

# THE ROLE OF ECOSYSTEM EXTENT AND ECOSYSTEM CONDITION ACCOUNTS

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# ROLE OF ECOSYSTEM EXTENT AND ECOSYSTEM CONDITION ACCOUNTS

Jan-Erik Petersen, EEA

## Presentation in three parts:

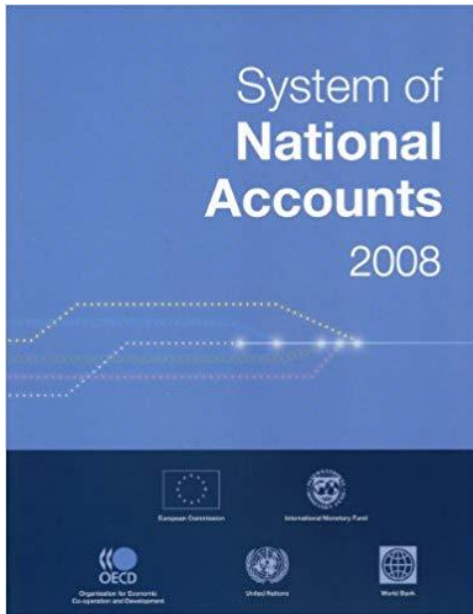
- 1) Global and EU context
- 2) EU ecosystem extent accounts
- 3) Accounts for ecosystem condition



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Jan-Erik Petersen, EEA

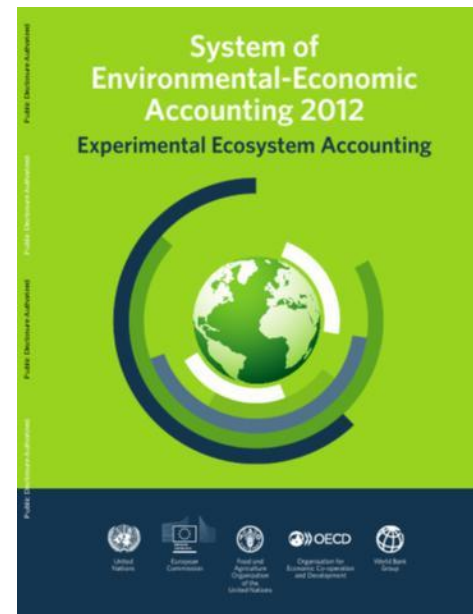
## United Nations standards for accounting



Economy



Environment

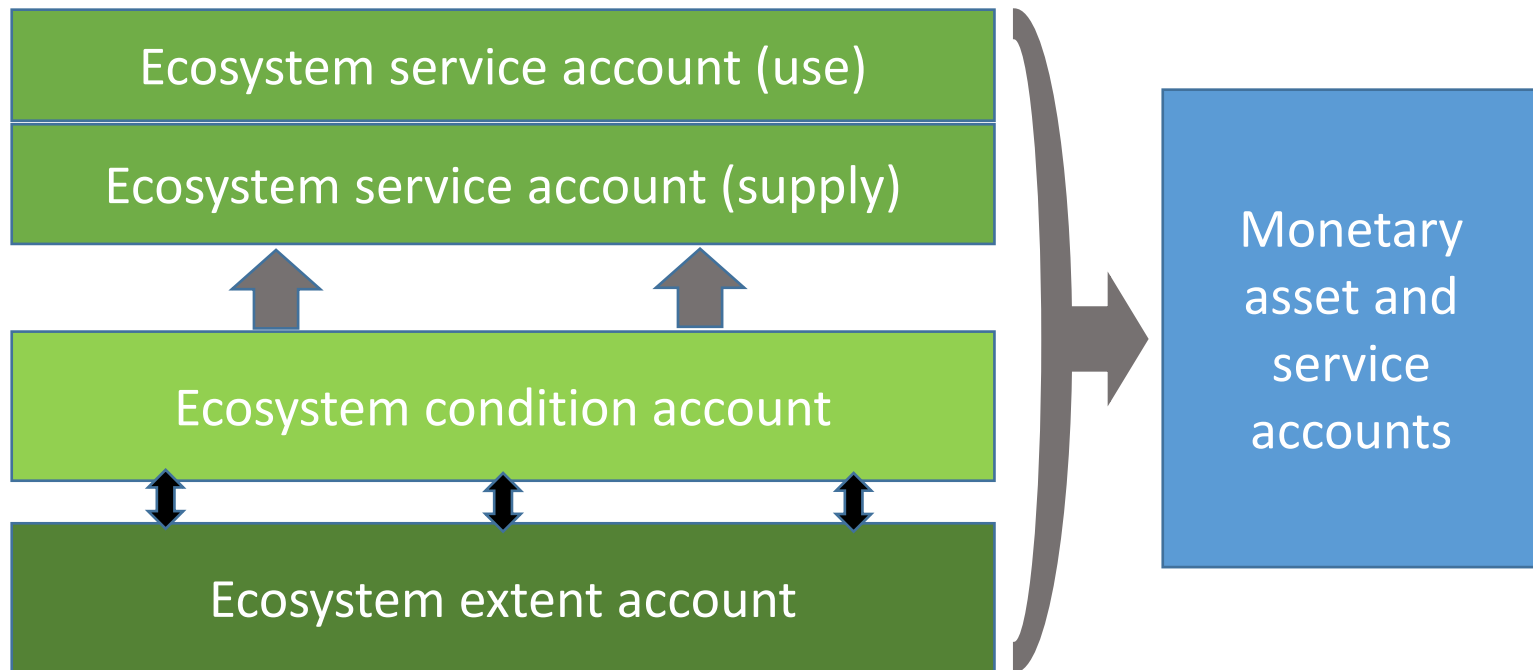


Ecosystems

Standard  
by 2021

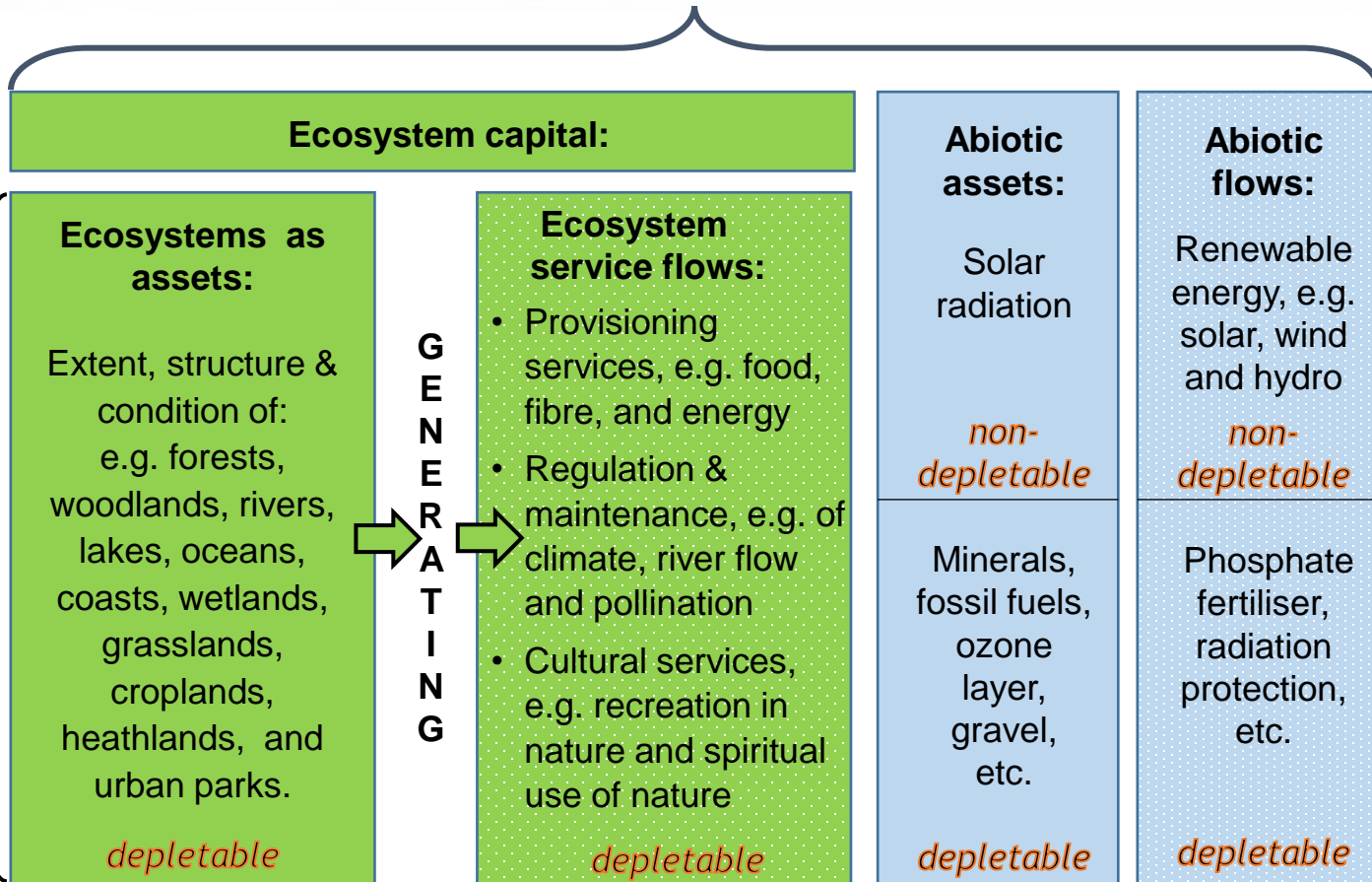


# Simplified representation of SEEA EEA approach





# A brief review of Natural capital

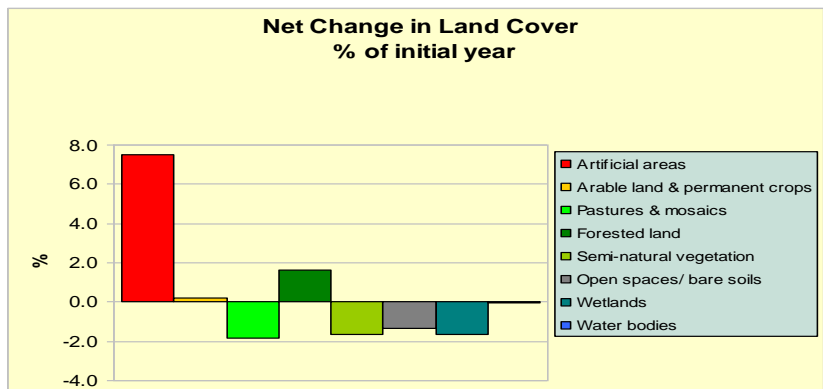
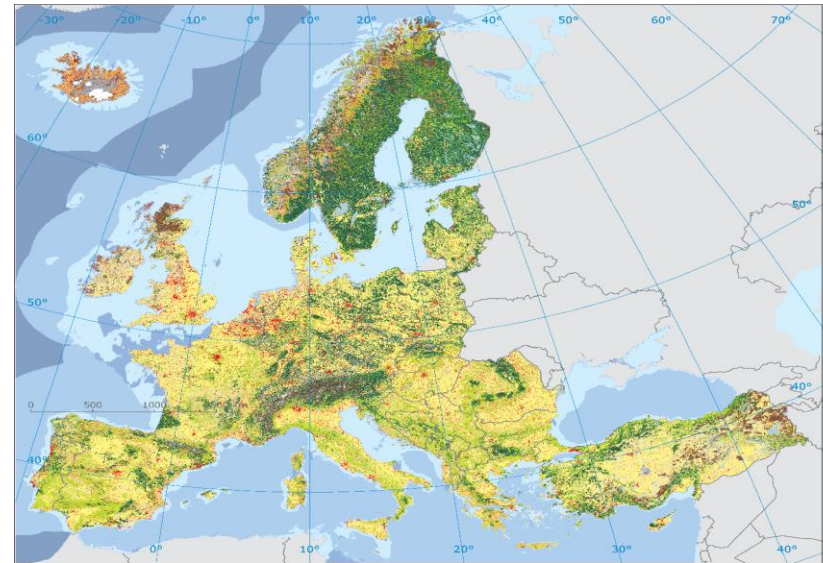




# KIP INCA project on Accounting for natural capital and ecosystem services

## 'KIP INCA' goals:

- Cooperation: ESTAT, EEA, ENV, JRC, RTD
- Develop an integrated EU ecosystem accounting system
- Track ecosystem extent and condition (EEA)
- Track and project ecosystem service flows (JRC)
- Valuation of benefits from natural capital (ENV, Eurostat, JRC)
- Implementation to 2020 (+ beyond..)





# EU Ecosystem extent accounts proposed by EEA

## Data foundation

Based on CLC,  
high level grouping

Based on CLC, more  
detailed grouping

Based on CLC,  
give trends on 30  
ecosystem types

## Tiers of increasing complexity

Tier I ecosystem extent account (MAES Ecosystem Types)

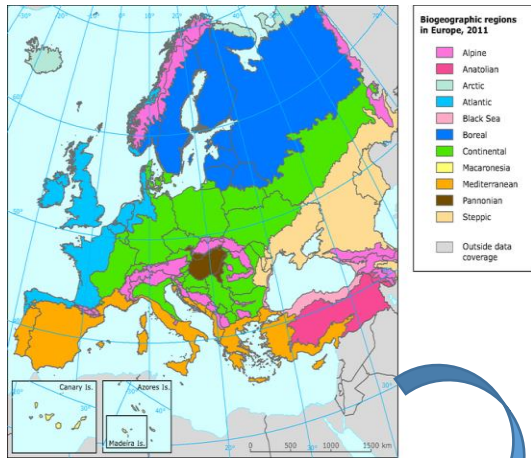
Tier II ecosystem extent account (as sub-division of tier I)

Tier III ecosystem extent account  
(sub-division of tier II, providing highest level of detail)

Full European coverage

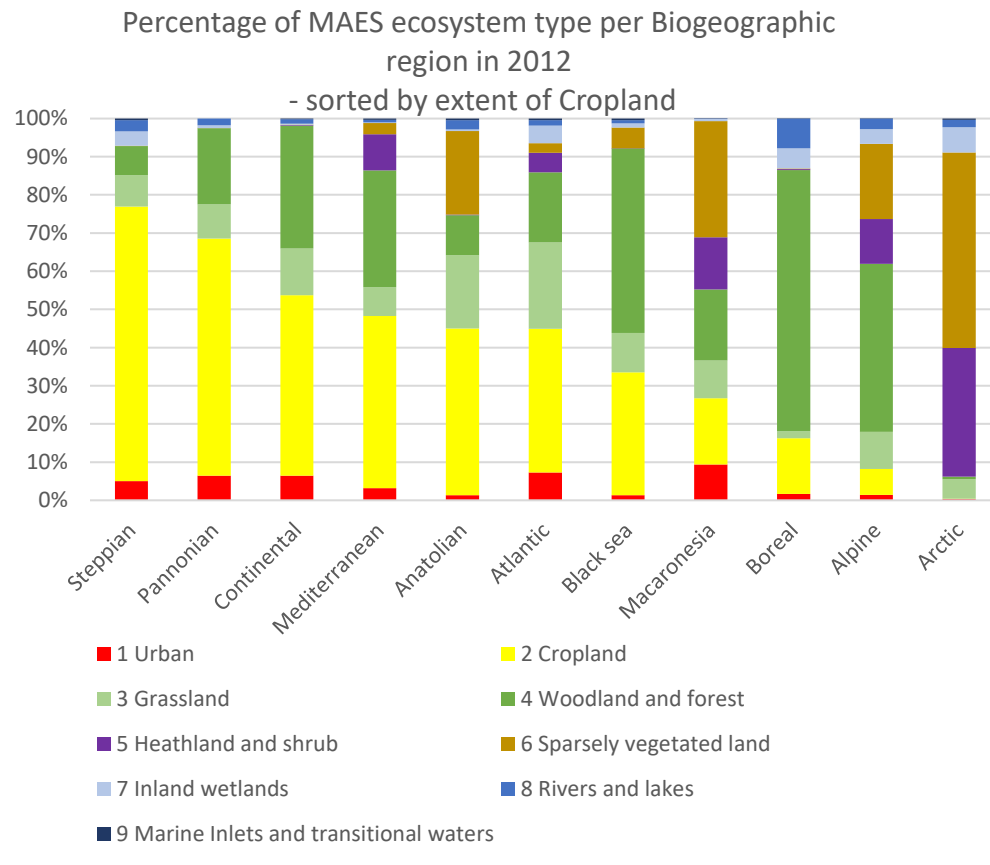


# Tier I – Ecosystem extent accounts by biogeographic region



**Spatial referencing underpins the link between maps, tables & analysis**

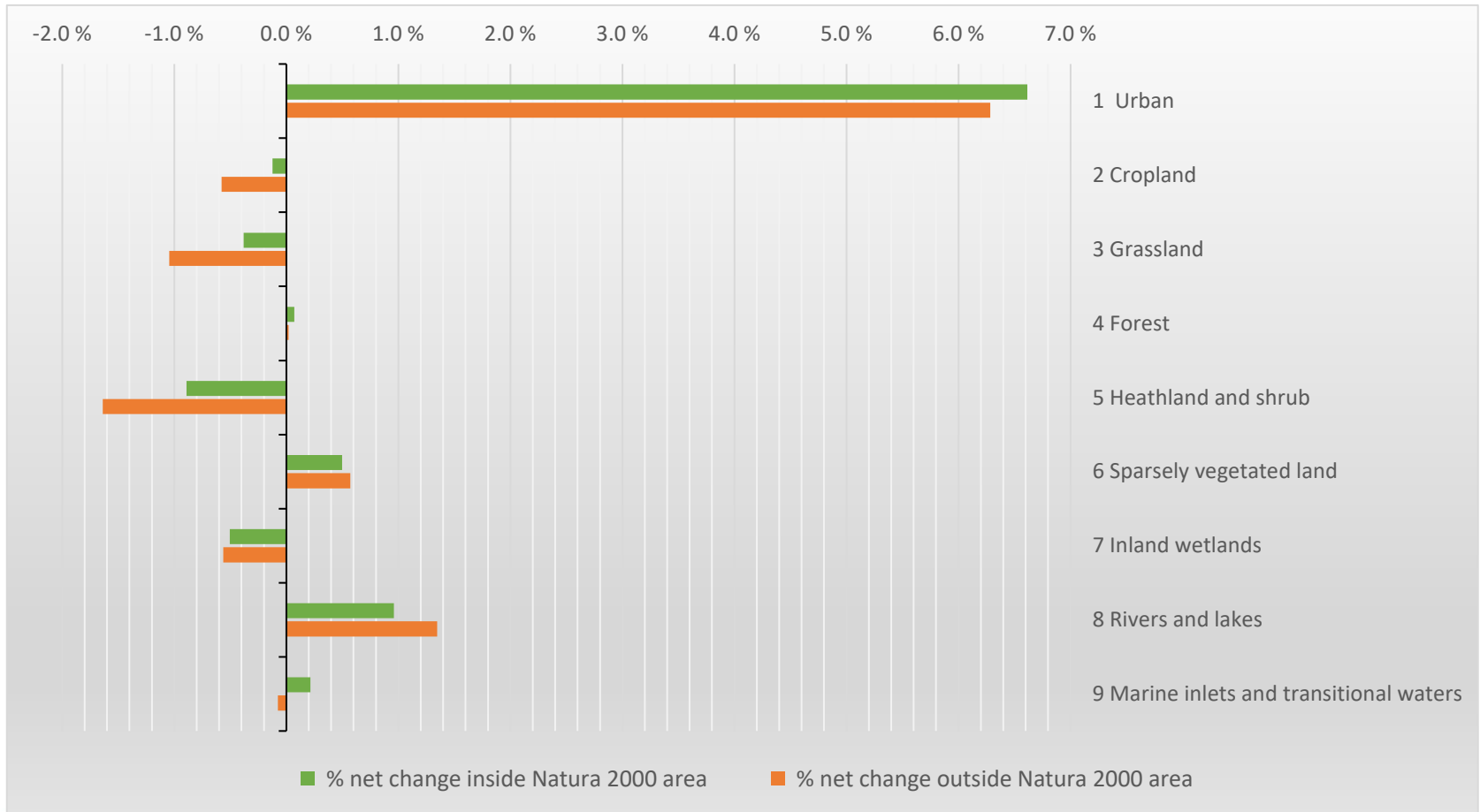
Area in KM2	MAES ecosystem types									Total
	1 Urban	2 Cropland	3 Grassland	4 Woodland and forest	5 Heathland and shrub	6 Sparsely vegetated land	7 Inland wetlands	8 Rivers and lakes	9 Marine Inlets and transitional waters	
<b>Alpine</b>										
Ecosystem extent 2006	9,364	43,982	63,075	286,073	75,773	128,210	24,596	18,235	72	649,380
Reductions to 2006 ecosystem extent	28	79	59	3,590	13	65	6	2	0	3,841
Additions to 2006 ecosystem extent	178	26	46	3,478	3	104	1	6	0	3,841
Stable ecosystem stock	9,336	43,902	63,016	282,483	75,760	128,146	24,591	18,233	72	645,539
Net additions to ecosystem extent	150	-53	-13	-112	-10	39	-5	4	0	0
Net additions as % of 2006	1.60	-0.12	-0.02	-0.04	-0.01	0.03	-0.02	0.02	0.00	0.00
Ecosystem extent 2012	9,514	43,928	63,062	285,961	75,763	128,249	24,591	18,239	72	649,380
<b>Anatolian</b>										
Ecosystem extent 2006	5,370	183,635	80,823	43,928	833	91,867	1,805	10,154	1,686	420,102
Reductions to 2006 ecosystem extent	150	525	399	171	4	200	31	43	1	1,525
Additions to 2006 ecosystem extent	594	296	93	211	0	12	19	294	6	1,525
Stable ecosystem stock	5,221	183,110	80,424	43,757	829	91,666	1,774	10,111	1,684	418,577
Net additions to ecosystem extent	444	-229	-306	41	-4	-188	-13	251	5	0
Net additions as % of 2006	8.27	-0.12	-0.38	0.09	-0.49	-0.20	-0.71	2.47	0.28	0.00
Ecosystem extent 2012	5,815	183,407	80,517	43,968	829	91,678	1,793	10,405	1,691	420,102







# Ecosystem trends inside and outside of Natura 2000 areas, 2000 - 2018





## Measuring ecosystem condition

- A more complex undertaking
- EEA producing some pilot condition accounts only
- Most work on ecosystem condition at EU-level is being carried out in MAES ecosystem assessment
- Some key challenges:
  - Spatial + regular data on condition parameters
  - Summarising ecosystem condition – use one index or rely on selection of individual condition parameters
  - Understanding link of ecosystem condition -> ES & analysing related trade-offs

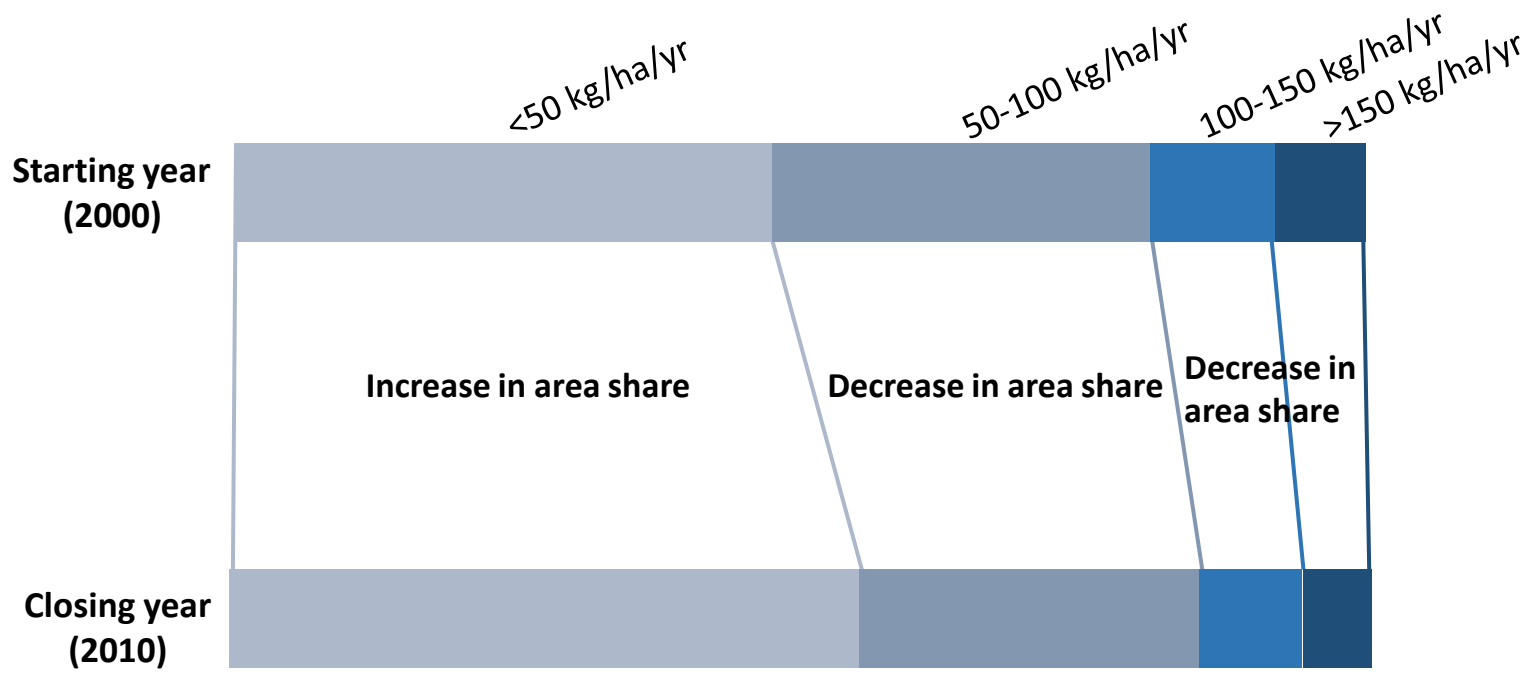


# Initial results from pilot spatial nutrient account

Accounting element	Nitrogen input level	% share of all Cropland	% share of all Grassland
<b>Starting year (2000)</b>	a) < 50 kg/ha/yr	59.3	47.3
	b) 50 - 100 kg/ha/yr	31.2	33.7
	c) 100 - 150 kg/ha/yr	6.6	10.8
	d) > 150 kg/ha/yr	2.9	8.2
	Grand Total	100.0	100.0
<b>Closing year (2010)</b>	a) < 50 kg/ha/yr	66.6	55.6
	b) 50 - 100 kg/ha/yr	22.5	29.8
	c) 100 - 150 kg/ha/yr	7.7	8.8
	d) > 150 kg/ha/yr	3.2	5.8
	Grand Total	100.0	100.0
<b>Average N-input per ha/yr</b>	Overall trend index (%)	-7.8	-14.9
<b>Share of area with low input level (&lt; 50 kg/ha/yr)</b>	Low input trend index (%) (over 10 years)	7.3 percentage points	8.3 percentage points

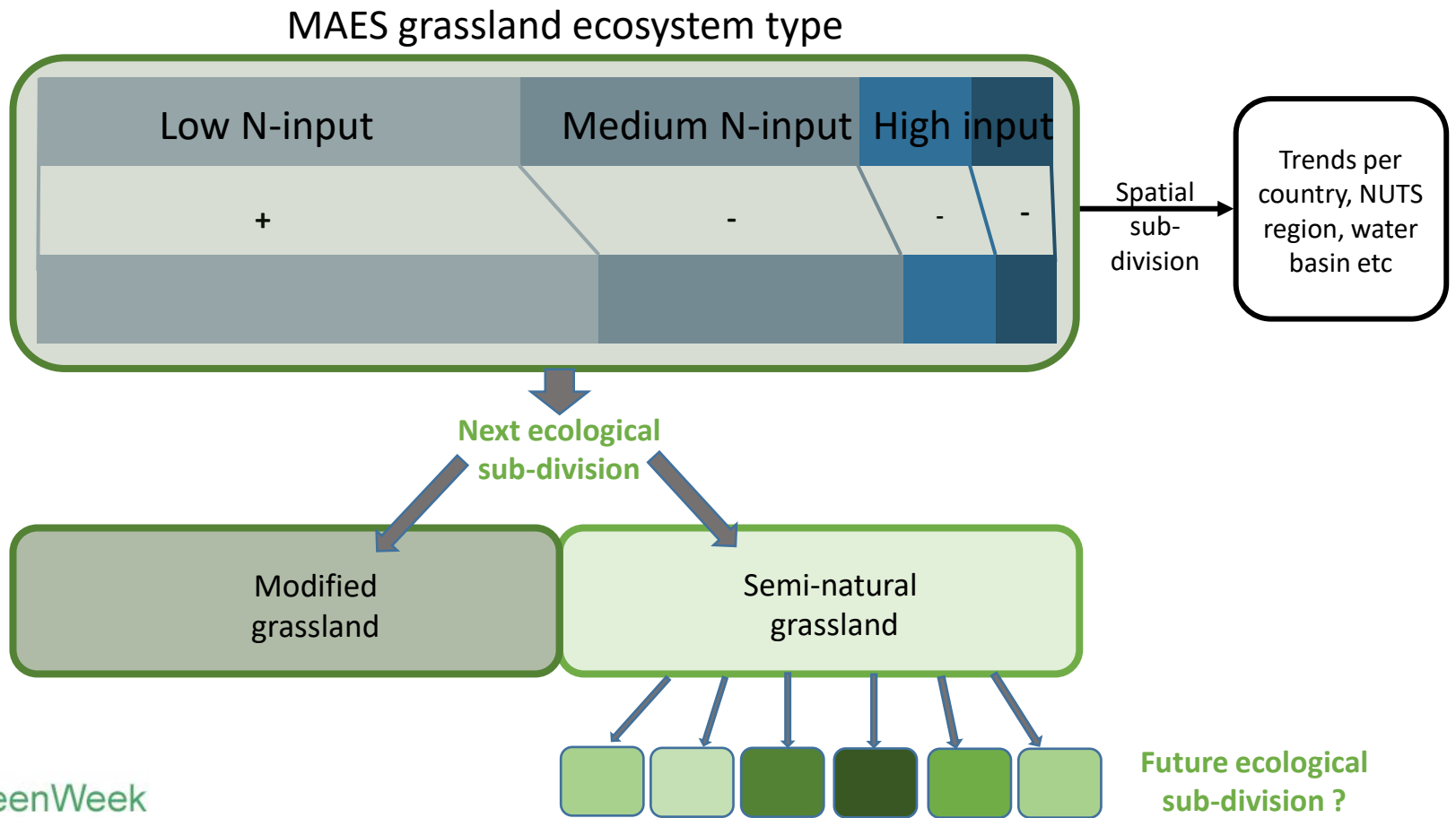


# Initial results from pilot spatial nutrient account – an interpretation



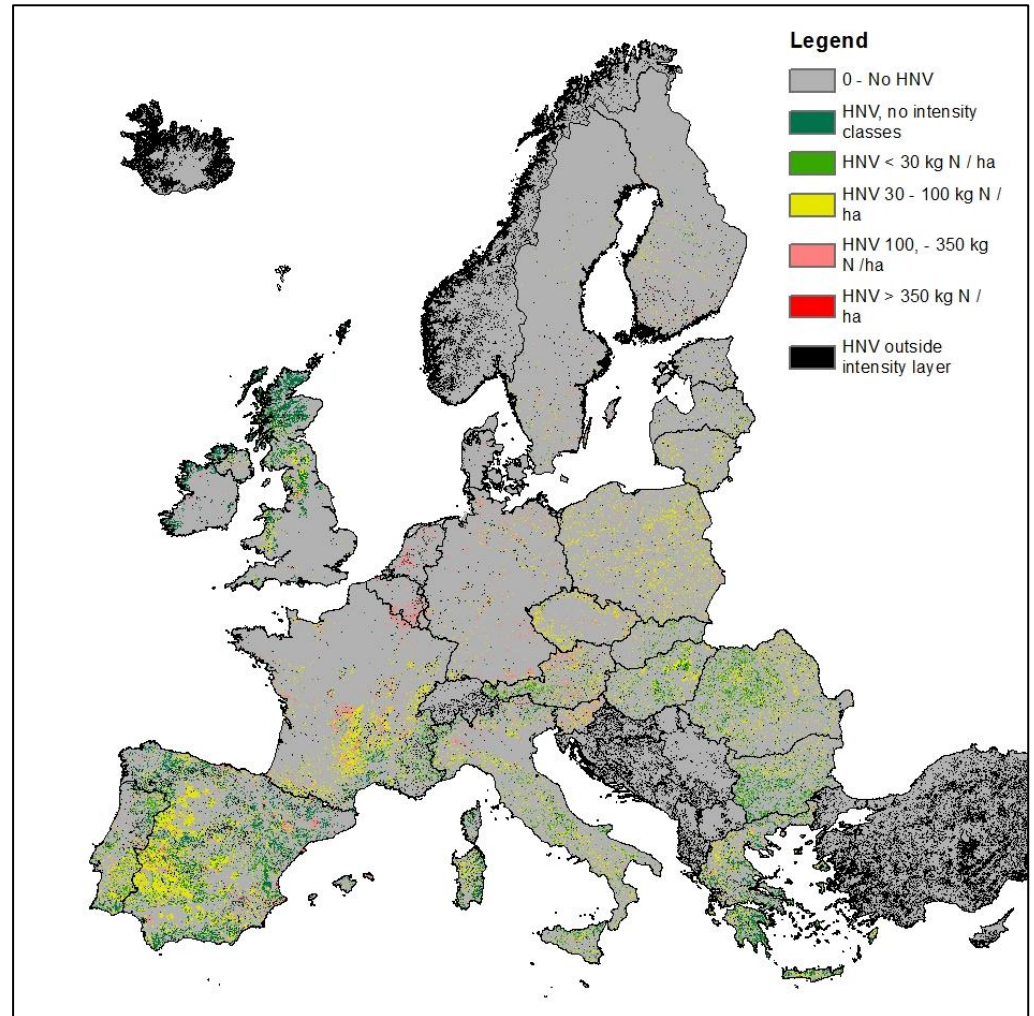
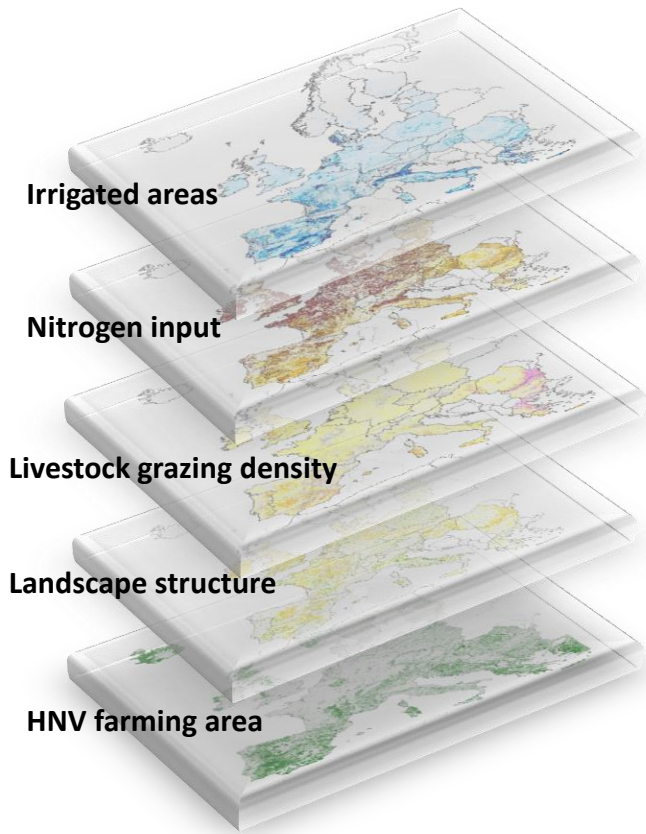


# Further development of EU level grassland nutrient account





# Geo-spatial data overlay: Refining mapping of high nature value farmland with N-input data from EU CAPRI model







Thank you very much for your attention.

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