Natural Capital Germany: the Implementation of Ecosystem Services in the Frameworks of TEEB, MAES, and SEEA

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Assessment / Implementation of ES in Germany

PROZESS

MEA (2005), TEEB-Initiative (ab 2008)

2011 **EU-Biodiversitätsstrategie (Target 2, Action 5)**

TEEB-DE (www.teeb.de)

MEAS-Empfehlungen (Maes et al. 2013, 2014); CICES

2014 Übersichtsstudie (Marzelli et al. 2014, Albert et al. 2015)

IPBES (regionale Assessments)

2017 **Nationale ÖSL-Indikatoren Deutschland**

- Vorschläge
- Abstimmungen
- Entwicklung/Umsetzung
- Implementierung
- Monitoring

2020 Integration von ÖSL in die umweltökonomische Gesamtrechnung (SEEA)

Weiterführende Arbeiten (Fortschreibung der Indikatoren)

(national level)

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Natural capital Germany (TEEB-DE)

- Capturing services and values of nature more precisely and making them more visible and
- To come up with proposals on how natural capital can be better integrated into private and public decision-making processes

→ long-term conservation of livelihood, natural resources and biodiversity.

TEEB DE- reports (> 300 authors, 150 reviewer)
(but no systematic nationwide assessment of ES)

(http://www.naturkapitalteeb.de)

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Action 5 of the 2020 European Biodiversity Strategy:

⇒ **Improve the knowledge of ecosystems and their services**

„*Member States, with the assistance of the Commission, will*

- *map and assess the state of ecosystems and their services in their national territory and*

  (→ II. MAES)

- *promote the integration of these values into accounting and reporting systems at EU and national level by 2020.“*

  (→ III. SEEA)

National ES indicators

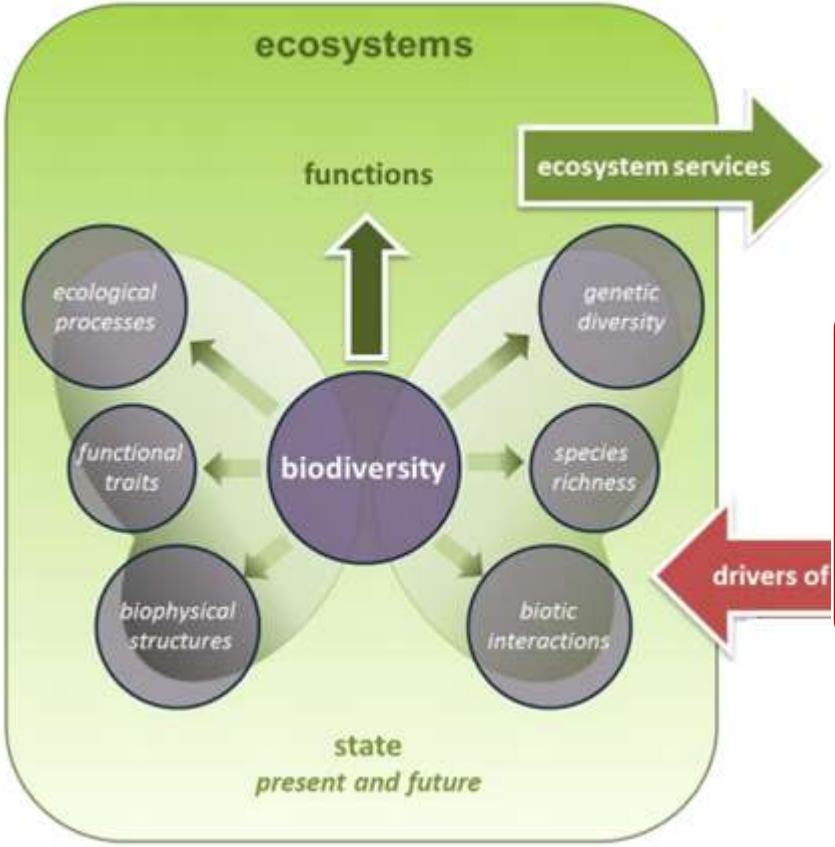
= new component of the environmental indicator set in Germany

- nature conservation and landscape planning in Germany can be strengthened
- serve the strategic direction of environmental policy, nature conservation and other sectoral policies on the condition and services of ecosystems
- measure target deviation, trends and can be work as policy support tools

However: What do one indicate for whom (ES as indicandum)?

International Framework

MAES (2013) 6 dimensions of biodiversity



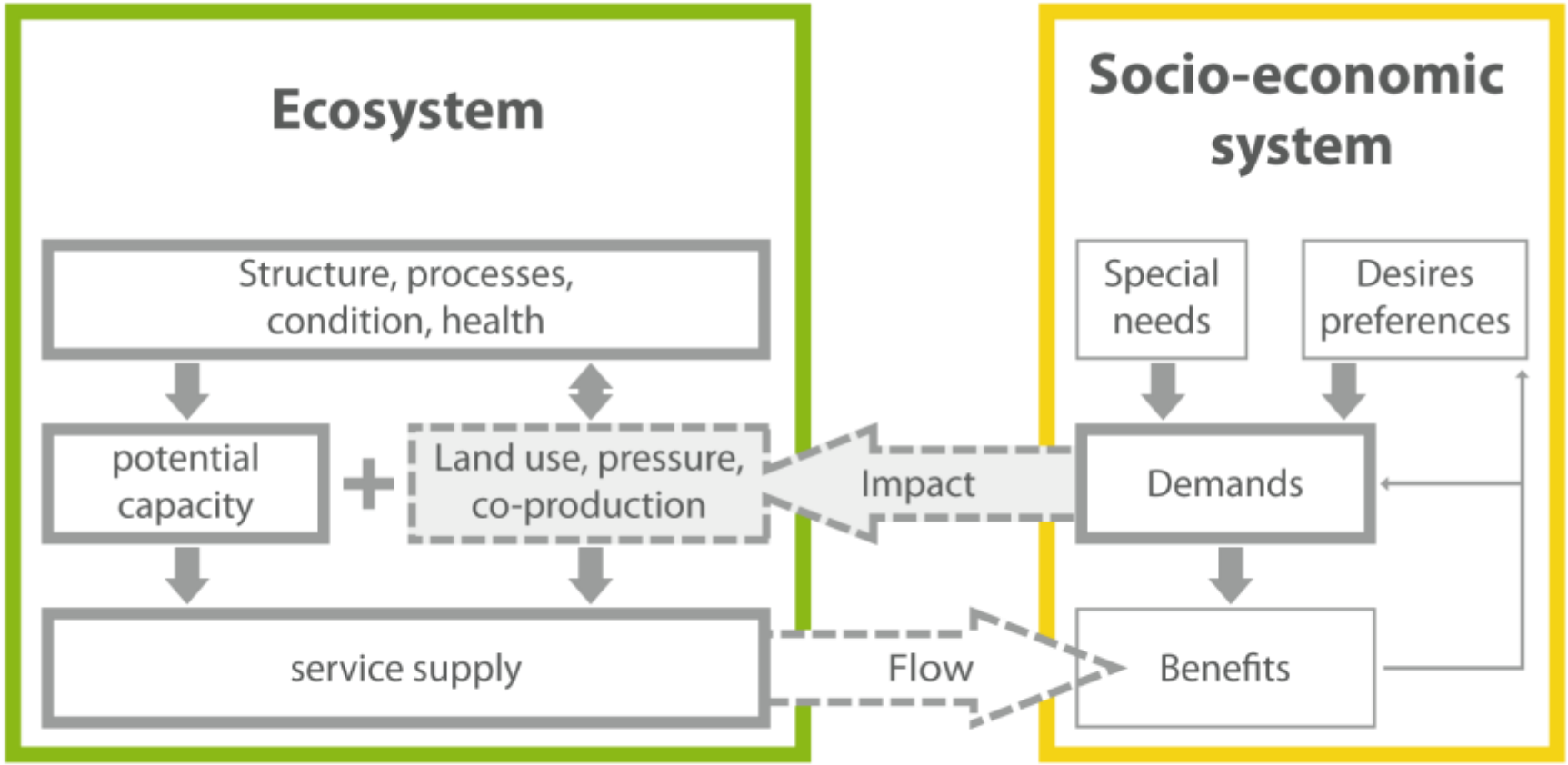
(1) Map ecosystems
(Habitat types, land use classes)

(2) Assess the conditions of ecosystems
(Indicators)

(3) Assess the ESS delivered by ecosystems
(Indicators)

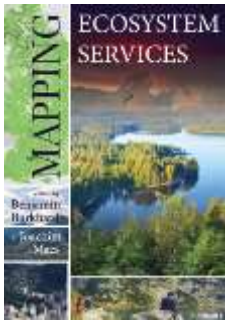
(4) Integrated ecosystem assessment

Issues for mapping & monitoring

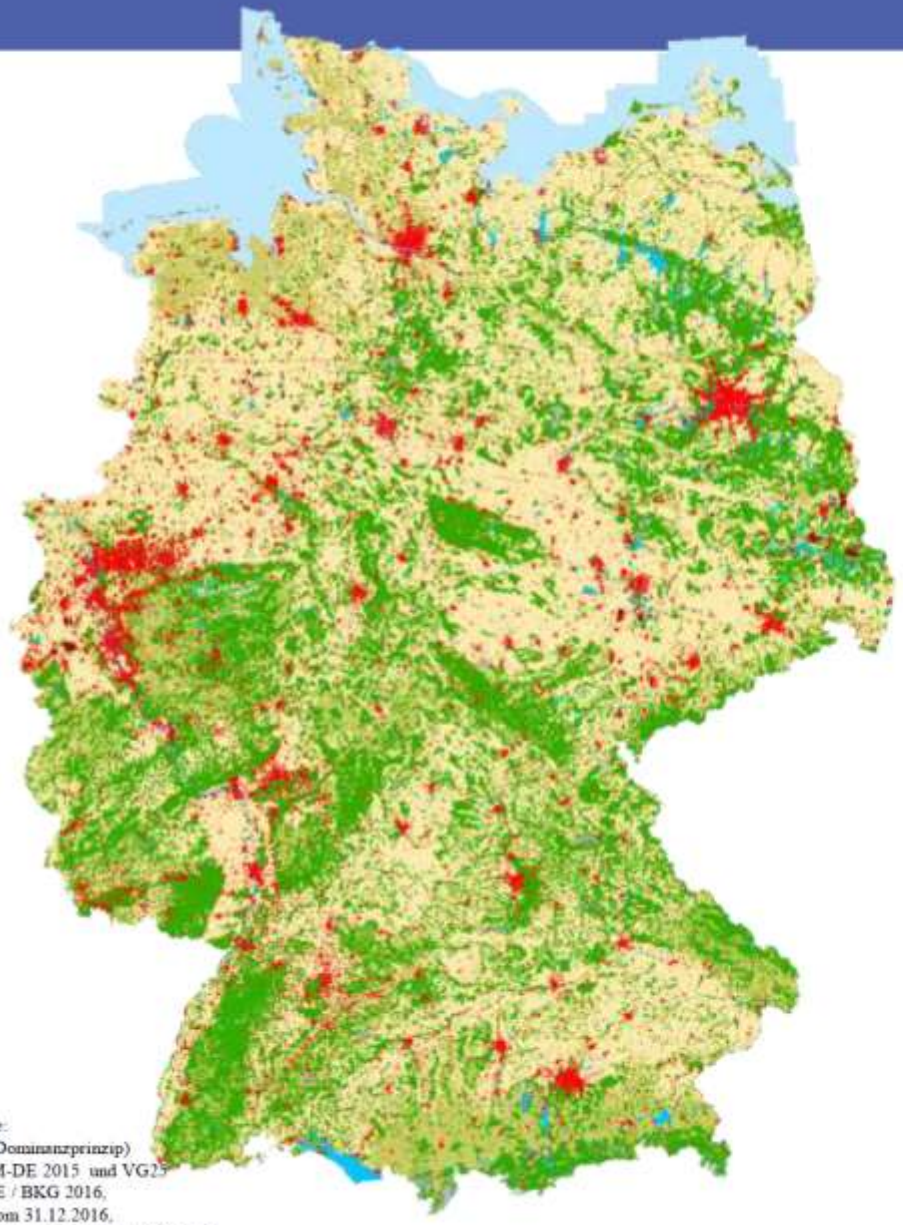


5.1. What to map?

RALF-UWE SYRBE, MATTHIAS SCHRÖTER, KARSTEN GRUNEWALD, ULRICH WALZ & BENJAMIN BURKHARD



Ecosystem extent



Datengrundlage:
1 km²-Raster (Dominanzprinzip)
Geodaten: LBM-DE 2015 und VG25
© GeoBasis-DE / BKG 2016,
Gebietsstand vom 31.12.2016,
Karte: K. Grunewald, C. Michel, IÖR 2019

Area proportion of sub-ecosystem types 2015

Name (Code)	Share (%)
Grassland and heathland (11)	0,7
Wetland (12)	0,5
Open spaces with no or little vegetation (13)	0,1
Forest (21)	30,1
Grove (22)	1,8
Arable land (31)	35,0
Grassland (32)	17,6
Streams (41)	0,7
Inland water bodies (42)	1,2
Marine waters (43)	6,6
Building and transportation areas (51)	10,6
Mining and dump sites (52)	0,4
Urban vegetated areas (53)	1,2

Condition (state) of ecosystems

- Indirect evaluation of the pressure of the ecosystems or the driving forces of the change, e.g. Nitrogen loading / input
- Direct assessment of habitat properties, e.g. naturalness of the ecosystems

(EEA 2016 - Condition of Ecosystem Types)

EC 2017 “Assessing and Mapping Ecosystem Conditions”

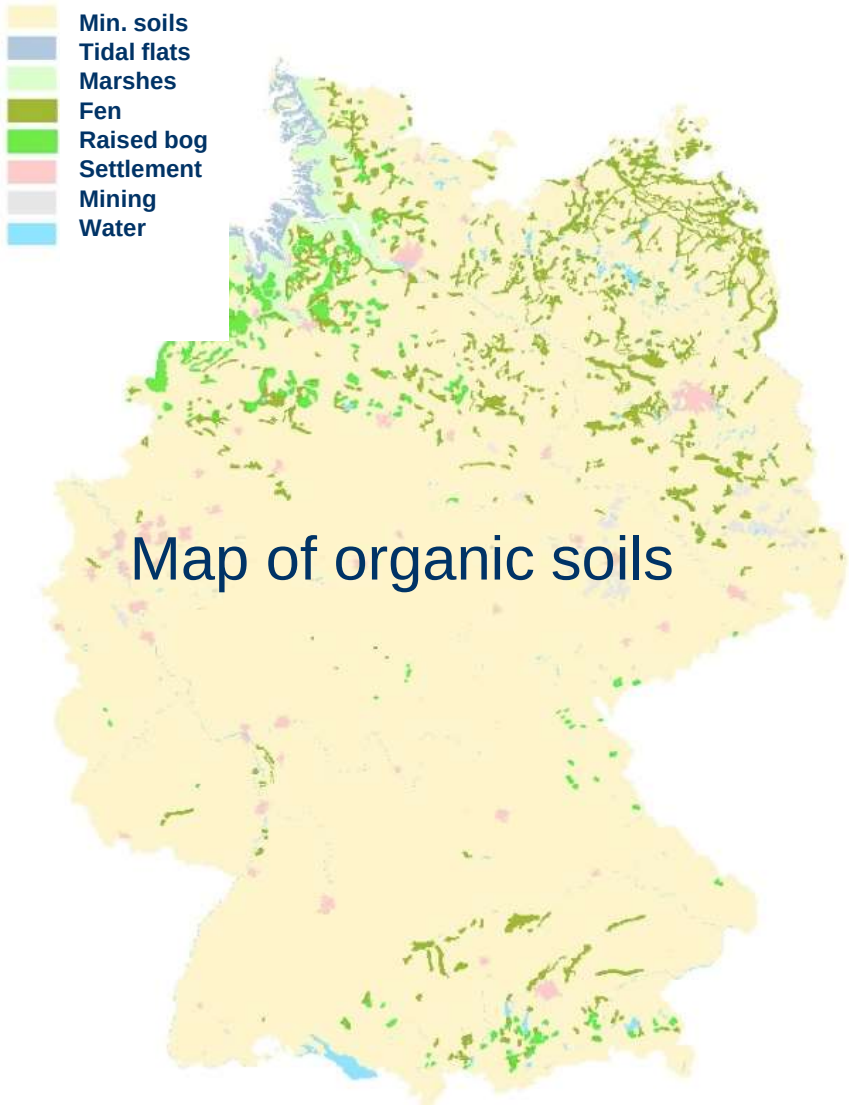
- Paper (127 p.) with 430 Indicators

Development of national condition parameters (IÖR, 2017):

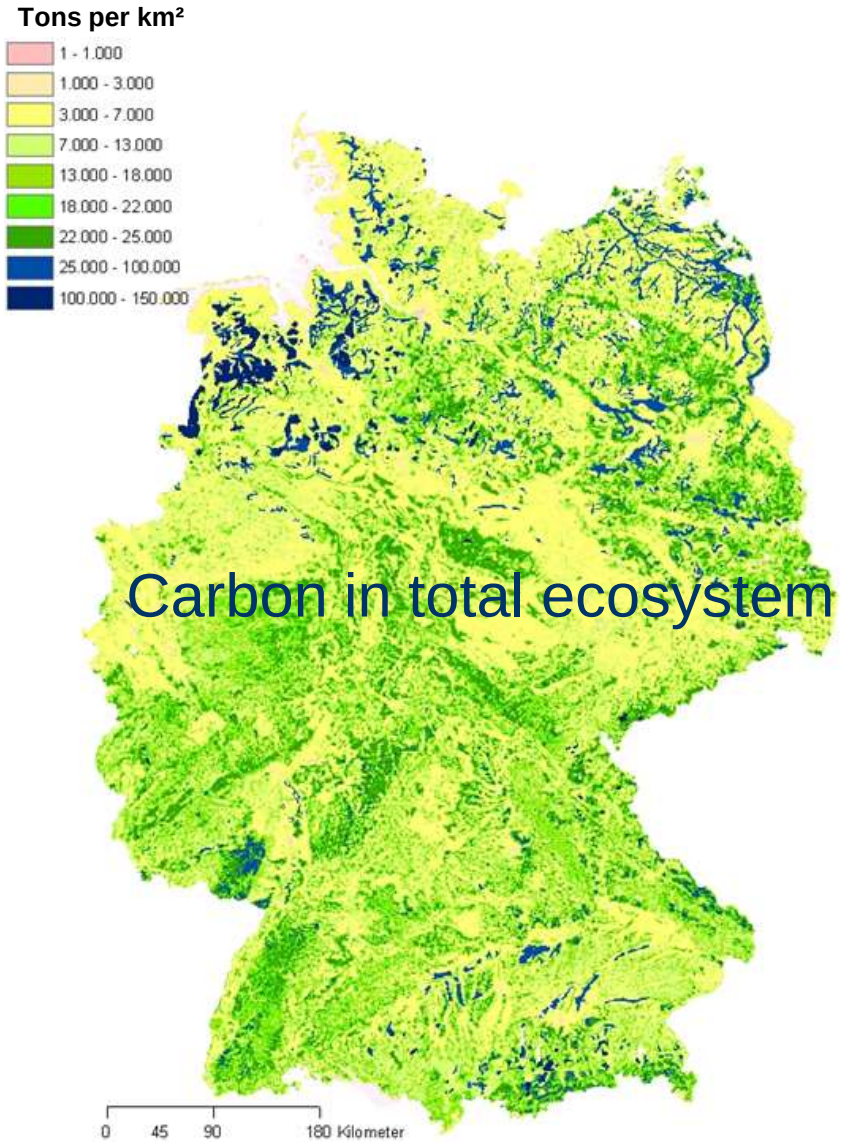
1. Open space (with vegetation)
2. Nitrogen threat (UBA-Data)
3. Carbon stock in soil and vegetation
4. Near natural habitats at the landscape level

→ „Work in progress…“

Ecosystem condition: Carbon storage 2012



Map of organic soils



Carbon in total ecosystem

Ecosystem services

Classification of ecosystem services (CICES V5.1, Jan. 2018)

and prioritization for processing in Germany

- Aim: 21 ESS classes – x Indicators (main-/additional)

State of implementation (Grunewald et al. 2017 (see below)

- designed: 20 ES classes, 50 Indicators
- realised: 4 ES classes with 14 Indicators description and publication)

→ *http://www.ioer-monitor.de/en/*

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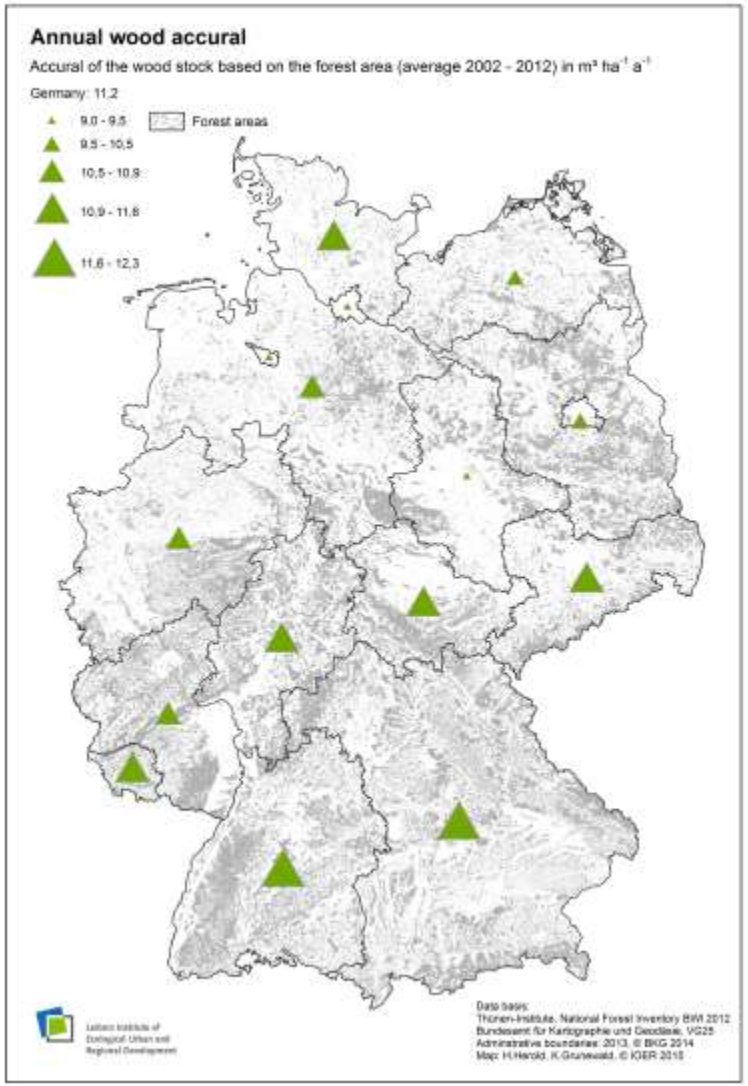
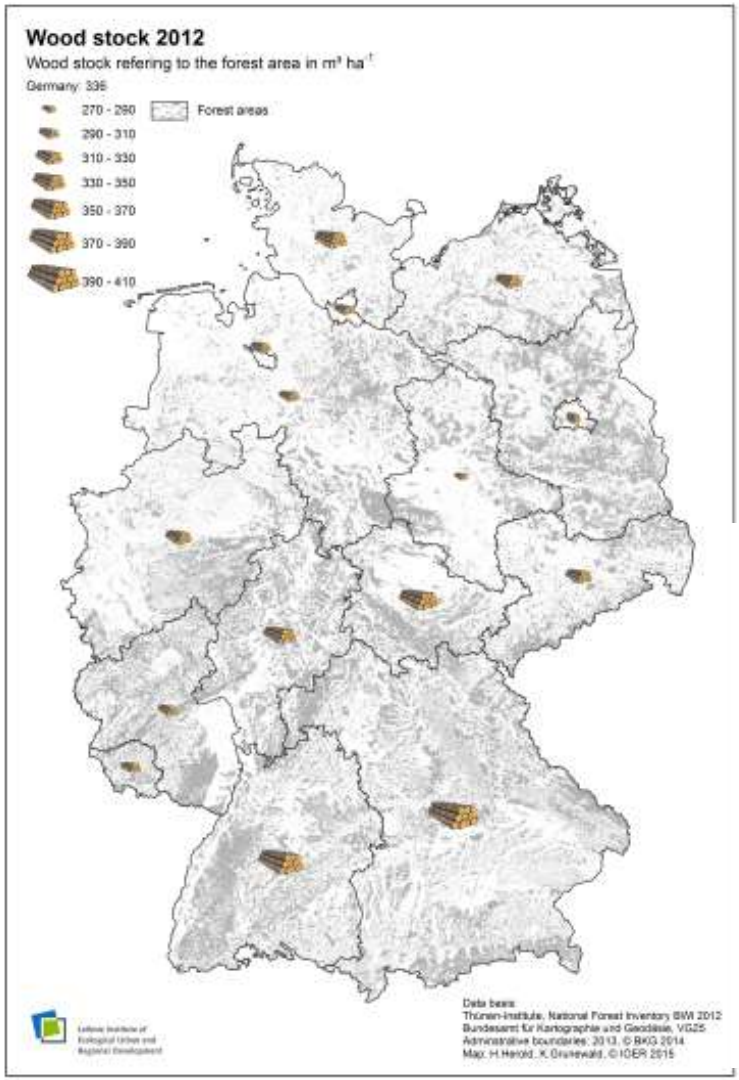
Ecosystem service „Timber provision“





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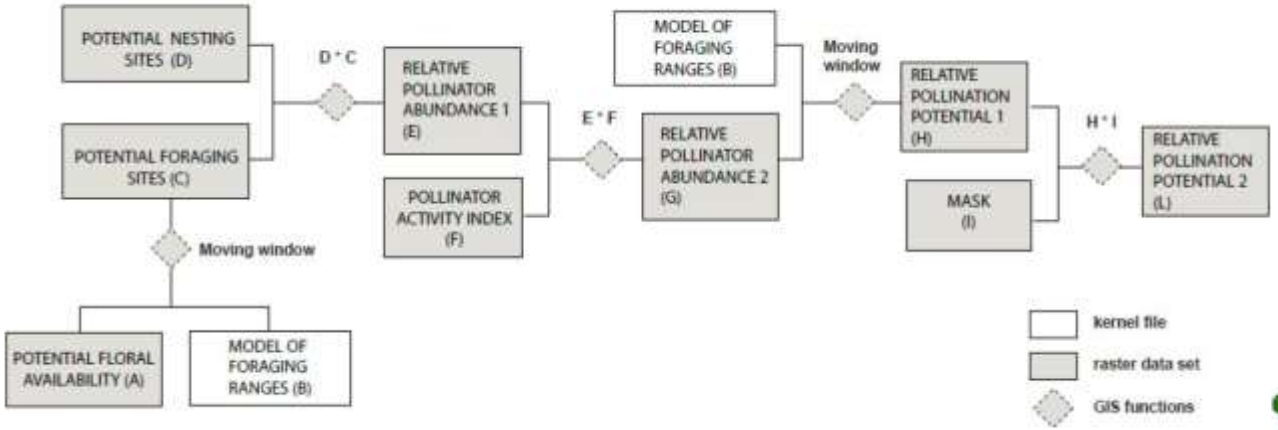
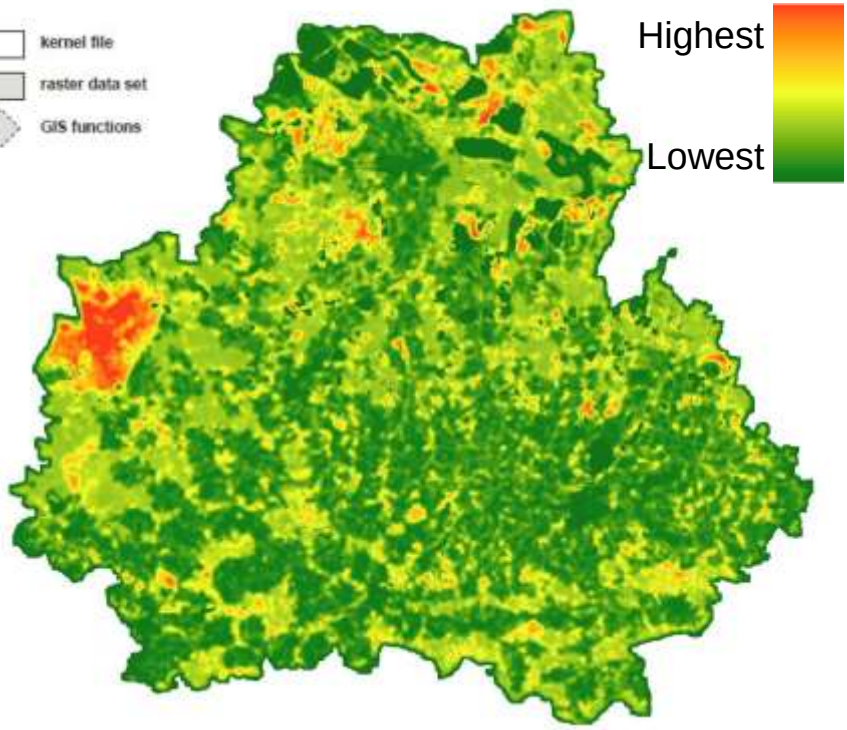
Ecosystem service „Pollination“



EU methodology *(Zulian et al. 2013)*

Pollination potential, estimated by the supply of nesting and feeding habitats for pollinators in the Bautzen county in 2018

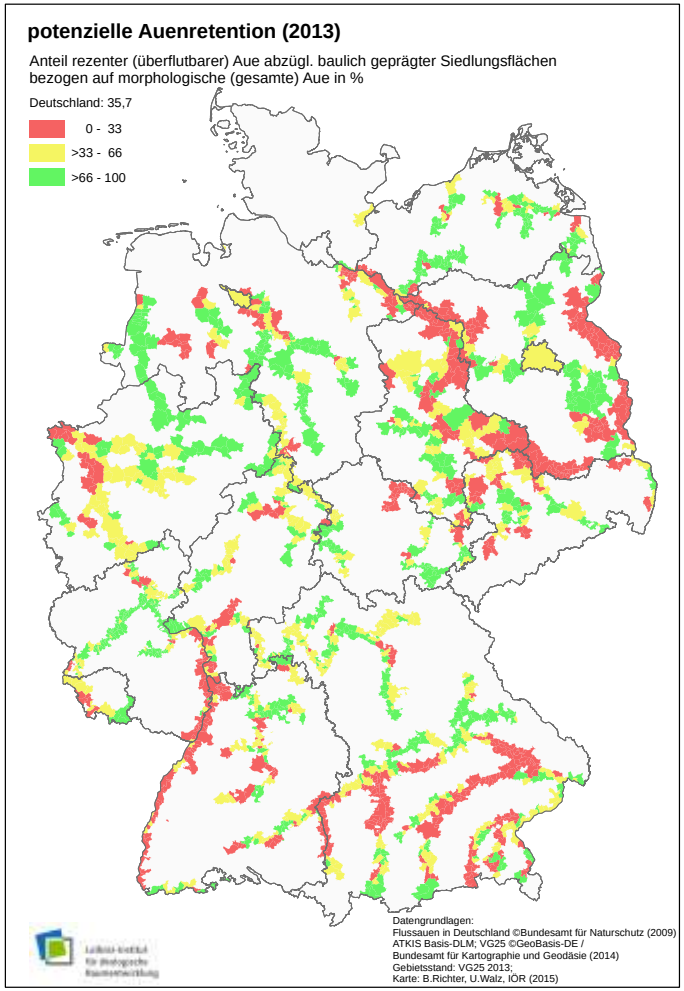
(by Sophie Meier, IOER)



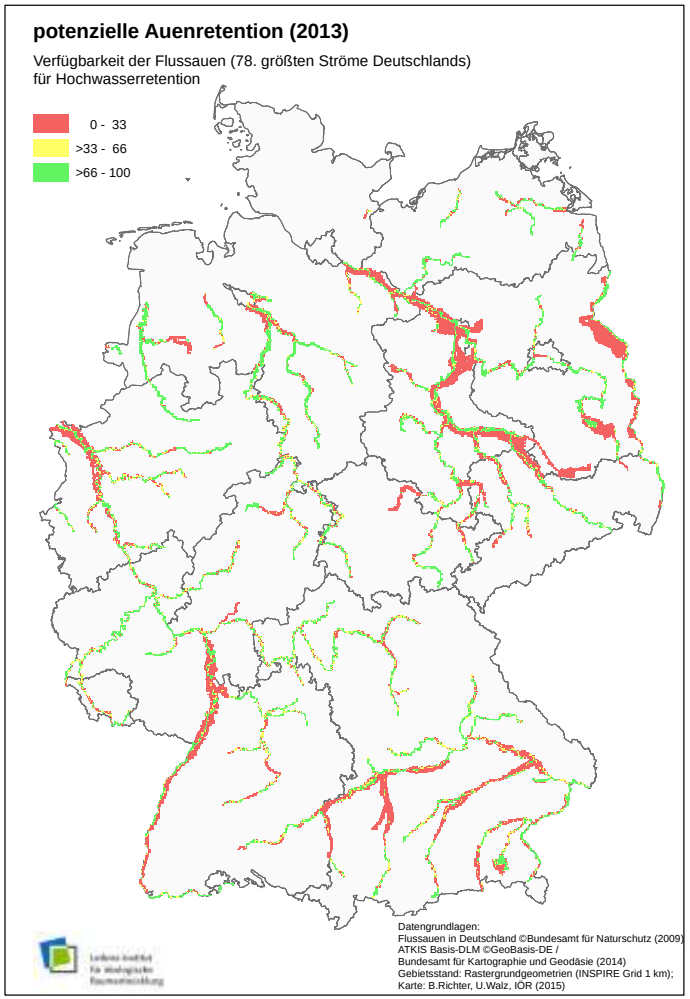
Ecosystem services (national scale)

Flood mitigation: Retention area in floodplains

Municipalities



(Raster 1km)



Synthesis of implemented main indicators

Indicator	Spatial approach*						Timesheet	First Trend DE**	Assessment of service provision
	IN	DE	BL	KR	GE	RA			
Annual wood accrual	x	x	x				2002-2012 (2022)	3	
Area for flood retention	x	x	x	x	x	x	2010-2015 (2020)	2-3	
Avoided water erosion		x	x	x	x	x	2009-2012 (2015)	2	
Accessibility of green spaces		x	x		x	x	2008-2013-2015 (2018)	2-3	

* IN international, DE Germany, BL Federal state, KR county, GE municipality, RA Raster
** Trends: 1 decreasing, 2 slightly decreasing, 3 stable, 4 slightly increasing, 5 strong increasing

Natural Capital and Ecosystem Accounts in Germany – First Steps

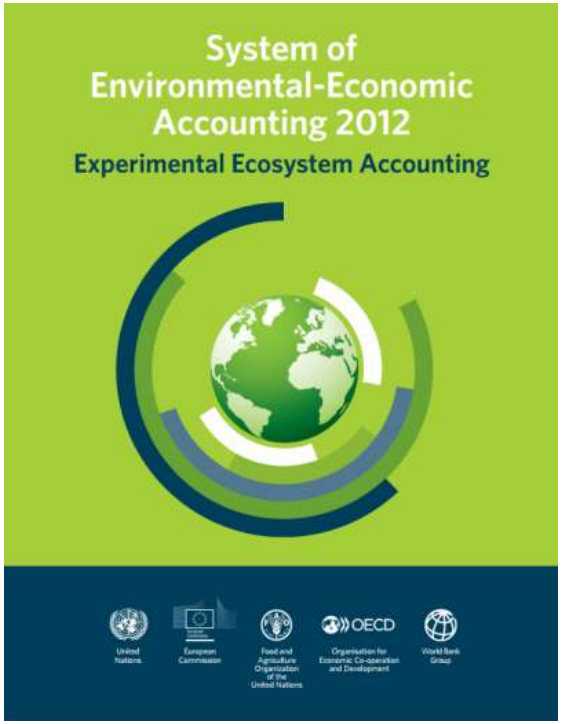
Research project

„Integration of ecosystems and ecosystem services into environmental economic accounting. Theoretical framework conditions and methodological principles”

2017-2019

Funded by the Federal Agency for Nature Conservation (BfN)

SEEA-EEA



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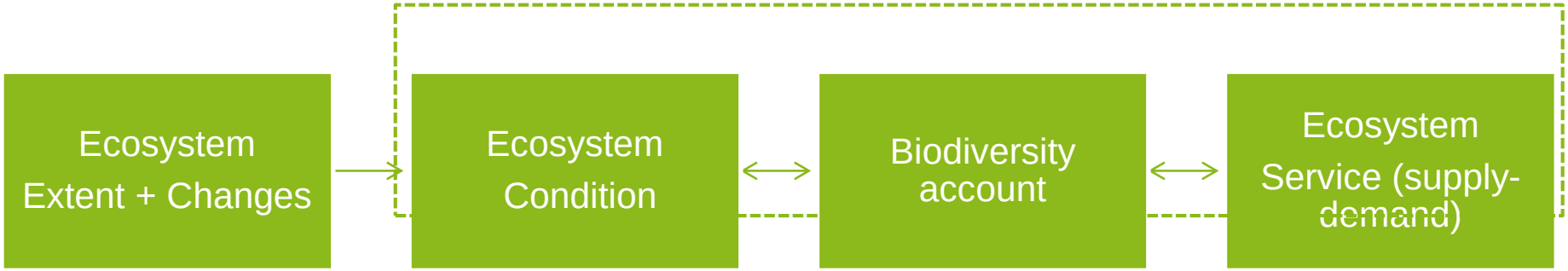
Roadmap to a National Ecosystem-Accounting (components, types)

a) Accounting steps with physical data



b) Accounting steps with monetary data

That's what we're trying to do in general, but still a long way ahead.

Implementation

- Systematics / concept
- Main focus (about 20 ES-classes + several indicators per class)
- Data bases; calculation methods/scripts
- Description of the ES/indicators, DE-maps / values
- ES monitoring (trends) for the first indicators
- Basics for the accounting

Agreement and discussion with experts/ministry

- Relevance of ES-indicators
- Resolution / Accuracy
- Goal formulation (direction, measure progress)?
- to clear the doubts?

Thank you for your attention!

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