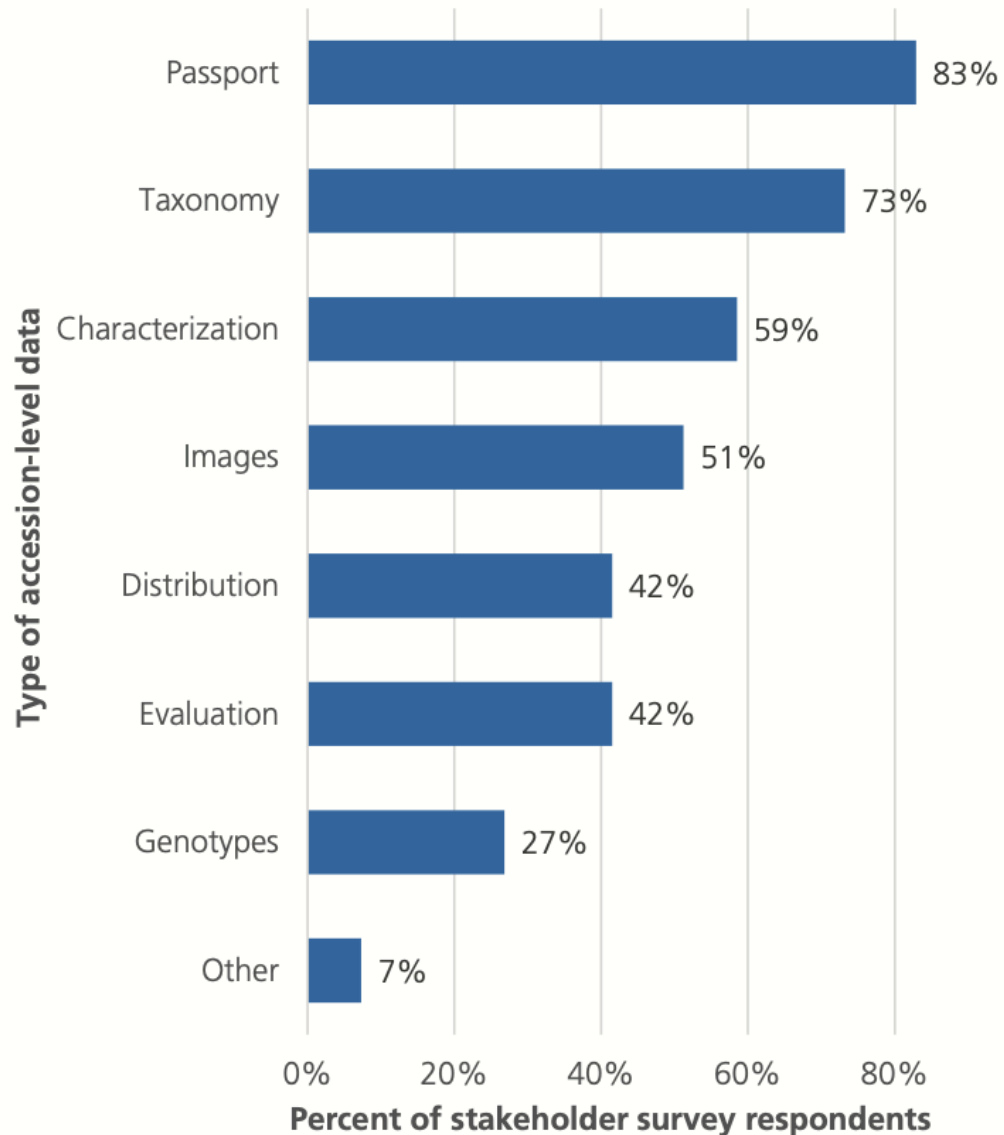
Characterization and Evaluation



Source: Survey (2021) n = 40



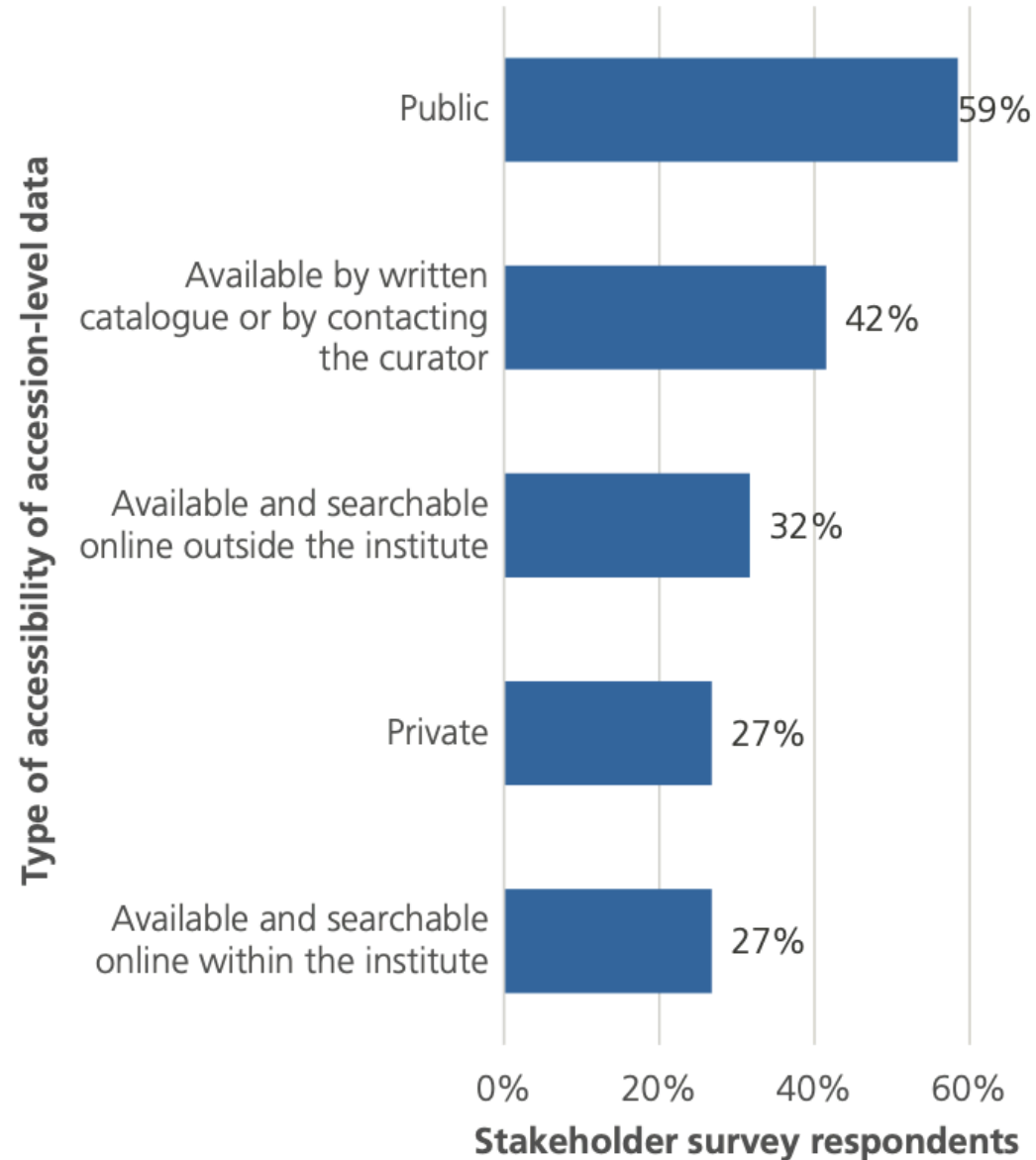
Documentation and information sharing



Source:
Survey (2021)
n = 40



Documentation and information sharing



Source:
Survey (2021)
n = 40



Recommendations & relevance to ECPGR

- Prioritize wild species collection in Brazil, Andes, Mesoamerica
- Strengthen long-term conservation
- Ensure safety duplication across collections
- Study storage viability and define best practices
- Regenerate accessions
- Collaborate on characterization & evaluation
- Improve global data accessibility and quality



THANK YOU

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