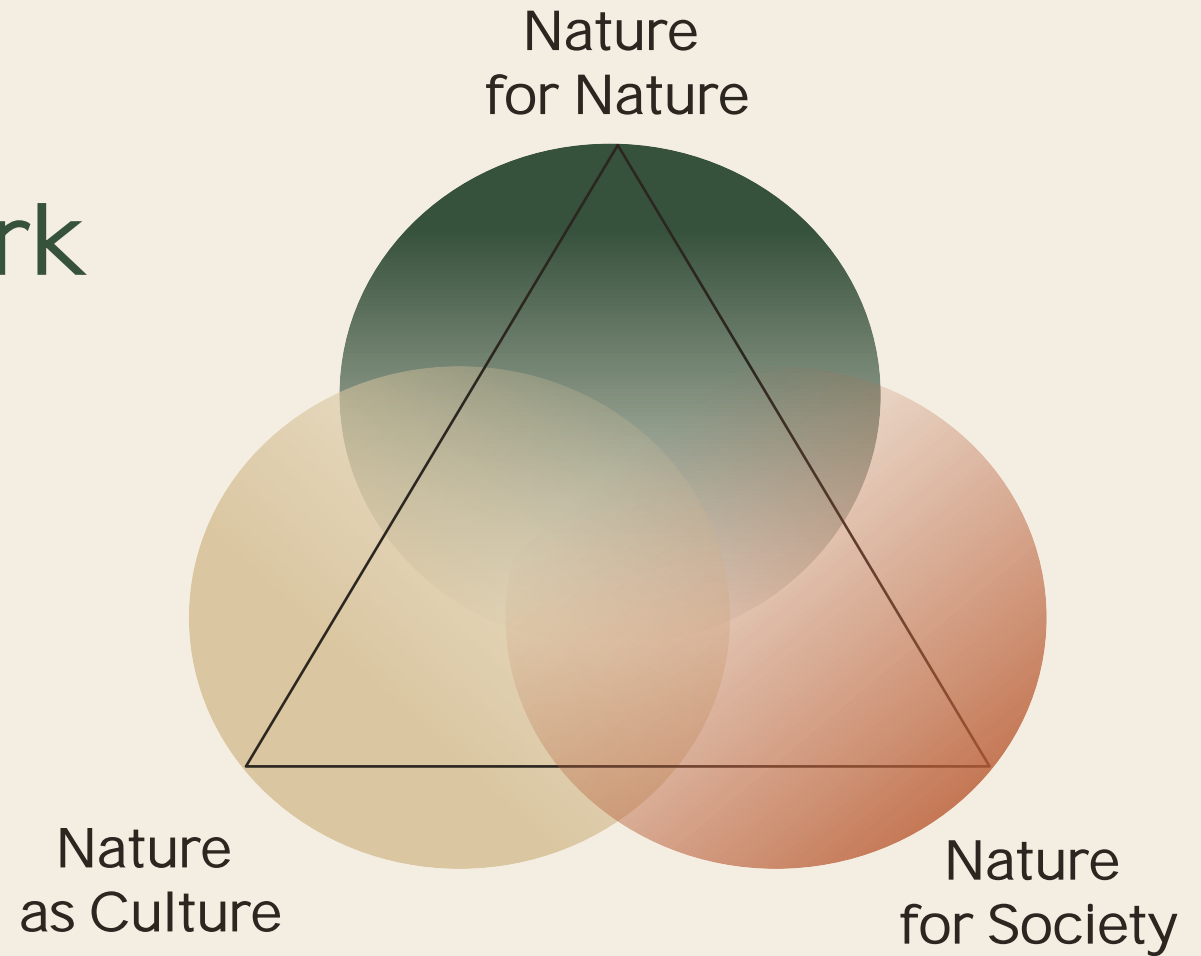


Insights from developing Nature Futures Framework scenarios in Switzerland and Peru

Benjamin Black^{1,2}, Adrienne Grêt-Regamey²,
Paula Mayer², and Manuel Kurmann²

1. Leibniz Center for Agricultural Landscape Research · ZALF

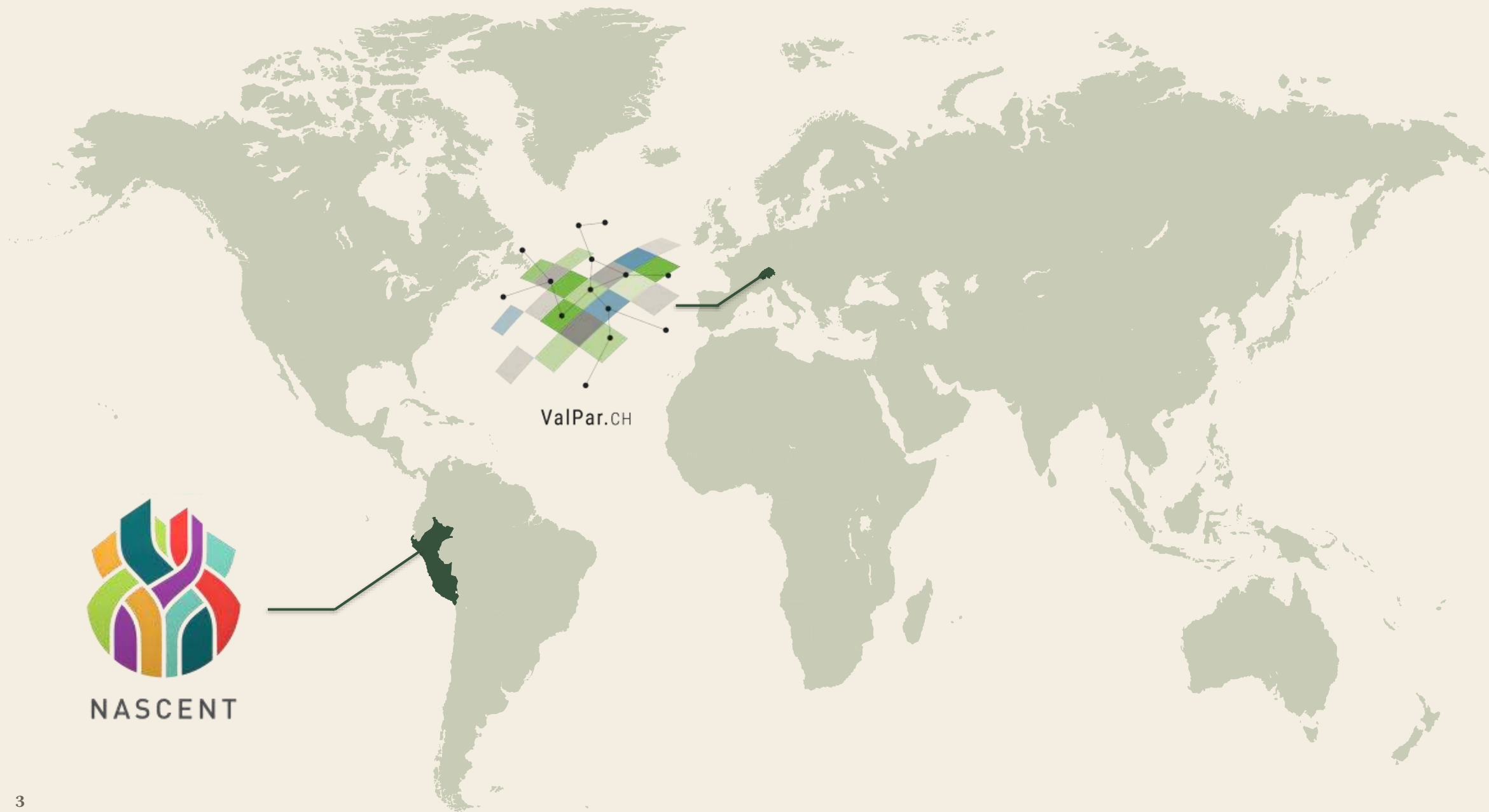
2. Planning Of Landscape and Urban Systems · ETH Zurich



Setting the scene

Background

The context behind the projects and the methodological approaches that shaped our work

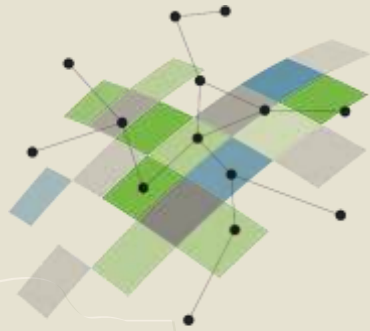


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Background

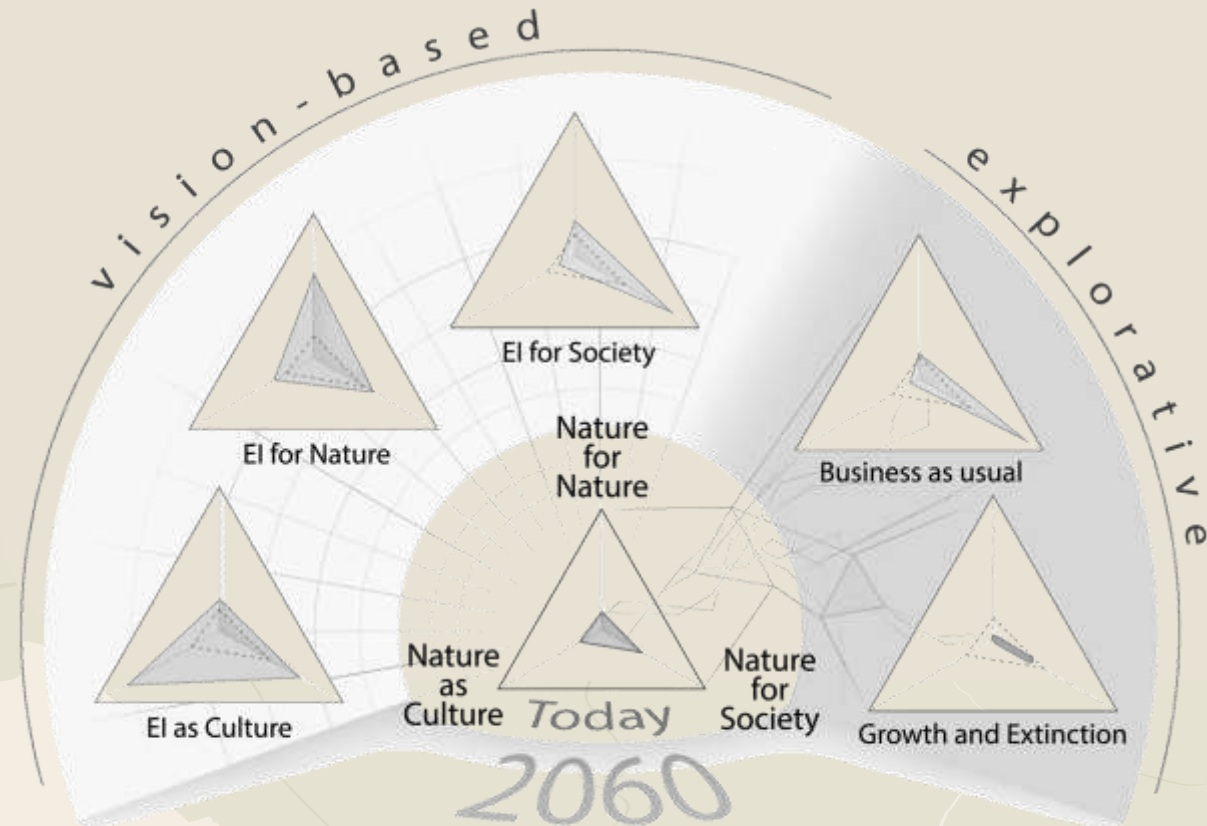


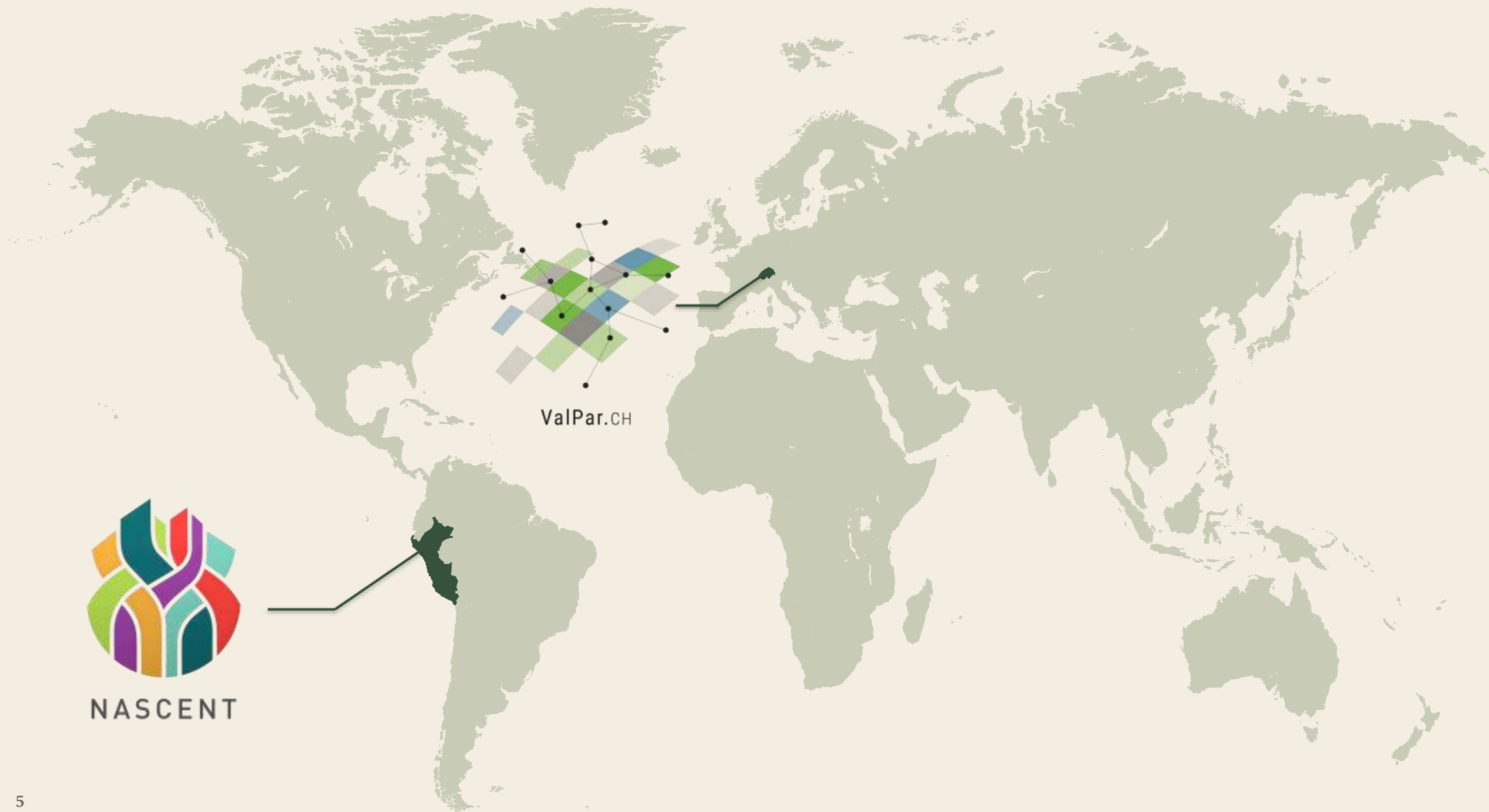
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Inter/Transdisciplinary project
Analysing the value of nature from
ecological, social, and economic
perspectives.

Developed NFF scenarios

Conditions framing the development of a
functioning Ecological Infrastructure for
Switzerland.





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Background

Normative scenarios

Collectively desired future landscape characteristics across different regions.

Exploratory scenario

Reflects probable landscape change based on current trends.

NATURE FOR NATURE



NATURE AS CULTURE

BUSINESS AS USUAL



NATURE FOR SOCIETY

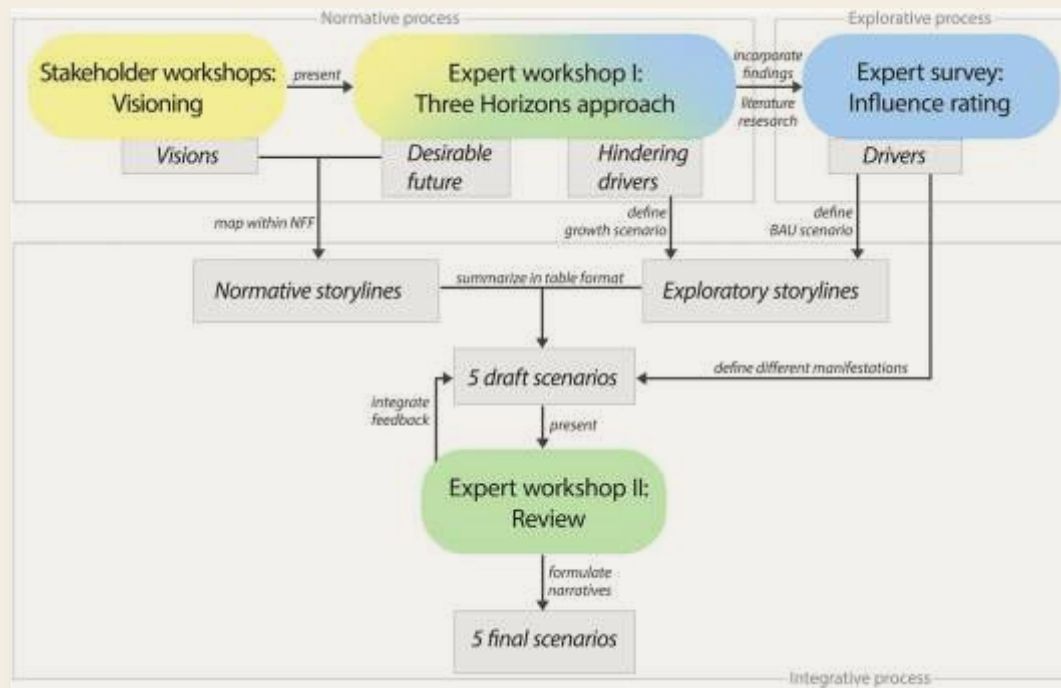


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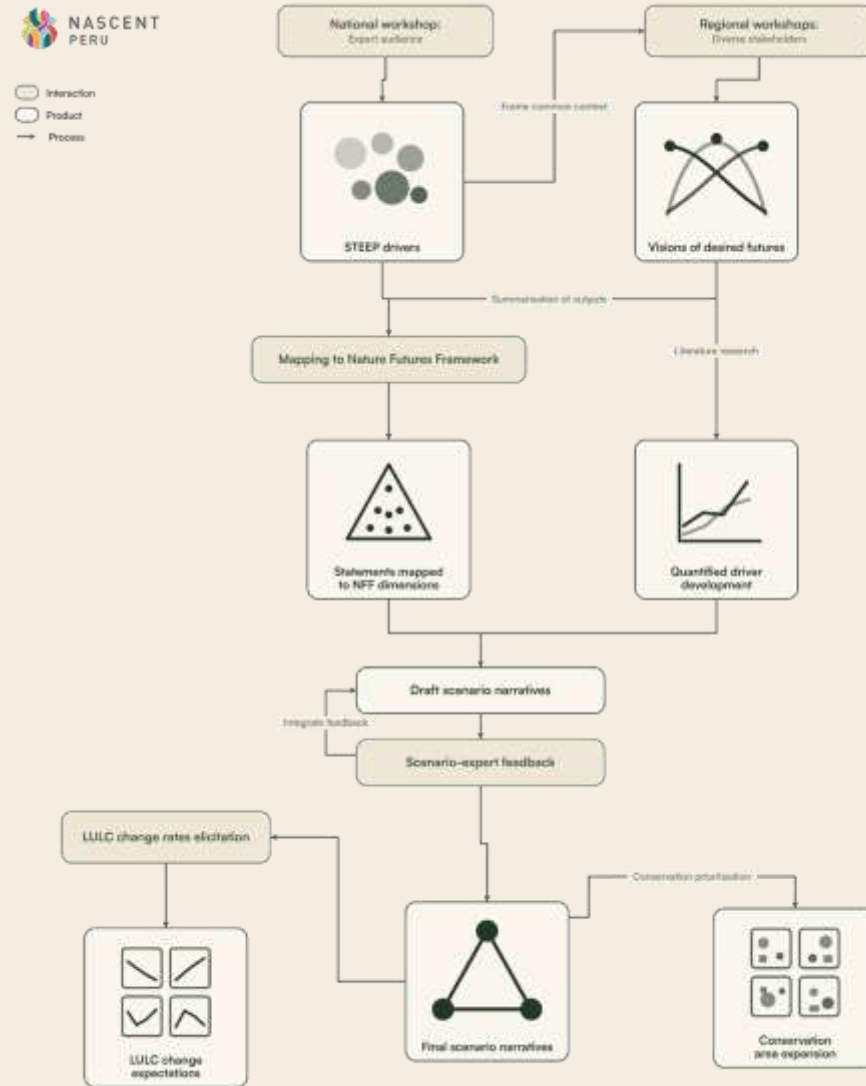


Methodology

Multi-step iterative participatory processes:



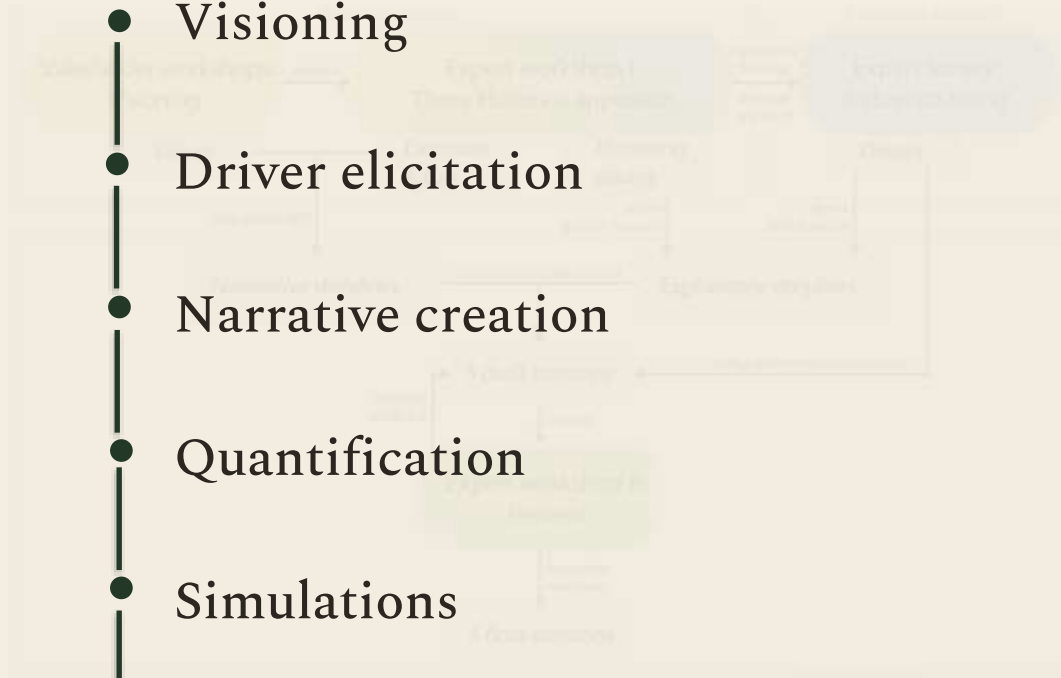
Mayer et al. 2023



Methodology

Multi-step iterative participatory processes:

- Visioning
- Driver elicitation
- Narrative creation
- Quantification
- Simulations
- Validation



○ Interaction
○ Product
→ Process

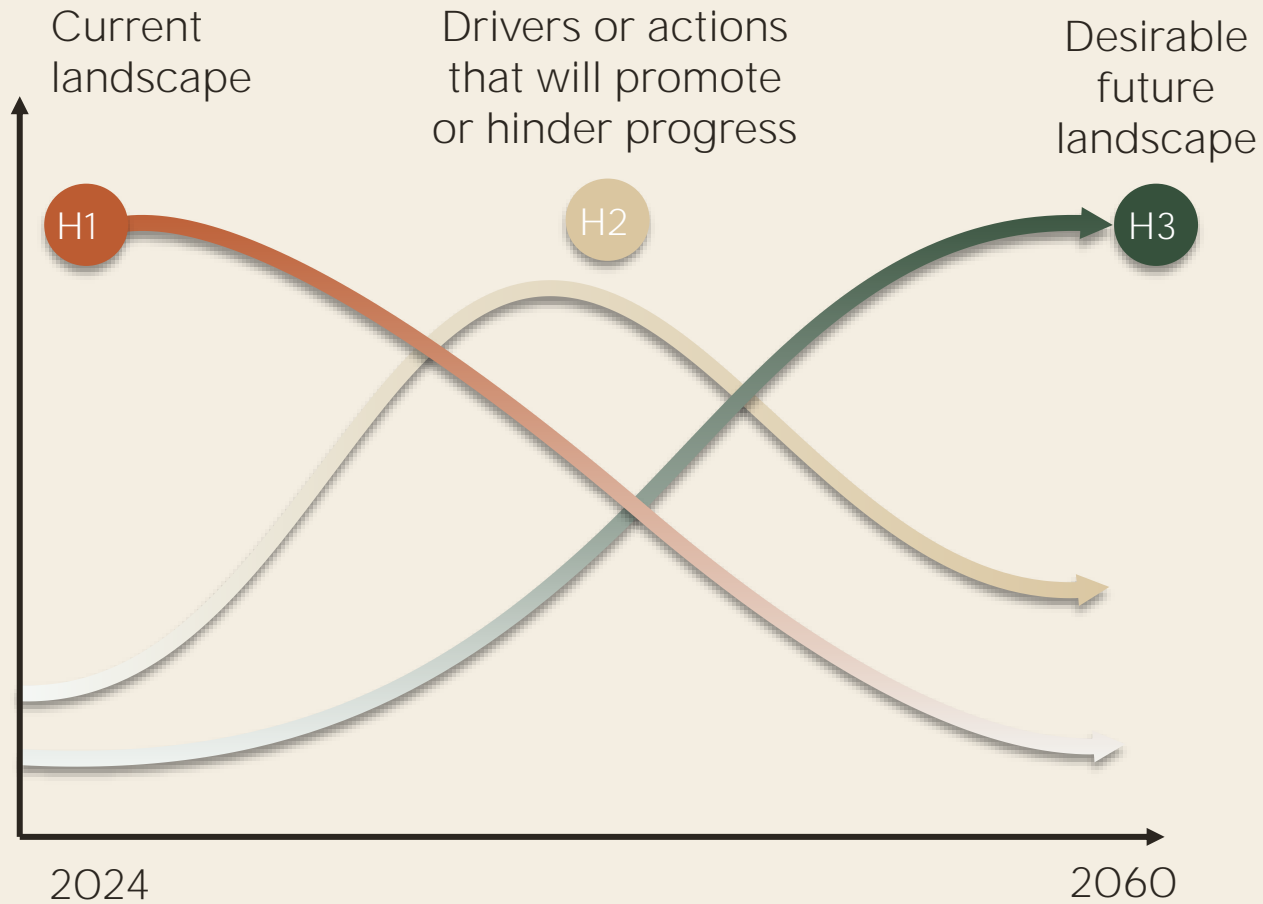


From our project experiences

Success Factors

Ensuring strong stakeholder involvement and closing the gap to policymakers — so Nature Futures scenarios can inform biodiversity and ecosystem services protection.

Structured futures thinking: 3-Horizons Framework



Creative methods in involving stakeholders in scenario quantification

Coding statements to NFF dimensions

Scenario content coding survey

Statement 6:
Sustainable artisanal fishing is improved and promoted

Explanation:
i.e. small scale fishing with traditional techniques

Useless Not Back Submit

2 Done
3 Done
4 Done
5 Done
6 Selected
7 Pending
8 Pending
9 Pending
10 Pending

Nature for Nature
Intrinsic value of nature
Space allocated for nature

Nature as Culture
Living in harmony
People one with nature

Nature for Society
Nature's benefits to people
Ecosystem services

Eliciting future land use changes rates

Survey NASCENT-Hes

Map | BAU | N | Nature | Culture | Society | Scenario summary | Driver Impact

Back Next

Visualization of LULC

Select Region:
All of Peru

Future development of Forested Areas

Exclusive forest
Projected trend

100.0
90.0
80.0
70.0
60.0
50.0
40.0

2010 2015 2020 2025 2030 2035 2040 2045 2050

Driver influence

Development of transport infrastructure

Economic development continues to follow an extractivist model, relying on resource- and emission-intensive activities (Sierra 2012). In the 2030s, increased political stability attracts greater foreign investment, enabling companies to expand their production networks and exploit global resources. This growth is supported by trade agreements and policy improvements that enhance efficiency and profitability without significant changes to current practices. While these developments help reduce the informal economy, urbanization remains concentrated in Lima-Callao, which continues to be the sole national metropolis and center for service-based economic activities (CEPLAN, 2021).

All of Peru

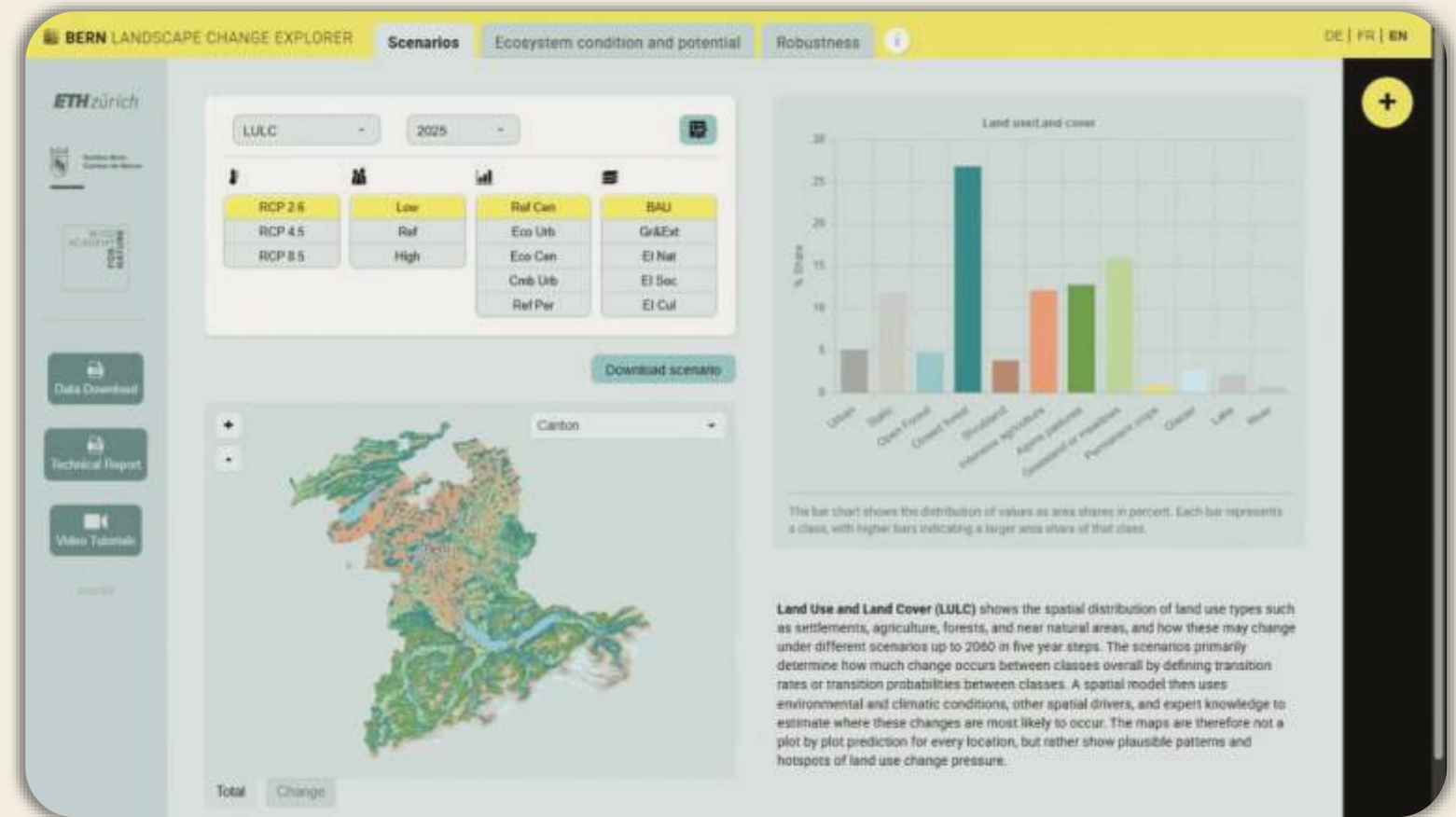
Enter region-specific trends

Comments

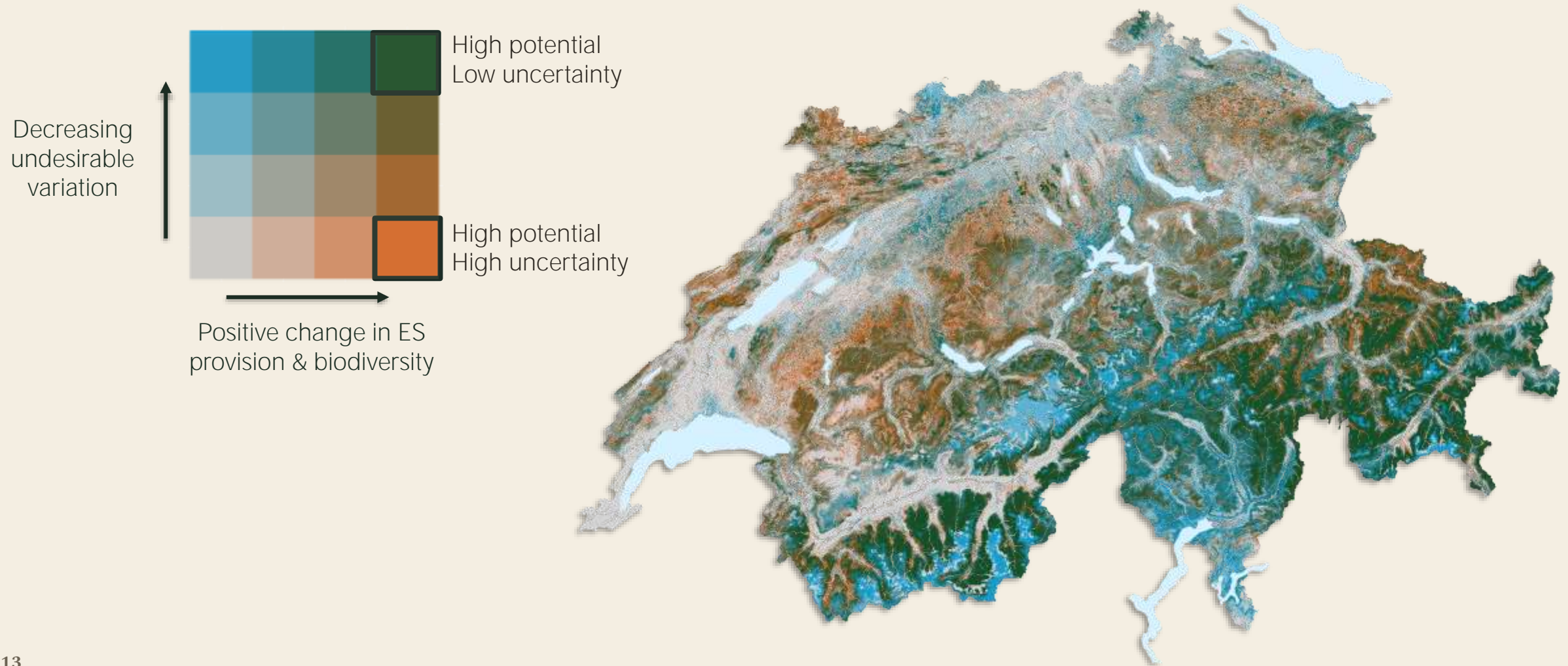
Develop transfer products with stakeholders



**BERN
LANDSCAPE
CHANGE
EXPLORER**



Highlight synergies and trade-offs



From our project experiences

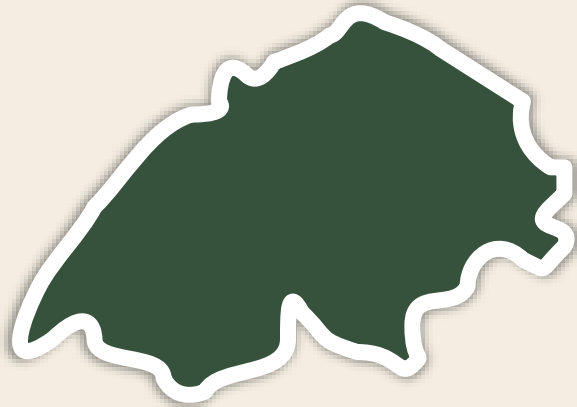
Challenges

Creating, operationalizing and validating Nature
Futures scenarios — and the hurdles along the way

Encouraging visions that break with the status quo

Switzerland

Visions fairly conservative:
'more of the same, but better'

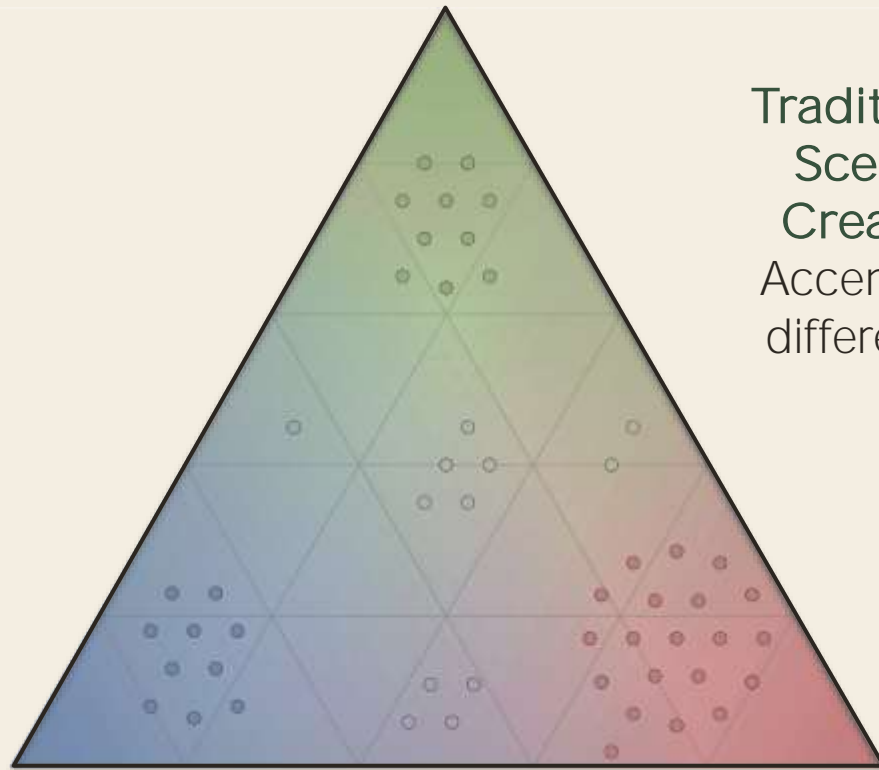


Peru

Corruption and political instability created skepticism around realism of radical visions.



Balancing contrasts with fidelity



Statistical clustering of statements

Traditional
Scenario
Creation:
Accentuate
differences



NFF:
Encourages
framing along
multiple
dimensions



"Focus on agricultural sustainability above maximizing production"

Navigating tensions in ‘Nature Positive’ framing

Visioning and Narratives

Aspects of participants visions are difficult to reconcile as Nature Positive.

Validation

Simulations show net declines in biodiversity and ecosystem service indicators

“Mining, is allowed to continue.

New concessions are granted, but strict legal requirements keep the exploitation of these sites relatively low”

NASCENT Nature as Culture

Change in mean suitability between 2020-2060 across species

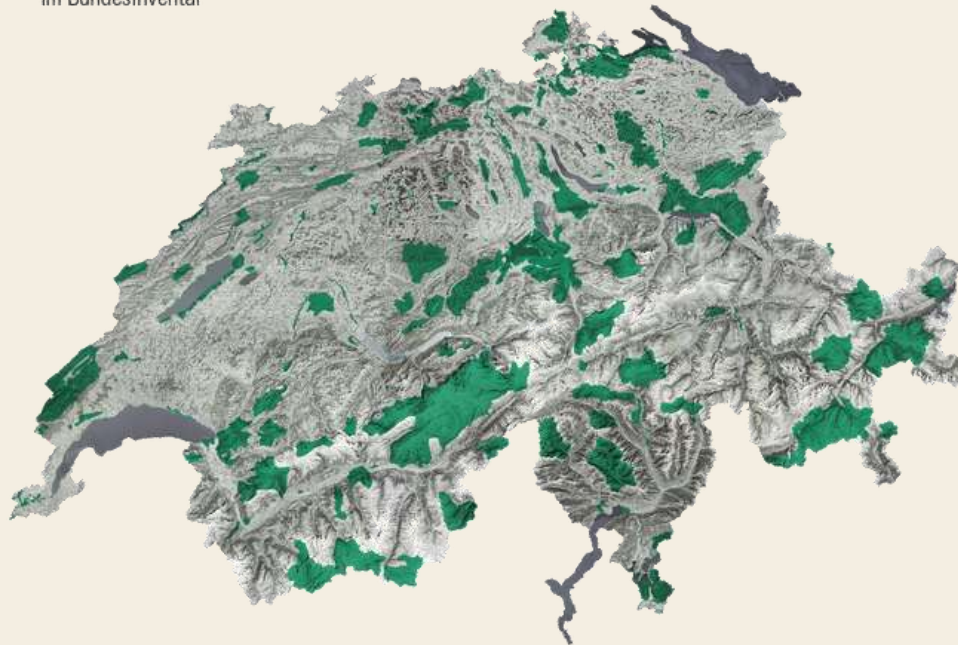


Operationalising and validating cultural values

Operationalising

Spatial data representing cultural relevant landscape features often lack detail.

■ Landschaften und Naturdenkmäler im Bundesinventar



Validating

Relational Ecosystem Services indicators often used: overly simplistic and not context specific

Degree of naturalness

Aggregate naturalness scores for each LULC class.

Natural protected areas

Binary: 0 = outside protected areas, 1 = inside.

Water components

Inverse relative distance to lake coasts.

Infrastructure components

Distance to roads and settlements.

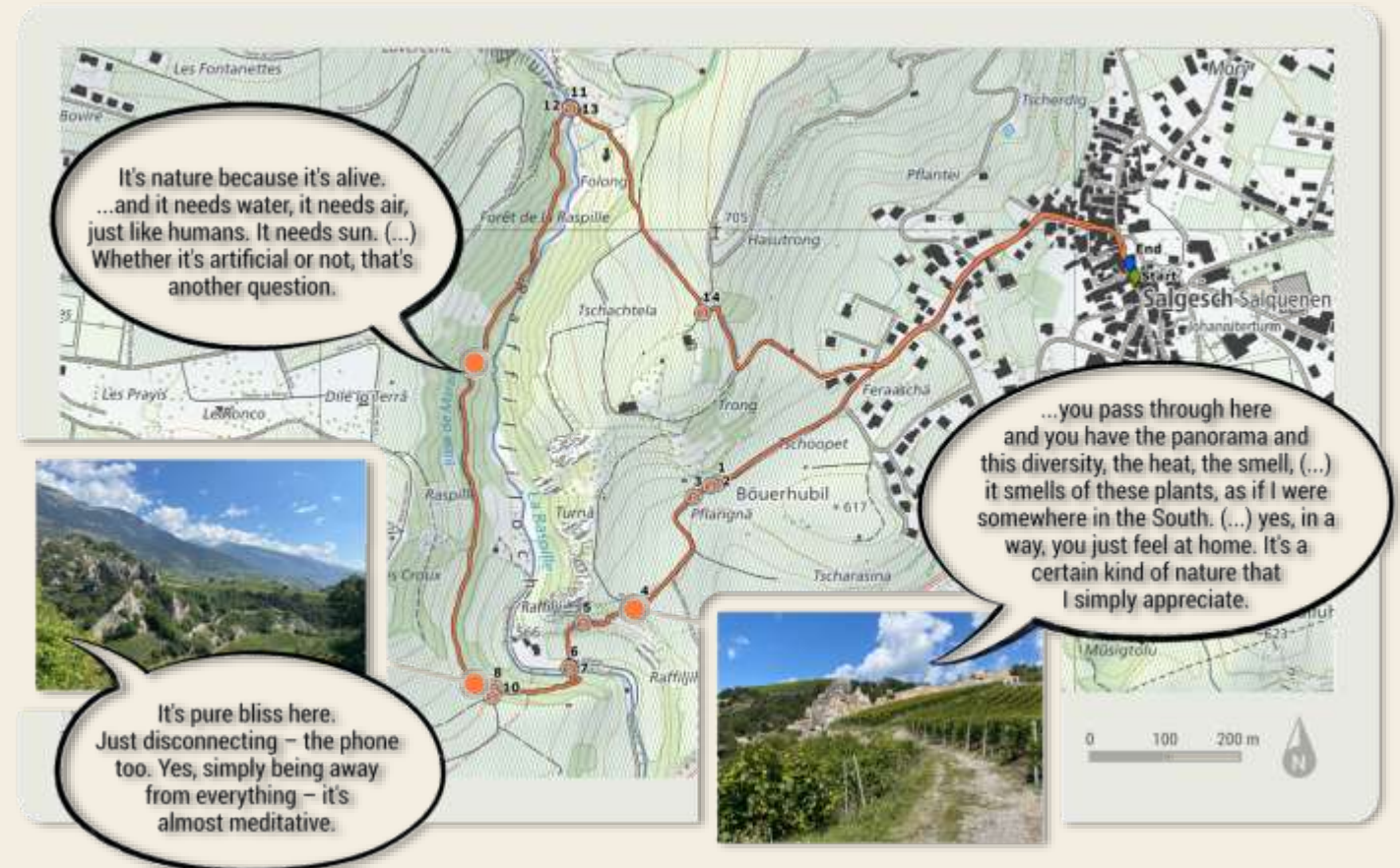
Recreation Potential

Operationalising and validating cultural values: Integrate localized perspectives?

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Participatory mapping to identify perceived locations of 'nature' (relational value).

Strong congruence with areas of **high modelled biodiversity**



Thank you.

I am happy to take any questions

Connect and
follow my work

