Mountain biodiversity in policy processes: monitoring, research, and reporting

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Mountain biodiversity in global agendas

2011(-2020)

Aichi Biodiversity Target

Target 14. By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable

Indicators

- Coverage by protected areas of important sites for mountain biodiversity
- Mountain Green Cover Index.

2015 (-2030)

Sustainable Development Goal

SDG 6. Ensure availability and sustainable management of water and sanitation for all

SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Targets and Indicators

6.6. By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

15.1. By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.4. By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development

15.4.1. Coverage by protected areas of important sites for mountain biodiversity

15.4.2. Mountain Green Cover Index

2022 (-2030/50)

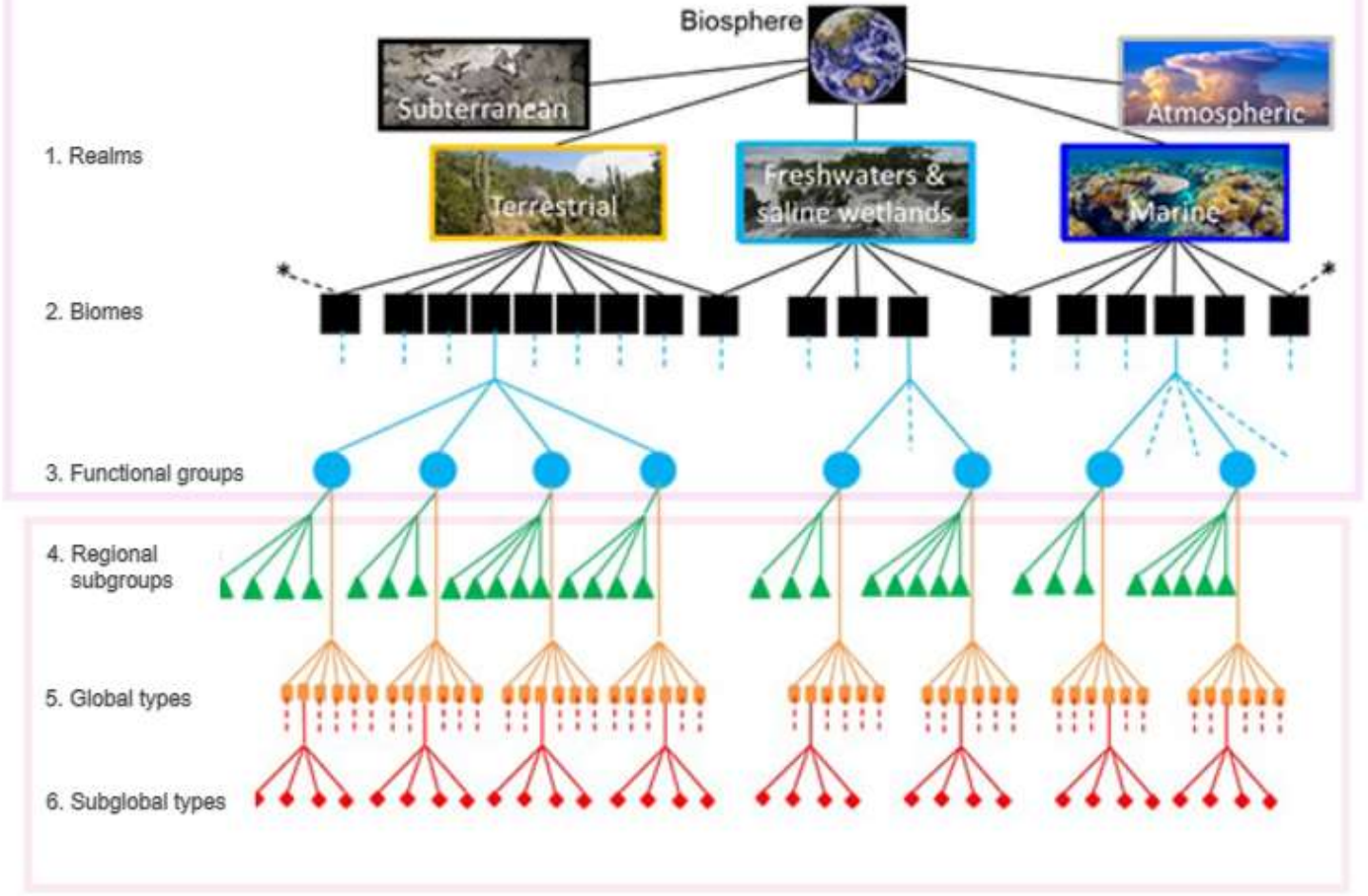
Kunming Montreal Global Biodiversity Framework

N/A

UNEP, GMBA, MRI, GridArendal, 2020

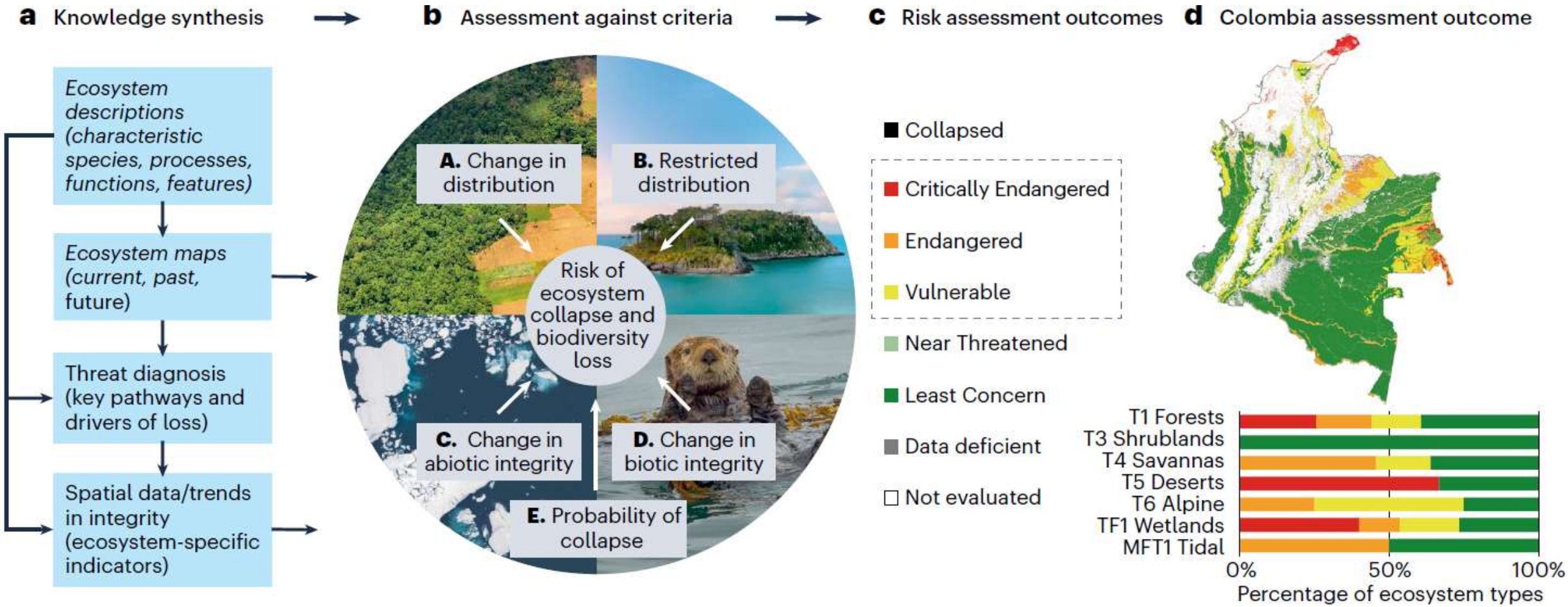
Post SBSTTA 26 headline indicators

Indicator name	
A.1 Red List of Ec	Global Ecosystem
A.2 Extent of nat	erritories, By PAs/
A.3 Red List Inde	ne)
B.1 Services prov	osystem functional
2.1 Area under re	raditional territories;
3.1 Coverage of F	ctional group []; areas of ors 4.5.1, 15.1.2, **15.4.1**); overnance type;



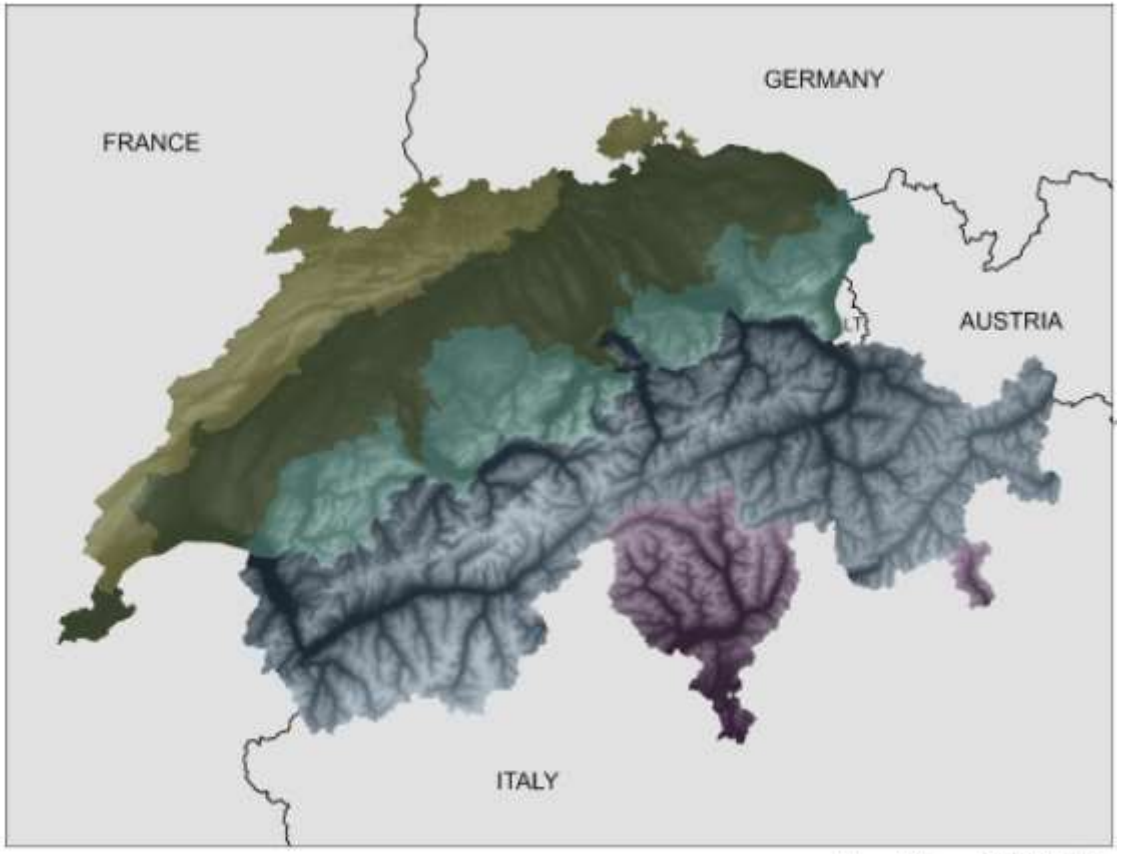
https://global-ecosystems.org/page/typology

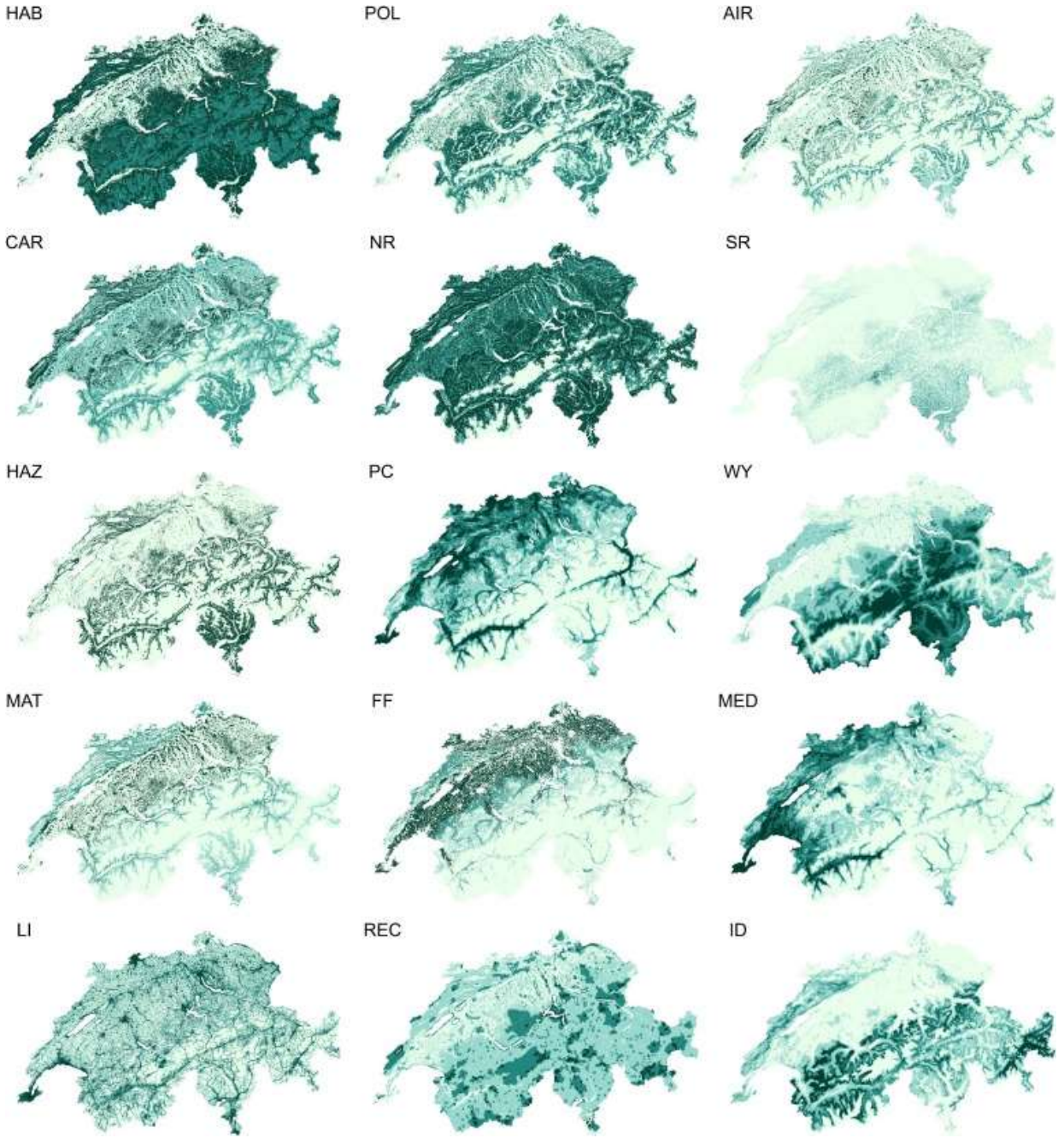
Red list of ecosystems



Nicholson et al., 2024

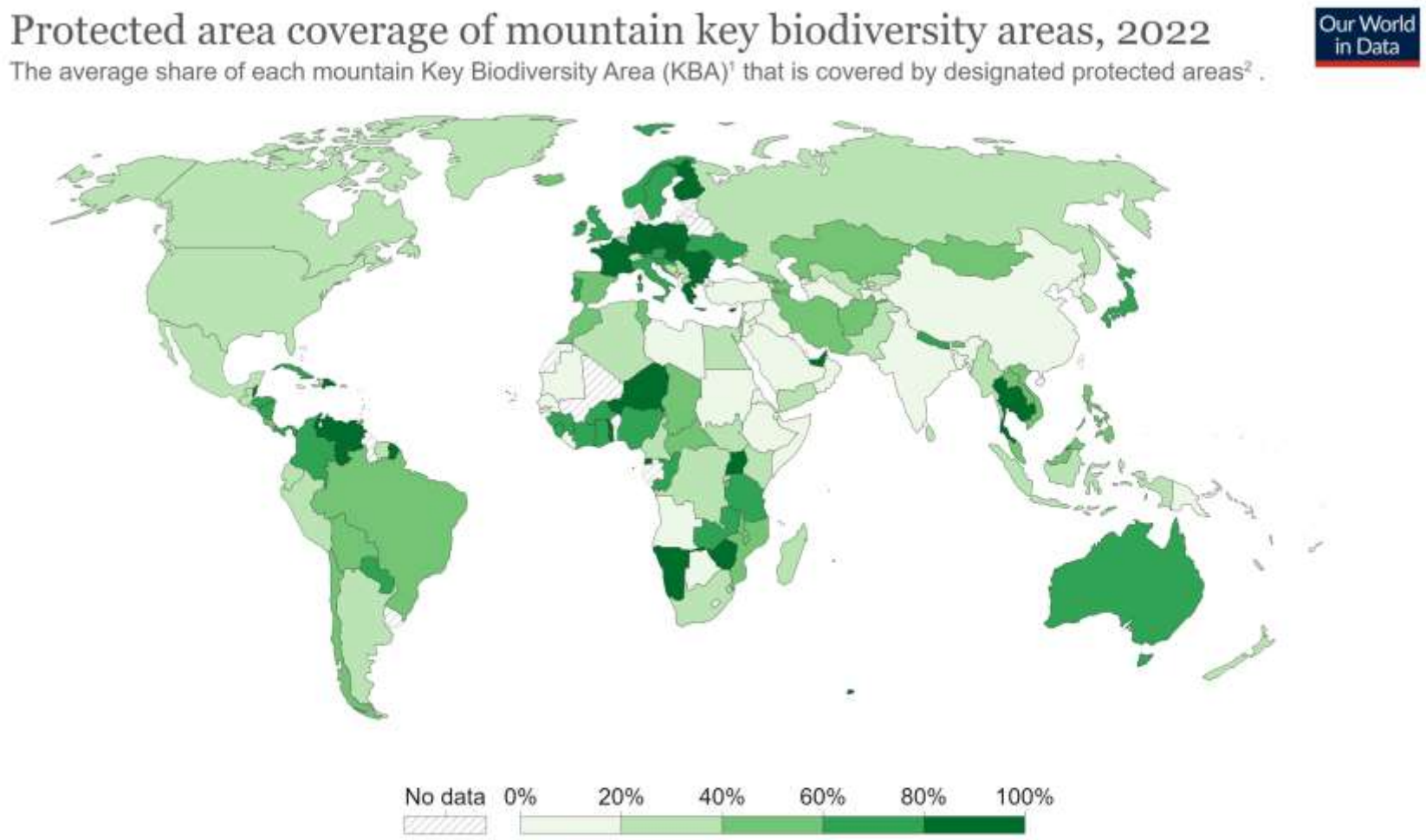
Services provided



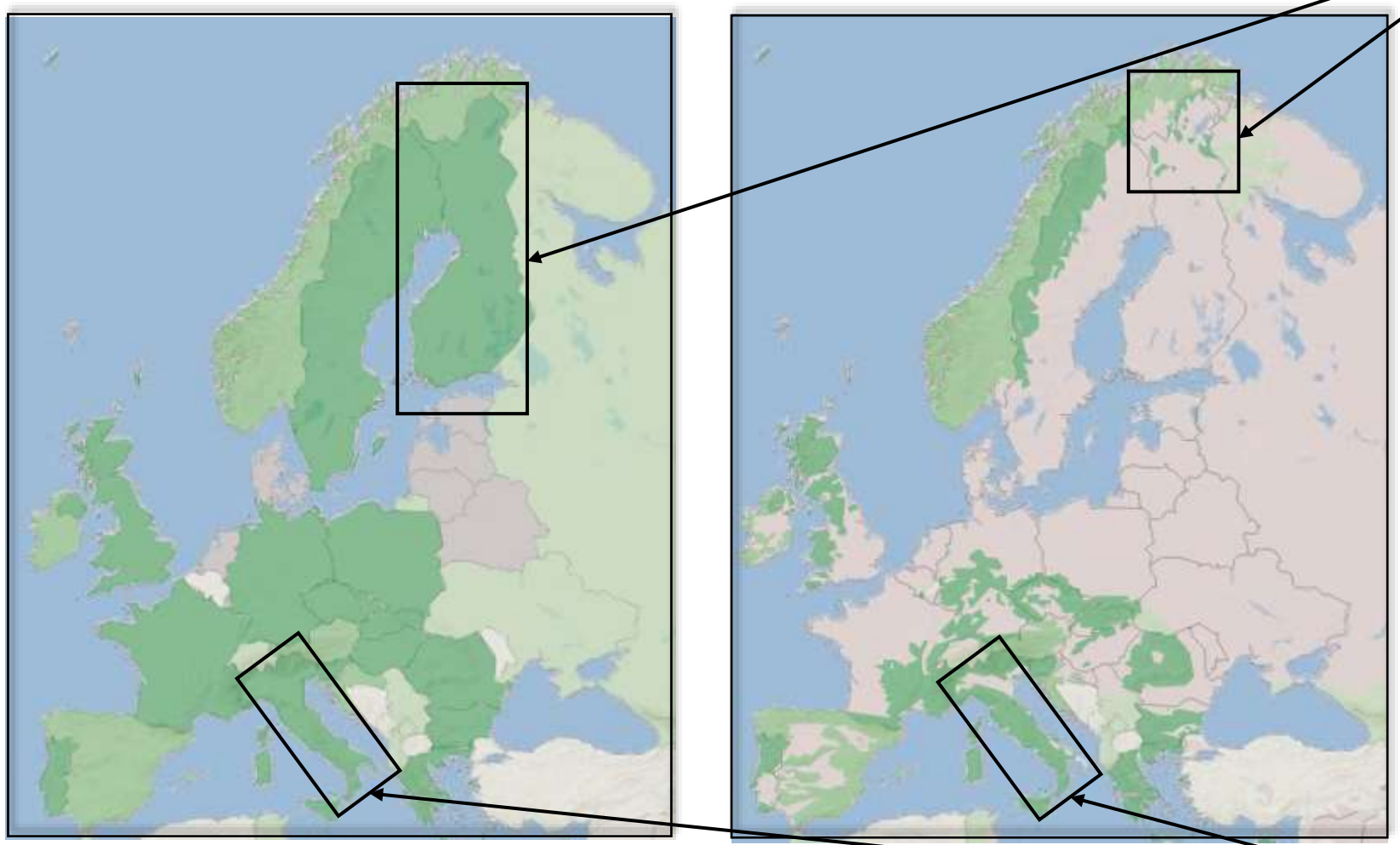


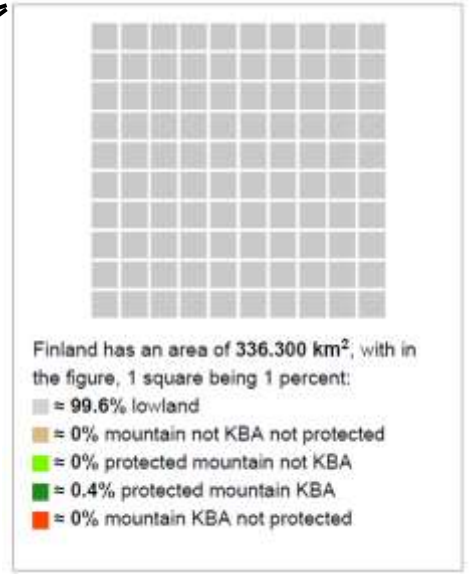
Külling et al., 2024

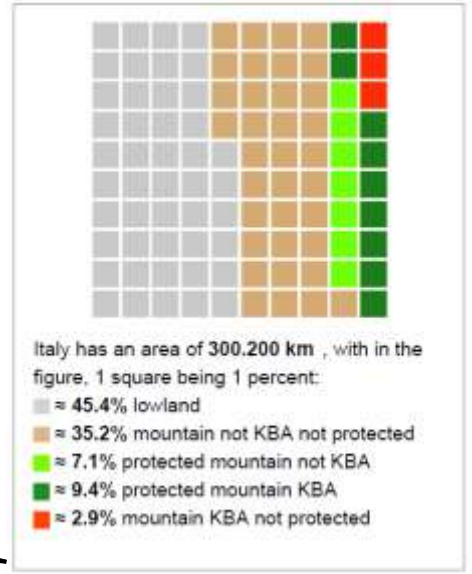
Coverage of PAs and OECMS (by areas of importance for biodiversity)



Coverage of PAs and OECMS



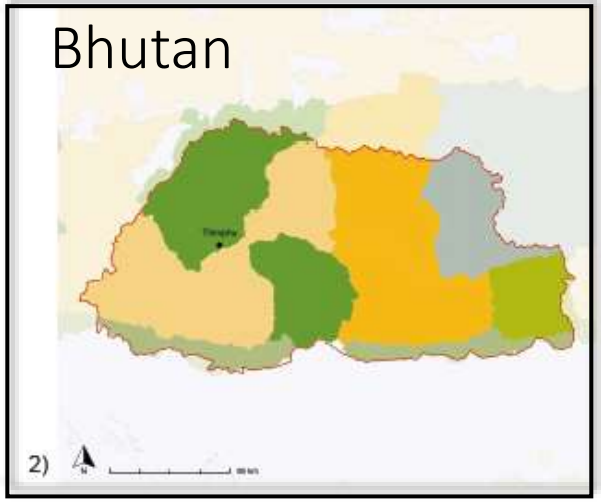


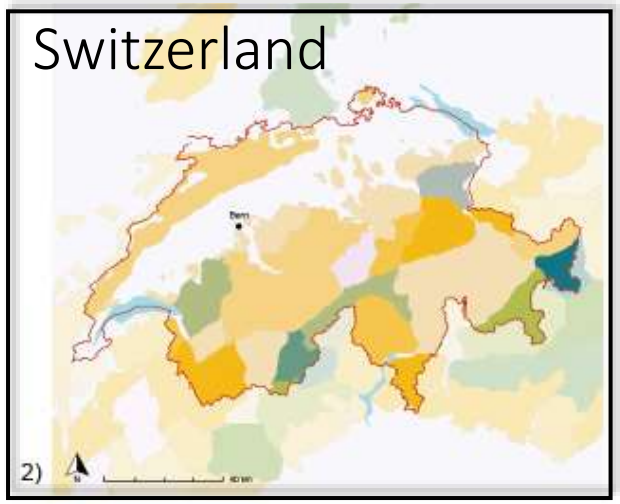


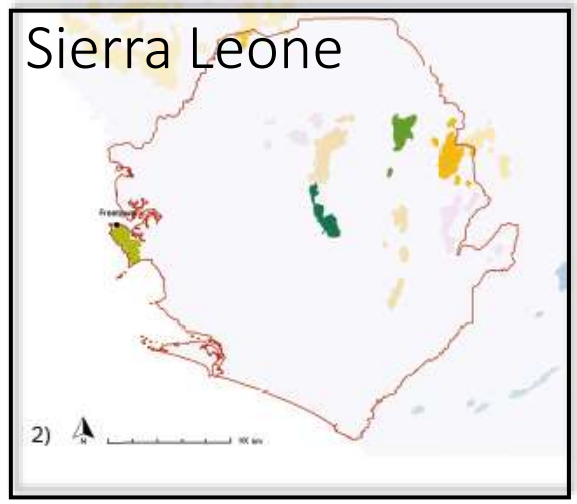
Ly et al. 2023

Coverage of PAs and OECMS

	Total area (km^2)	Lowlands	Highlands	# mountain ranges	SDG (official)
Belize	22’100	88%	12%	2	88.8
Bhutan	38’800	0%	100%	10	81.7
Switzerland	41’100	32%	68%	34	21.3
Sierra Leone	72’900	95%	5%	10	79.4

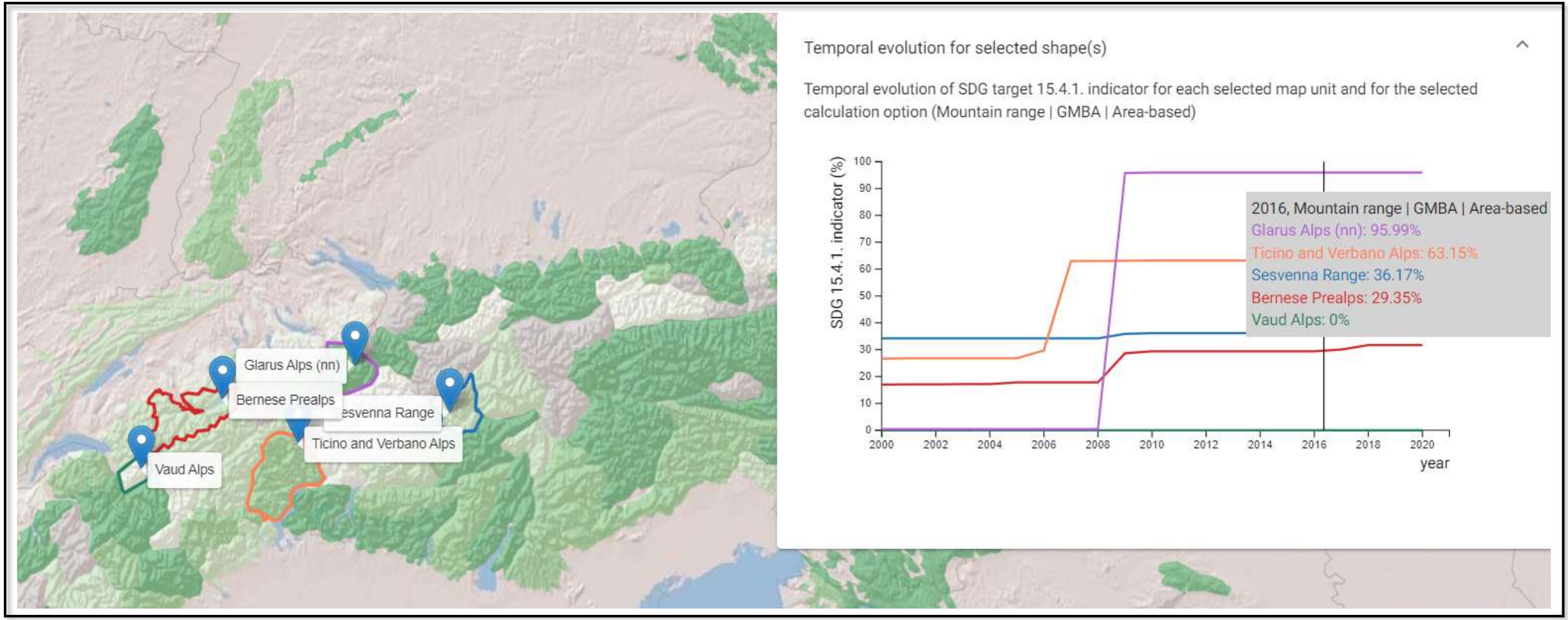






Ly et al. 2023

SDG 15.4.1 by mountain range



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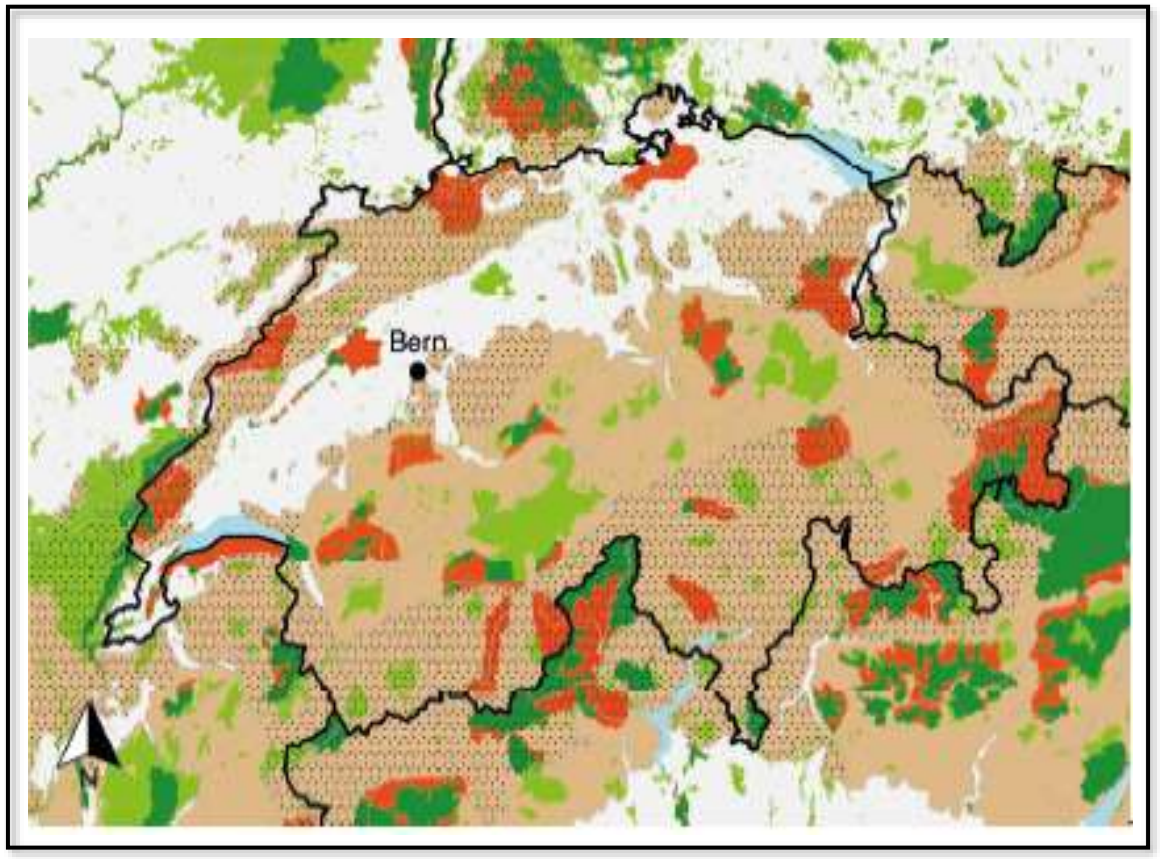
Coverage of PAs and OECMS of transboundary mountain systems



Transboundary mountain range

Key Biodiversity Area not protected

Protected Area

Protected Key Biodiversity Area

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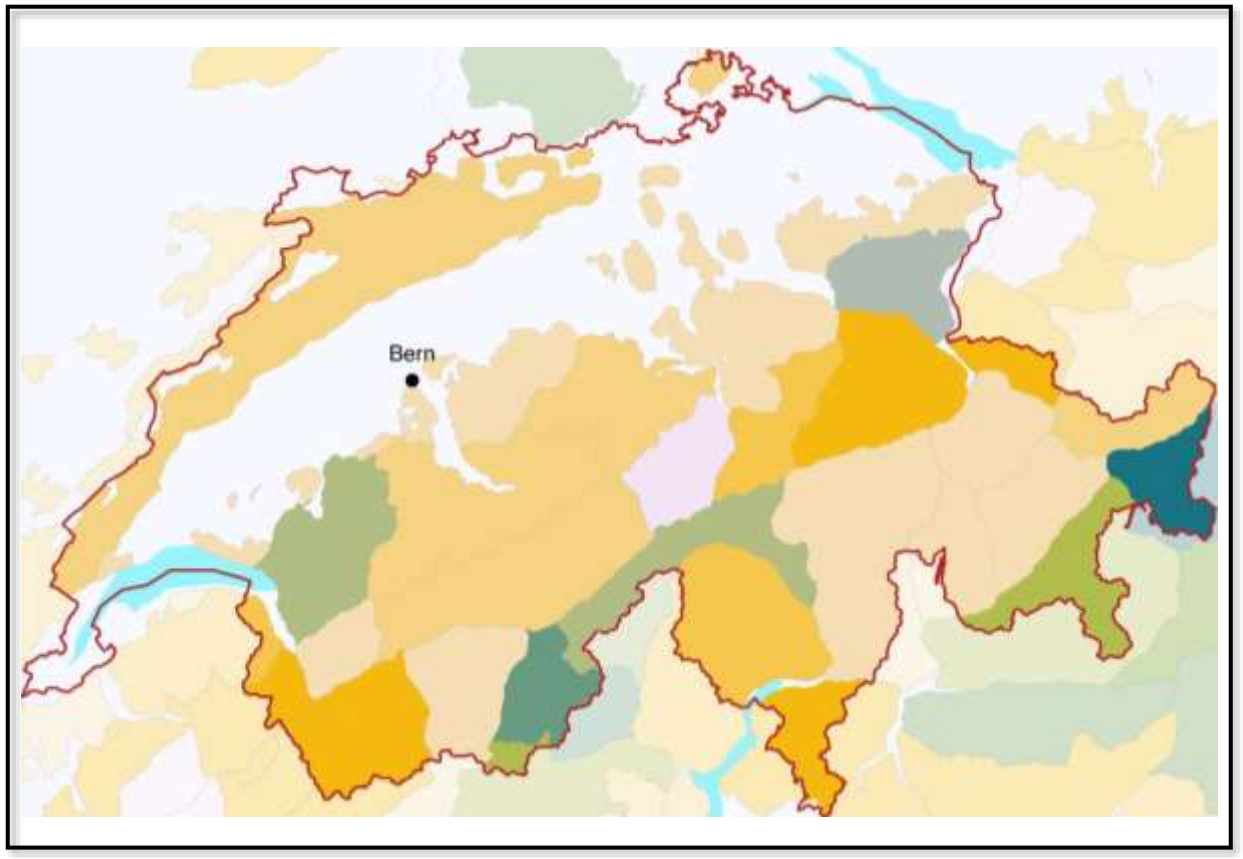
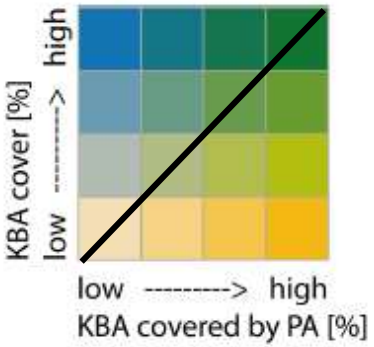
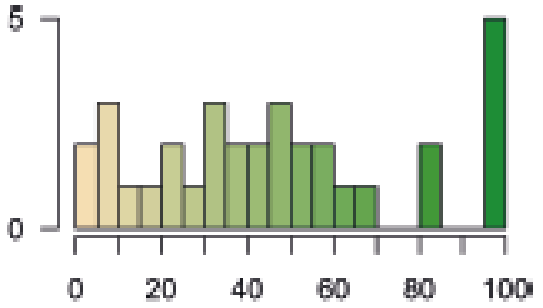
SDG 15.4.1 by mountain range

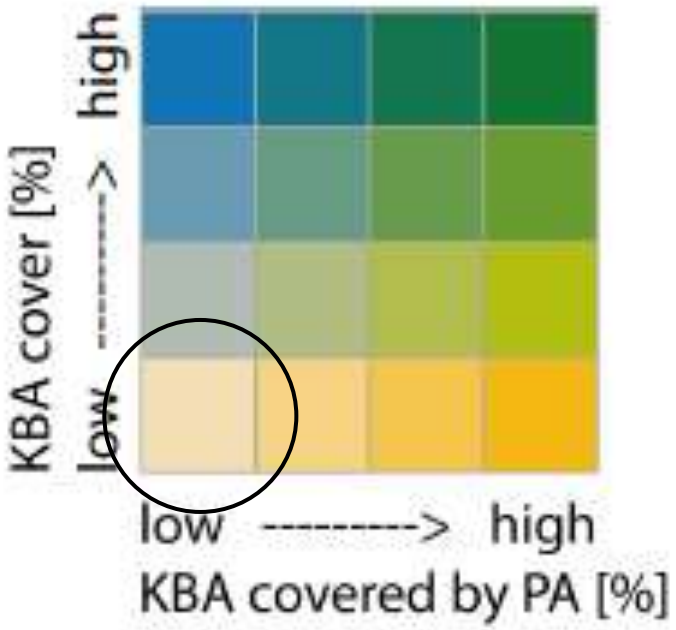


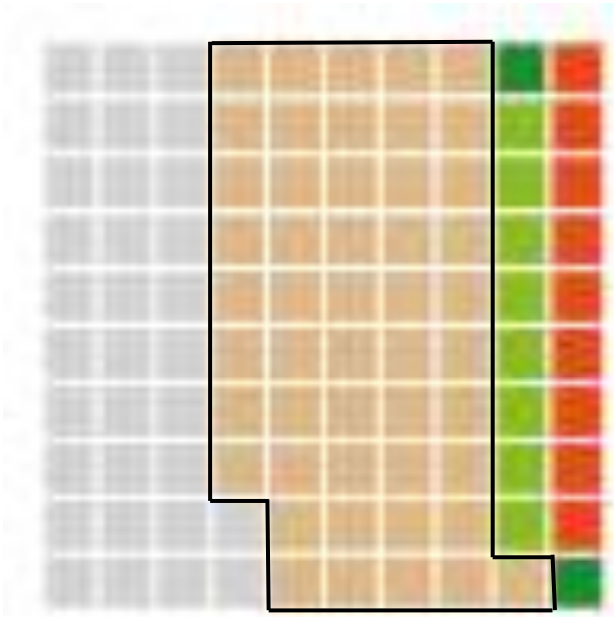




Ly et al. 2023, 10.5281/zenodo.6626931

Key Biodiversity Areas in mountain regions





Lowland
Mountain not KBA not protected
Protected mountain not KBA
Protected mountain KBA
Mountain KBA not protected

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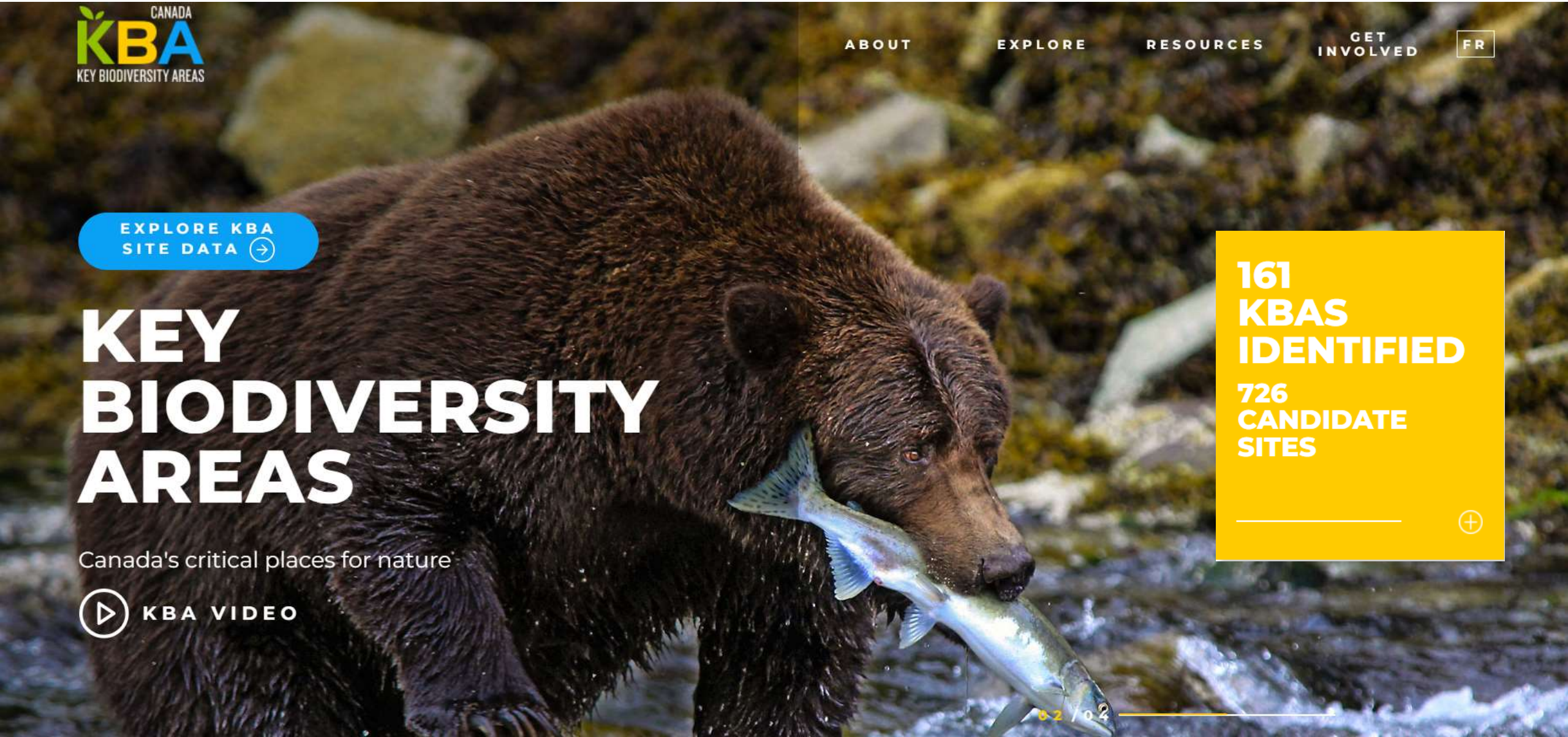
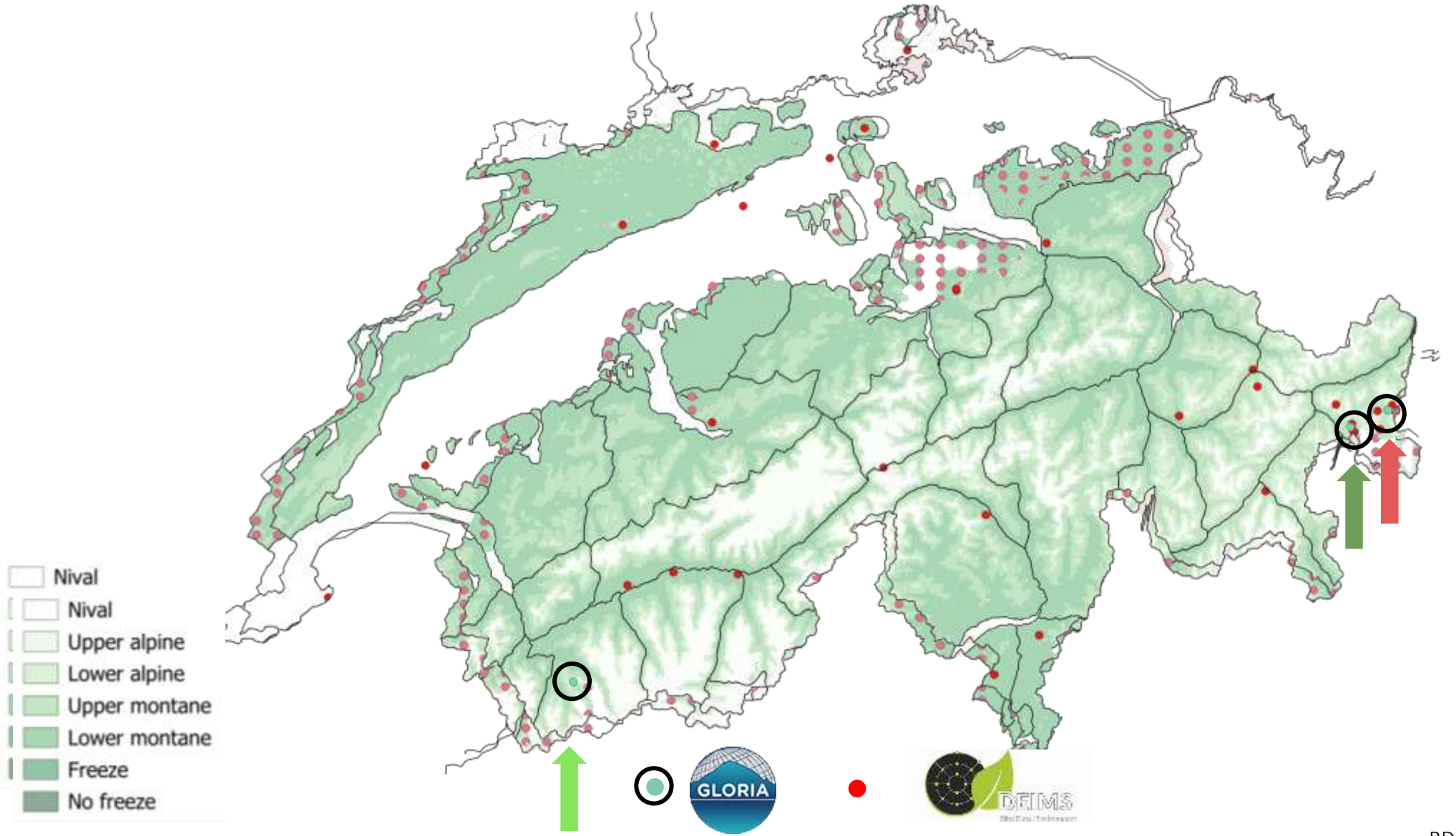
Key Biodiversity Areas establishment

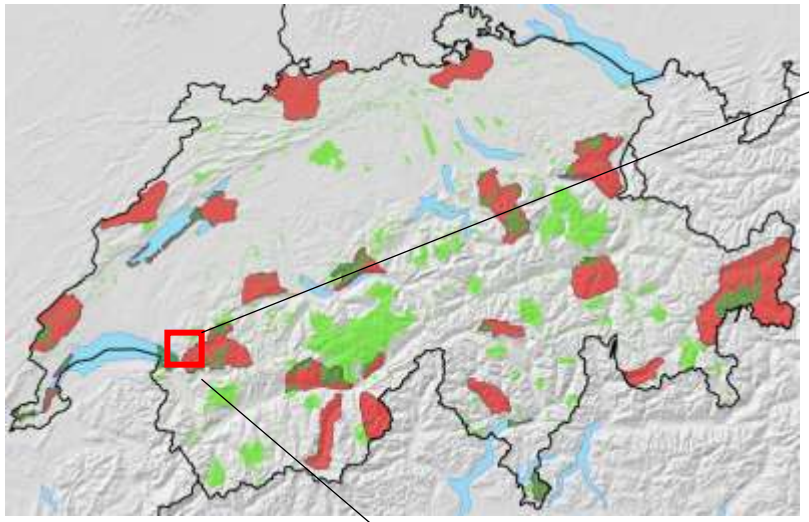


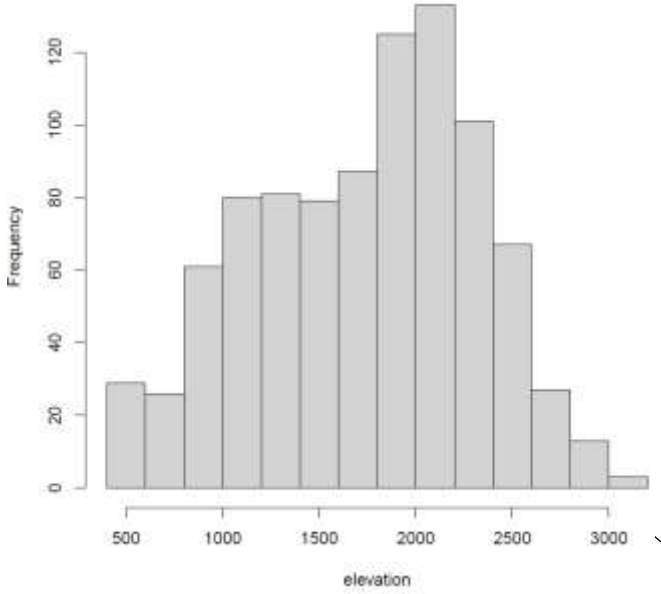
Where is the data needed for reporting

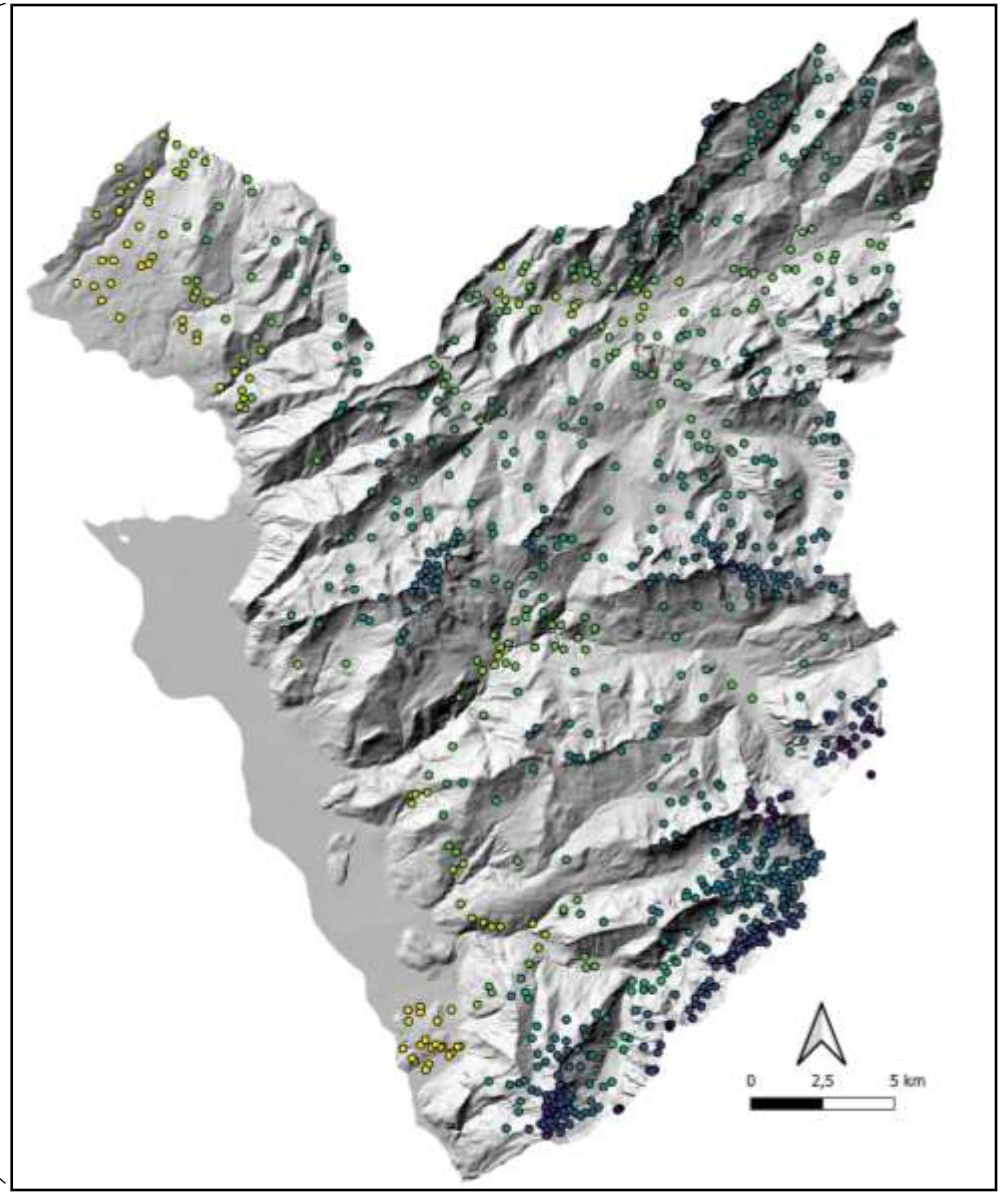


BDM Switzerland

Ecologically representative sampling







Elevation (m)
- 419 - 688
- 688 - 957
- 957 - 1226
- 1226 - 1495
- 1495 - 1764
- 1764 - 2033
- 2033 - 2302
- 2302 - 2571
- 2571 - 2840
- 2840 - 3109

A. Guisan, personal communication

Take home messages

- Options & tools to report on mountains within GBF exist

- Current national and global distribution of datasets and monitoring programs and sites reflects by no means
  - the existing heterogeneity
  - the robust, integrated, and coordinated design that is needed for effectively disentangling and addressing the different causes and consequences of global change across mountains and for understanding global patterns and processes

- We have a unique opportunity to bring together existing efforts and establish baseline for informing the reporting on mountains

- We are in a position to provide countries with the tools to report on their mountains and take actions to protect them as well as their biodiversity and ecosystems

Thank you

Amina Ly, Mark Snethlage, Jonas Geschke, Kerrie L. Stauffer, Jasmine Nussbaumer, Dominic Schweizer, Noah S. Diffenbaugh, Markus Fischer

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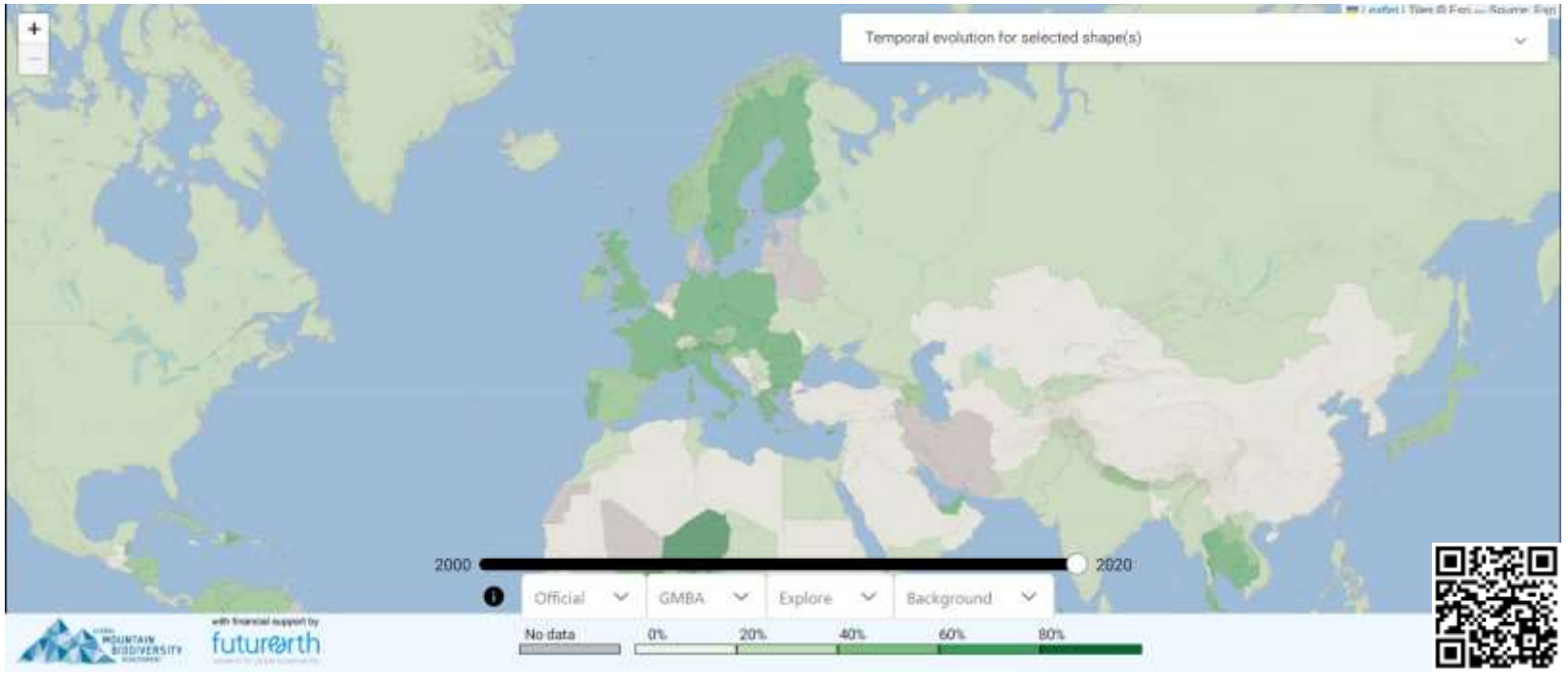

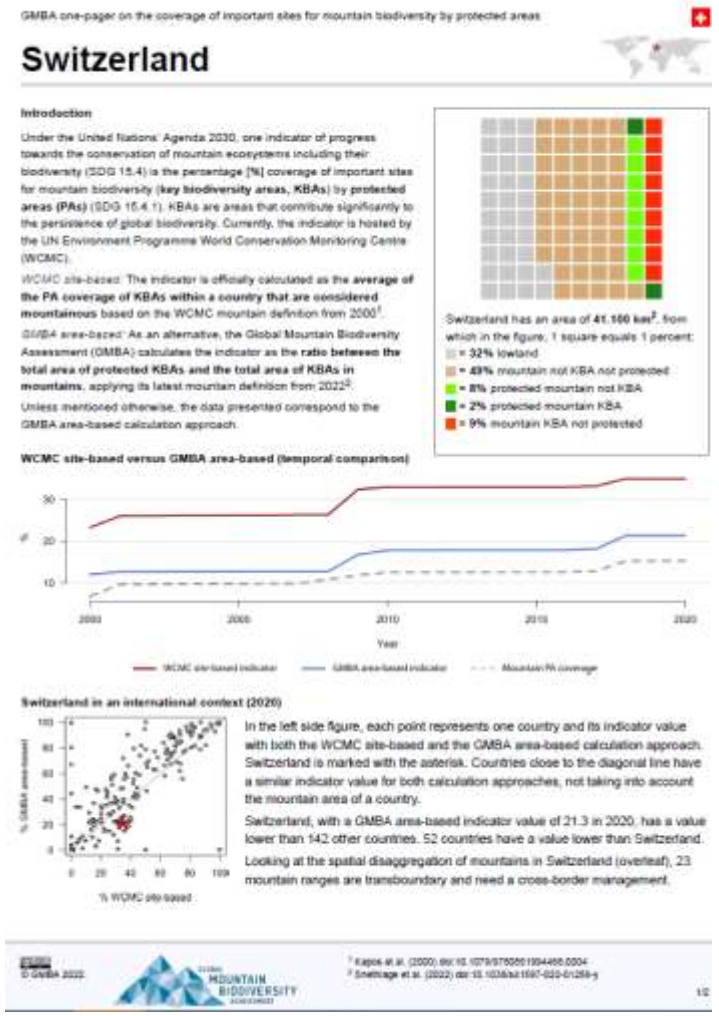

Mountain inventory: http://www.earthenv/mountains
Online tool: https://www.gmba.unibe.ch/services/indicators/sdg_1541
One-pagers https://doi.org/10.5281/zenodo.6626930
R code: https://github.com/GMBA-biodiversity/SDG15.4.1_Calculator
Publication (12.10.23): https://www.nature.com/articles/s41893-023-01232-3