Integrated system of Natural Capital and ecosystem services Accounting (INCA) for the European Union

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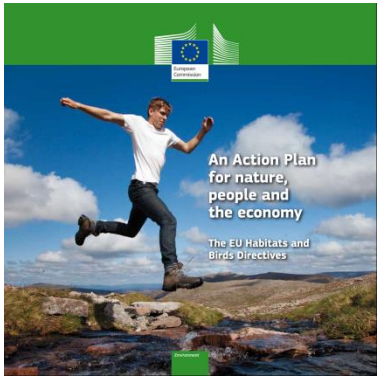
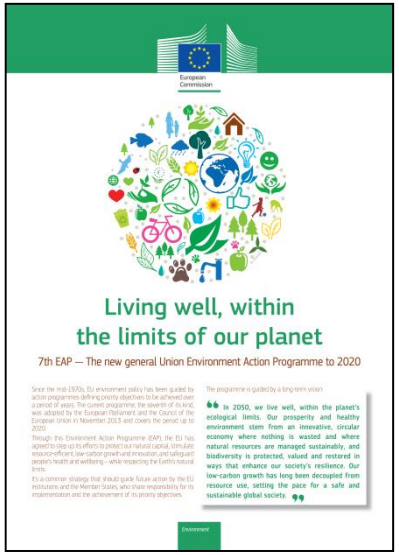
New York, 24-25 June 2019

Eurostat

EU policy context

- Sustainable Development Goals
- EU 7th Environmental Action Plan
- EU Biodiversity strategy to 2020
- EU Action Plan for nature, people and the economy
- **EU post-2020 framework**





INCA project – idea and objectives

Address EU policy needs linked to ecosystems and natural capital:

- (Usual statistics bottom-up approach to sum country data too slow and burdensome, so:) **Integrating existing EU wide data sources** using geospatial information, models, EU-wide statistical data sets and administrative reporting data **and establish first actual estimates to start virtuous cycles**.
- Thus harmonising ecosystem accounting activities across EU MS
- **Test and advance international environmental accounting** guidelines
- While aiming to establish institutional conditions for **regular production**
- And identifying gaps and needs for adjusting existing sources…….

INCA partners

Eurostat :
Expertise in geospatial-statistical data integration and **accounting** knowledge of SEEA. **Coordinator, funding**

EEA:
Principal information provider on the state of the EU environment, **focus on spatial data platform and extent accounts**

DG Environment:
Provides **policy context**, manages MAES and is the principal user of INCA outputs

DG Research and Innovation:
Coordination between INCA and EU research activities, **networking, funding**

EC Joint Research Centre:
Operation of information systems, expertise in the modelling of ecosystem services. **Focus on services flows**

INCA results so far

- **Report of INCA Phase 1 (2016)** (**http://ec.europa.eu/environment/nature/capital_accounting/pdf/KIP_INCA_final_report_phase-1.pdf**)
- Dedicated **grant programme for researchers with administrations** (**MAIA – 3 million euro**) and **NSIs** (Eurostat grants of some 0.5 million each year);
- **Released ecosystem extent accounts (EEA);**
- **Released first physical and monetary accounts for a set of ecosystem services (JRC);**
- **Runs until end 2020 (but will need to be extended)**
- **All current reports etc. are here: http://ec.europa.eu/environment/nature/capital_accounting/index_en.htm**

The EU MAIA project

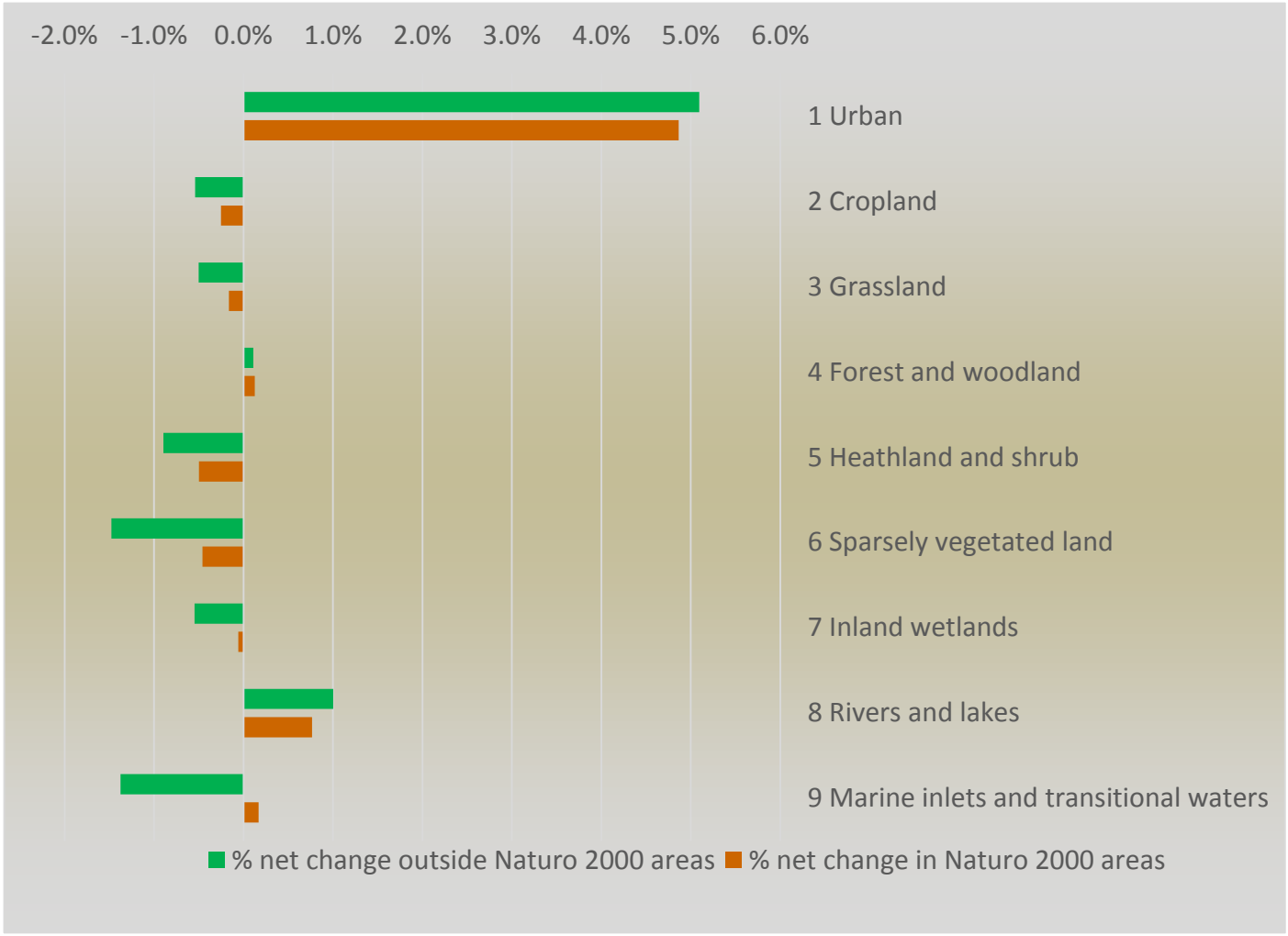
- ***EU research action, 3 million €, 2018-2022, led by Prof. Lars Hein of Wageningen University, NL***
- ***Supports testing and implementation in 9 EU Member States and Norway.***
- ***With 18 partners including statistical offices, environmental departments, research institutes***

Eurostat grants

- ***Financing of pilot studies for ecosystem accounts in EU Member States***
- ***In 2017 and 2018, 8 countries got 11 grants (plus 4-5 in pipeline this year)***
- ***Total budget around 0.5 million € each year, 12-18 months of duration, NSOs or environmental authority***

- RESULTS –

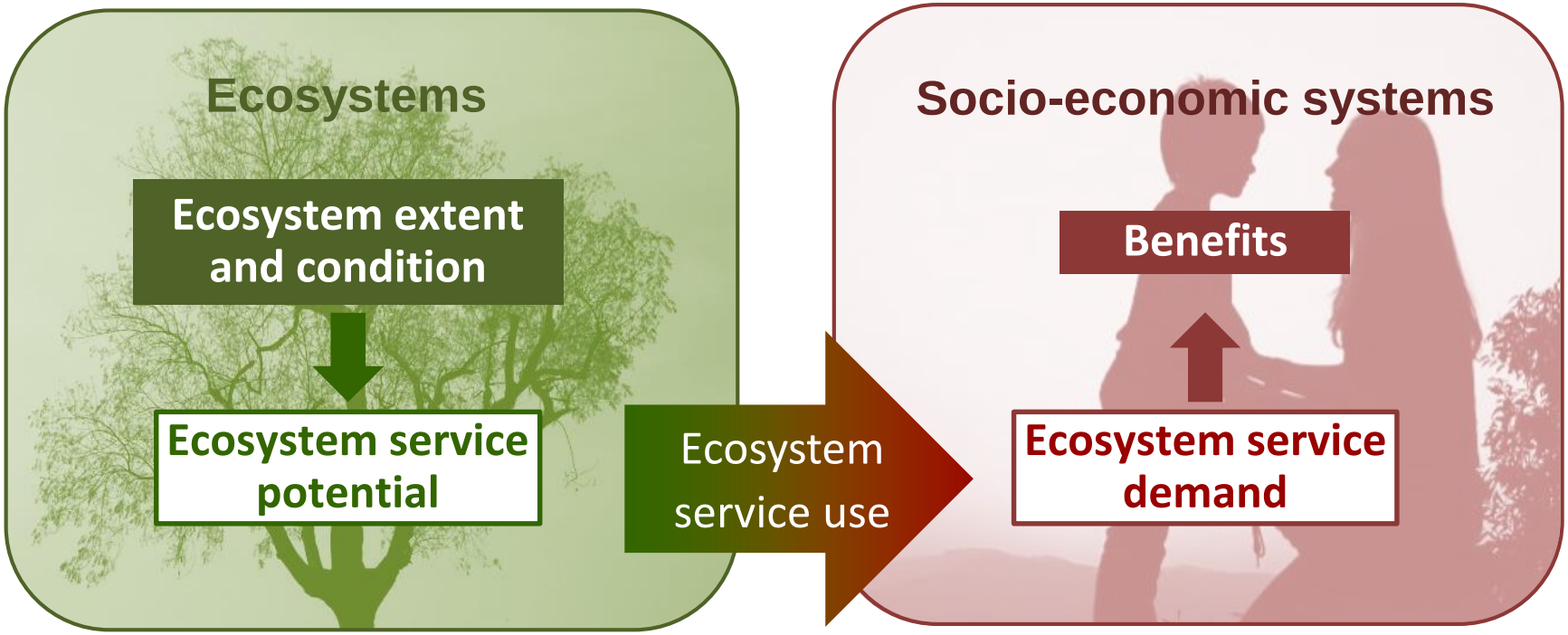
EEA: Net changes in ecosystem extent inside and outside of Natura 2000 (=protected) areas, 2000-2012



Source: EEA, CLC accounting layers 2000, 2006, 2012.

EEA May 2019: https://www.eea.europa.eu/publications/natural-capital-accounting-in-support/

Ecosystem services model



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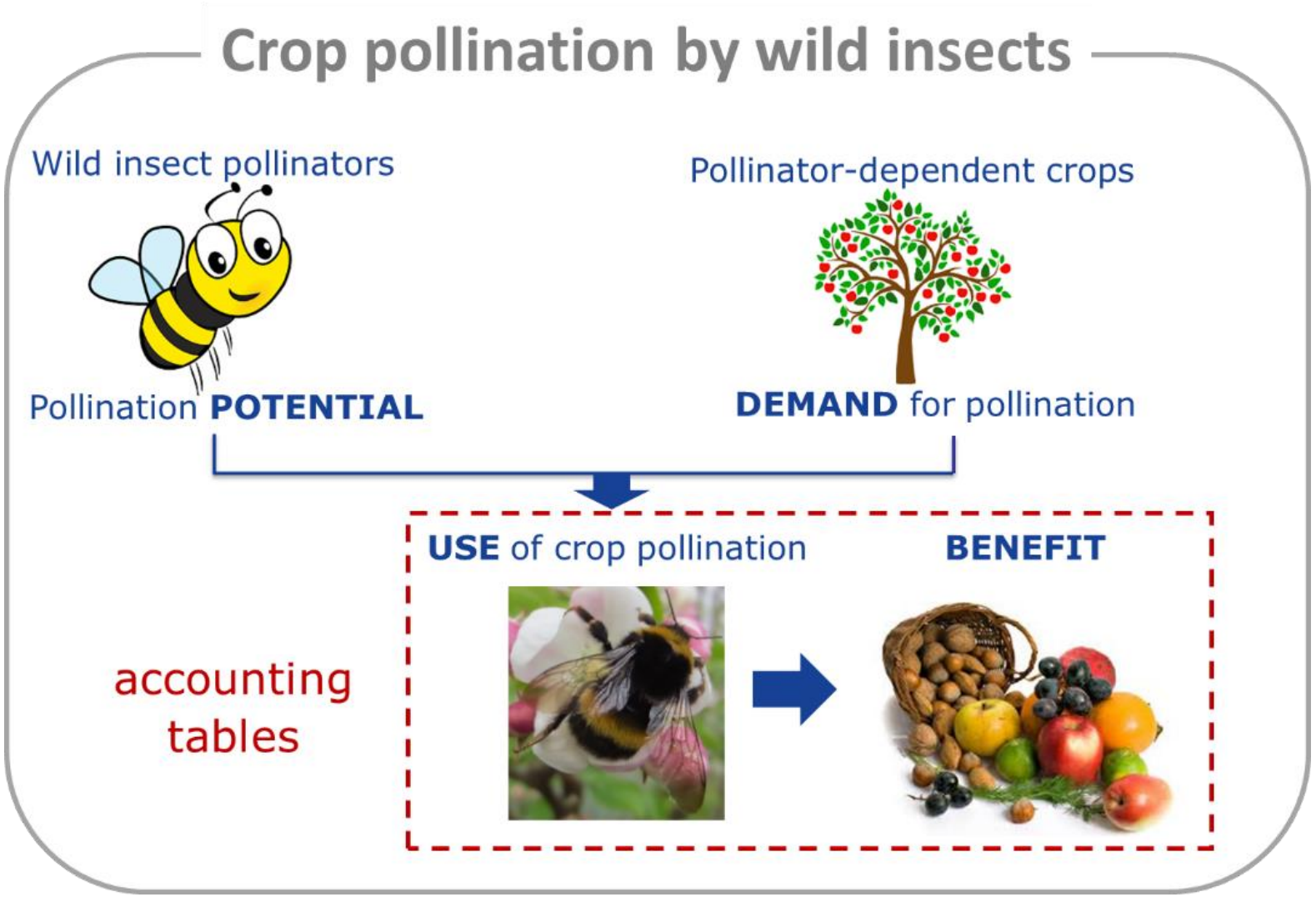
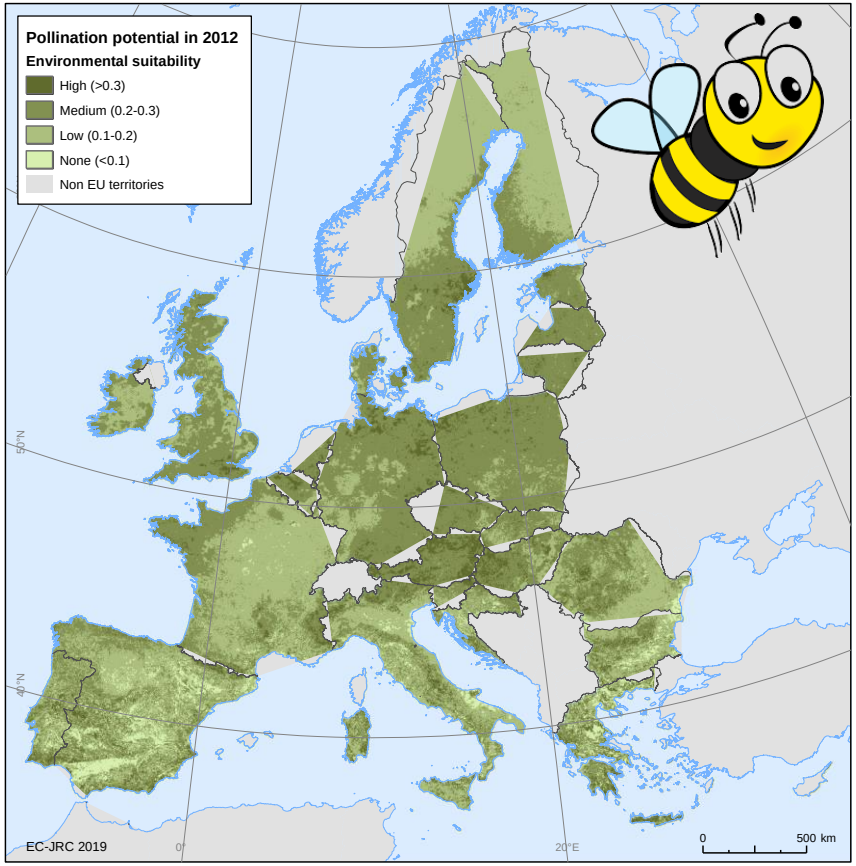
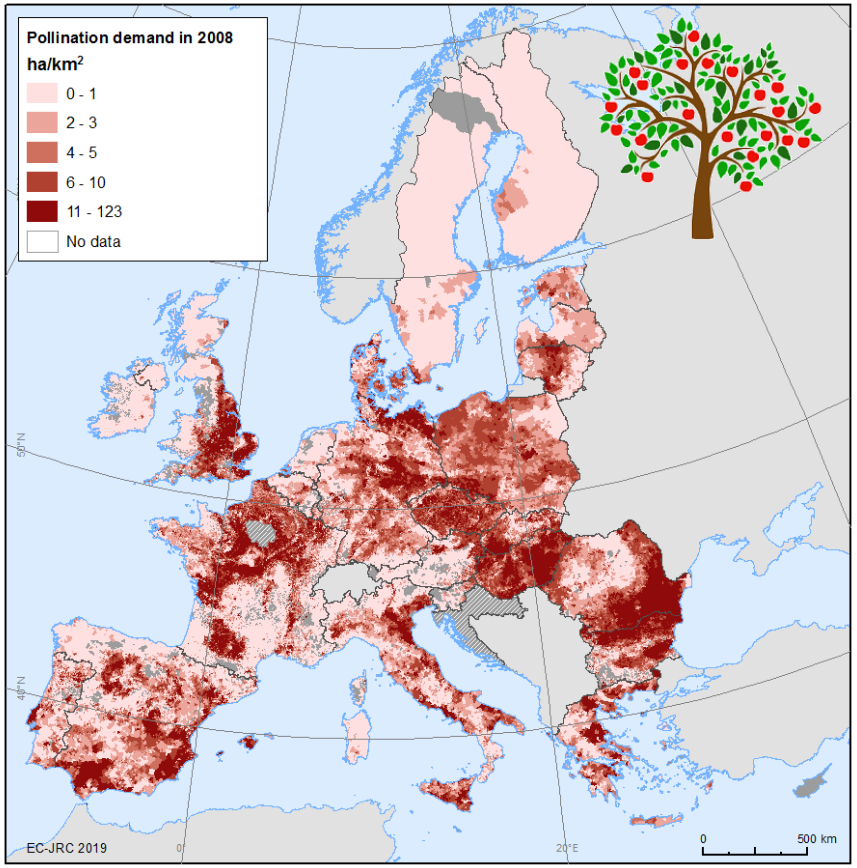
Scheme crop pollination



Crop pollination



Pollination potential



Pollination demand

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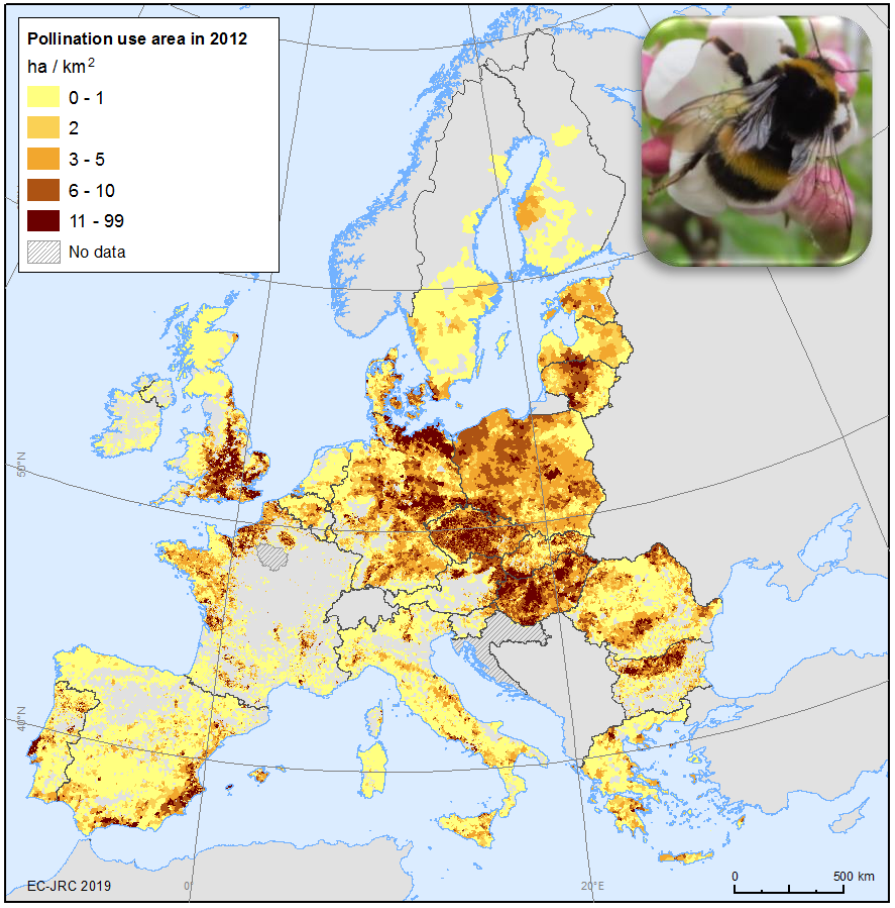
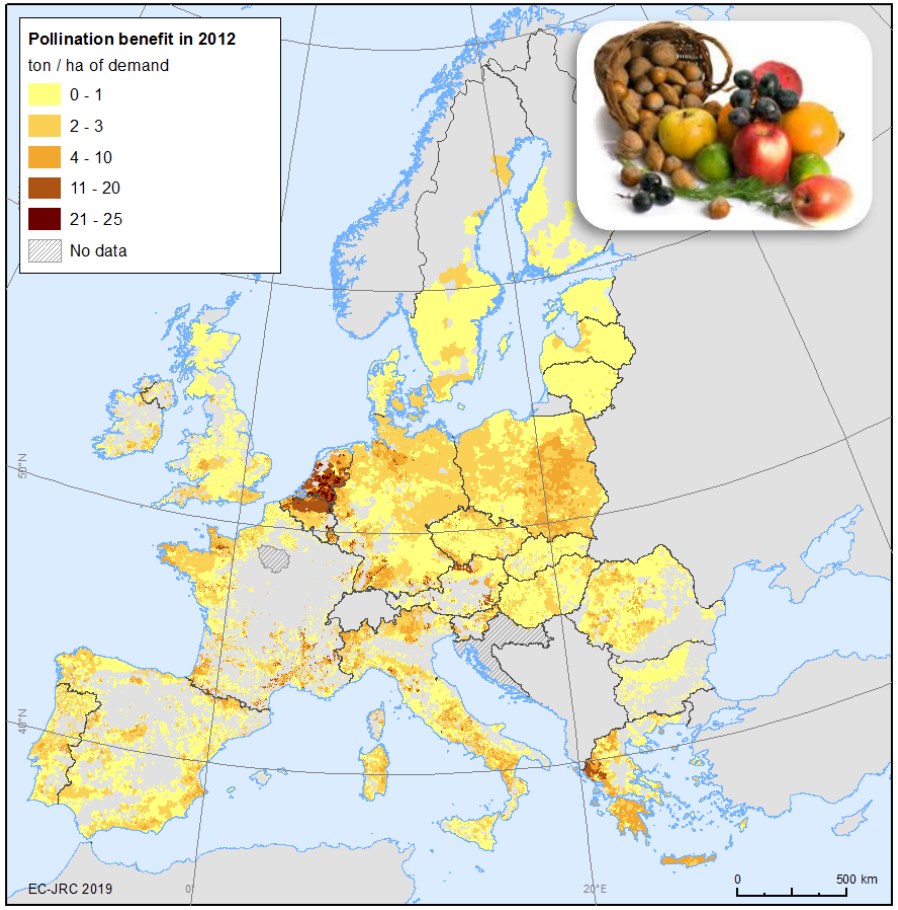
Crop pollination



Use area (overlap)

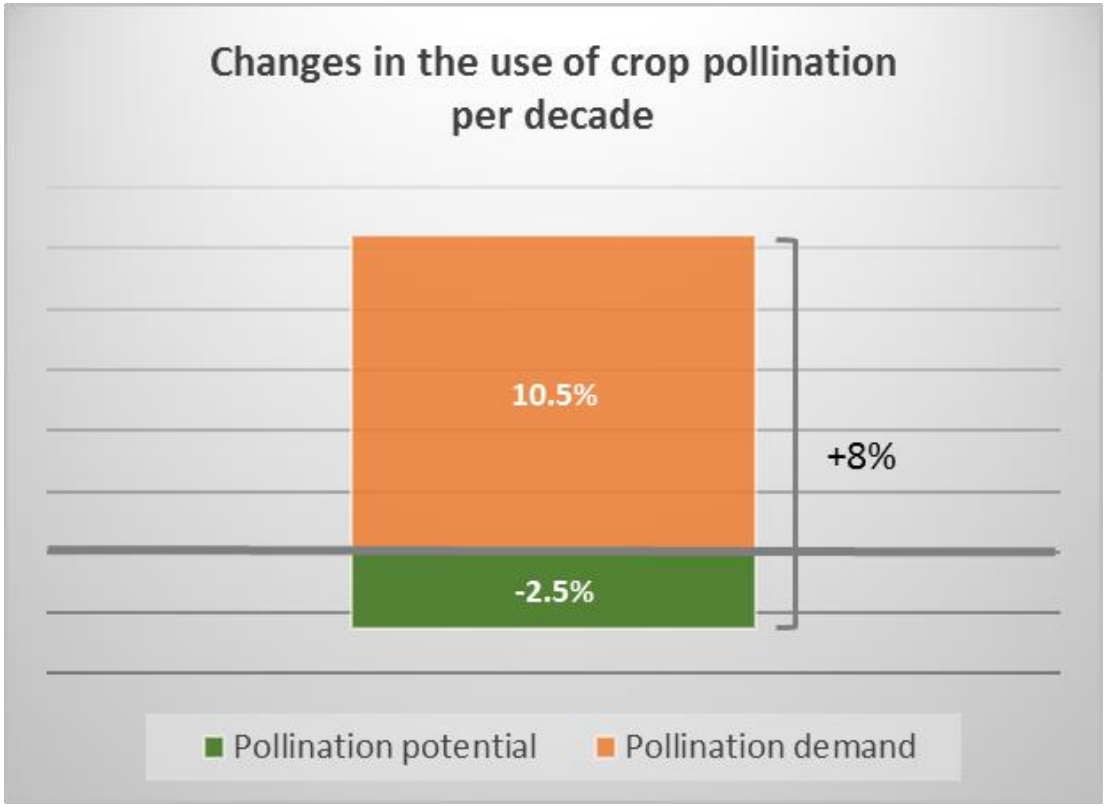


Benefit: yield attributable to wild insect pollinators

Crop pollination

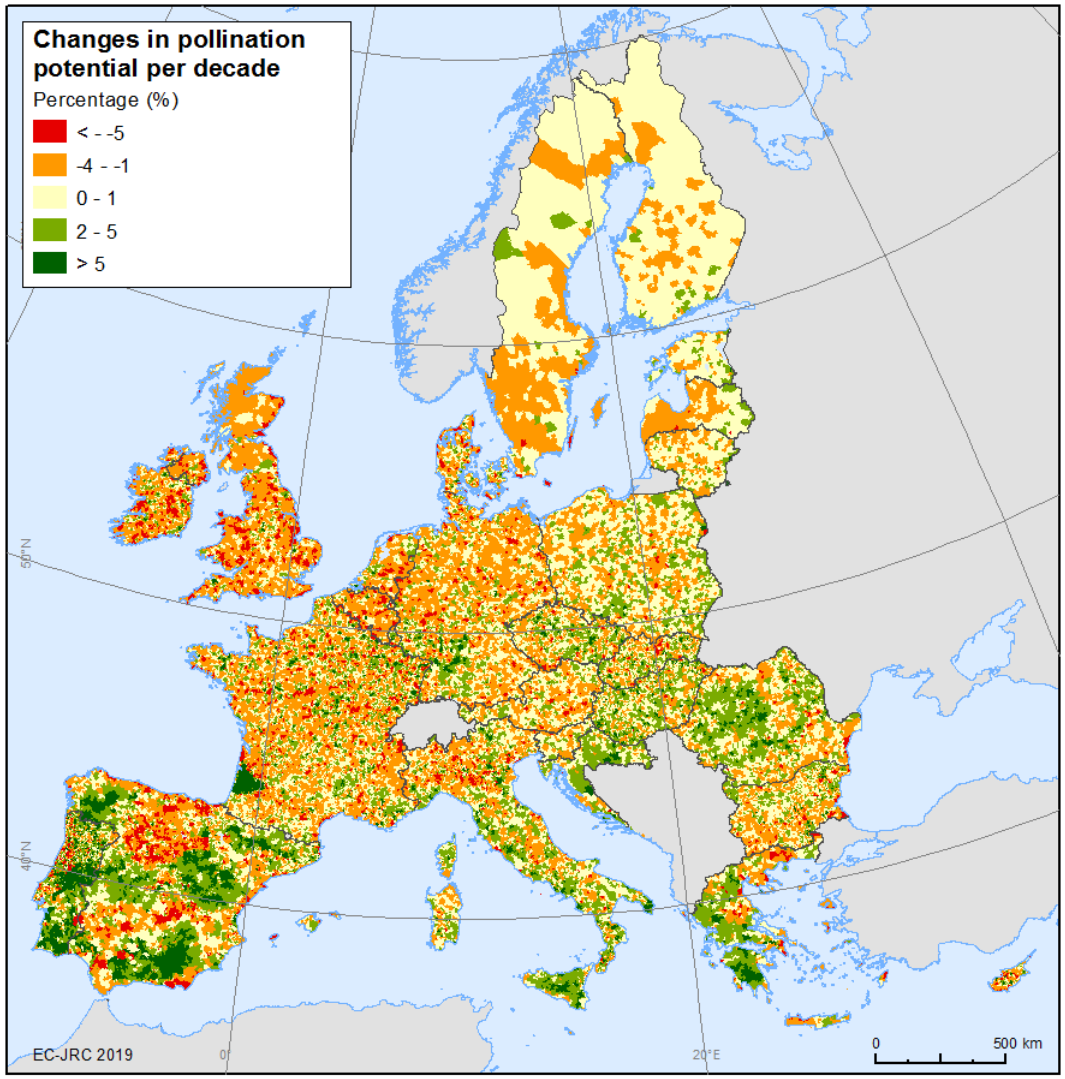
How did the use of crop pollination change over time?

Increase of the use area per decade ~8%



Based on estimates between 2000 and 2012

Crop pollination



Useful for the integrated narratives

IPBES: “decline of wild pollinators in North West Europe”

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Ecosystem services already assessed by JRC

Ecosystem services	Method
Crop pollination	Spatial models
Water purification	
Flood control	
Nature-based recreation	

Temporal coverage
2000-2006-2012

→ Different indicators of ecosystem services

Crop provision	Official statistics
Timber provision	
Global climate regulation	

→ Limited spatial data

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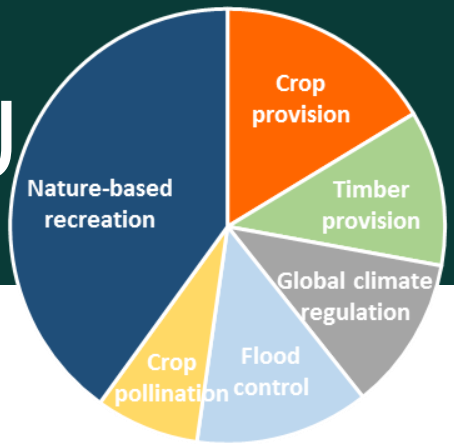
Supply table for the EU



Year 2012, million EUR	Ecosystem type									Total
Ecosystem service	Urban	Cropland	Grassland	Heathland and shrub	Woodland and forest	Sparsely vegetated land	Wetlands	Rivers and lakes	Coastal and intertidal areas	
Crop provision		20,560								20,560
Timber provision					14,540					14,540
Global climate regulation	20	150	850	20	13,330	20	0	NA	NA	14,390
Flood control	90	1,020	3,130	360	11,390	0	330	NA	NA	16,320
Crop pollination		9,720								9,720
Nature-based recreation	80	4,070	7,480	3,100	30,720	1,350	2,300	1,020	280	50,400
Total	190	35,520	11,460	3,480	69,980	1,370	2,630	1,020	280	125,930
Value in EUR/km^2	880	22,090	22,610	19,250	44,010	23,410	26,890	9,320	14,530	28,740

NA: not assessed

Values rounded to the nearest tens

56,370 euro/km^2 of green urban area

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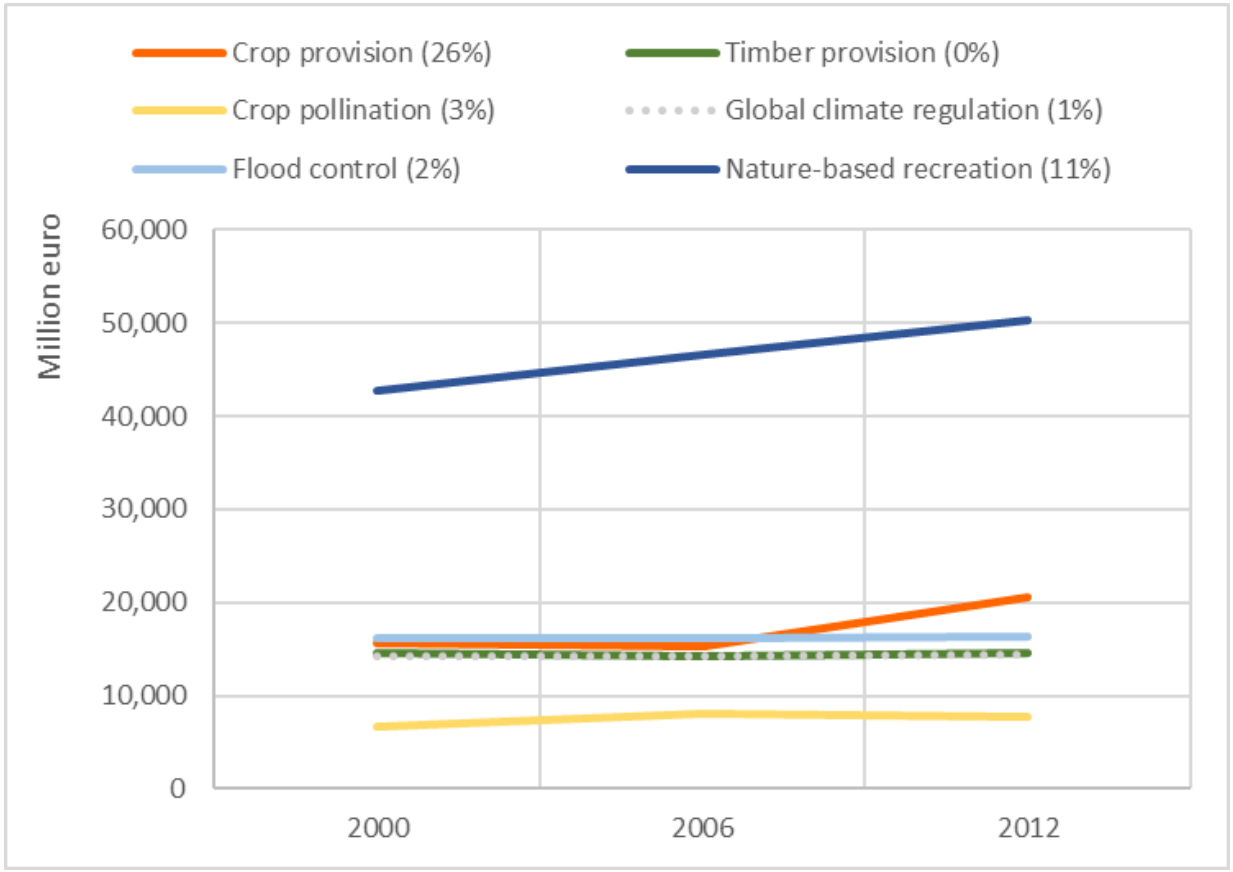
Trends for ecosystem services



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Use table ESS flows

Year 2012, million EUR	Economic units						
Ecosystem service	Agriculture	Forestry	Industry	Services	Households	Global society	TOTAL
Crop provision	20 560						20 560
Timber provision		14 550					14 550
Climate regulation						14 400	14 400
Flood control	800	0	2 400	1 380	11 730		16 310
Crop pollination	9 720						9 720
Nature recreation					50 390		50 390
Total	31 080	14 550	2 400	1 380	62 120	14 400	125 930
Comparison:							
Order of EU GDP (2012)							13 500 000
Order of EU produced capital stock							40 000 000

Next ESS flows in pipeline

- Update of water purification in 2019
- Habitat maintenance in 2019-2020
- Erosion control 2019
- Update global climate regulation 2020
- Outdoor recreation 2019-2020

Issues and next steps

- **Peer review the estimates (biophysical models, monetary valuation techniques, price and volume change…)**
- **Repeat: from 2020 redo services done with improved models, automate, aim for short cycles**
- **Policy uses – are changes in ES potential a key issue?**
- **Changes in ES demand: is the unmet demand relevant?**
- **Identify policy uses outside nature conservation (urban areas, forestry/LULUCF, agriculture?)**
- **Expand list of services beyond pipeline, esp. other forms of recreation, urban services…**
- **Need more and better data incl. higher frequency**