

26 – 27 May 2021
EUROPEAN RIVER
SYMPOSIUM



EUROPEAN
REGIONAL
DEVELOPMENT
FUND



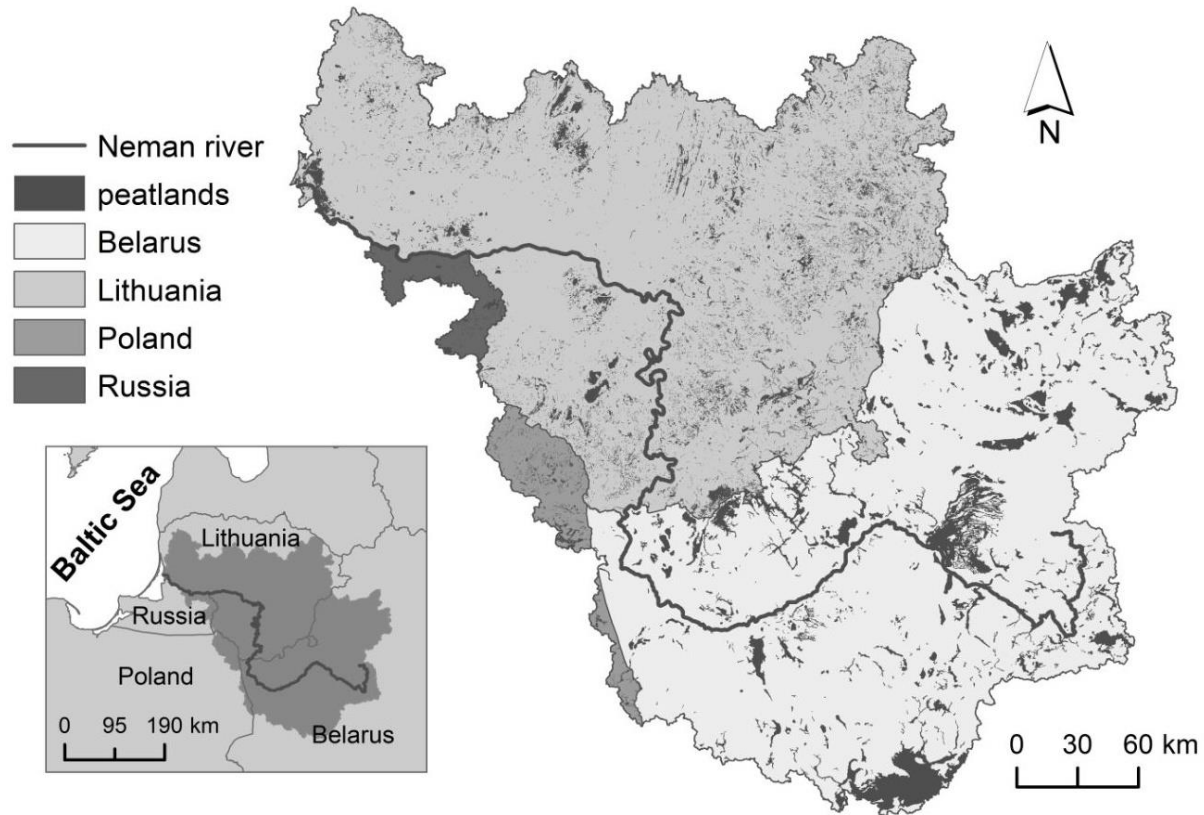
Assessment and Spatial Planning for Peatland Fen Conservation and Restoration in the Neman River Basin

Michael Manton

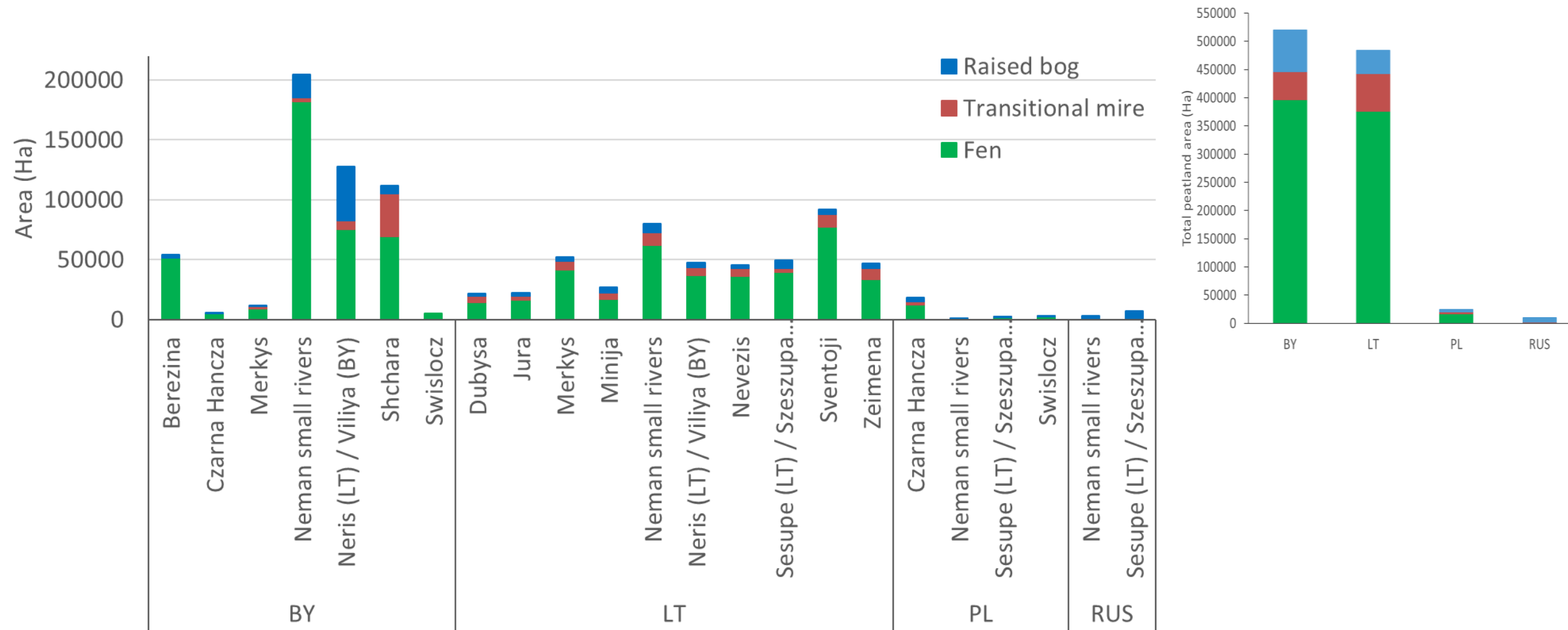
Email: michael.manton@vdu.lt

Photo Žydrūnas Sinkevičius

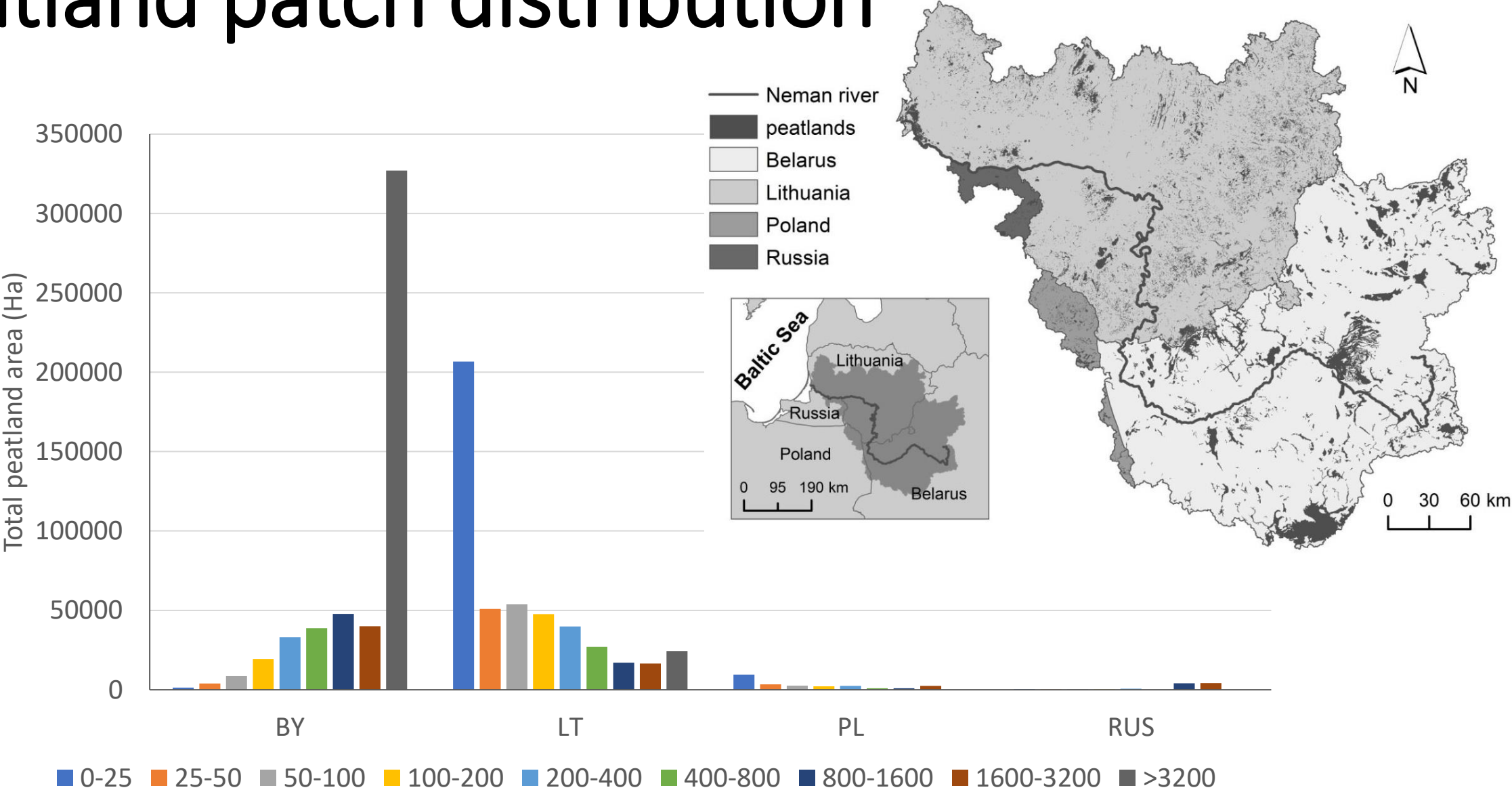
Trans-Border Neman River Basin



Peatland by type in the Neman River Basin

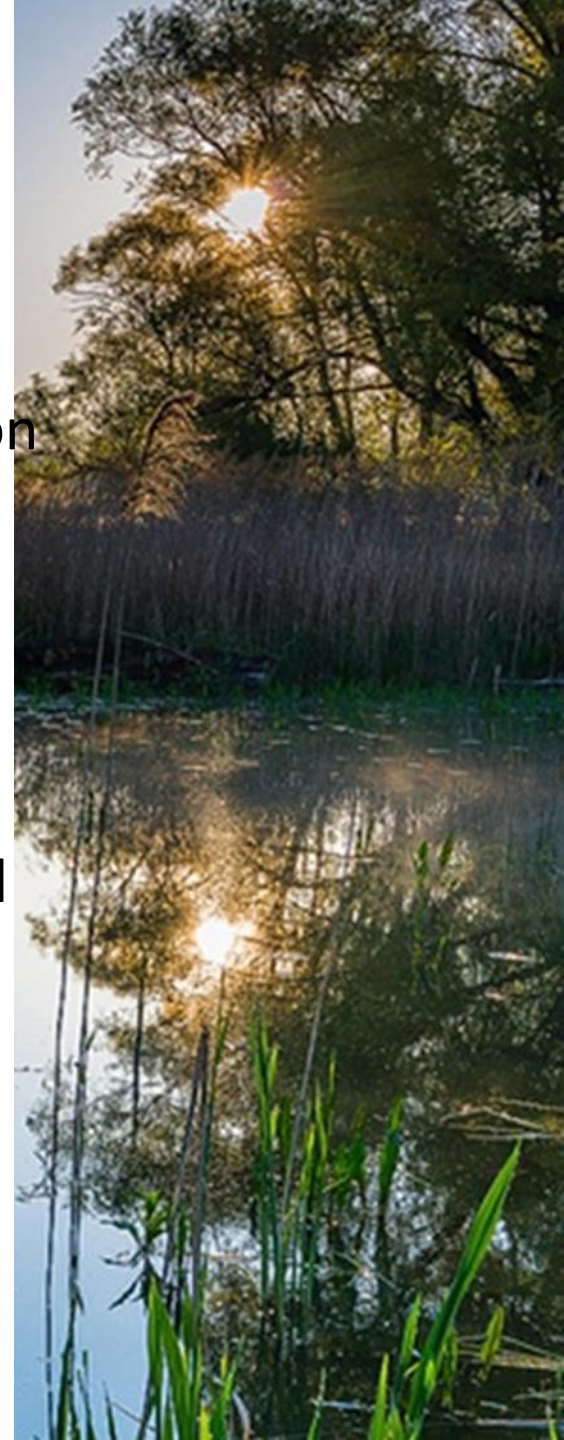


Peatland patch distribution



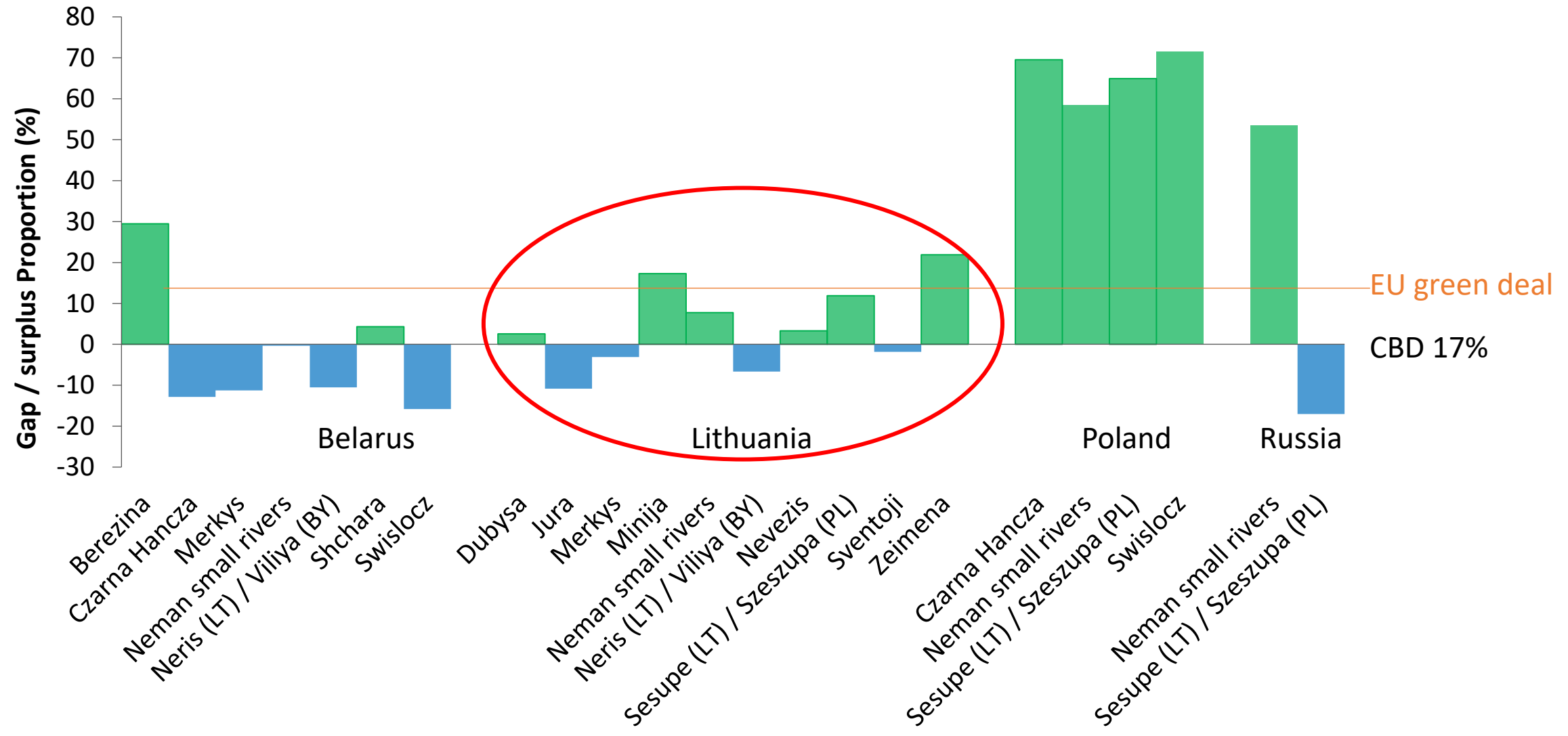
Spatial planning towards sustainable peatland fen management

- **Gap Analysis** - assessment of protected area system to meets protection goals
- **Target** for restoration (Aichi CBDs 17%, EU green deal 30%)
- Evaluates a range of different “gaps” in a protected area network based on both quantity and quality at the sub-river basin scale
- **Restoration targets**
- **Restoration cost vs. benefits**

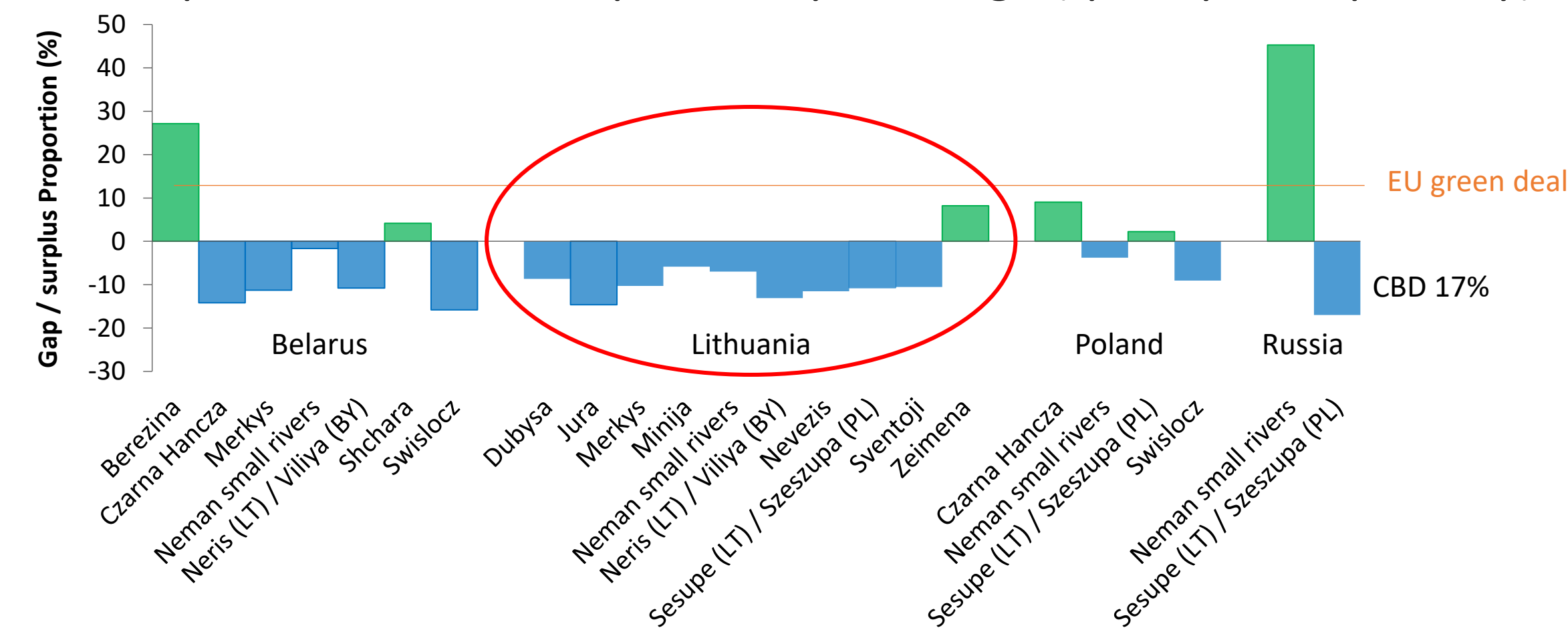


Gap Analysis Results

Current protection of fens by Neman River sub-basins by area (quantity)



Fens - protected & not impacted by drainage (quality and quantity)



Restoration needed

Dubysa	Jura	Merkys	Minija	Neman small rivers	Neris	Nevezis	Sesupe	Sventoiji
1249	2420	4256	1007	4331	4873	4191	4242	8094

Benefits from restoration of Fens

Storage

Water retention

194 m³/ha (30 cm increase) (Stachowicz submitted)

Nitrogen

16kg/ha/year (Stachowicz 2020)

66kg/ha/year

(<https://www.moorwissen.de/en/paludikultur/projekte/clearance/index.php>)

Phosphorus

4kg/ha year (Walton and Zak 2020)

13 kg/ha/year (Reddy 2007)

30kg/ha/year

(<https://www.moorwissen.de/en/paludikultur/projekte/clearance/index.php>)

Carbon

40kg /ha/year (Mrotzek 2020)

1.91 t C · ha⁻¹ · year⁻¹ (Fortuniak et al., 2017)

Value

Water retention

0.53 EUR m³ (Stachowicz submitted, Grygoruk et al., 2013)

Nitrogen

26 EUR Kg (Collins and Gillies, 2013)

Phosphorus

20 EUR/kg

Carbon

26.4 EUR / T (Wang et al., 2019)

42 EUR / T (<https://www.scientificamerican.com/article/cost-of-carbon-pollution-pegged-at-51-a-ton/>)

Peatland restoration cost benefit analysis

conservative approach for Lithuania

Sub_basin	Gap – Restoration needed	Restoration cost	Water retention		Nitrogen		Carbon		Phosphorus		Total benefit EUR/year
			M³	Benefit EUR/year	Tons	Benefit EUR/year	Tons	Benefit EUR/year	T/ha	Benefit EUR/year	
Dubysa	1249	2498264	242332	128436	20	509896	50	1319	5	99931	739581
Jura	2420	4840960	469573	248874	38	988040	97	2556	10	193638	1433108
Merkys	4256	8511070	825574	437554	67	1737109	170	4494	17	340443	2519600
Minija	1007	2014035	195361	103542	16	411065	40	1063	4	80561	596231
Neman small rivers	4331	8662795	840291	445354	68	1768077	173	4574	17	346512	2564517
Neris	4873	9745388	945303	501010	77	1989034	195	5146	19	389816	2885005
Nevezis	4191	8381144	812971	430875	66	1710591	168	4425	17	335246	2481137
Sesupe	4242	8484609	823007	436194	67	1731709	170	4480	17	339384	2511767
Sventoji	8094	16187170	1570156	832182	127	3303801	324	8547	32	647487	4792018
	34663	69325435	6724567	3564021	544	14149321	1387	36604	139	2773017	20522963

*Estimated restoration cost 2000 EUR/ha

Estimated 3.5 years to cover the costs of restoration

Does not include other benefits gained biodiversity, etc

Does not include other disservice costs or payments to farmers / Need to calculate maintenance costs



26 - 27 May 2021 EUROPEAN RIVER SYMPOSIUM

Let's start rewetting our Fens

Thank you and Questions

Assessment and Spatial Planning for Peatland Conservation and Restoration in the Neman River Basin

Michael Manton

Email: michael.manton@vdu.lt

Photo Žydrūnas Sinkevičius



EUROPEAN
REGIONAL
DEVELOPMENT
FUND

