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Supplementary Information

This supplementary information has not been peer reviewed.

Title: Exploring the Dynamic Functions of Pastoral Traditional Knowledge

Supplementary Information A

Table S1. List of publications included in the systematic literature review

Paper ID No.	References
11	Ghai, R. (2021). Understanding ‘culture’ of pastoralism and ‘modern development’ in thar: Muslim pastoralists of north-West Rajasthan, India. <i>Pastoralism</i> , 11(1). https://doi.org/10.1186/s13570-020-00190-1
12	Wang X., and Liao C., Brandhorst S.M., Clark P.E. (2022). Sedentarization as an adaptation to socio-environmental changes? Everyday herding practices in pastoralist communities in southern Ethiopia. <i>Ecology and Society</i> , https://doi.org/10.5751/ES-13503-270339
15	Carmona R. (2022). Resilience Requires Change: Assessing Pehuenche Responses to Climate Change Impacts in Southern Chile. <i>Environmental Justice</i> , https://doi.org/10.1089/env.2021.0044
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	[地方知识在社区的极端气候风险管理中的角色--基于游牧类重要农业文化遗产的研究]. <i>Journal of Resources and Ecology</i> , https://doi.org/10.5814/j.issn.1674-764x.2021.04.011
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Supplementary Information B

Table S2. Definition of variables used in the systematic literature review

Variable		Definition	Format
Metadata			
Study area	Location	Indicate name(-s) of regions where research took place	Coordinates
	Country(-ies)	Indicate country(-ies) where research took place	Name of the country(-ies)
	GPS	The Global Positioning System coordinates that precisely define the location of the study area	Latitude and Longitude
	Climate zones	Climate types as defined by Koeppen-Geiger climate classification (if not mentioned, it is extrapolated from location)	1=Dry 2=Continental 3=Temperate 4=Tropical 5=Polar
Study group	Ethnic groups	Indicate which ethnic groups were respondents in this study	The name of the ethnic group. if not specified, write NA
	Indigenous Peoples	Whether the authors conceptualize the respondents as indigenous peoples	0=No 1= Yes
	Type of pastoralism	Nomadism: characterized by the regular movement of herds to new pastures. Transhumance: involving seasonal migration between fixed pastures. Agro-pastoralism: combines crop farming with pastoralism. Sedentarism: indicating settled herding with limited livestock movement.	1= Nomadism 2=Transhumance 3= Agro-pastoralism 4= Sedentarism
	Type of herd (can be multiple)	The type of herd the local communities manage.	1= Cattle 2= Sheep 3= Goat 4= Camel 5= Horse 6= Reindeer 7=Yak 8=Other
Methods	Research Methods	Method of data collection	1= Community Mapping 2= Focus Group Discussions 3= Free list 4= Interviews 5= Participant Observation 6= Surveys 7=other
Pastoral Traditional Knowledge Domains			

PTK domains	Livestock-related knowledge	This knowledge includes understanding the nutritional needs, well-being, grazing preferences, and unique characteristics of the livestock.	0=No 1= Yes
	Forage and plant-related knowledge	This knowledge involves the identification of plants, a detailed understanding of their characteristics, and their utilization.	0=No 1= Yes
	Landscape-related knowledge	This knowledge is about the observation and understanding of the specific landscapes where pastoralists live.	0=No 1= Yes
	Climate and weather-related knowledge	This knowledge refers to information about the local climate, weather patterns, and seasonal variations that impact pastoral activities.	0=No 1= Yes
	Social-cultural knowledge	This knowledge is about the cultural traditions, social institutions, and community dynamics specific to pastoral societies.	0=No 1= Yes
	Herd mobility	This knowledge refers to the movement of livestock groups from one location to another for different purposes.	0=No 1= Yes
	Herd breeding	This knowledge is specific to the selective breeding and reproduction of livestock within a specific pastoral context.	0=No 1= Yes
	Herd diversification	This knowledge focuses on the trade-offs of diversifying the composition of the livestock.	0=No 1= Yes
	Landscape management	This knowledge includes the traditional insights and techniques developed for interacting with their environment.	0=No 1= Yes
	Other	This domain includes knowledge that does not fit in any of the domains, such as holistic knowledge.	0=No 1= Yes
Pastoral Traditional Knowledge Functions			
PTK functions	Main functions (can be multiple)	Ecological function includes various aspects such as managing ecosystem health, preventing weather and climate variations and contributing to ecosystem recovery. Economic function includes functions related to enhancing the efficiency and sustainability of pastoralists' livelihoods. Social-cultural function includes functions contribute to the maintenance of pastoral communities' cultural integrity and social structures.	1=Ecological function 2=Economic function 3=Social-cultural function

	Subfunctions (can be multiple)	Biodiversity conservation and ecosystem monitoring emphasizes the role of knowledge in monitoring and maintaining ecosystem health, and in conserving local species, and the genetic diversity of livestock breeds. Sustainable resource management emphasizes the role of knowledge in maintaining sustainable use of the natural resources and ensuring long-term sustainability of rangelands. Climate adaptation and resilience emphasizes the role of knowledge in observing and predicting weather patterns and preparing for the varying climatic conditions and environmental stressors. Ecosystem restoration and regeneration emphasizes the role of knowledge in contributing to the recovery and regeneration of ecosystems. Livelihood support and resource optimization emphasizes the role of knowledge in optimizing the use of limited resources, including water and forage, to support livelihoods. Risk management and disaster reduction emphasizes the role of knowledge in mitigating the impacts of natural disasters and environmental fluctuations. Enhancing livestock productivity emphasizes the role of knowledge in improving livestock productivity. Cultural identity and heritage emphasizes the role of knowledge in preserving the cultural heritage and traditional practices that define community identity. Social cohesion and community governance emphasizes the role of knowledge in strengthening community bonds through shared decision-making,	1.1=Biodiversity conservation and ecosystem monitoring 1.2=Sustainable resource management 1.3=Climate adaptation and resilience 1.4=Ecosystem restoration and regeneration 2.1=Livelihood support and resource optimization 2.2=Risk management and disaster reduction 2.3=Enhancing livestock productivity 3.1=Cultural identity and heritage 3.2=Social cohesion and community governance 3.3=Conflict resolution and cooperation

		resource-sharing, and collective management of resources. Conflict resolution and cooperation emphasizes the role of knowledge in resolving disputes over resources and fostering cooperation in herding practices.	
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