

The role of agricultural production systems in landscape evolution

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Content

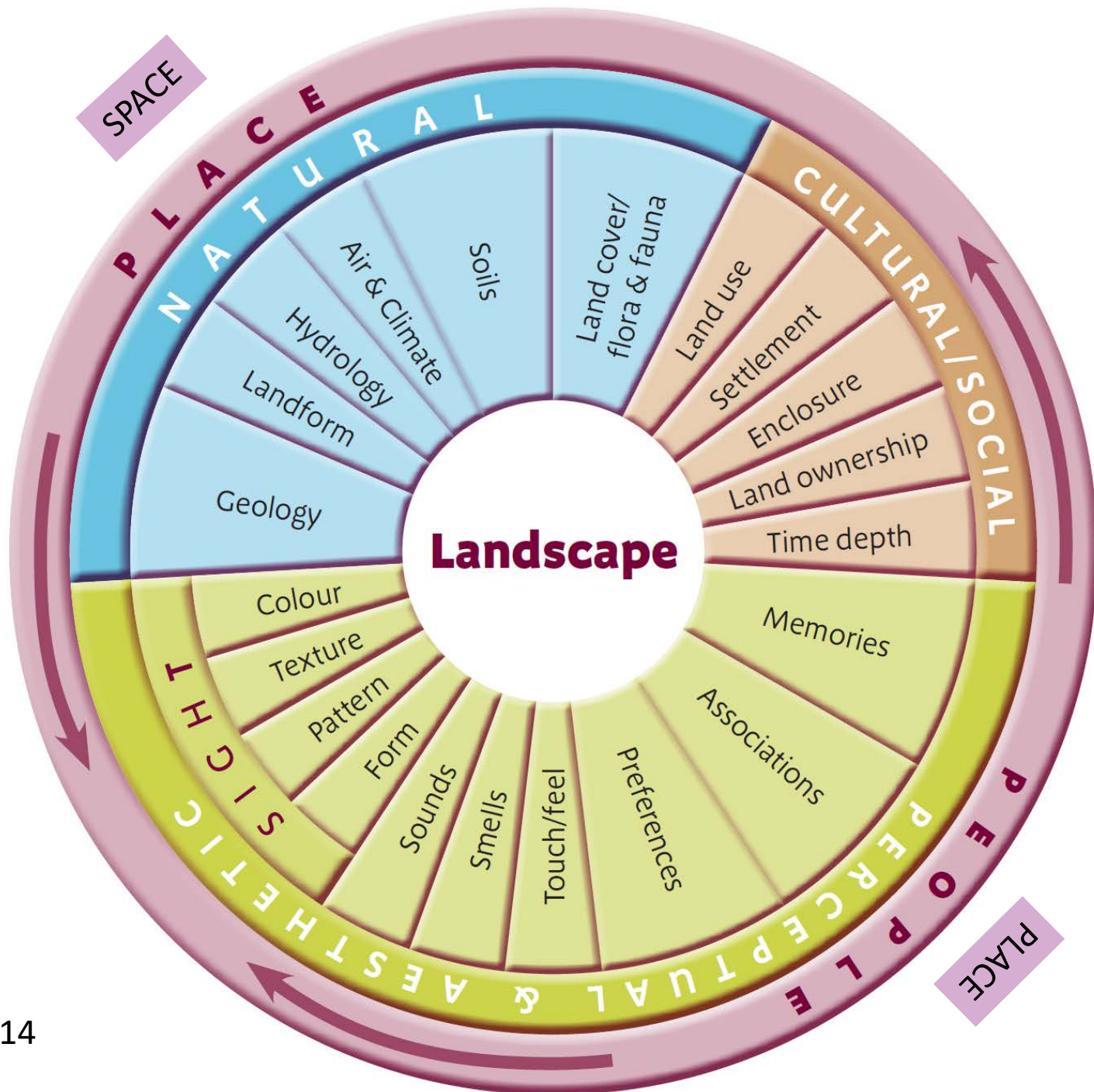
- What is a landscape?
- How to assess landscapes?
- Why do landscapes change?
- And why do landscapes not change?
- Agriculture as a driver of change and persistence
- Summary

Content

- **What is a landscape?**
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What is a landscape?





Landscape(s)

“... encompass the entire space **within and outside settlements**. They result from the dynamic **interplay** of natural variables (e.g. bedrock, soil, water, air, climate, fauna and flora) with cultural, societal and economic factors “

Landschaftskonzept Schweiz, BAFU

“ ... is an area, **as perceived by people**, whose character is the result of the action and **interaction** of natural and/or human factors”

ELC European Landscape Convention

What is a landscape?

- We know it, when we see it...
- Not restricted to area outside settlements.
- A physical reality as well as its perception.
- The result of human and natural factors.

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How to assess landscapes?



How to assess landscapes?



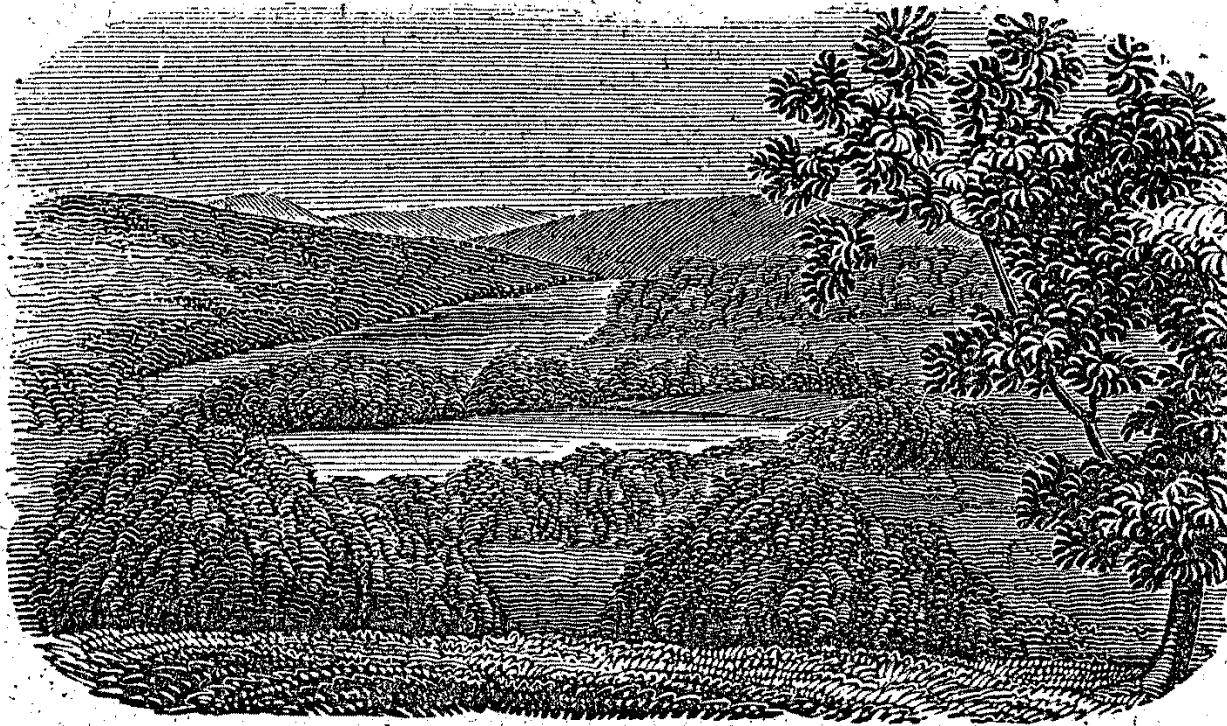
How to assess landscapes?



How to assess landscapes?

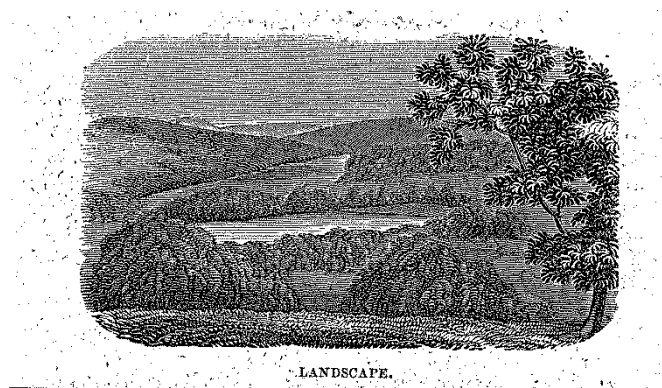


How to assess landscapes?



LANDSCAPE.

How to assess landscapes?



Content

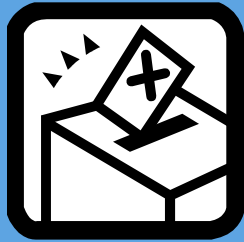
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Why do landscapes change?

Culture



Politics



Economy



Technology



Nature



Sustainable Futures for Europe's Heritage in Cultural Landscapes:

Tools for understanding, managing, and protecting landscape functions and values

**Driving forces of landscape change:
A pan-European,
comparative analysis**



Gutenbrunnen, study municipality Lenk, Switzerland. © Albert Sommer

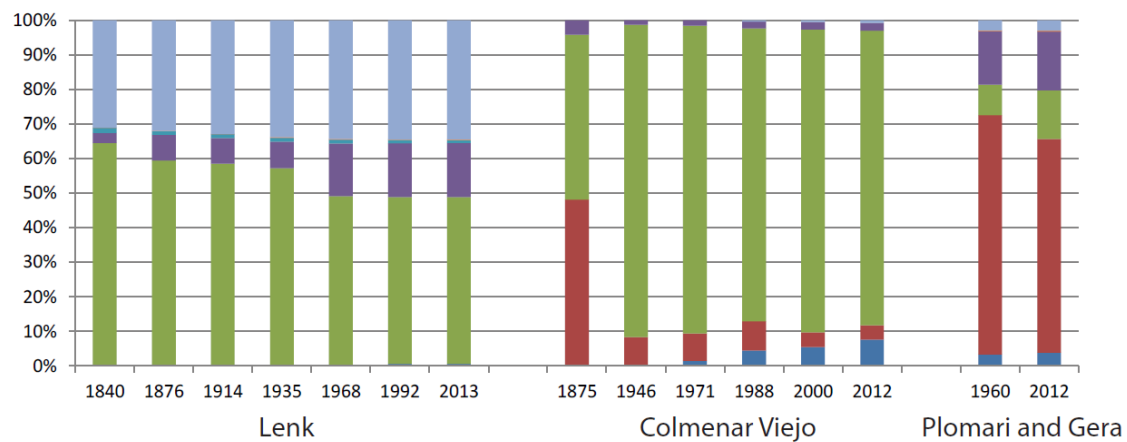
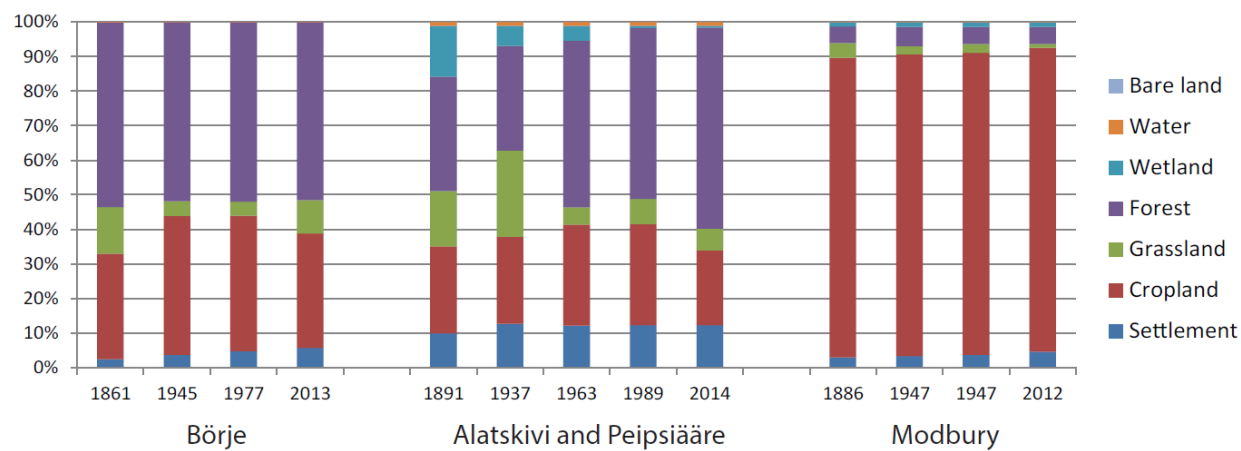
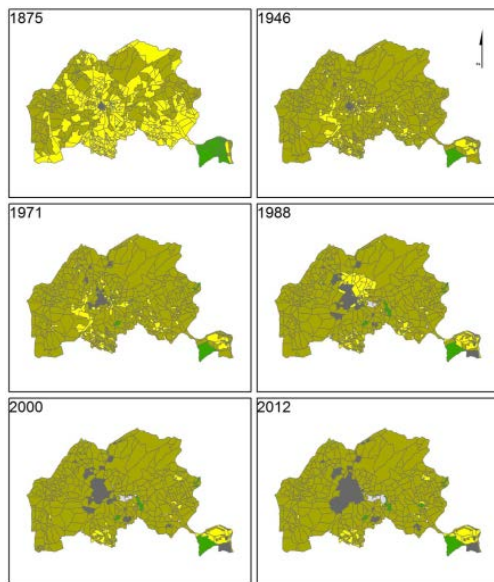


This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 603447

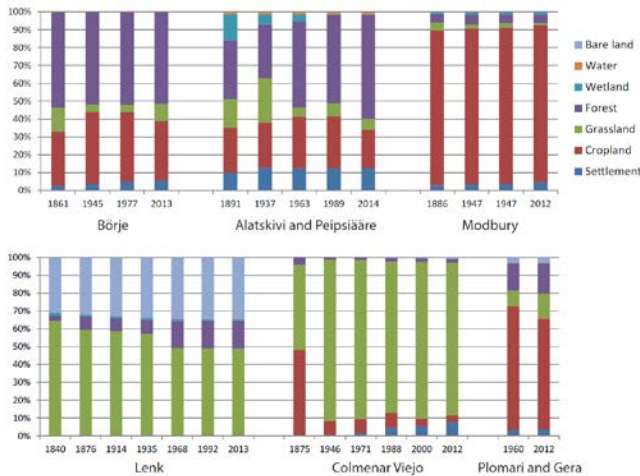
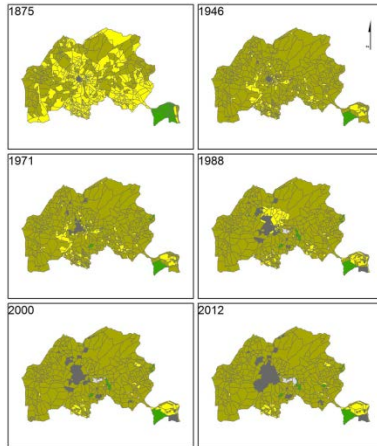
FP7, Collaborative Project
1 December 2013 – 30 November 2016



Results



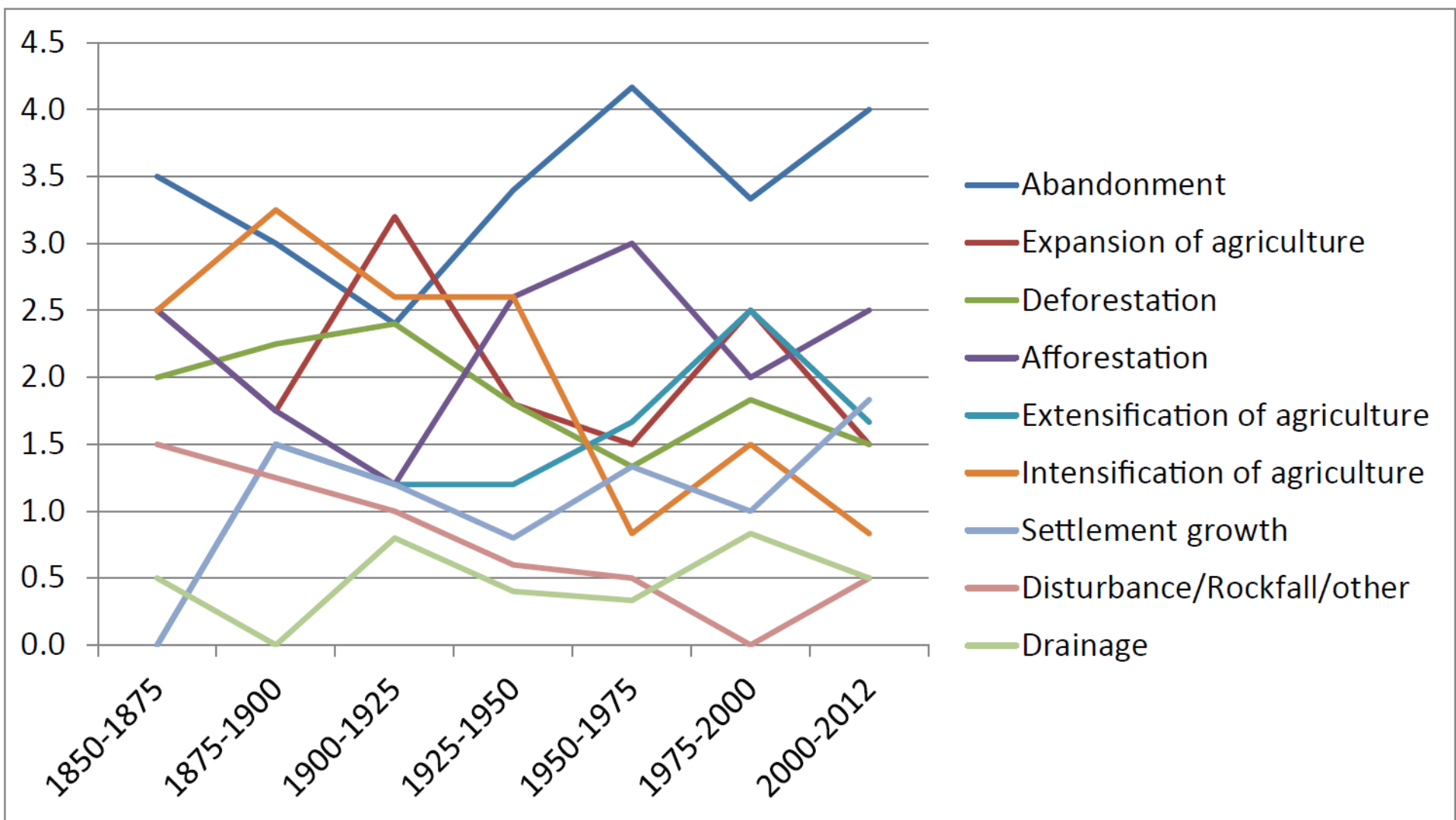
Results



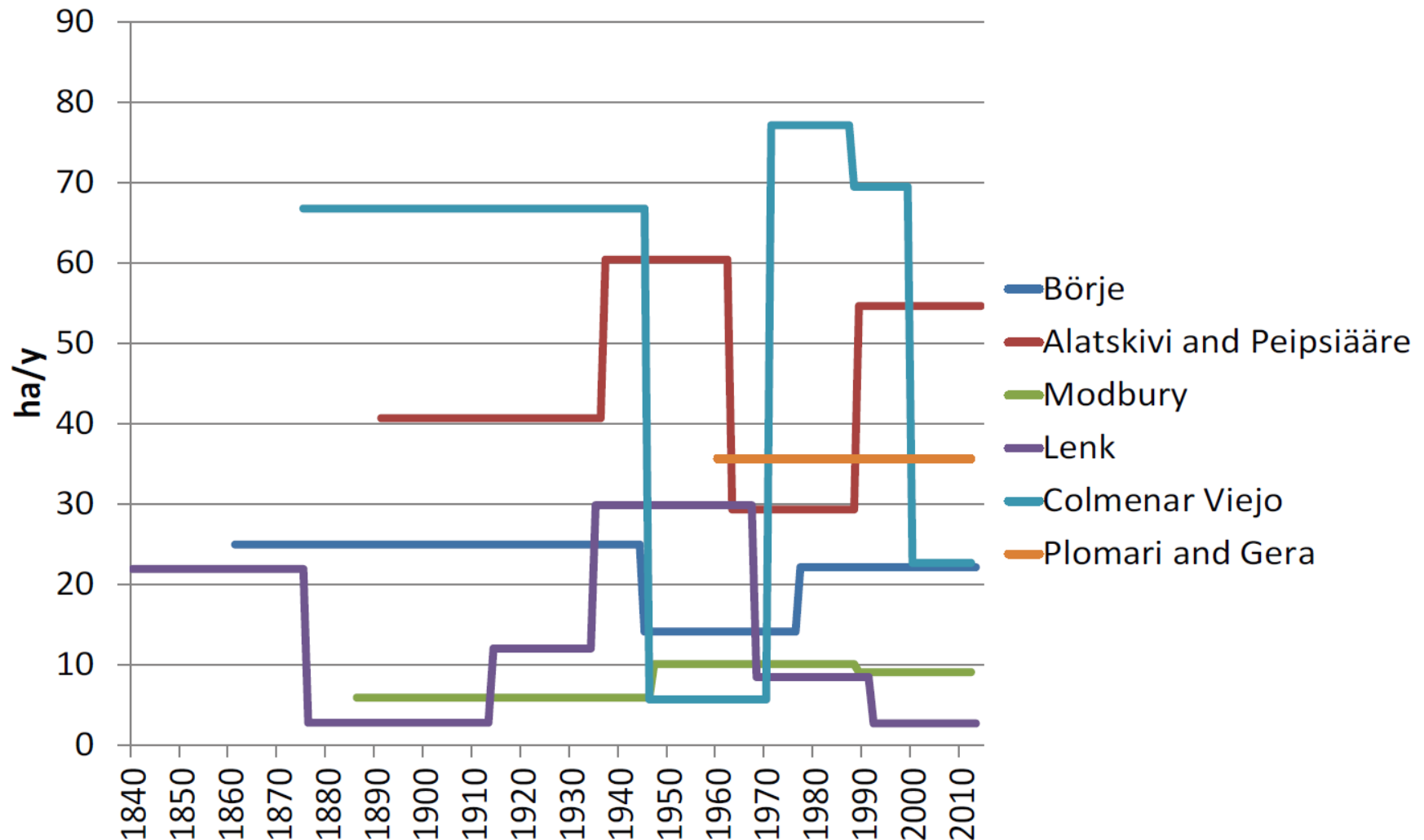
“Everybody in the village had some benefits from the building industry and so it is impossible to stop it.”

“You don’t see the glaciers from down here any more. The glaciers are melting fast.”

“Everything is done for speed now, so there is no time to watch and gaze around the countryside like we used to.”



Rates of change 1840 - 2010



Generally relevant driving forces are...

Access and infrastructure



Labour market



Climate change



Political shifts



Technological innovations

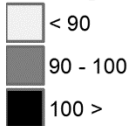


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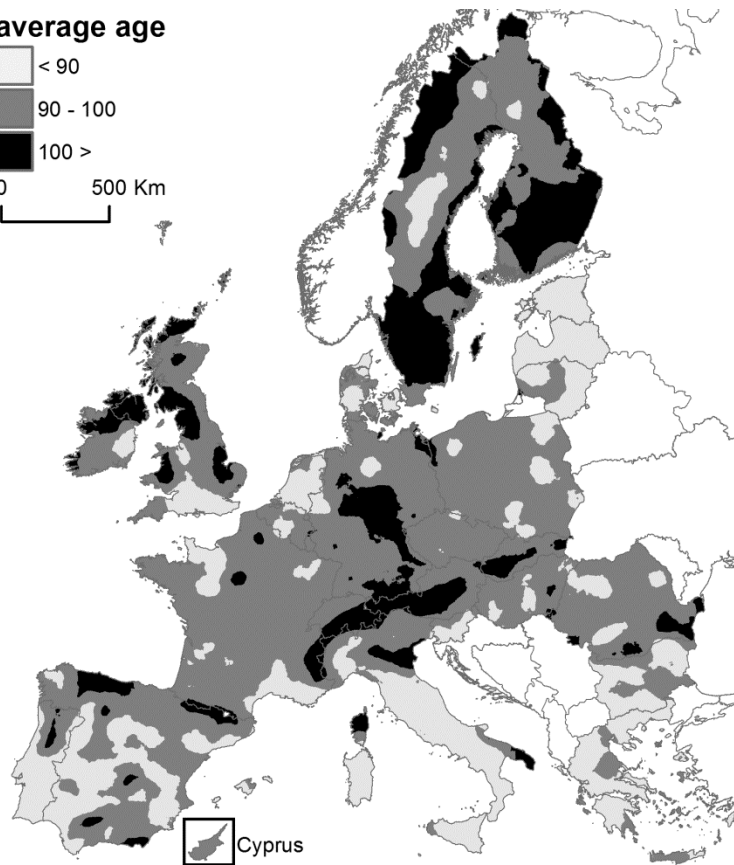
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And why do landscapes not change?

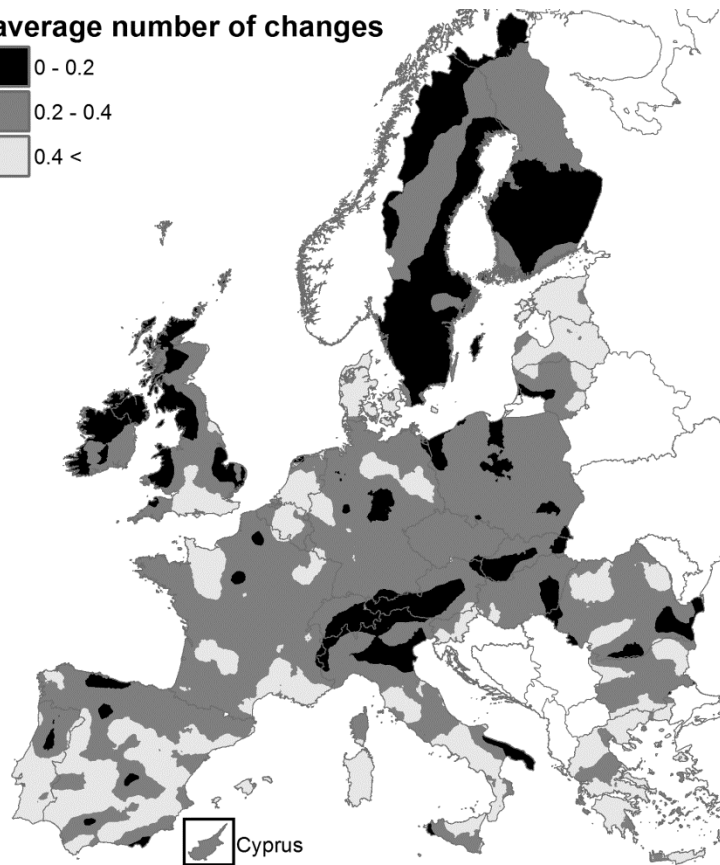
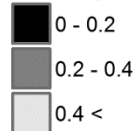
average age



0 500 Km



average number of changes



Where to find (agri-)cultural landscape hotspots?

Landscape Research,
Vol. 36, No. 1, 3–18, February 2011

 Routledge
Taylor & Francis Group

Indicators for the Identification of Cultural Landscape Hotspots in Europe

KATALIN SOLYMOSI

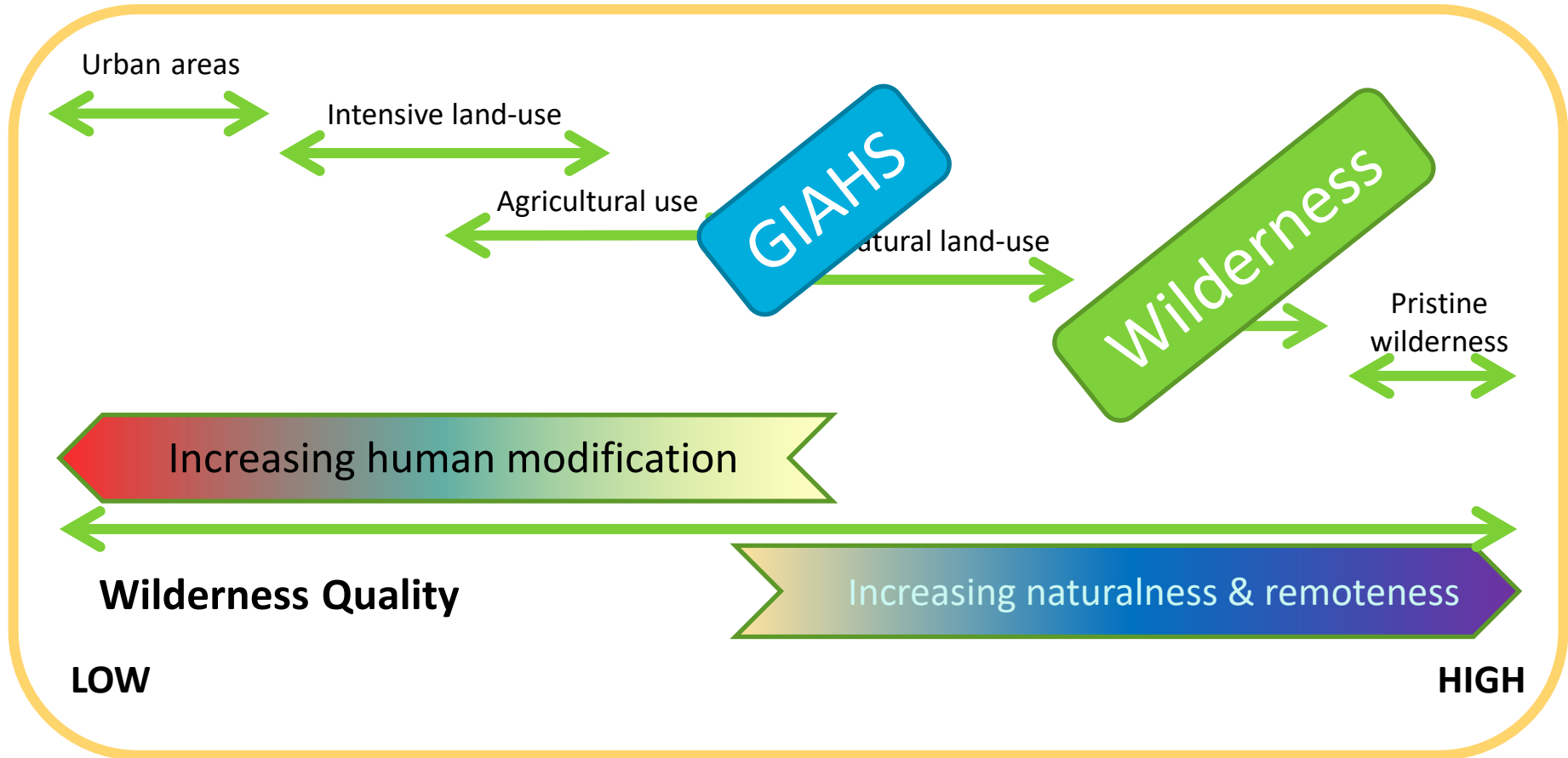
Institute for Landscape Management, University of Freiburg, Germany



Preconditions determined:

- Geographic, economic, infrastructural and political isolation
- Marginal agricultural land
- Population that differs from the surrounding national mainstream.

Wilderness Quality Index



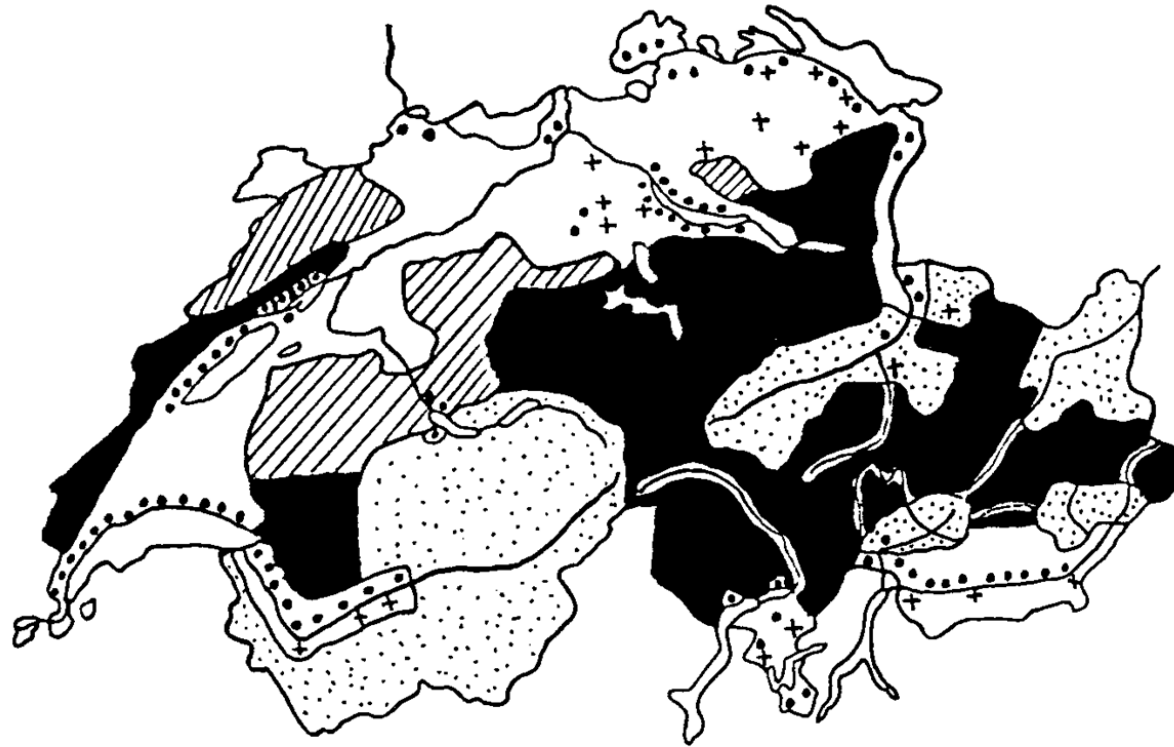
Kienast & Rutherford submitted

GIAHS and Wilderness represent different societal demands put upon the landscape – they might compete for the same places.

Content





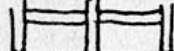
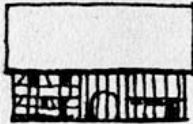




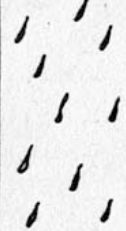









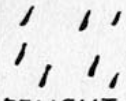





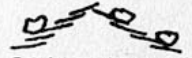
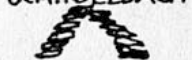
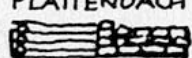
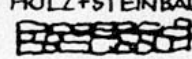








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Spatial structure of agriculture (aprox. 1400-1800)



-
- Vorwiegend Ackerbau «Kornland» (Dreizelgenwirtschaft)
 - /// Mischzone «Selbstversorger» (Feldgraswirtschaft)
 - Vorwiegend Viehwirtschaft «Hirtenland»
 - Alpine Selbstversorgungszone
 - + Obst
 - Wein

NATUR WIRTSCHAFT HAUS UND SIEDLUNG LEBENSWEISE MENSCH

	KLIMA	WIRTSCHAFTSART	BAUSTOFF	BAUWEISE	HAUSFORM	HOF FORM	SIEDLUNGSFORM	ERNÄHRUNG	BAUERTYP
MITTELLAND	 TROCKEN	 ACKERBAU	 LAUBHOLZ	 STEILDACH STROH  STÄNDERBAU	 DREI- SÄSSENHAUS FACHWERK	 EINHOF	 GESCHLOSSENE DÖRFER MIT DREIFELDERFLUR	 BROT	 ACKERBAUER
NORDALPINES GEBIET	 FEUCHT	 VIEHZUCHT	 NADELHOLZ	 FLACHES SCHINDELDACH  BLOCKBAU	 REINER HOLZBAU	 ALP MAIENSÄSS MEHRHOF: ALPWIRTSCHAFTL. STREUHOF	 EINZELHÖFE MIT GESCHLOSSENER FLUR ODER DÖRFER MIT STREUUNG DER WIRTSCHAFTS- GEBÄUDE	 MILCH	 HIRT
INNER-UND SÜD- ALPINES GEBIET	 FEUCHT  TROCKEN	 VIEHZUCHT UND ACKERBAU  (WEINBAU)	 HOLZ  STEIN	 SCHINDELDACH  PLATTENDACH  HOLZ+STEINBAU  STEINBAU	 HOLZ/STEINBAU  STEINBAU	 ALP MAIENSÄSS ACKERBAU WEINBAU MEHRHOF: STREUHOF DES MEHRZWECK- BAUERN	 DÖRFER MIT FILIALSIEDLUNGEN	 BROT UND MILCH  	 MEHRZWECK- BAUER

Richard Weiss, Häuser und Landschaften der Schweiz,
(1959), Erlenbach-Zürich: Eugen Rentsch Verlag, 2. Auflage
1973 (Graphiker Hans Egli); Abb. 97: Landschaftstypen in
ihren Zusammenhängen zwischen Natur und Mensch.





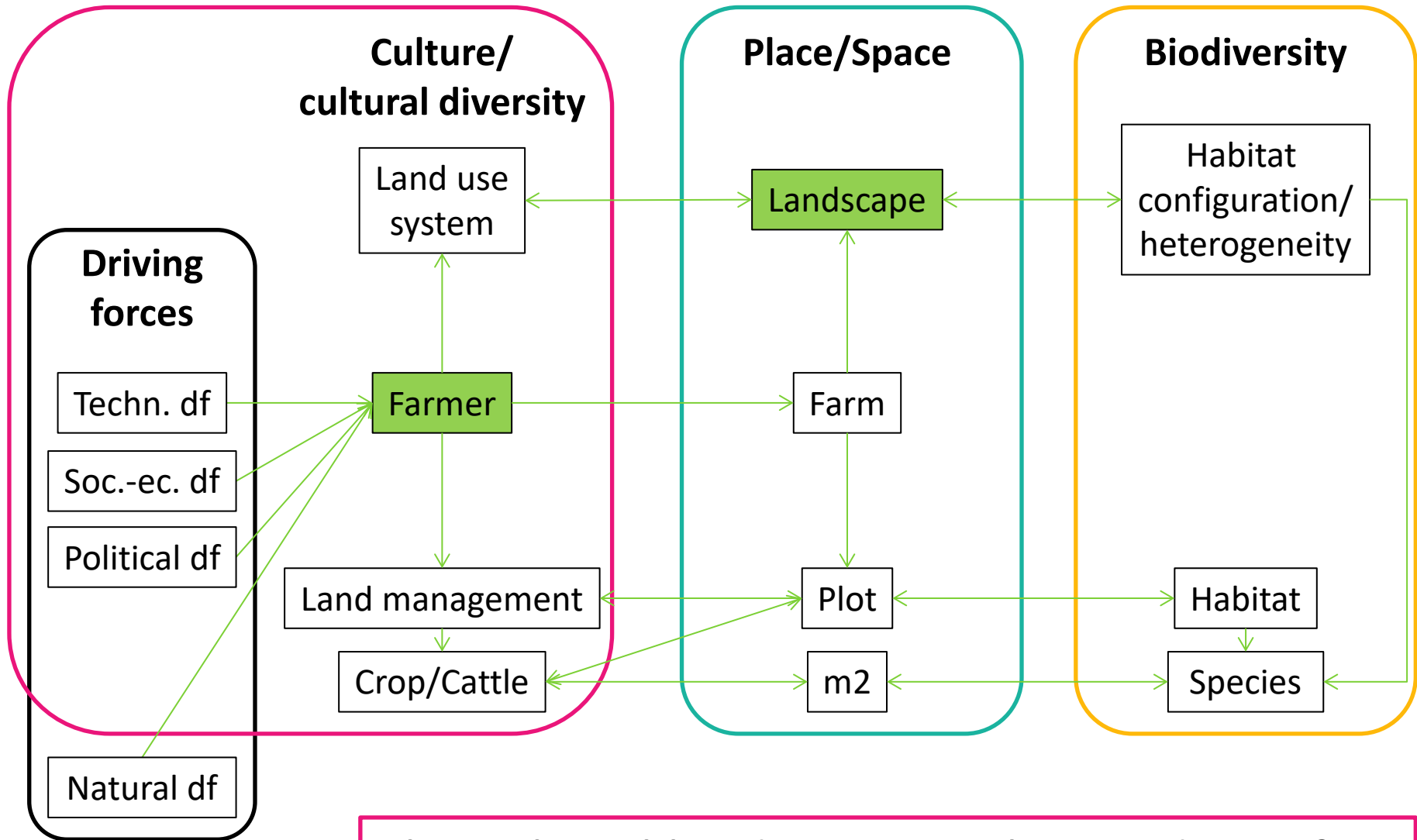
118. Die Getreideernte erfolgt in den höheren Lagen, bevor die Körner völlig reif sind. Mit einer Sichel werden die Ähren abgeschnitten, in kleine Garben gebunden und auf Gestelle zum Ausreifen gebracht, siehe Bild 120
(Phot. Jaberg und Jud)



118. Die Getreideernte erfolgt in den höheren Lagen, bevor die Körner völlig reif sind. Mit einer Sichel werden die Ähren abgeschnitten, in kleine Garben gebunden und auf Gestelle zum Ausreifen gebracht, siehe Bild 120
(Phot. Jaberg und Jud)

http://www.wikiwallis.ch/index.php/Roggenanbau_und_Roggenbrot_backen (1960)





The cultural landscape is a by-product of agricultural activities.

Changes in agricultural technology



Distributing manure (solid)



Distributing manure (liquid)



Mowing



Ploughing



117. Dem Pfluge folgt die ganze Familie, jedes mit einer Hacke, um sorgfältig das Erdreich zu bearbeiten.
(Phot. Hager)



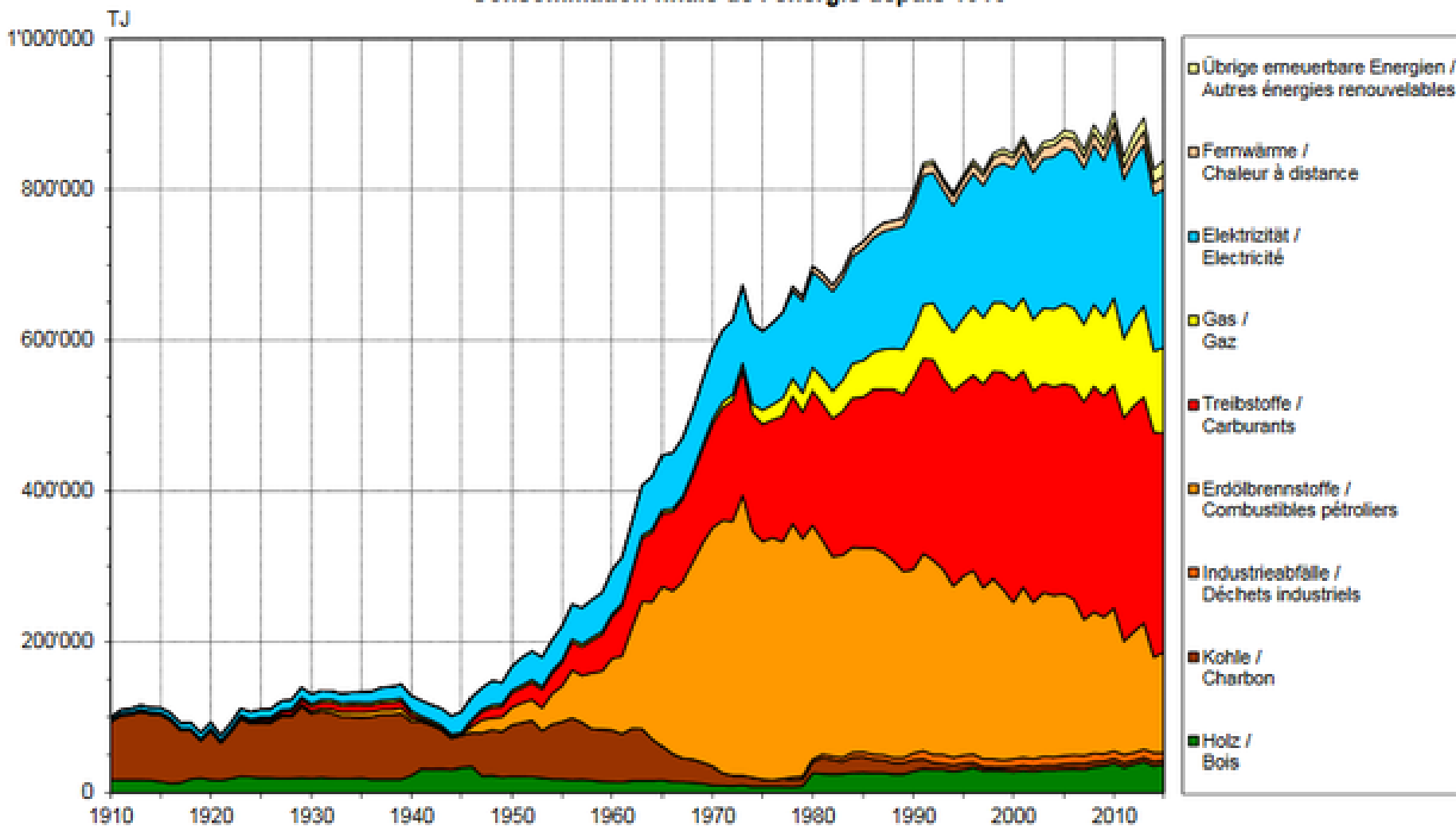
Harvesting



118. Die Getreideernte erfolgt in den höheren Lagen, bevor die Körner völlig reif sind. Man
die Ähren abgeschnitten, in kleine Garben gebunden und auf Gestelle zum Ausreifen geb
(Phot. Jaberg und Jud)



Endenergieverbrauch der Schweiz seit 1910 Consommation finale de l'énergie depuis 1910



Changes in context triggered changes in agriculture



© Can Stock Photo



RESEARCH ARTICLE

Priority questions for the science, policy and practice of cultural landscapes in Europe

Mónica Hernández-Morcillo · Claudia Bieling · Matthias Bürgi ·
Juraj Lieskovský · Hannes Palang · Anu Printsman · Catharina J. E. Schulp ·
Peter H. Verburg · Tobias Plieninger

How to secure sustainable (?) cultural landscapes where they are not economically profitable?





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Summary

The cultural landscape is a by-product of agricultural activities.

Factors fostering the survival of GIAHS:

- Geographic, economic, infrastructural and political isolation
- Marginal agricultural land
- Population that differs from the surrounding national mainstream.

GIAHS developed in a context which was very different from today (let alone the future...) regarding energy, technology, teleconnections, societal demands, ...

How to secure GIAHS where they are not economically profitable?

Thank you for your attention



Some references

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