

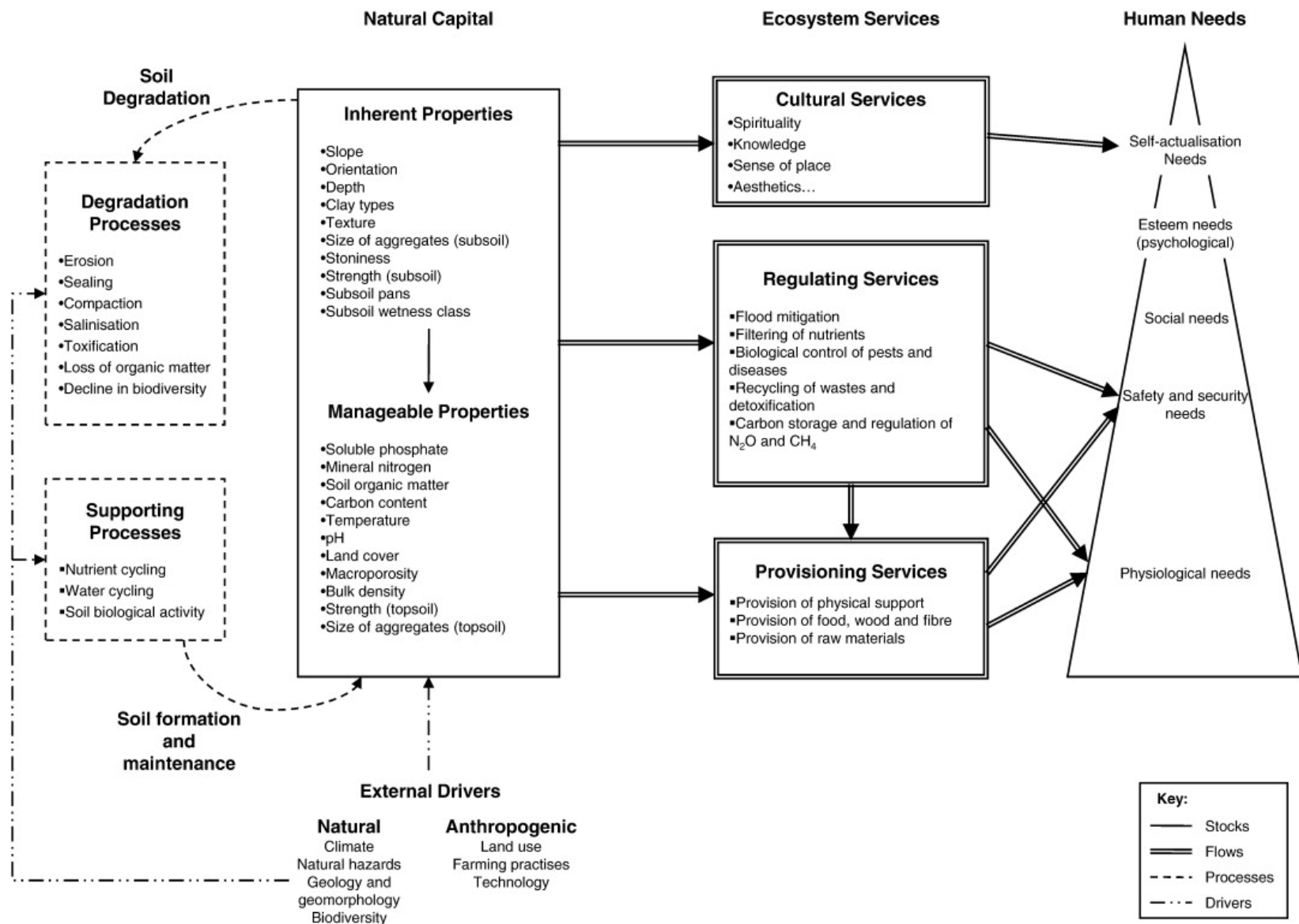
Consumer and citizen expectations of grazing

Grazing in a changing Nordic region
Sep 12-15, 2016 Reykjavik Iceland

Eija Pouta

Consumer and citizen expectations of grazing

- Grazing and ecosystem services
- Valuation of ecosystem services
- Case studies
 1. Grazing animals in the landscape
 2. Conservation of genetic resources
 3. Meat choice



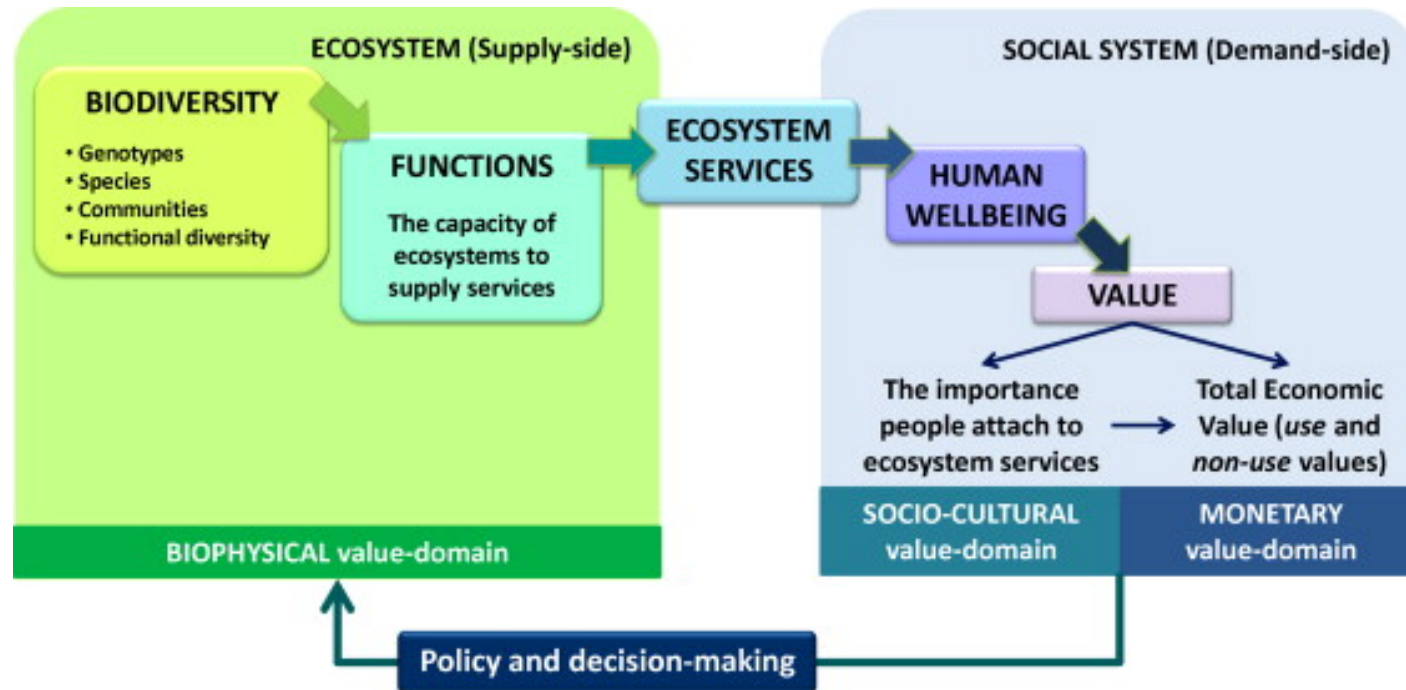
A framework for classifying and quantifying the natural capital and ecosystem services of soils

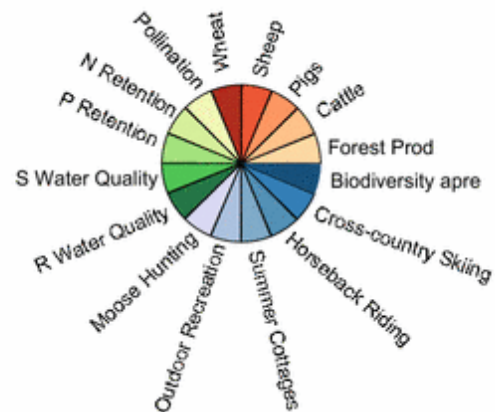
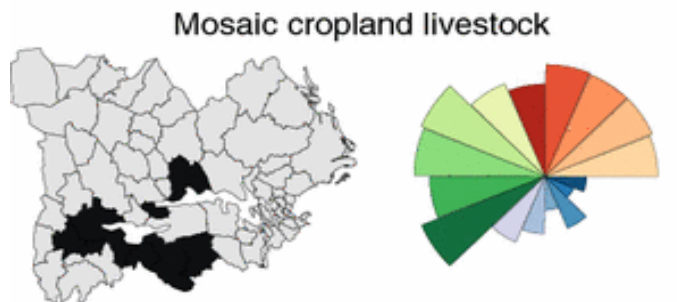
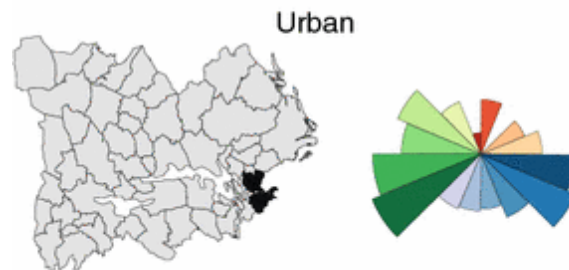
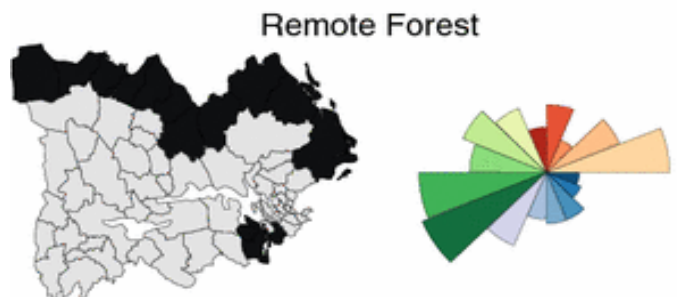
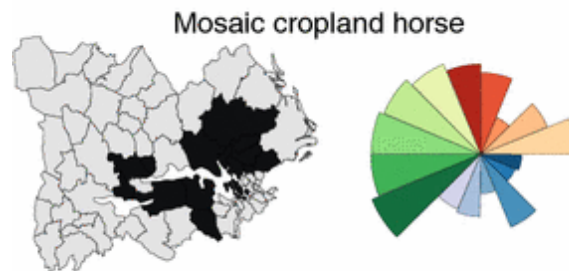
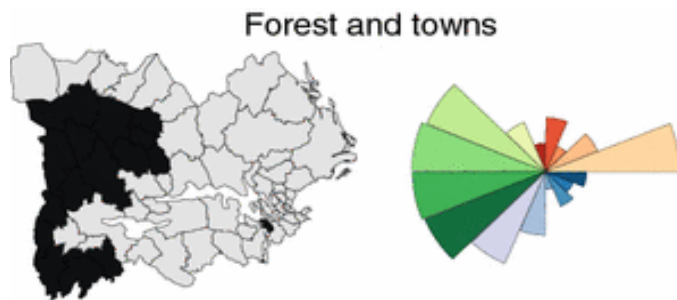
Estelle Dominati, Murray Patterson, Alec Mackay

Ecological Economics, Volume 69, Issue 9, 2010, 1858–1868

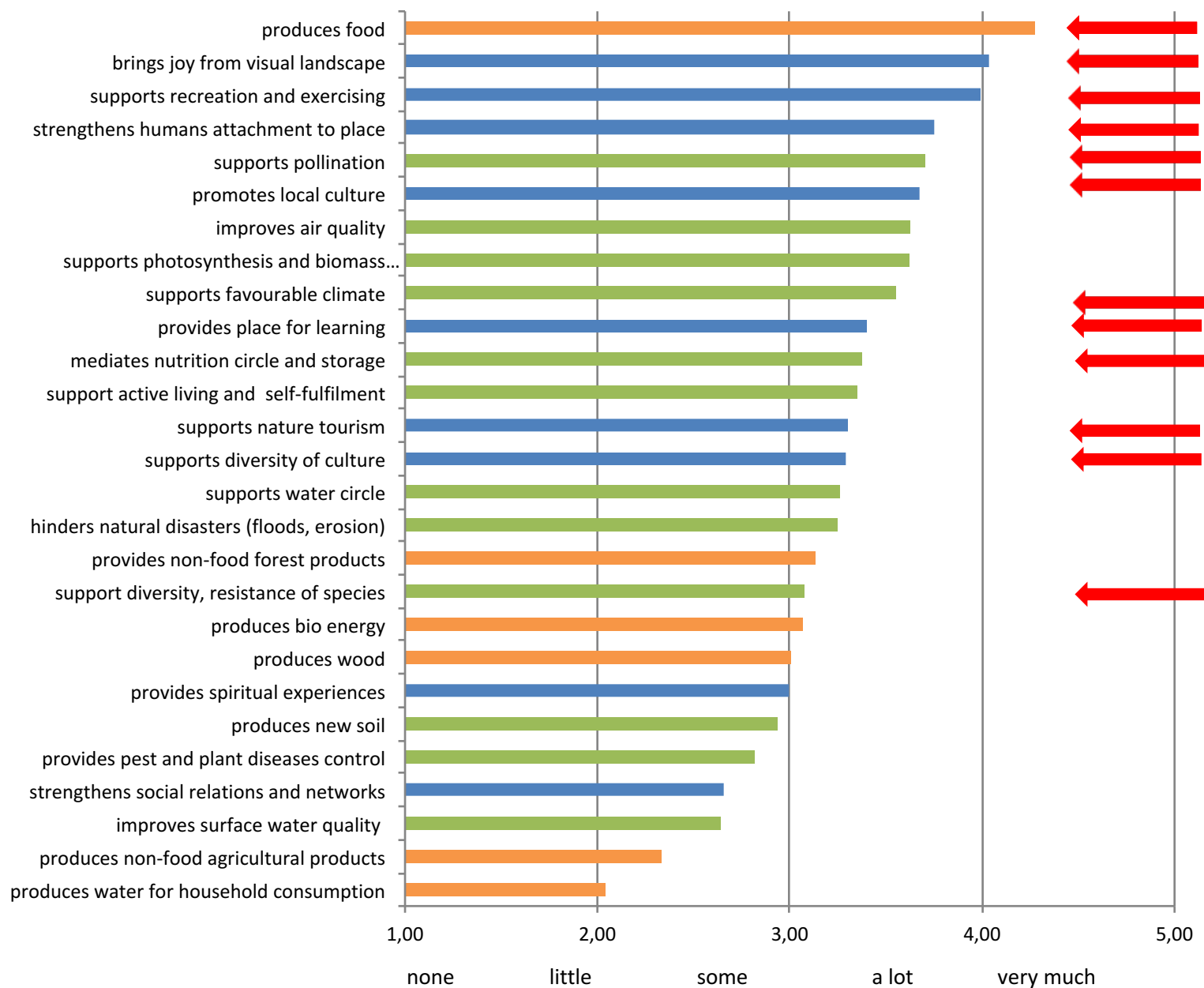
© Natural Resources Institute Finland

Cascade model of ecosystem services

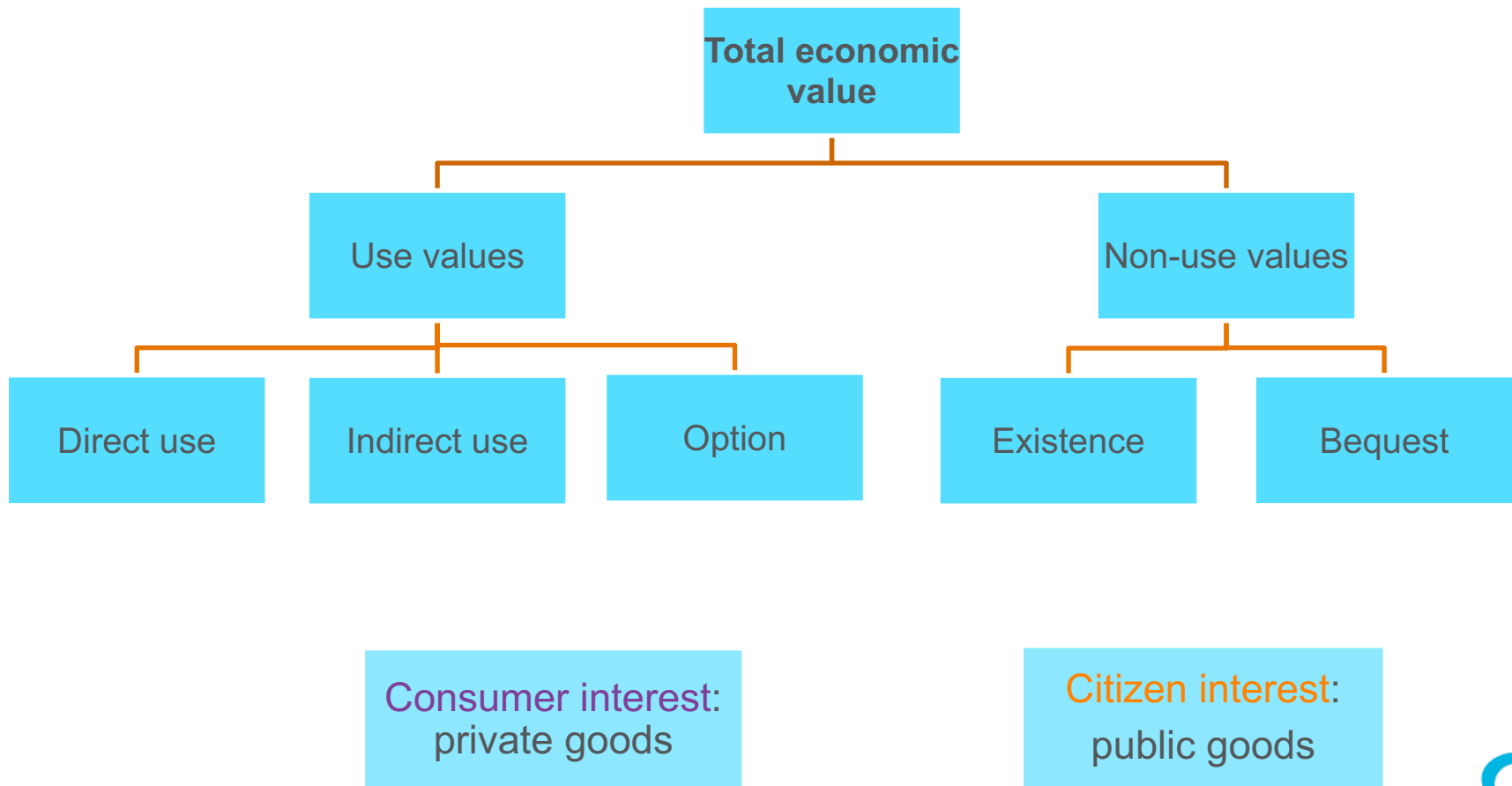




(Queiroz et al. 2015)



The value of ecosystem services



Methods for valuing ecosystem services

- Individual preferences
- Provisioning services: market price
- Cultural and regulating services (Non-market goods)
- Special valuation methods are needed
 - Survey based
 - Choice experiment
 - Can be framed for policy choice or choice of a good

Case studies on the value of grazing

- 1. Grazing animals in the landscape**
- 2. Conservation of genetic resources**
- 3. Meat choice**

Case 1 Landscape values



Choice experiment






- Focus on landscape elements that could be important for residents but that could be provided by local landowners .
- Hypothetical local policy of landscape value trade:

Residents would finance the landscape services produced by landowners.

Landowners would participate in the trade if they perceived the compensation to be sufficient.

.

Defining the attributes

	<i>Landscape element</i>	<i>Range</i>		
	Uncultivated field share in %	10 %	5 %	0 %
	Number of cultivated plant species in km ²	3	5	10
	Gracing animals	no animals	horses	horses and cattle
	Water protection zones -width and management	7 m, mowed	15 m, mowed	15 m, natural
	Production buildings	half are ramshackle	all tore down	all renovated

Choice settings

- Six choice settings per respondent

Choice setting 6

	At present	Alternative 1	Alternative 2
Uncultivated field	10 %	10 %	5 %
Number of plant species	3	3	10
Grazing animals	no animals	no animals	horses, cattle
Water protection zones	7 m, mowed	15 m, natural	15 m, mowed
Production buildings	half are ramshackle	all tore down	all renovated
Household expenses for ten year period	0 €/ year	70 €/ year	40 €/ year
My choice is	()	()	()

Heterogeneity in preferences for landscape attributes

Attributes	Seg. 1 “Majority: animals and buildings matter”	Seg. 2 “Positive towards any improvement”	Seg. 3 “Expenses conscious”	Seg. 4 “In favour of natural development”
Constant (Alternative)	***2.031	0.121	** -1.767	**0.970
Uncultivated	-0.004	-0.012	0.121	***0.111
Plants	*0.020	0.030	0.071	-0.066
Horses	***1.159	***1.279	0.712	0.492
Horses & cattle	***1.565	***1.507	0.893	0.216
Waterbuffer_15m	-0.020	*0.403	*0.965	0.222
Waterbuffer_15n	0.073	***0.828	-0.833	0.247
Buildings_torn down	*-0.186	-0.166	0.340	***-1.976
Buildings_renovated	***0.731	***1.326	0.052	** -0.641
Expenses	***-0.010	***-0.067	***-0.208	***-0.011
Size of the segment	48	24	21	7

Citizen willingness to pay

	MWTP, euros	Rank by citizen
Uncultivated	-0.1	7
Number of plants	0.5	6
Horses	79.3	2
Horses & cattle	102.7	1
Watterbuffer, managed	4.4	5
Watterbuffer, natural	10.8	4
Buildings torn down	-5.5	8
Buildings renovated	56.6	3





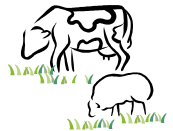
Case 2 Value of genetic resources







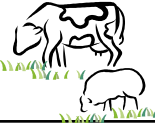
Valuation of agricultural genetic resources in Finland

- to help decision making of agricultural genetic resources
- information on the value that citizens place on agricultural genetic resources.
- weight of in situ and ex situ conservation

Attributes of conservation program

Conservation measures		Description	Current state
Native food plant varieties in gene banks		Native food plants are stored in the gene bank, either as seeds or plant parts.	Gene bank contains seeds from about 300 landrace varieties. Plants that are added vegetatively (e.g, berry and apple varieties) are missing.
Farms growing native food plants		Farmers and hobby gardeners cultivate native food plants on farms or in gardens.	7 farms grow seeds of native food plants with agri-environmental support. Other activities than growing seeds are not supported.
Native ornamental plant varieties mapped and in gene banks		Scientists identify and register native ornamental plants. Varieties are preserved in the gene bank, either as seeds or plant parts.	Only a small part of the native ornamental plants are known. The official gene bank storage is not provided.
Native breeds in gene banks		Landrace breeds are kept in the gene bank as gametes and embryos.	Gene bank contains Western, Eastern and Northern Finncattle as well as Finn-, Åland and the Kainuu sheep. Native chicken, goat and horse are missing from the gene bank.
Native breeds on farms		Native breeds are kept on farms in their natural environment.	The farms secure goat, horse, chicken, Finnish sheep and Western Finncattle. Eastern and Northern Finncattle as well as Åland and Kainuu sheep are endangered.

Example of a choice set

		Current state	Conservation program A	Conservation program B
Native food plant varieties in gene banks		300	400	500
Farms growing native food plants		7 farms	1000 farms	500 farms
Native ornamental plant varieties mapped and in gene banks		some	majority	about half
Native breeds conserved in gene banks		3 cattle breeds 3 sheep breeds	3 cattle breeds 3 sheep breeds chicken goat horse	3 cattle breeds 3 sheep breeds goat
Native breeds conserved on farms		goat, horse, chicken, 1 cattle breeds 1 sheep breeds	goat, horse, chicken, 2 cattle breeds 3 sheep breeds	goat, horse, chicken, 3 cattle breeds 1 sheep breeds
Cost for taxpayers €/year during 2012-2021	€	0 € / year	80 € / year	200 €/year
I support the alternative		()	()	()

Conditional logit

Cost for household	--
Plants in gene bank	0
Farms cultivating native plants	+++
Native ornamental plant	++
Goat in bank	++
Horse in bank	+++
Chicken in bank	++
Cattle breeds on farms 2-3	+++
Sheep breeds on farms 2-3	0

Priorities for conservation

- In situ conservation: emphasis on native cattle
- Ex situ: especially Finn horse
- Moderate level of plant conservation is enough
- Preferences for plant conservation methods vary

Case 3: Meat choice



Choice Experiment Design

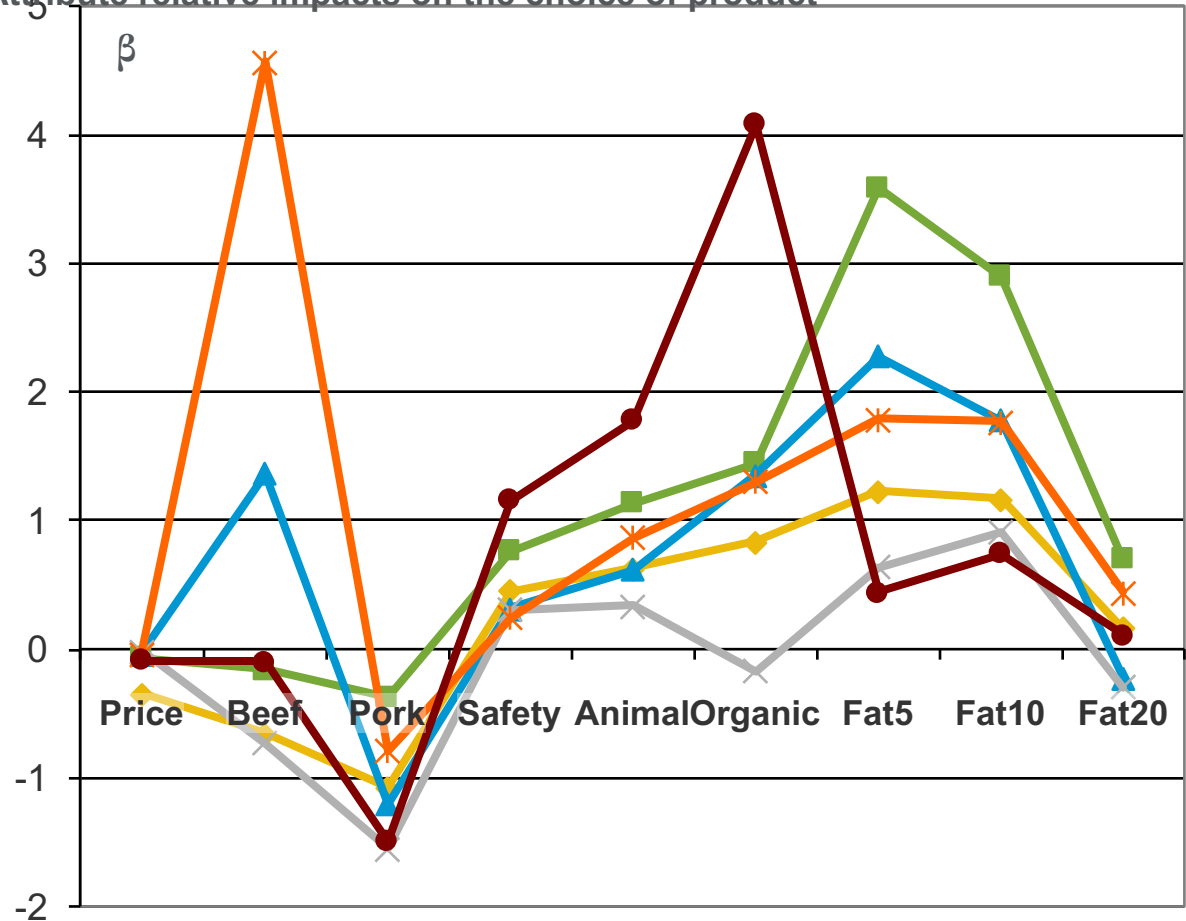
ATTRIBUTES	Minced meat 1	Minced meat 2	Minced meat 3
Meat type	Pork	Mixed pork & beef	Beef
Method of production	Organic	Animal welfare oriented	Safety&health oriented
Fat content	Max 5 %	Not defined	Max 20 %
Price	12 €/kg or 4,8€/ 400g	4 €/kg or 1,6 €/ 400g	8 €/kg or 3,2€/ 400g
Carbon footprint	Small	Average	Large
I would buy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would not buy any of the products	<input type="checkbox"/>		

Heterogeneous consumer classes

Six consumer segments

- Price-conscious (23.2%)
- Fat content-conscious (19.9%)
- Ideological but passive (17.1%)
- Indifferent (16.5%)
- Beef preferring (12.6%)
- Method of production-conscious (10.8%)

Attribute relative impacts on the choice of product



Relative willingness to pay

- **Relative WTP for beef product attributes**
 - **Average:**
 - Largest **12%** premium for a low fat content
 - **6%** for organic, **3%** for animal welfare & **2.4%** for safety & healthiness
 - **Class-specific :**
 - Fat content-conscious class : **40%** for a low fat content
 - Method of production-conscious class: **18%** for animal welfare & **60%** for organic

Summary and future development

- Grazing animals are among the most important attributes of agricultural landscape
- Grazing is strongly associated with the conservation of native breeds
- Many consumer groups: About 10% of consumers would be interested of grazing products and willing to pay extra of them
- Grazing as a labeled characteristic of meat?
- New ways to organize the markets for public goods



Thank You!

Natural Resources Institute Finland