Land Monitoring

EEA indicators based on Copernicus land monitoring service

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Copernicus for SDGs, International Agreements and Conventions
Brussels, 24 January 2019

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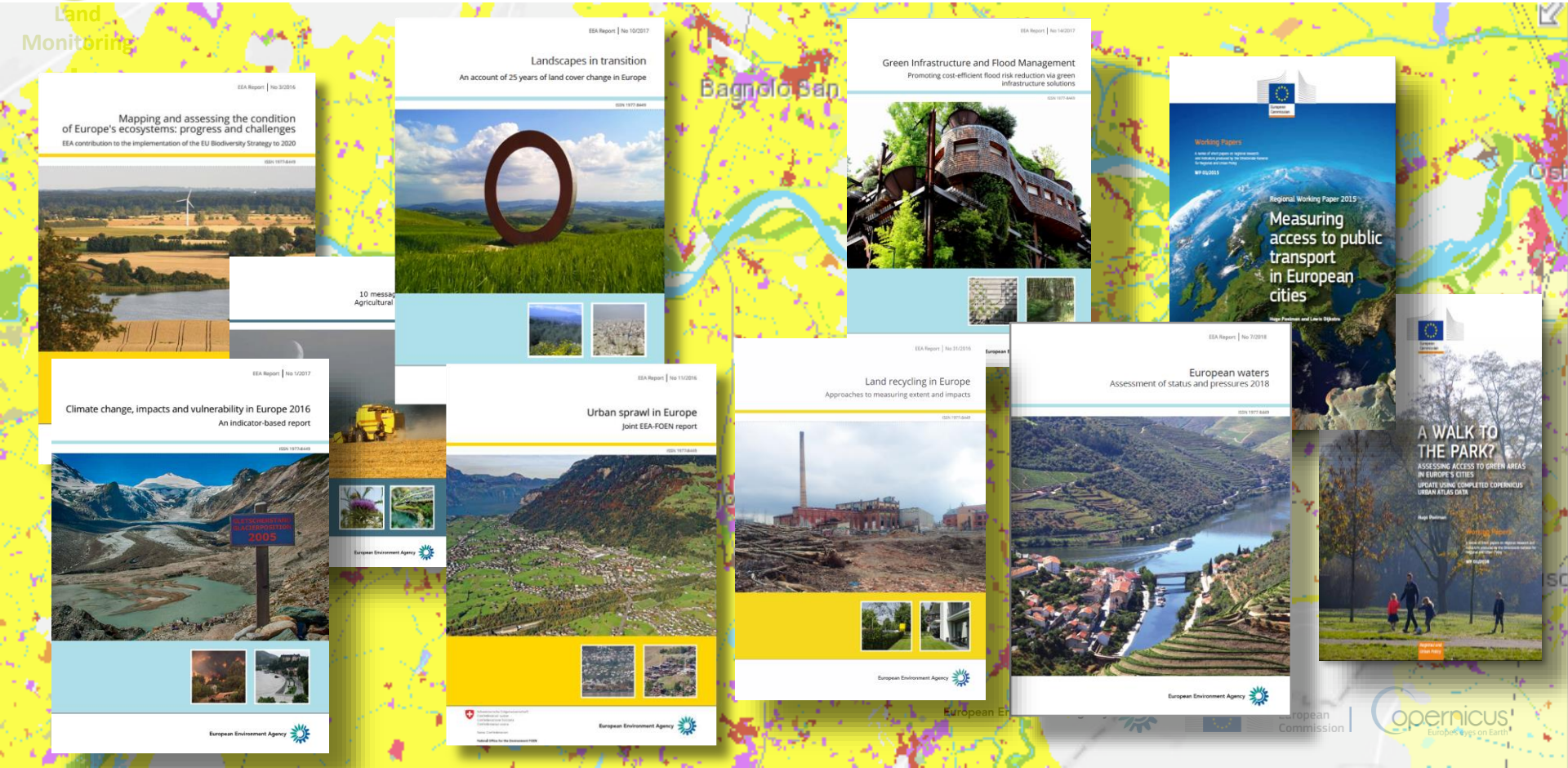
Increased use of Copernicus CLMS products to support sustainable development



Example EU: Land take change 2000-2018

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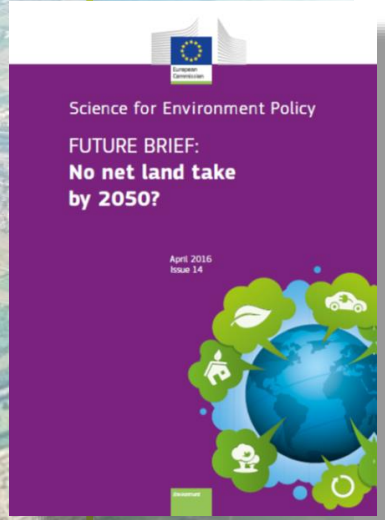

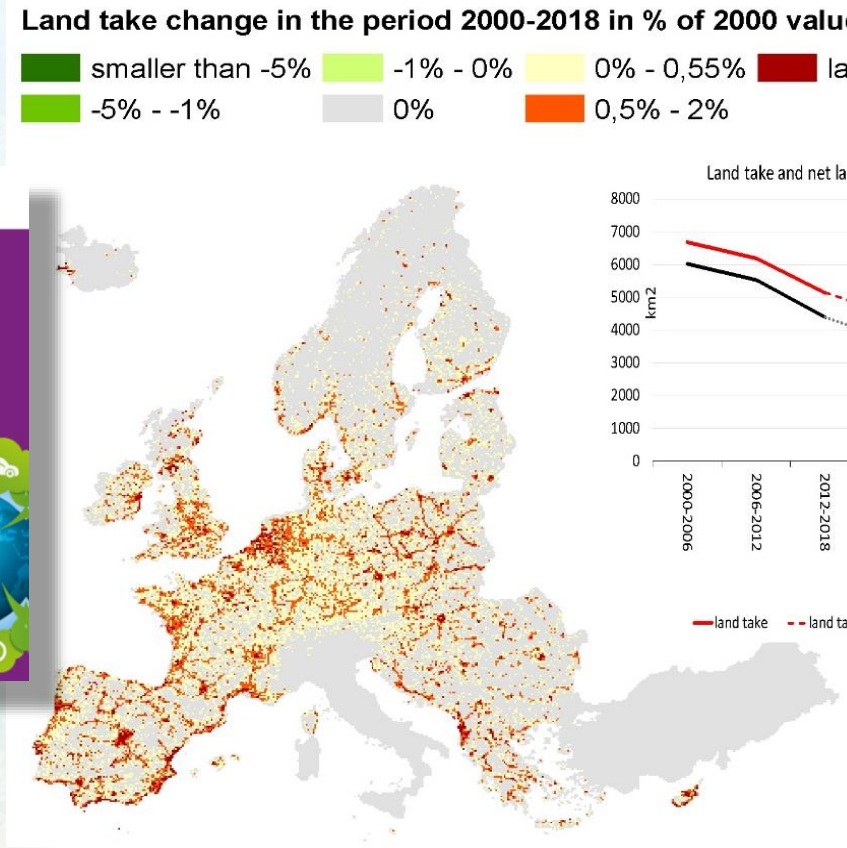

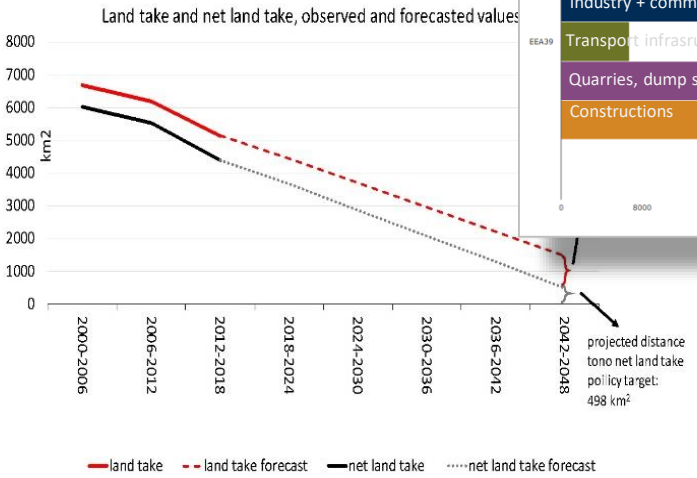

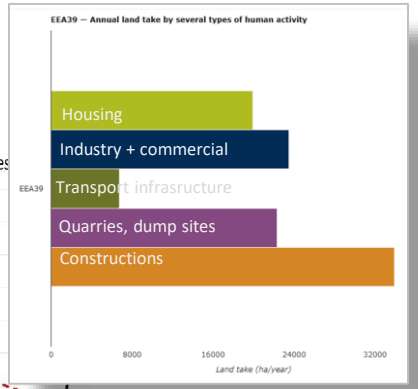

Source: EEA 2019 – *draft*

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Imperviousness change rate (SDG 15_41)

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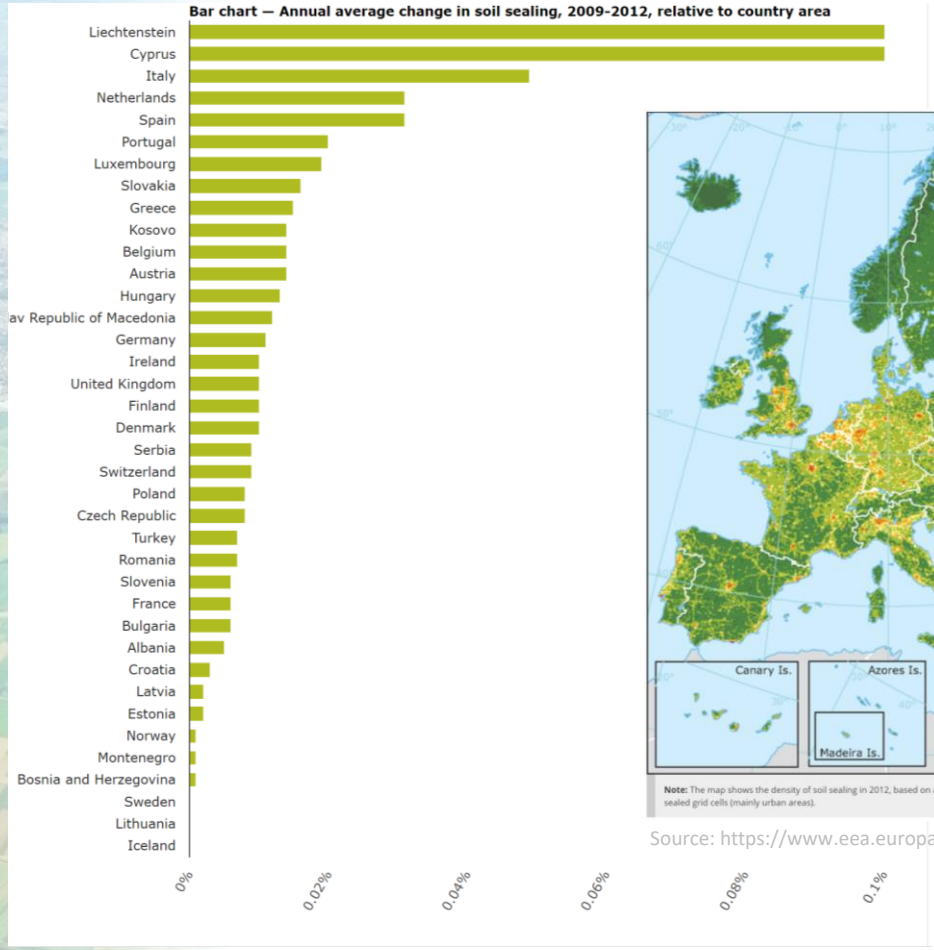

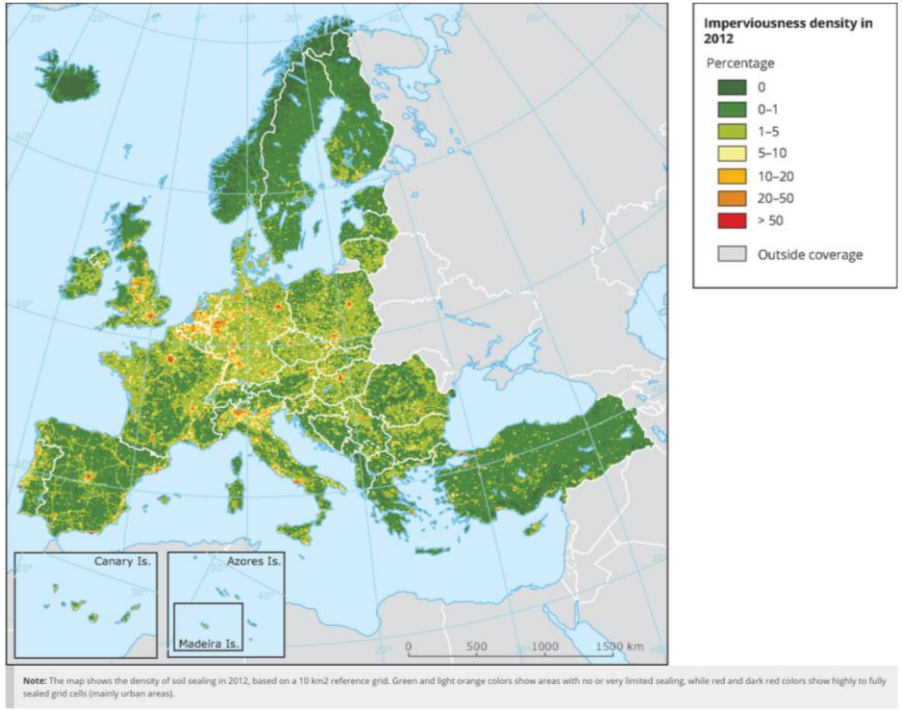

Source: https://www.eea.europa.eu/data-and-maps/indicators/imperviousness-change-1/assessment

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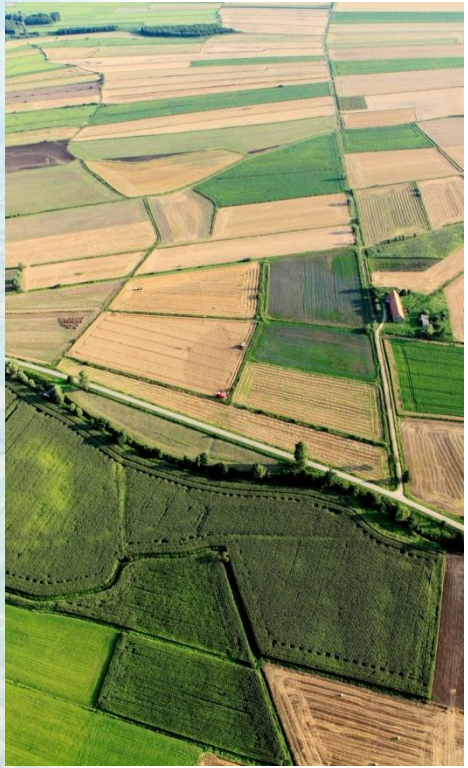
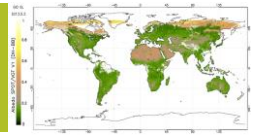
Copernicus Land Monitoring Service portfolio (CLMS)

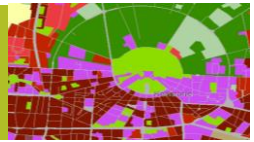


Systematic Biophysical Monitoring



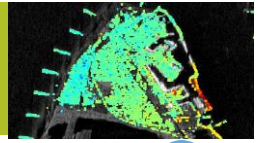
Land Cover & Land Use mapping

Thematic hotspot mapping



Reference data

Ground Motion Service



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CORINE Land Cover time series: 1990 – 2000 – 2006 – 2012 – 2018 -

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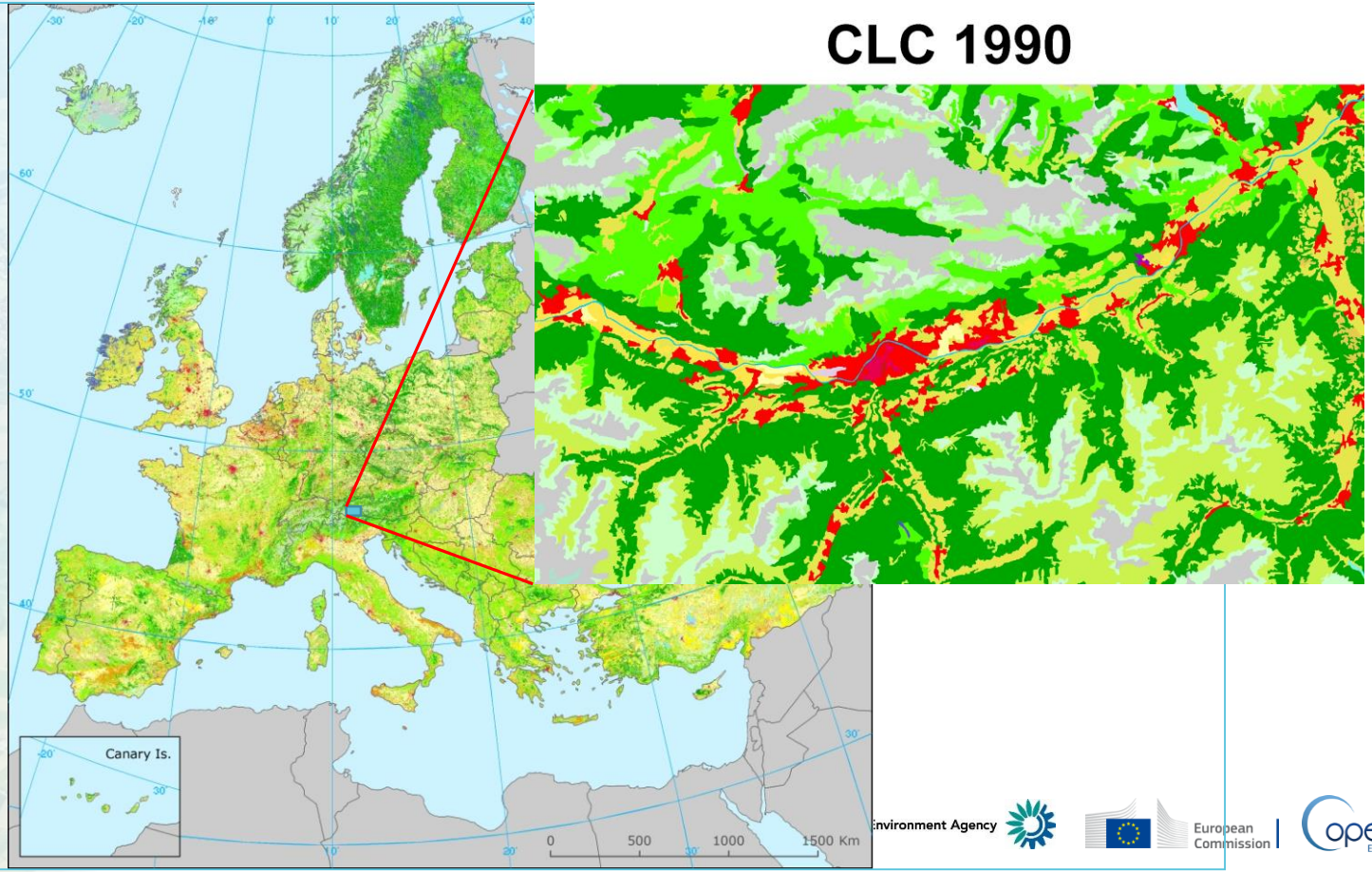

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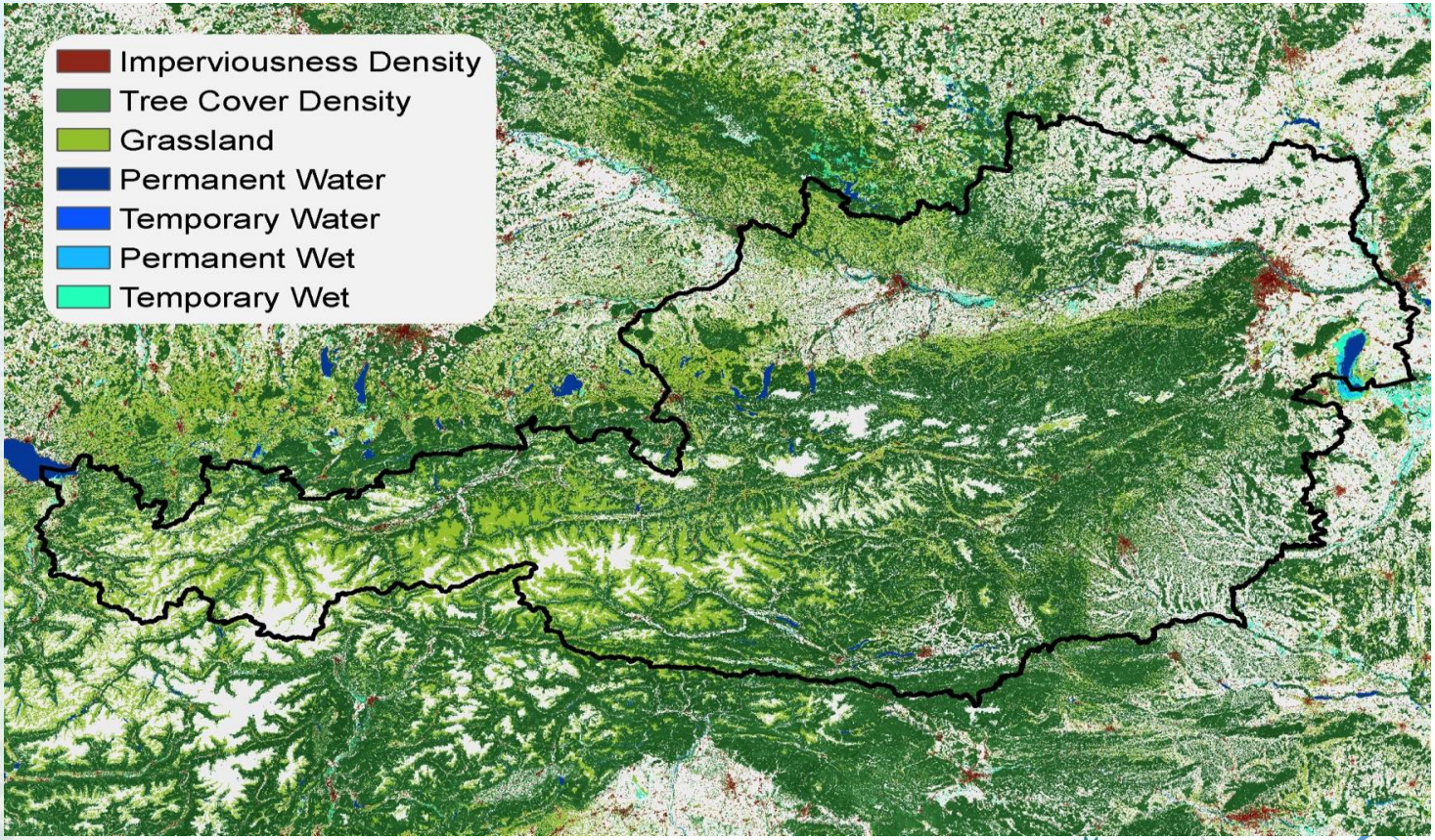
Land Cover High Resolution Layers 2006 - 2009 - 2012 - 2015 - 2018-



Source: Copernicus Land Monitoring Service (CLMS), High Resolution Layers

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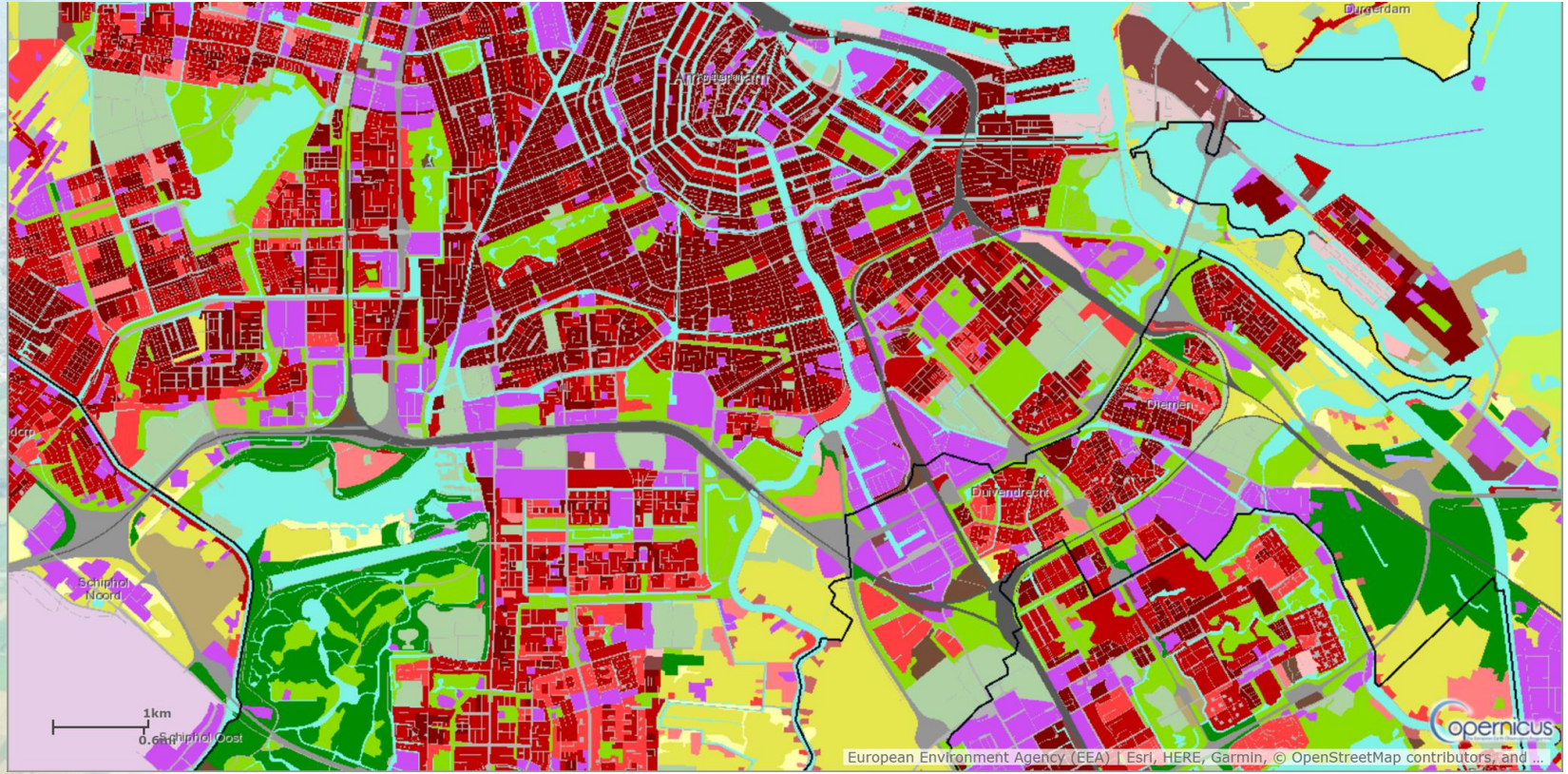
Urban Atlas land use/cover 2006 - 2012 -2018 -



Source: https://land.copernicus.eu/local/urban-atlas

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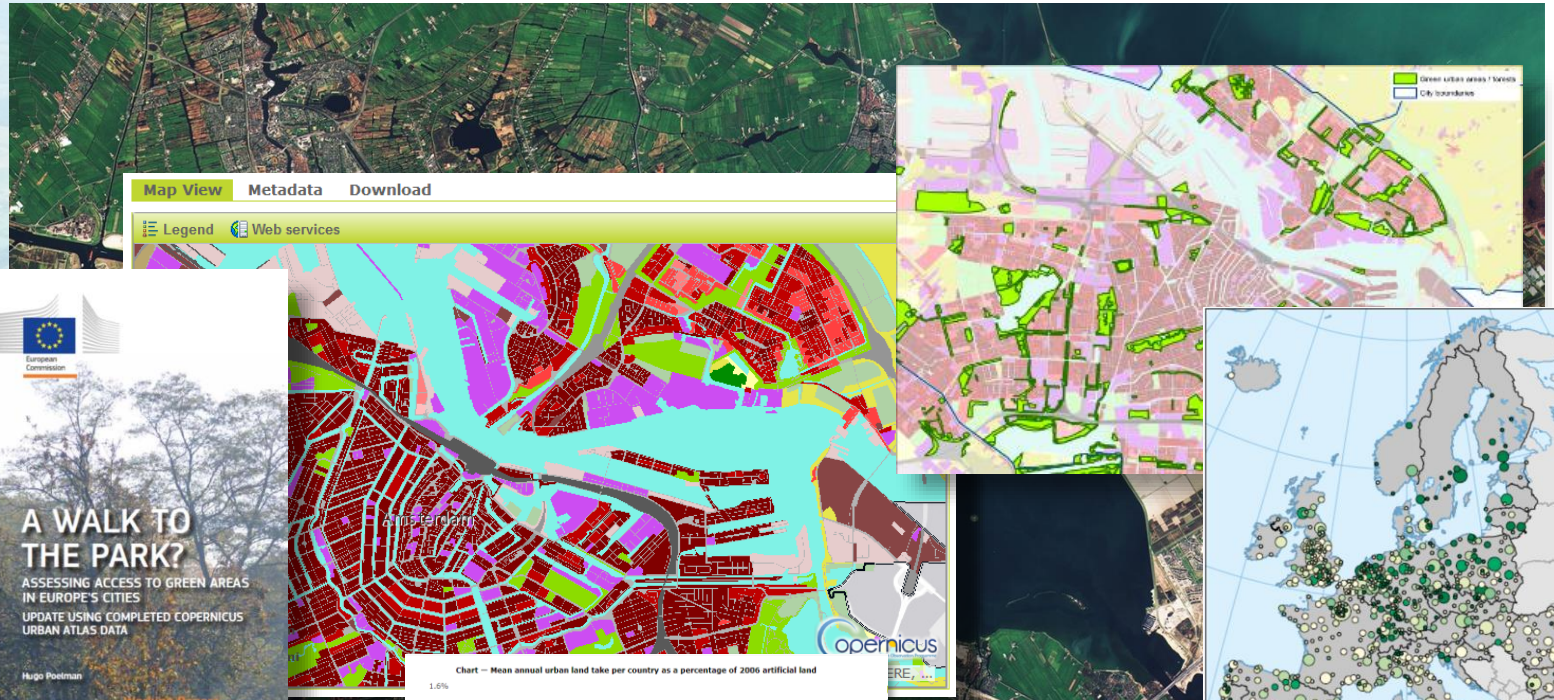
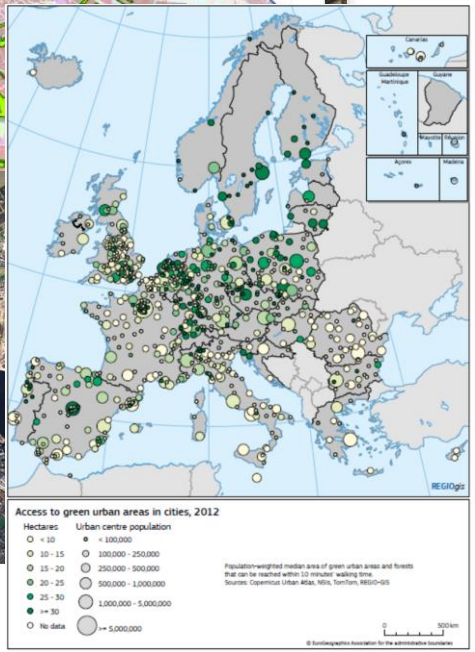
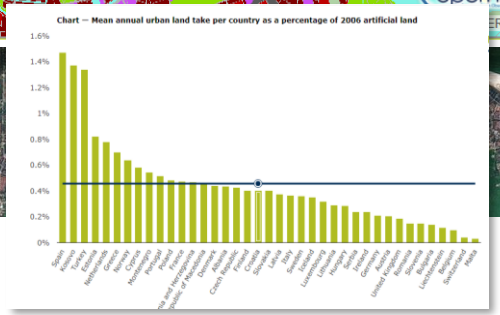
Urban sustainability







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Land recycling and densification

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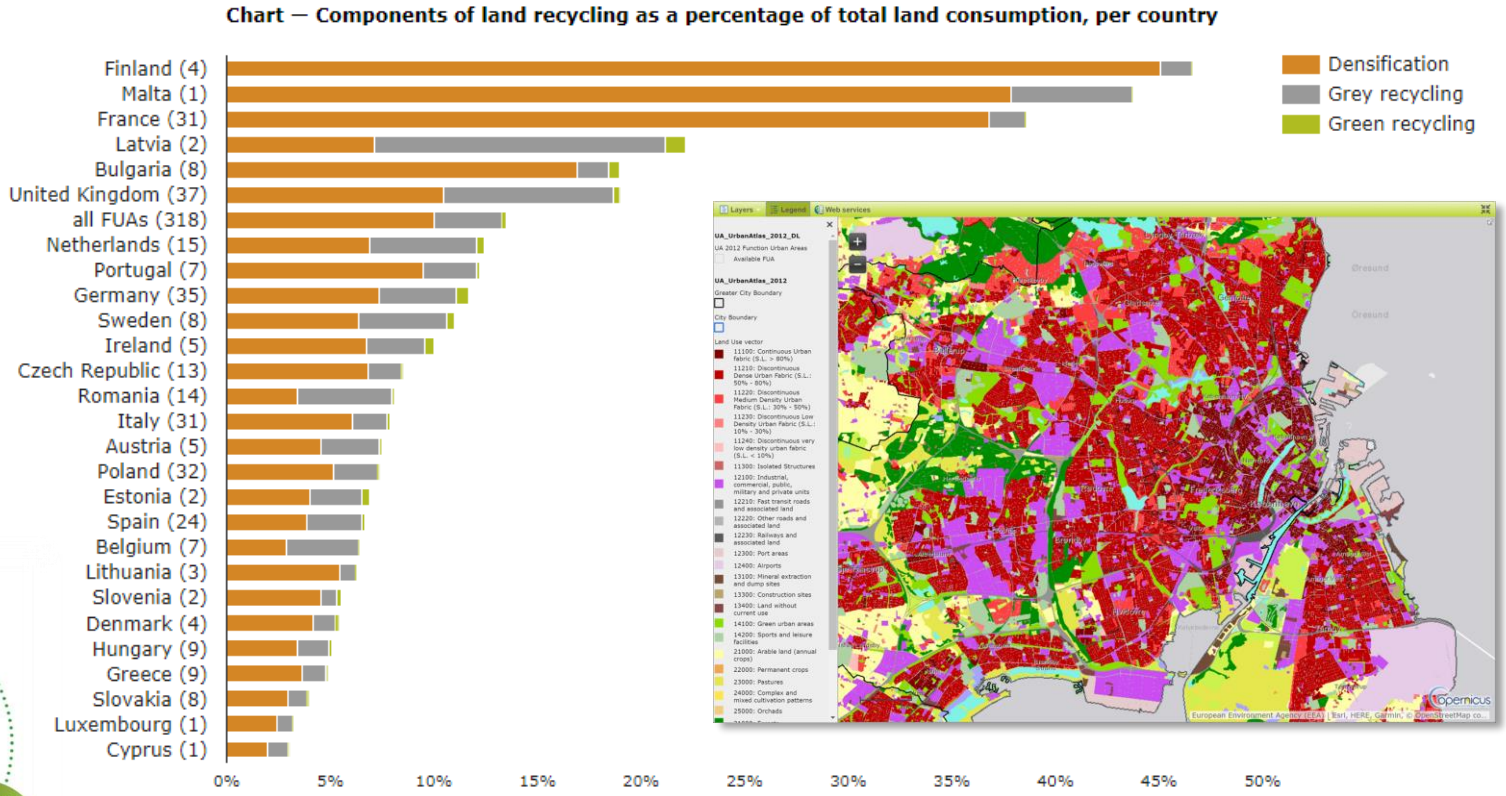

Source: https://www.eea.europa.eu/data-and-maps/indicators/land-recycling-and-densification/assessment-1

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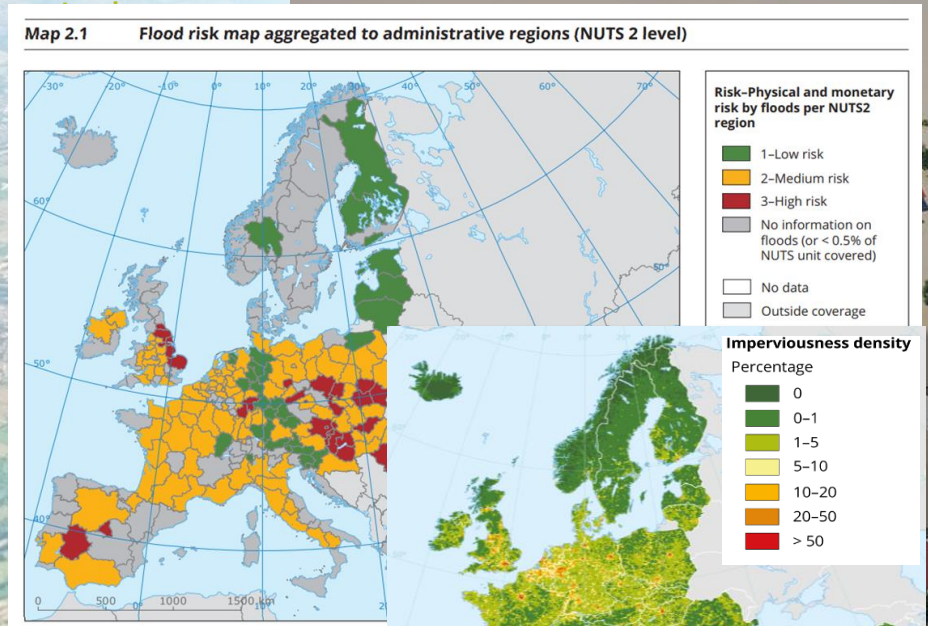
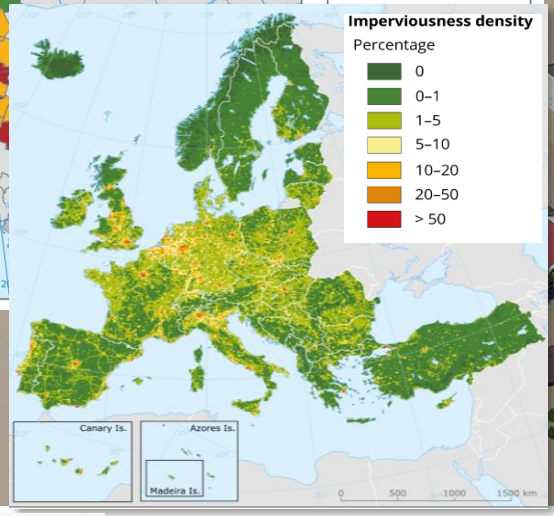
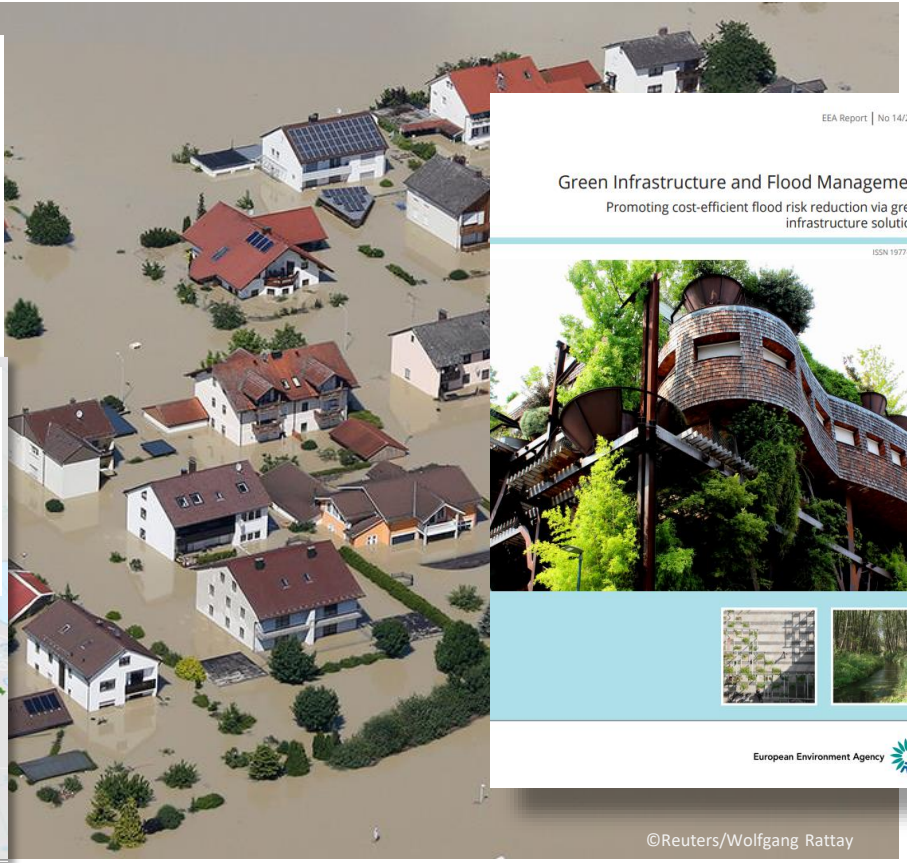
Climate change impact and adaptation







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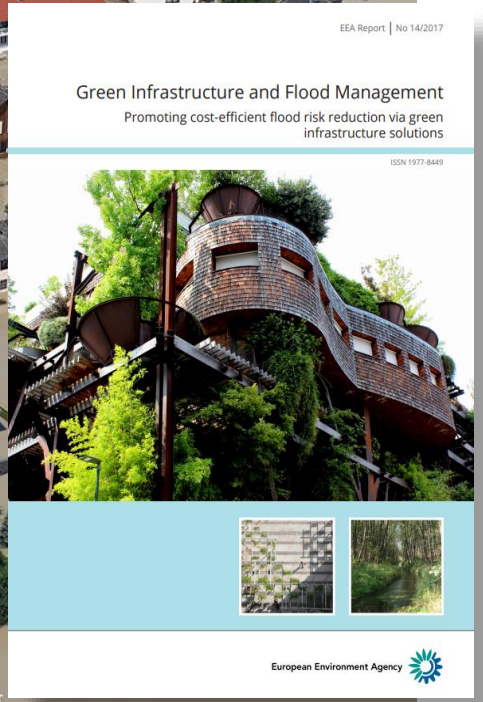

Source: EEA, Exploring nature-based solutions — The role of green infrastructure in mitigating the impacts of weather- and climate change-related natural hazards (EEA, 2015b)
https://climate-adapt.eea.europa.eu/knowledge/c-a-indicators

Climate ADAPT — SHARING ADAPTATION INFORMATION ACROSS EUROPE

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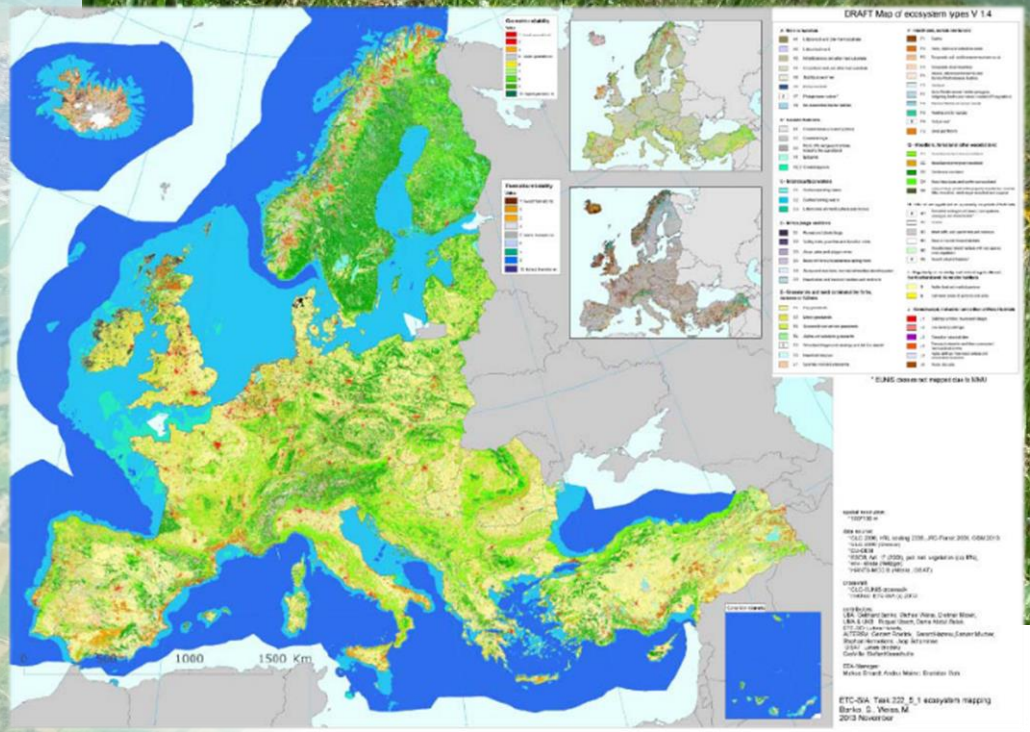
Natural capital accounting and ecosystem services



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Land fragmentation, forest connectivity, composition, etc

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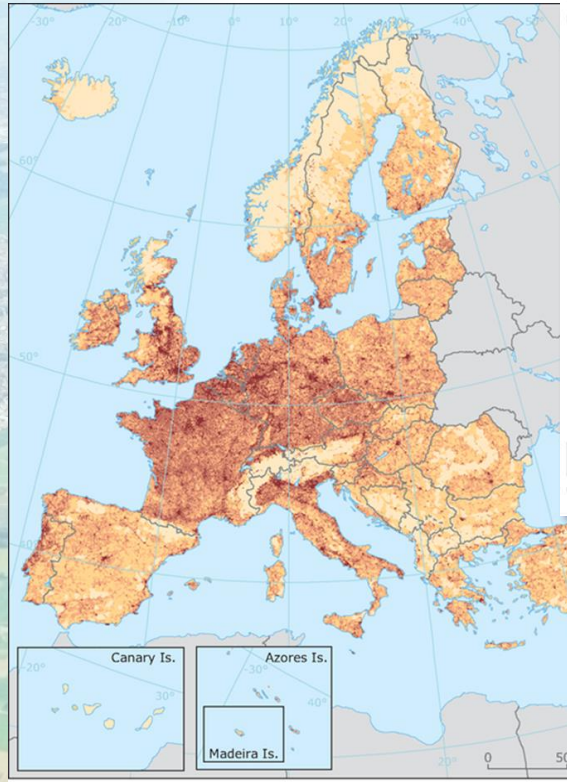
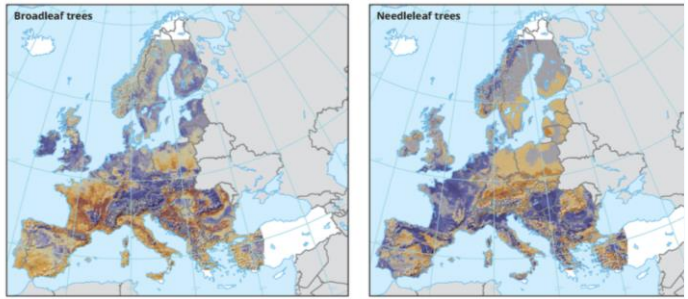


Fragmentation pressure (number of meshes per 1 000 km²) of urban and transport infrastructure expansion

Very low | Low | Medium | High | Very high | Outside

Fig. 1: Projected changes in climatic suitability for broadleaf and needleleaf trees



Projected changes in broadleaf (left) and needleleaf (right) tree composition from species habitat suitability changes

High: 13
Low: – 13
No data
Outside coverage
High: 4
Low: – 5

Data source:

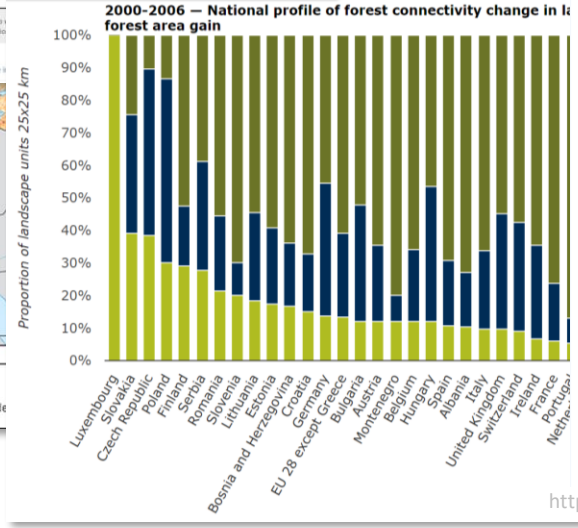


Fig. 2: Mean growing stock density by country in 2015

Data sources:

- Growing stock (volume per hectare) of forest, 2015 provided by **Forest Europe**

https://www.eea.europa.eu/data-and-maps/indicators

Sebi

Convention on Biological Diversity

CLMS service evolution – Agrophenology (under development)

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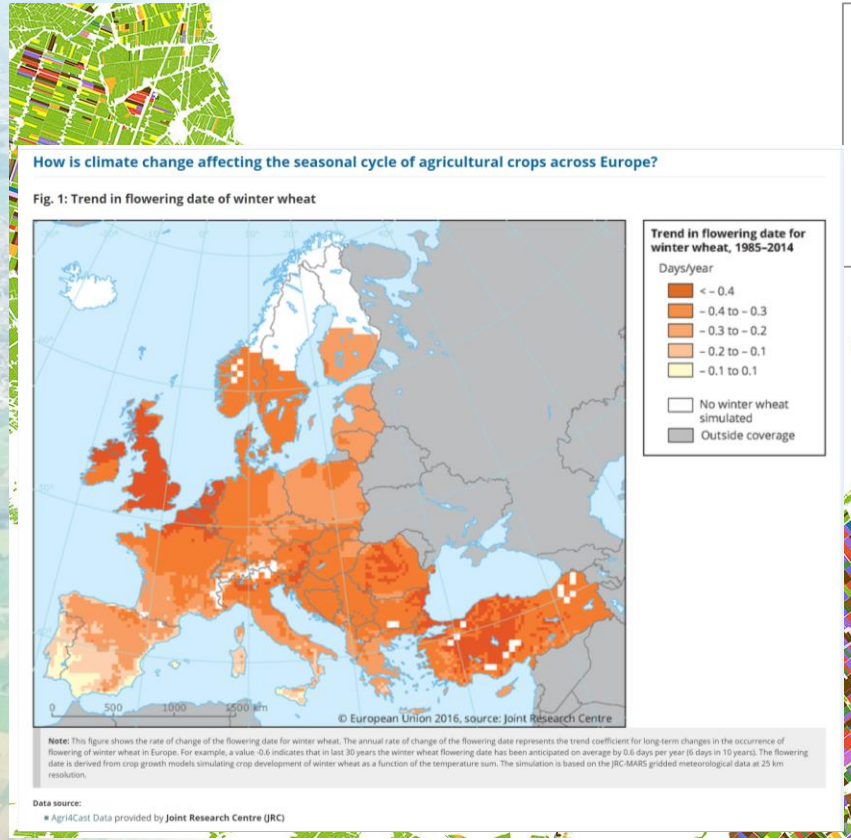

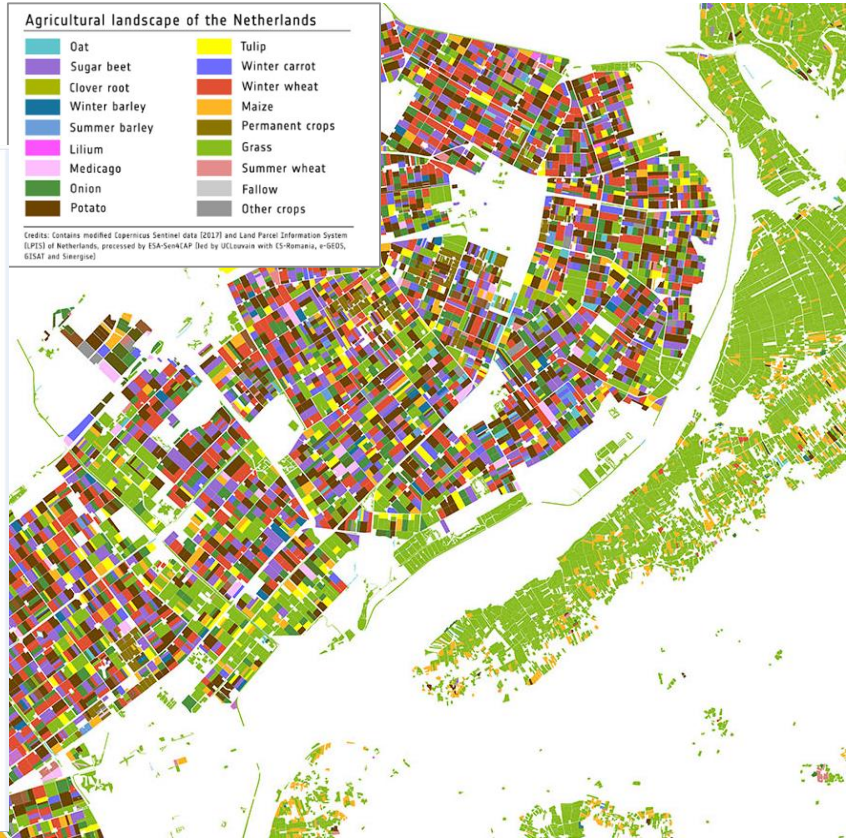

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Monitoring CO_2 from land use – LULUCF (under development)

		before					
	land categories	*forest land*	*cropland*	*grassland*	*wetlands*	*settlements*	*other land*
after	*forest land*	managed forest land	afforested land	afforested land	afforested land	afforested land	afforested land
	cropland	deforested land	managed cropland	managed cropland	managed cropland	managed cropland	managed cropland
	grassland	deforested land	managed grassland	managed grassland	managed grassland	managed grassland	managed grassland
	wetlands	deforested land	managed cropland	managed grassland	managed wetland	managed wetland	managed wetland
	settlements	deforested land	managed cropland	managed grassland	managed wetland		
	other land	deforested land	managed cropland	managed grassland	managed wetland		

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- Source: ETC/ACM Working Paper, 2018

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Conclusion - an innovative integrated approach on land

Land as space
- territorial cohesion
- spatial planning
- urban / rural diversity
- buildings and transport

Productive land use
- food, feed, fibre
- bio-energy crops
- mineral extraction

Land use decision (trade-off)

Multifunctional land use
- nature protection
- flood alleviation
- ecosystem services
- landscape values
- recreation

Climate change
- mitigation, carbon storage
- impacts and vulnerability
- adaptation
- LULUCF

Slawomir Ostrowski, Nature@work EEA

SUSTAINABLE DEVELOPMENT GOALS | PARIS 2015 | Convention on Biological Diversity | Ramsar | United Nations Convention to Combat Desertification | European Environment Agency | European Commission | Copernicus Europe's eyes on Earth

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