

THE LIVESTOCK LANDSCAPE IN THE ALPINE REGION



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Management of Mountain Areas



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Landscape and ecosystemic services

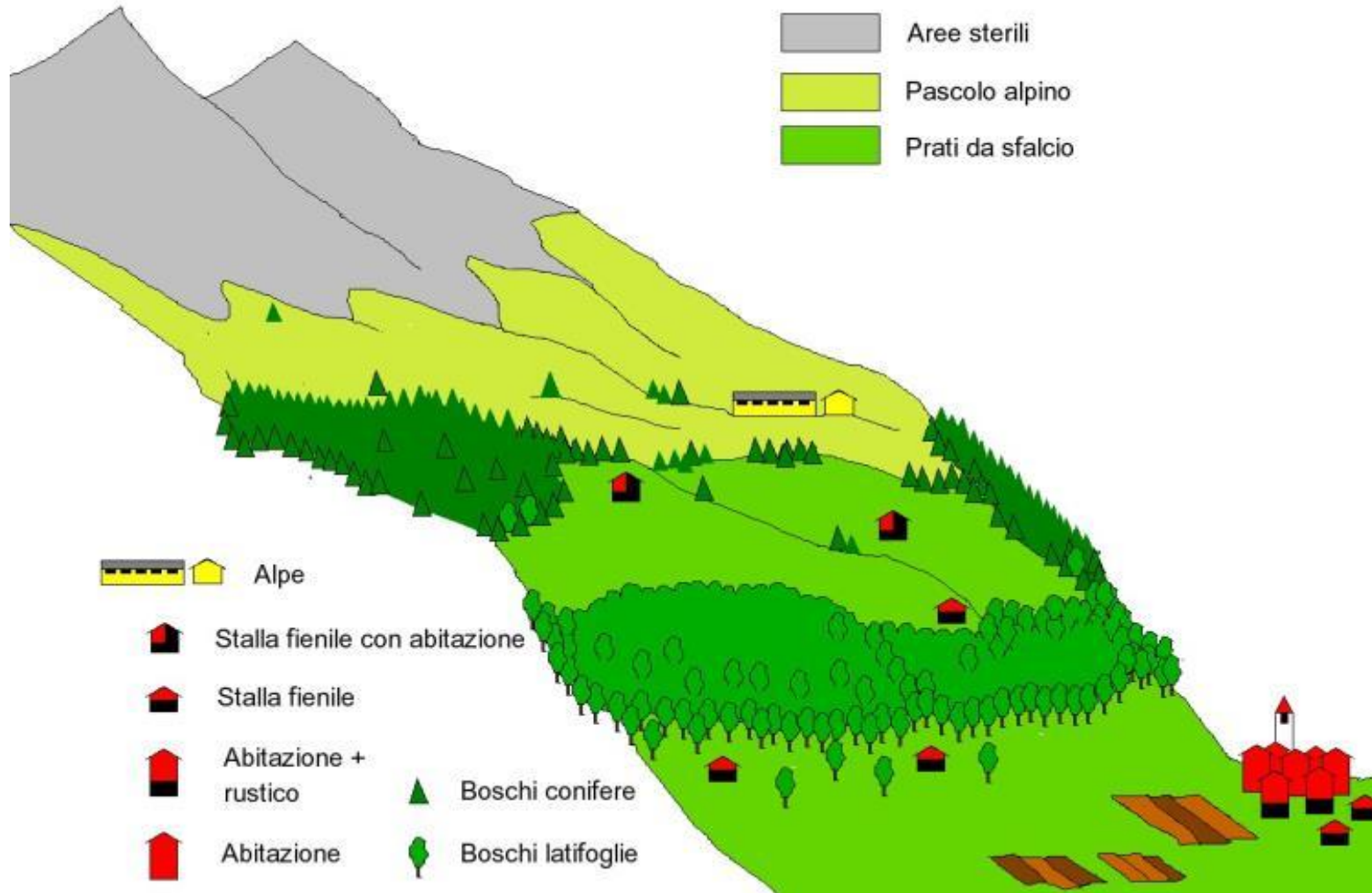
“Landscape” is here meant as “capitale” of elements and/or functions, which by sustaining natural or anthropogenic ecosystems allow “benefits” (De Groot, 2006; Kienast et al., 2009; Bolliger et al., 2011).

Function		Goods and services
Productive	Flora and fauna	Feeds (venison, mushrooms, ...), raw materials, biodiversity
	Cultivation and livestock products	Vegetal and animal foods, organic products
	Forestry products	Timber, non-woody products
	Transports and living structures	Roads, pathways, transport on water “ways”
Energetic		Coal, hydroelectric power, wind power
Regulating	Climatic	Carbon sequestration, GHG regulation
	Natural risks	Landslips and floods protection ...
	Water	Drinking water, irrigation
	Pollution	Air and water quality
	Erosion	Soil stability
	Biologic control	Weeds, phytopathology, pests...
Natural environment conservation		Habitat maintenance
Culture and leisure	Aesthetic pattern	Landscape elements, agro tourism, excursions...
	Cultural	Cultural heritage, Eco museums, exhibitions...
	Artistic	Natural elements in pictures, photos, documentaries, movies...



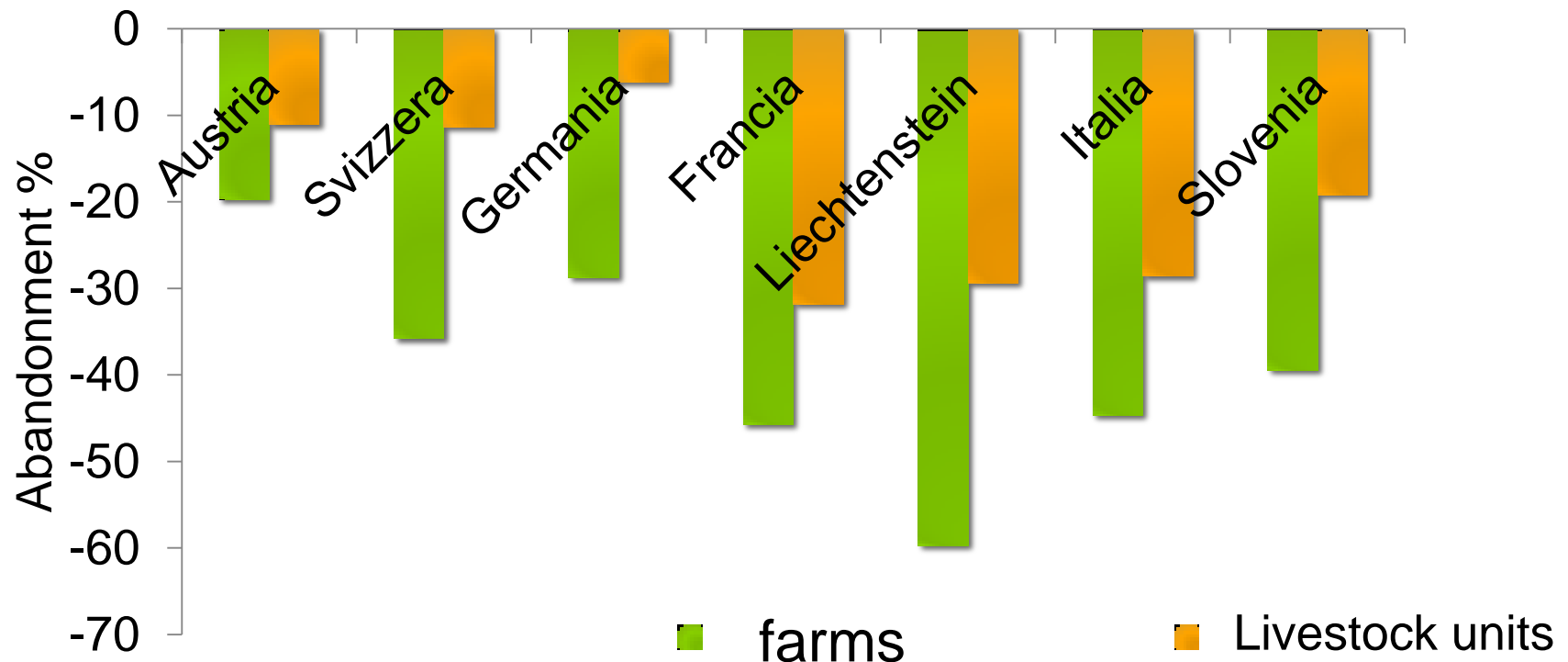
Alpine livestock farming trend and relevant landscape functions

Livestock and alpine landscape



Alpine livestock farming systems in the Alps: abandonment and intensification

Abandonment 1980-2000 in the Alps
(Streifeneder et al., 2005; mod.)



Productive aims

- Increased livestock farming in more favorable areas
- Increase of cosmopolite breeds and decrease of autochthonous ones



- Alpine pasture loss of interest

	<i>Piemonte</i>	<i>Lombardia</i>	<i>Veneto</i>	<i>Trentino</i>
Alpine pastures (no.)	1.029	665	531	460
Dairy cows (no.)	95.000	33.000	20.000	23.000
Small ruminants (no.)	100.000		26.000	38.000

- Cheese making more concentrated in factories and lost of lore and traditional systems of direct and short food chain in alpine pastures

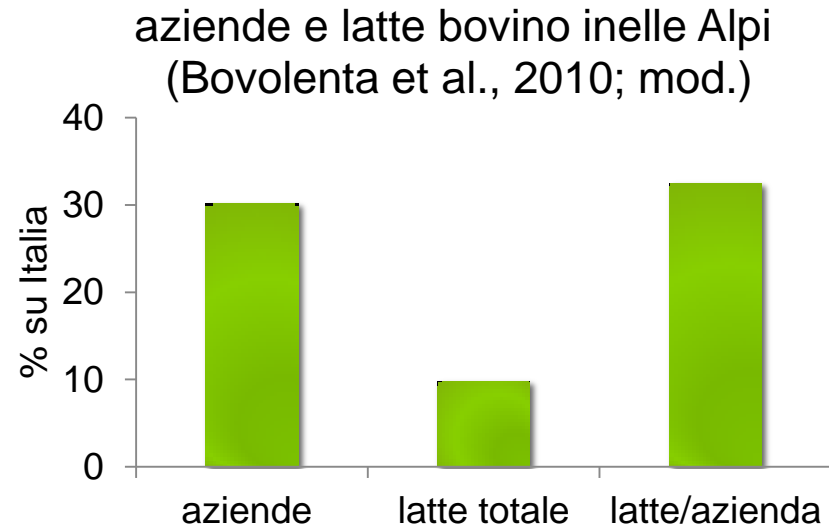


Livestock sector in the Italian Alps (Battaglini et al., 2014, in stampa)

Year ⁽	1990	2000	2010	Variation 1990-2010 (%)
Meadows and pastures (ha)	1,109,367	1,016,180	812,236	-26.6
Cattle (n.):				
Farms	43,774	26,949	21,221	-51.5
Heads	578,484	492,701	446,531	-22.8
Heads/farm	13.2	18.3	21.0	+59.2
Dairy cows	275,605	223,115	194,440	-29.4
Dairy farms	37,803	20,924	15,157	-59.9
Dairy cows/dairy farm	7.3	10.7	12.8	+76.0
Sheep (n.):				
Farms	7,901	6,279	4,402	-44.3
Heads	175,274	176,054	191,713	+9.4
Heads/farm	22.2	28.0	43.6	+96.3
Goats (n.):				
Farms	7,221	6,258	4,442	-38.5
Heads	84,455	95,872	89,625	+6.1
Heads/farm	11.7	15.3	20.2	+72.5

Production aims

- Alpine livestock farming represents a minority compared to livestock of the plain
- But it's important in terms of gross production income in mountain region (30 to 80%)



- Richness in local and high quality products (e.g. 57% of Italian PDO cheeses) (*Battaglini et al., 2006; Thomet et al., 2011; Bovolenta et al., 2010*)
- Alpine livestock farming is the only way for a sustainable way of conserving local breeds (*Hoffman, 2011*)



Regulating aims

Alpine livestock farming and nutrient and GHG emissions

- Intensive or extensive LF systems? (*Garnett, 2010; Soussana et al., 2010*)
- Needings of research in the field (e.g. Ecological footprint, LCA) (*De Jong, 2009; Penati et al., 2010*)

LFS and water regulation (*Leitinger et al., 2010*)

Habitat and biodiversity aims

- On a territorial scale meadows and pastures breaking woods continuity increase the richness of vegetal and animal species
- On a farm scale an extensive (and rational) management increases vegetal and animal biodiversity



Habitat and biodiversity aims

- Effects of the reforestation of slopes on the change of the landscape



Dolomiti (Veneto, NE Alps)

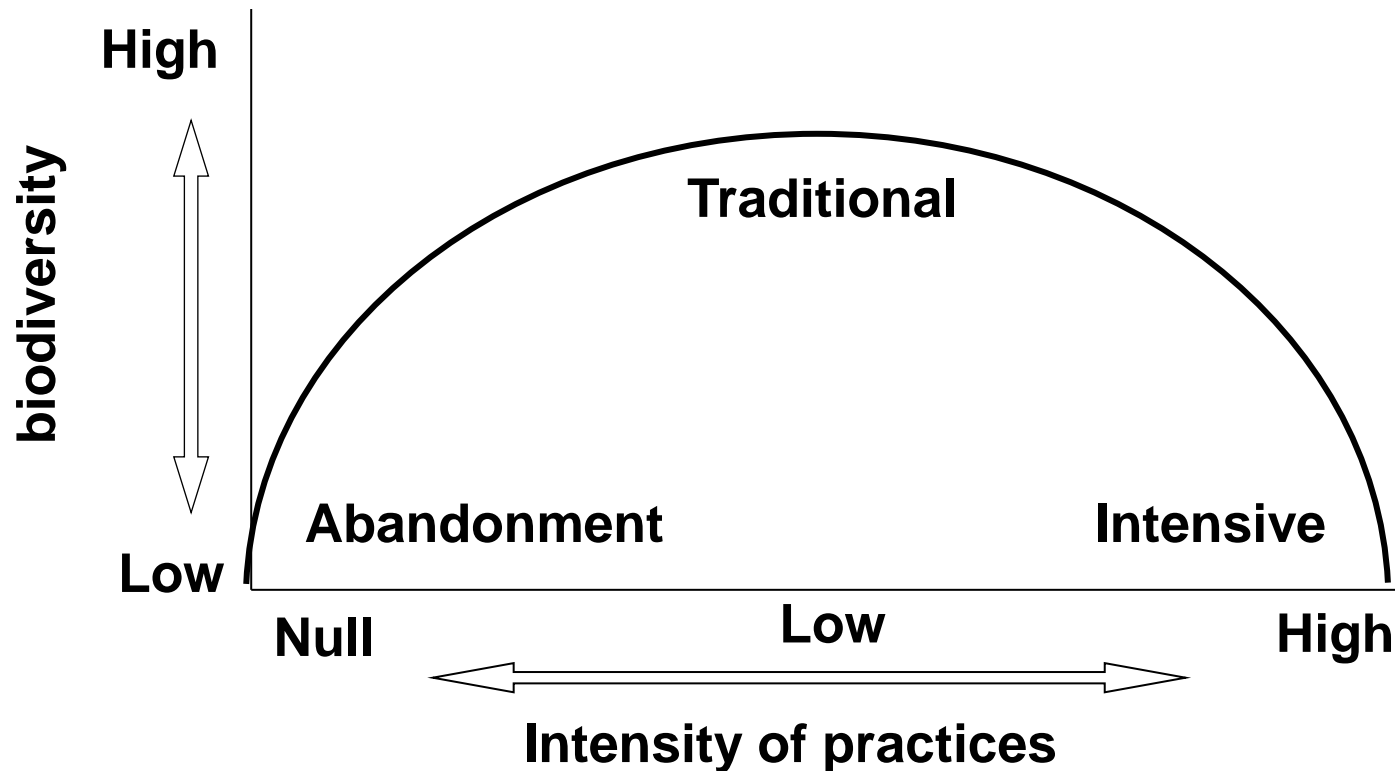
Habitat biodiversity

- Intensive cultivations determine an oversimplification of bottom valleys open habitats (*Giupponi et al., 2006; Sturaro et al., 2009*)
- Abandonment determines meadows and pastures involution (*Cocca et al., 2012*)

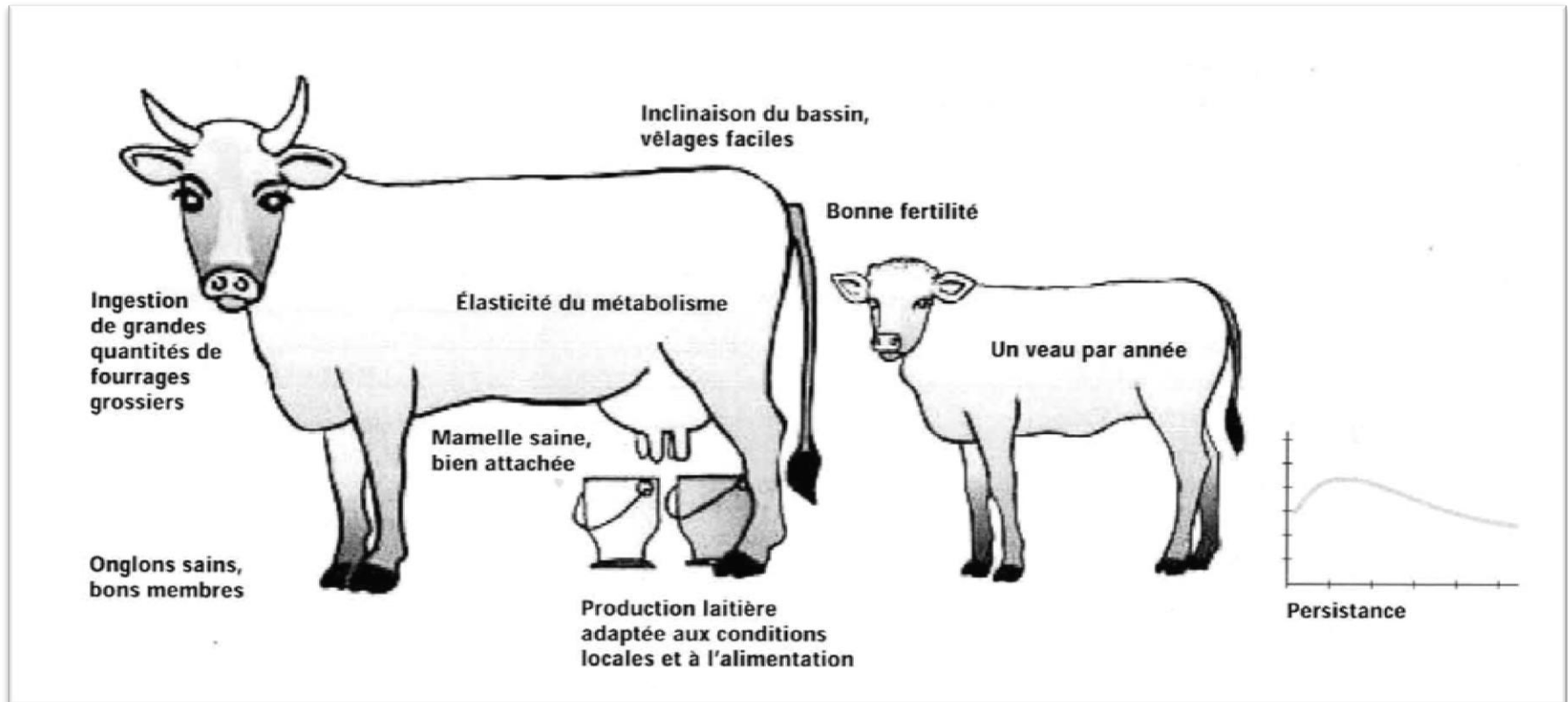


Habitat and biodiversity aims

- Intensification, abandonment and biodiversity evolution



Livestock biodiversity



Cultural and leisure functions



- European Landscape Convention
 - Art 1. “Landscape” means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors;
- Percezione simbolico-identitaria (*Massarutto, 2002; Kianicka et al., 2010*)
- Percezione estetica e fruizione turistica (*Corti, 2004; Lehmann et al., 2007*)
- Percezione storico-antropologico-culturale (*Batzing, 2005; Salsa, 2010*)

Cultural and leisure functions

Cultural resources of alpine livestock landscape

Tangible heritage:

- *Vernacular architecture* (barns, stables, dairies, etc.).
- *Semi-natural elements* (wells, fences, etc.) and artifacts (fountains, bridges, stone walls border stone, fences, etc.)
- *Tools* (for transportation, milk processing, etc.)

Non tangible heritage:

- *Knowledge and learning livestock related* (animal behavior, product processing, botanical knowledge and meadows and pastures management , ...)
- *Linguistic heritage* (place names, vocabulary ..)
- *Heritage folklore* (legends, taboos, rituals and festivals, ...)



- Handcraft
- Food and diet: products and recipes
- Figurative art, poetry, prose, etc.
- Folklore: civic traditions / religious, legends, folk art, etc.



Cultural and leisure functions



Interreg III a (2000-2006) I-CH



**Ecomuseum of Sheep Farming (Ecomuseo della Pastorizia)
Pietraporzio Valle Stura – CN**

Cultural and leisure functions

- Architecture identity and esthetical value



Cultural and leisure functions



Cultural and leisure functions

- Loss of the identity bond

Drawings submitted by children in a competition of local primary schools



International Congress «Whose Alps are these?» Agordo (Belluno, I), September 2011

a cura di
Bruno Ronchi, Giuseppe Pulina,
Maurizio Ramanzin
**IL PAESAGGIO ZOOTECNICO
ITALIANO**

IL PAESAGGIO ZOOTECNICO DELLA MONTAGNA ALPINA

L. Battaglini



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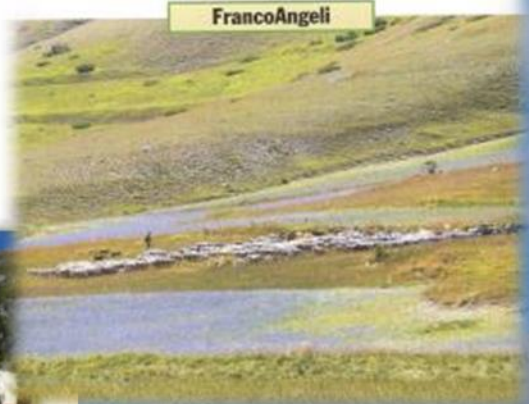
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Lingotto Fiere - Venerdì 19 aprile 2013



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la forza della cultura



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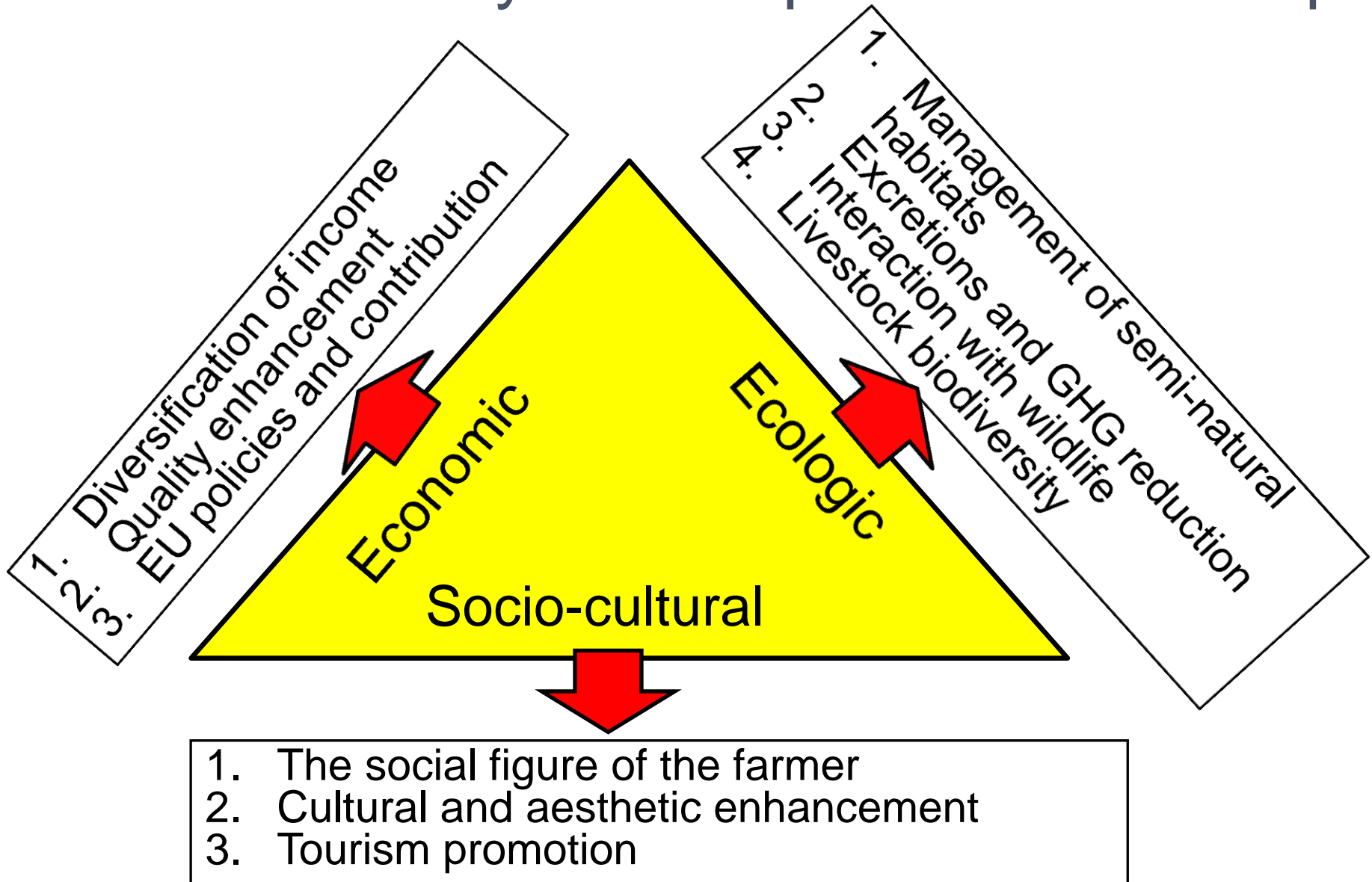
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Problems, opportunities, research exigencies

Research on alpine LFS

- Identification and mapping of cultural landscapes
- Geographical diversification of livestock systems
- "Farming styles" and attitudes of farmers
- Ecological footprint of alpine livestock systems
- Management of meadows and pastures and biodiversity (Natura 2000)
- Forage and nutraceutical properties of foods of animal origin (plant biodiversity)
- Multi-functionality and interactions with other sectors

The sustainability of the alpine LFS landscape



Useful links

- Italian society for alpine livestock systems <http://www.sozooalp.it/>
- Alpine Convention <http://www.alpconv.org/>
- International Scientific Committee on Alpine research <http://www.iscar-alpineresearch.org/>
- International Commission for the Protection of the Alps CIPRA <http://www.cipra.org/it>
- Association Européenne pour le zones de montagne <http://www.euromontana.org/>
- European federation of cattle breeds of the Alpine system <http://www.ferba.info/>
- European Grassland Federation <http://www.europeangrassland.org/>





Thank you for your attention

photos by M. Verona, L. Ramirez, L. Battaglini