European extent accounts
- structure and selected results

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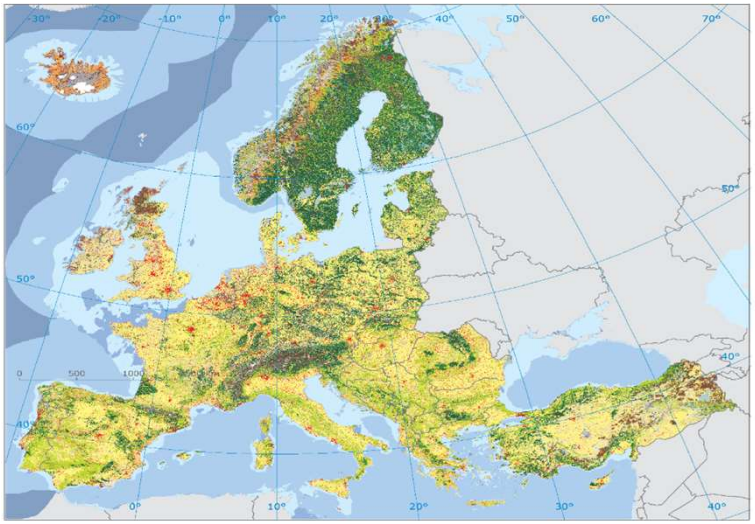
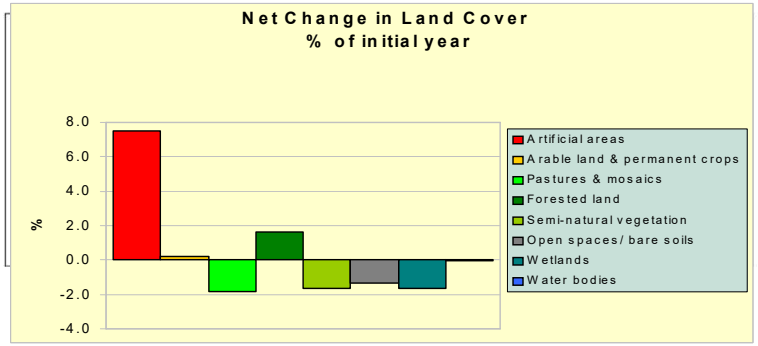
KIP INCA project on
Accounting for natural capital and ecosystem services

‘KIP INCA’ goals:

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





General approach of ecosystem extent accounts:

Forest extent in 2000 in km^2 (1 921 357)

Internal change

Formation of forest from conversion from other types of land cover

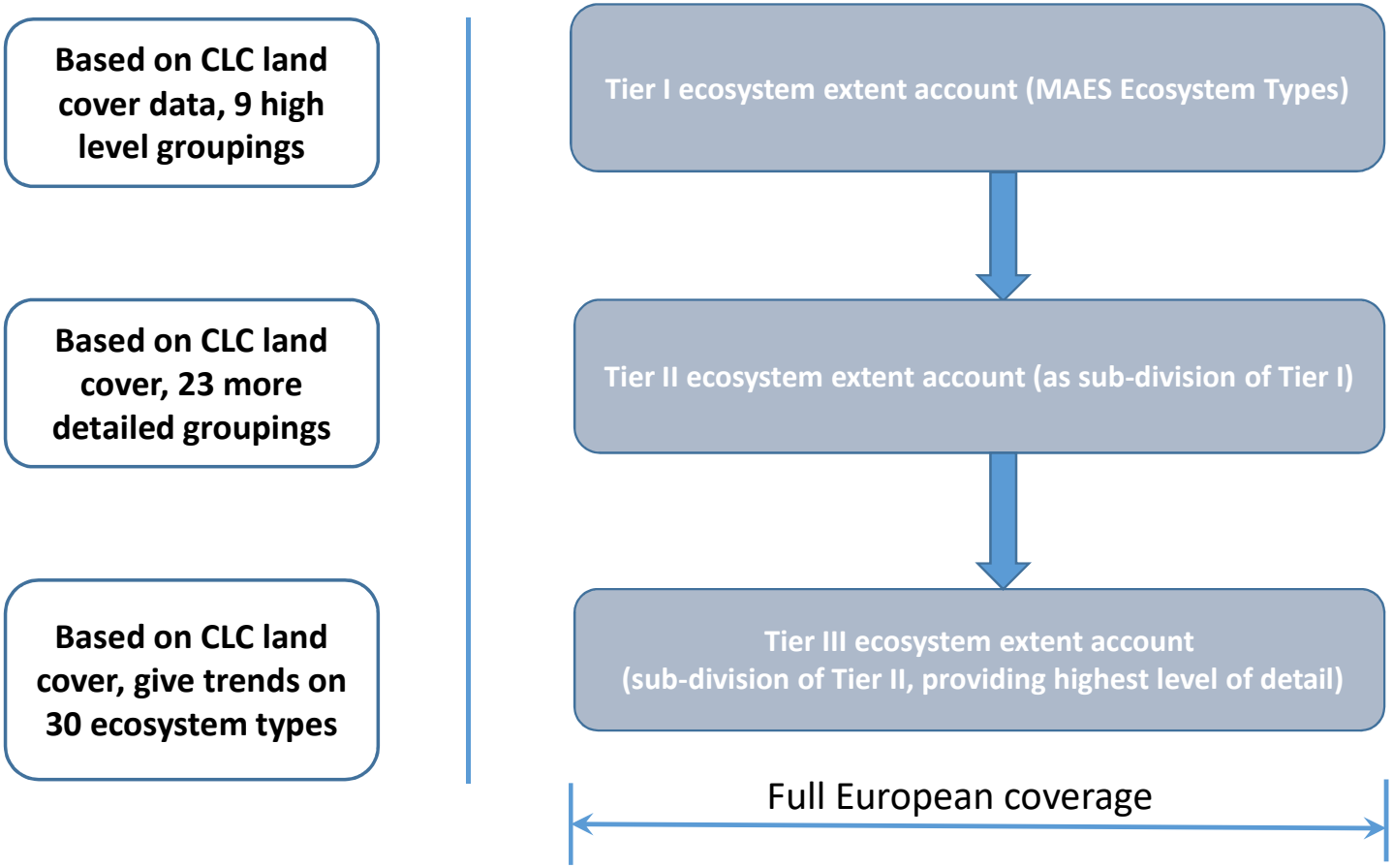
Consumption of forest extent from land use/cover change

Forest extent in 2012 in km^2 (1 923 811)

Key questions in developing EU extent accounts

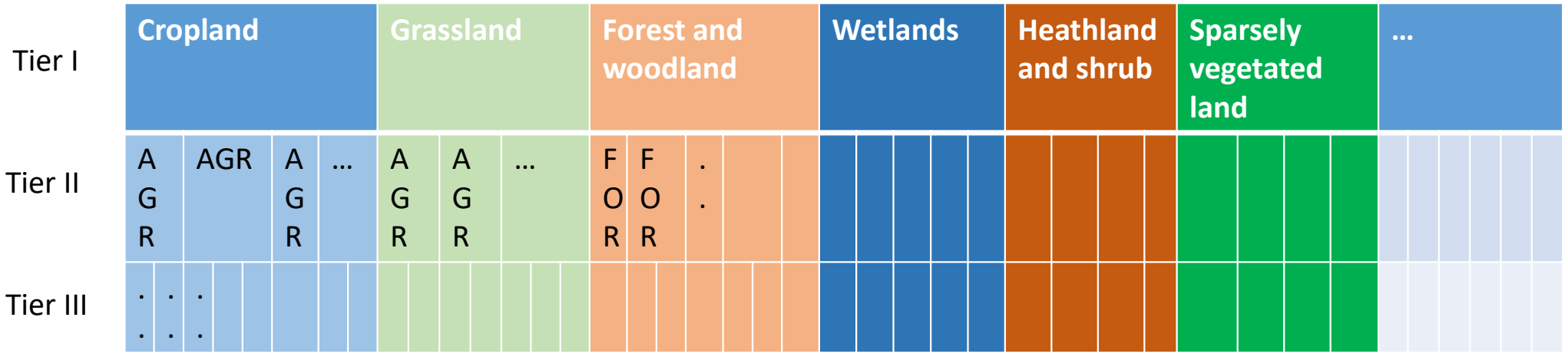
- How many ecosystem sub-divisions? 15 – 25 ? More?
- What is ecologically meaningful / needed ?
- What kind of regular input data do we have ?
- Design to be a fully nested approach, or different ?
- How will the data foundation develop over the coming years ?

EEA approach to Ecosystem Extent Accounts in 3 tiers

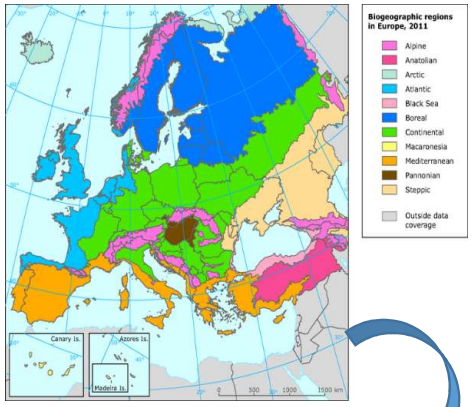


Connection between different layers of extent accounts

Tier I to III - full hierarchical nesting of tiers

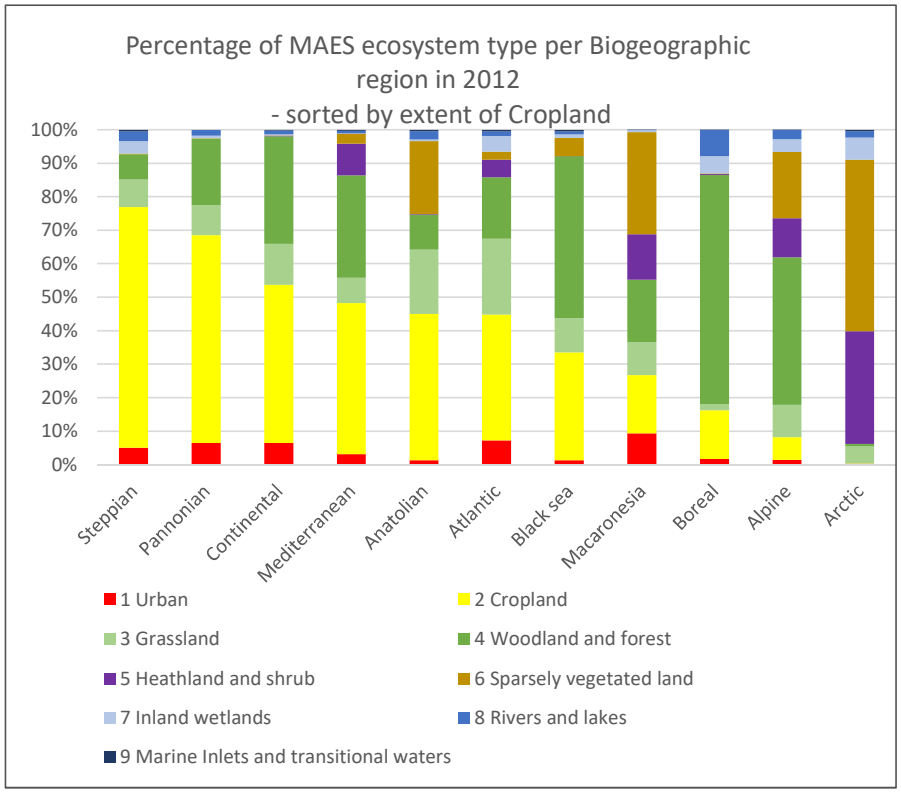


General purpose of ecosystem extent accounts



Spatial referencing underpins the link between maps, tables & analysis

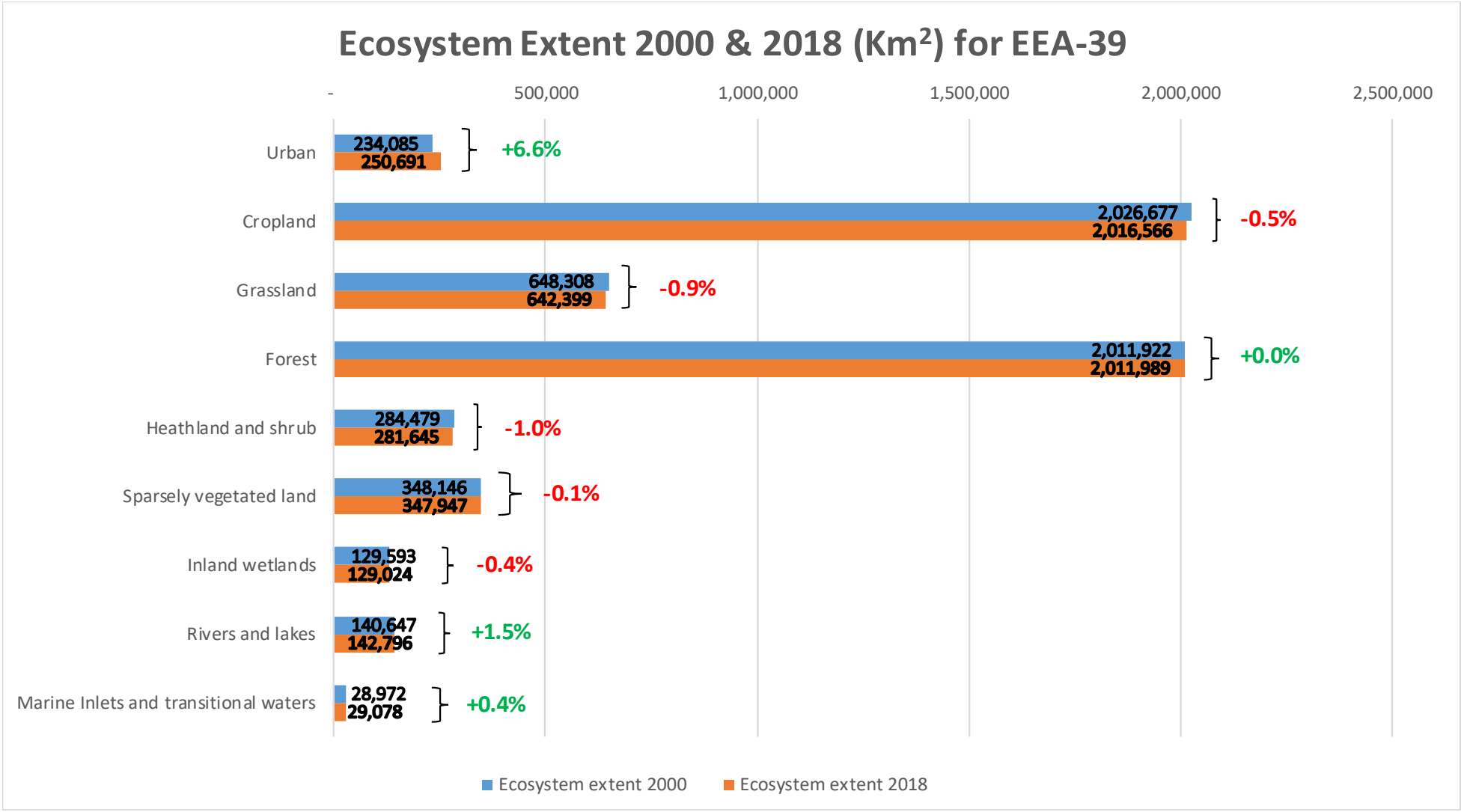
Area in KM2	MAES ecosystem types									
	1 Urban	2 Cropland	3 Grassland	4 Woodland and forest	5 Heathland and shrub	6 Sparsely vegetated land	7 Inland wetlands	8 Rivers and lakes	9 Marine Inlets and transitional waters	Total
Alpine										
Ecosystem extent 2006	9,364	43,982	63,075	286,073	75,773	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
Anatolien										
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



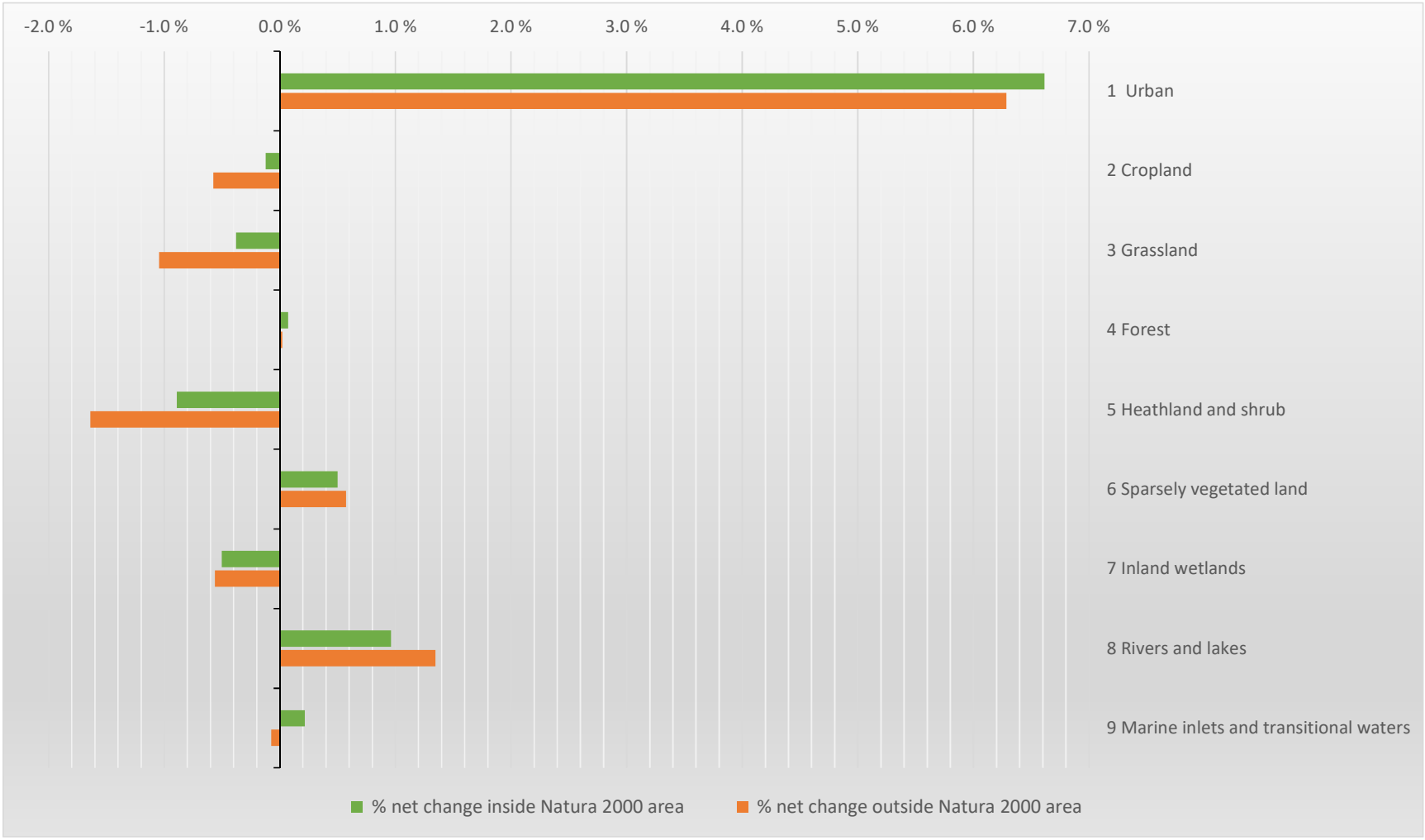
Tier I Ecosystem Extent Account
EU-27 countries + UK, 2012 – 2018

Area in km²	MAES ECOSYSTEM TYPES										
	1 Urban	2 Cropland	3 Grassland	4 Forest	5 Heathland and shrub	6 Sparsely vegetated land	7 Inland wetlands	8 Rivers and lakes	9 Marine Inlets and transitional waters	Balancing item: non-allocated area	Total
Ecosystem extent 2012	**219,621**	**1,596,402**	**502,523**	**1,598,984**	**182,796**	**65,271**	**98,130**	**109,045**	**25,185**	**1,276**	**4,399,232**
Reductions to initial ecosystem extent	1,787	6,473	3,796	48,724	1,311	179	301	51	19		63,289
Additions to initial ecosystem extent	4,437	6,194	1,909	47,488	397	416	197	308	29		63,289
Net changes to ecosystem extent (additions - reductions)	+ 2,651	- 279	- 1,887	- 1,236	- 914	+ 236	- 104	+ 257	+ 10		
Net change as % of initial extent	**+ 1.2**	**- 0.0**	**- 0.4**	**- 0.1**	**- 0.5**	**+ 0.4**	**- 0.1**	**+ 0.2**	**+ 0.0**		
Total turnover of ecosystem extent (reductions + additions)	6,224	12,666	5,705	96,212	1,708	595	497	360	49		126,577
Total turnover as % of initial extent	2.8	0.8	1.1	6.0	0.9	0.9	0.5	0.3	0.2		2.9
Stable ecosystem stock	217,834	1,589,929	498,728	1,550,260	181,485	65,092	97,829	108,994	25,165	627	4,335,943
%of ecosystem stock	99.2	99.6	99.2	97.0	99.3	99.7	99.7	100.0	99.9		98.6
Ecosystem extent 2018	**222,272**	**1,596,122**	**500,637**	**1,597,748**	**181,882**	**65,508**	**98,026**	**109,303**	**25,195**	**2,540**	**4,399,232**

Tier I Ecosystem Extent and Relative Change 2000 to 2018, EEA-39



Trends in ecosystem extent inside and outside of Natura 2000 sites, EU-27 + UK, 2000 - 2018



Trends in ecosystem extent inside and outside of Natura 2000 sites – main results

- **Comparison of the ecosystem extent in areas of high percentage cover by Natura 2000 sites with areas with no Natura 2000 coverage revealed:**
  - **The extent of Forest ecosystems is substantially higher inside the Natura 2000 network compared to outside;**
  - **Ecosystem turnover is lower for Forest and woodland, grassland, heathland and shrub and sparsely vegetated land and sparsely vegetated land ecosystems inside the Natura 2000 network.**
  - **The proportion of Heathland and shrub, sparsely vegetated land, inland wetlands, Rivers and Lakes and Marine inlets and transitional waters is approximately a factor of 3 higher for Natura 2000 areas compared to the rest of the EU-27 + UK;**
  - **The proportion of cropland and urban ecosystems is higher outside the Natura 2000 network;**
  - **The rate of decrease in cropland, grassland, heathland and shrub, and inland wetlands extent is lower in Natura 2000 areas than outside them; and,**
  - **Net relative changes in ecosystem extent are lower in all ecosystems except urban in the Natura 2000 network. Indicating these ecosystems are more stable.**

Tier II Ecosystem extent trends for (semi-)natural ecosystem types EEA-39, 2000 to 2018 in km²

Tier 1	Tier II	Area 2000	Area 2006	Area 2012	Area 2018	Net Change (2000 - 2018)	Net Change 2000-2018
Grassland	GRA 3.1: Grassland	648,308	646,427	644,944	642,399	-5,909.0	-0.9%
Forest	FOR 4.1 Broad-leaved forest	587,578	584,616	584,662	581,135	-6,443.0	-1.1%
	FOR 4.2 Coniferous forest	831,033	812,236	810,585	794,533	-36,500.0	-4.6%
	FOR 4.3 Mixed forest	298,325	297,753	301,992	305,906	7,581.0	2.5%
	FOR 4.4 Transitional forest and woodland-shrub	294,986	318,359	316,341	330,415	35,429.0	10.7%
	Total Forest	***2,011,922***	***2,012,964***	***2,013,580***	***2,011,989***	***67.0***	***0.0%***
Heathland and shrub	SMN 5.1 Sclerophyllous vegetation	110,009	109,197	108,710	107,862	-2,147.0	-2.0%
	SMN 5.2 Moors and heathland	174,470	174,296	174,113	173,783	-687.0	-0.4%
	Total Heathland and Shrub	***284,479***	***283,493***	***282,823***	***281,645***	***-2,834.0***	***-1.0%***
Sparsely vegetated land	OSP 6.1 Sparsely vegetated habitats	331,769	331,803	332,201	332,424	655.0	0.2%
	OSP 6.2 Glaciers and perpetual snow	16,376	16,114	15,796	15,523	-853.0	-5.5%
	Total Sparsely vegetated land	***348,145***	***347,917***	***347,997***	***347,947***	***-198.0***	***-0.1%***
Inland wetlands	IWL 7.1 Inland marshes	13,687	13,672	13,741	13,664	-23.0	-0.2%
	IWL 7.2 Peat bogs	115,906	115,425	115,419	115,360	-546.0	-0.5%
	Total Inland wetlands	***129,593***	***129,097***	***129,160***	***129,024***	***-569.0***	***-0.4%***
Rivers and lakes	WBO 8.1 Water courses	13,429	13,423	13,354	13,336	-93.0	-0.7%
	WBO 8.2 Water bodies	127,217	127,892	128,921	129,459	2,242.0	1.7%
	Total Rivers and lakes	***140,646***	***141,315***	***142,275***	***142,795***	***2,149.0***	***1.5%***
Marine Inlets and transitional waters	CWL 9.1 Salt marshes	5,822	5,846	5,854	5,857	35.0	0.6%
	CWL 9.2 Salines and intertidal areas	12,862	12,904	12,899	12,929	67.0	0.5%
	CWL 9.3 Coastal waters	10,288	10,299	10,293	10,291	3.0	0.0%
	Total Marine Inlets and transitional waters	***28,972***	***29,049***	***29,046***	***29,077***	***105.0***	***0.4%***
Total area in EEA 39		**3,592,065**	**3,590,262**	**3,589,825**	**3,584,876**	***-7,189.0***	***-0.2%***
Source: EEA - CLC2018v20 accounting layers							

Thank you for your attention.