## A glimpse behind the scenes:

## Assessing ecosystem services based on statistical data and expert evaluation Sabine Bicking<sup>*a,b*</sup> and Felix Müller<sup>*a*</sup> (a) CAU Kiel, Kiel, Germany

(b) Leibniz Universität Hannover, Hannover, Germany

Jpgraded Ecosystem Service Matrix Table _																														Inlar	nd waters				Coast	tal ecosyste	em types											'									Mari	rine systems	s block (2): Se	ediment type	s	Marine syste	ems block 3:	: Water body type	es	Regiona	
rsion 6.0						corine land	d cover typ							cosystem	types			est types		Near-n	ature ecosy	stem types	1	Vetland eco	system typ															Coastal infra	astructure	•				Ma	arine system	ns block (1):	Key commu	inity types o	overing the	e sediments											Weighting fa	factors mar			
tegrity indicator (γ) and ecosystem service land and sea cover/use type (x)	urban fabric			n	oad and railroad e etworks, ffic areas	xtraction	ump sites C		Sport and leisure facilities				n- and be ed, in		agri	etero- l neous leav cultural areas	Broad- C ved forest	oniferous Mix forest		Natural M grassland he	oors and Tra ath-lands wo	nsitional Sp odlands veg ä	aresly l etated ma reas	nland Pea rshes	bogs Salt n	fic	tivers, lowing vaters	Lakes Aq		Coastal Sar npartmen bat ts	ndy beach Sa thing opp.	andy beach Ston natural	ley beach D	ounes Activ	ve cliff Passi	sive cliff Ha	bour Mase bulki	onry, Di head	ike Gro	yne Revetm	ient Promen beacl	enade Jettie: ach	es Piers	s Breakwat and artific reefs	ers Marine con cial partments	n- Reed zone		Macrophytes on soft bottom		Mussel bed	Reef M Sa	Mudflat Aqu Sandflat (	ua-culture Sed (open) c	clay Se	diment Sedi peat sai	ment Sedime ndy grave	ent Sediments el	Sediment	haline inner ha	aline inner coastal out	33: Meso- haline Itside coast outside coa	- ast	Habitat :				
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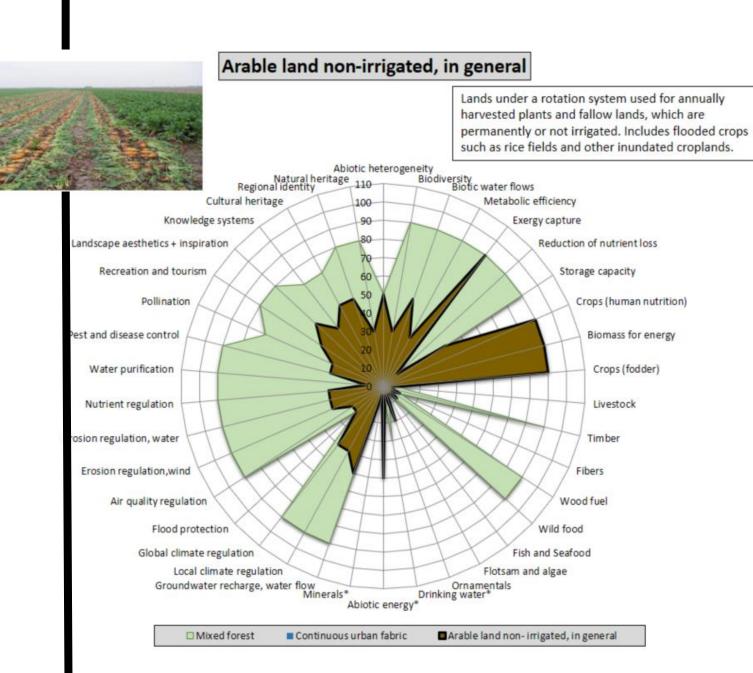
The "ecosystem service matrix" describes the potentials of different land cover and (x-axis) ecosystem types to different provide ecosystem services (y-axis).

Air quality regulation Erosion regulation, win rosion regulation, water

egional identity

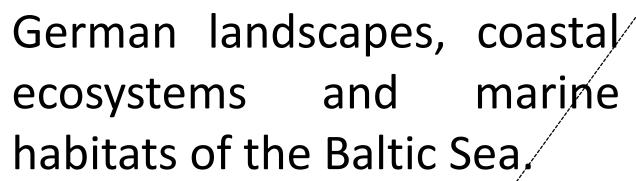
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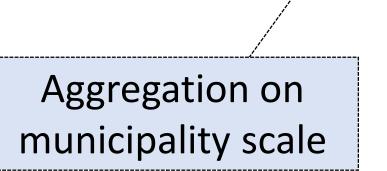
lt has been developed and checked by more than 100 experts and expresses the probabilities of ecosystem service supply in scores between 5 (supply exclusion) and 100 (optimal capacity for service supply) for Northern



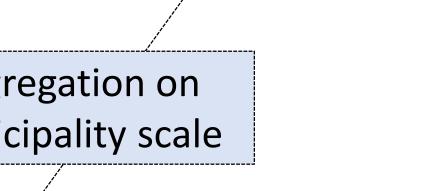
COFINE land use/land cover - Northern Schleswig-Holstein in 2012 9°0.0'

The official **statistical data** on harvest (yield per hectare) and agricultural areas agricultural the from census (Statistical Agency North, 2010) needs to be pre-processed before calculating (dt/ha\*a), production the crop in particular due to the data privacy law, which leads to unavailability of certain data on the scale of municipalities. reasons of comparability the For production (dt/ha\*a) crop is reclassified using a relative scale according to the results

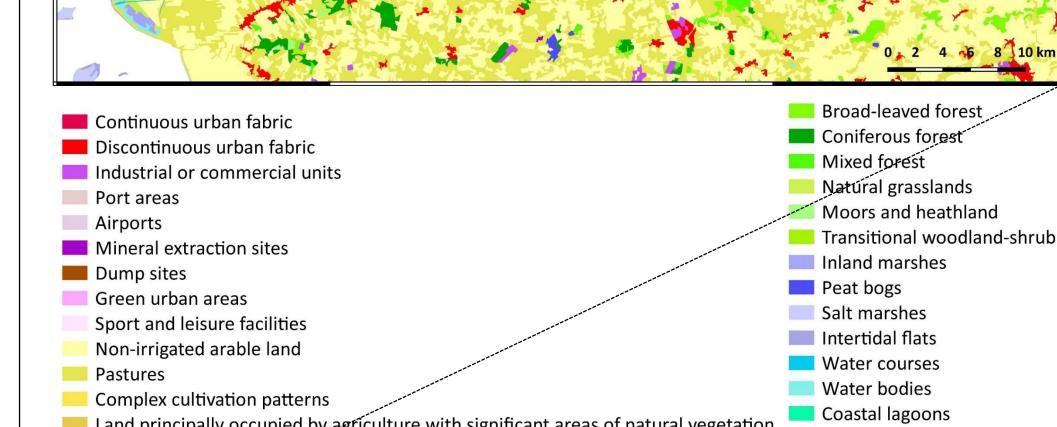




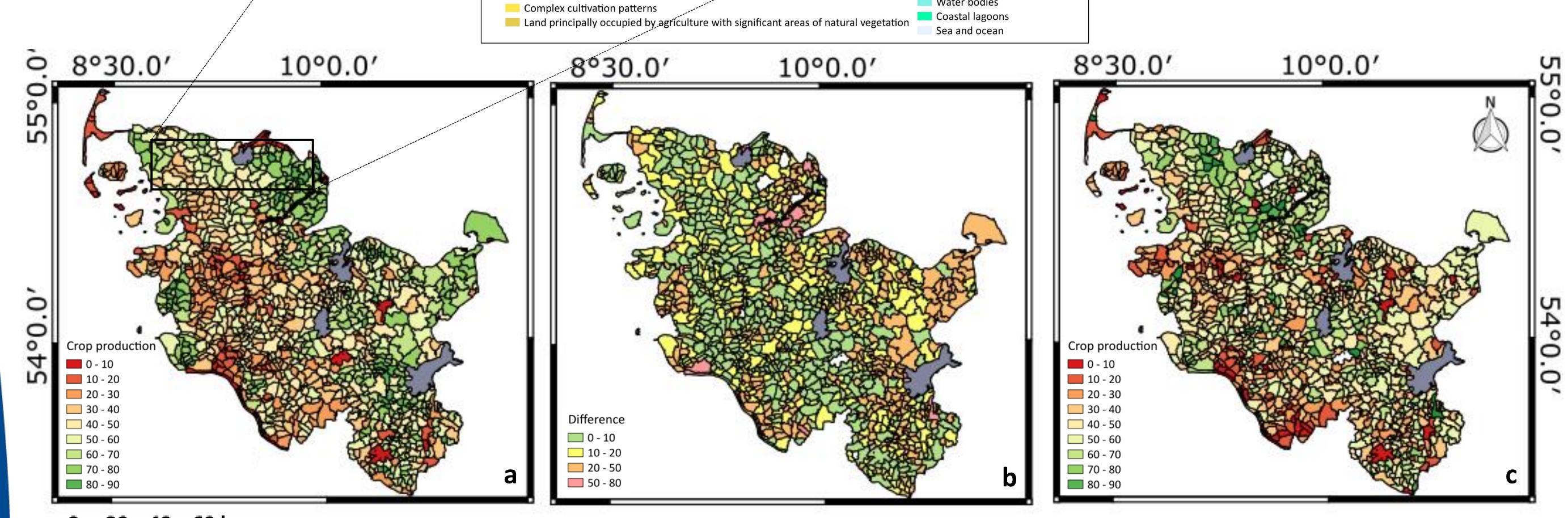








based the matrix upon approach.



60 km Urban areas 🔲 No data



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The results are depicted by maps of (a) matrix crop potential, (c) statistical harvest data and (b) the differences between them. Map (b) demonstrates satisfactory agreement of the spatial distribution patterns (green + yellow), but also discrepancies (orange + red) e.g. referring to the catchment of *Schlei* and *Ostholstein*. These differences are based on the regionally preferred crop types, and they are the key elements of matrix optimization.



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