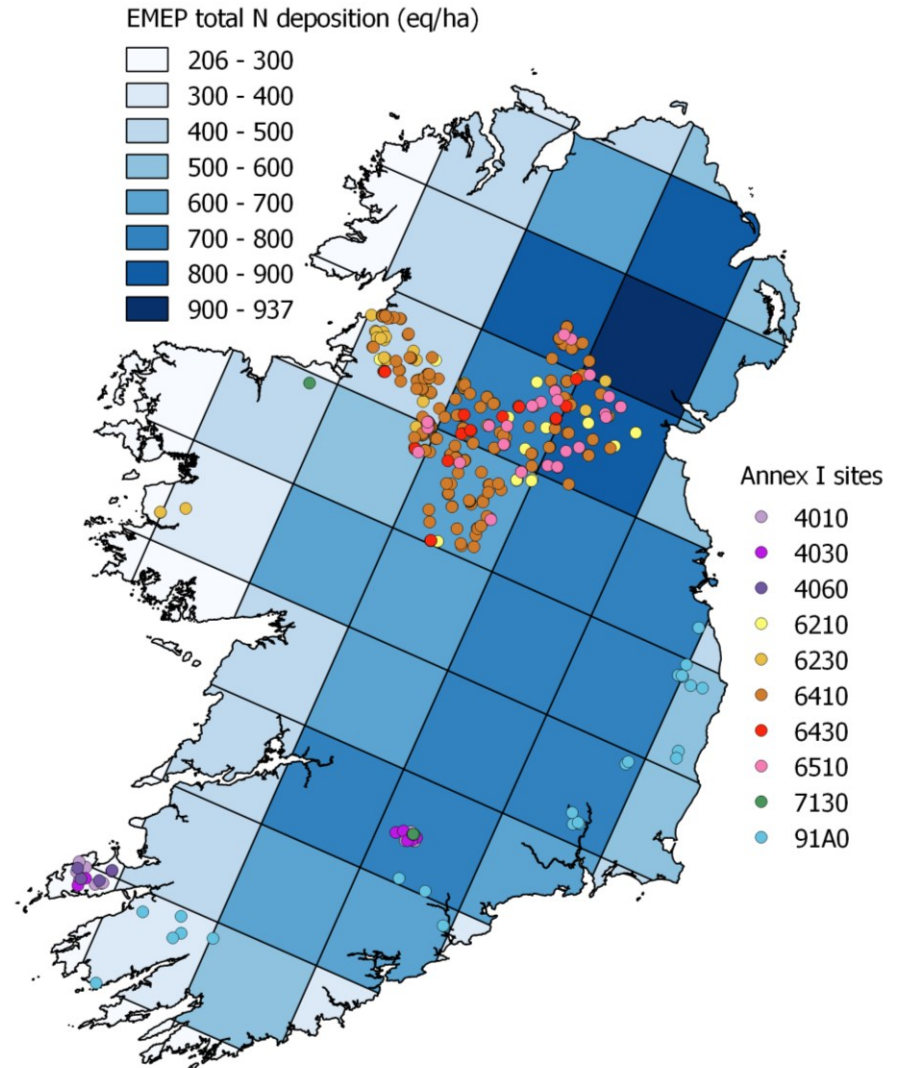


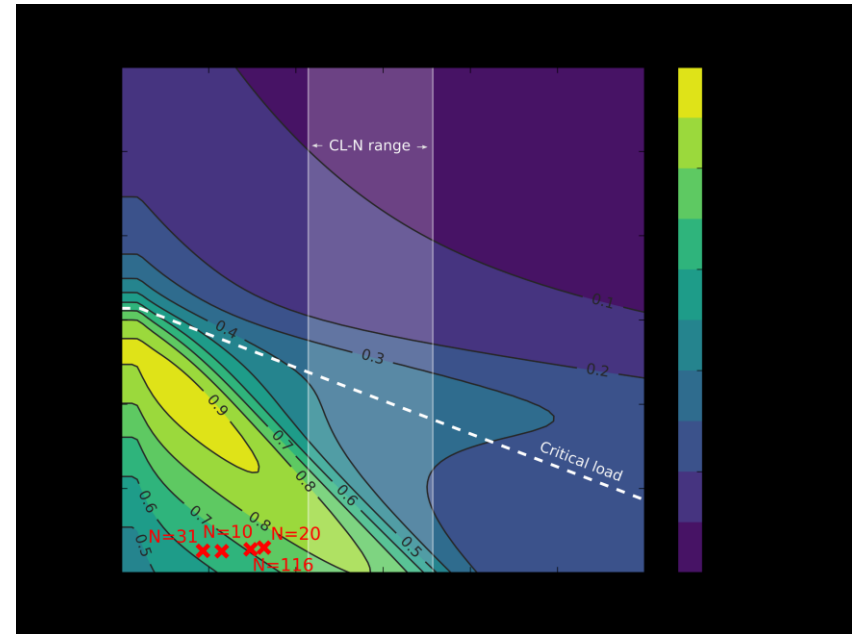
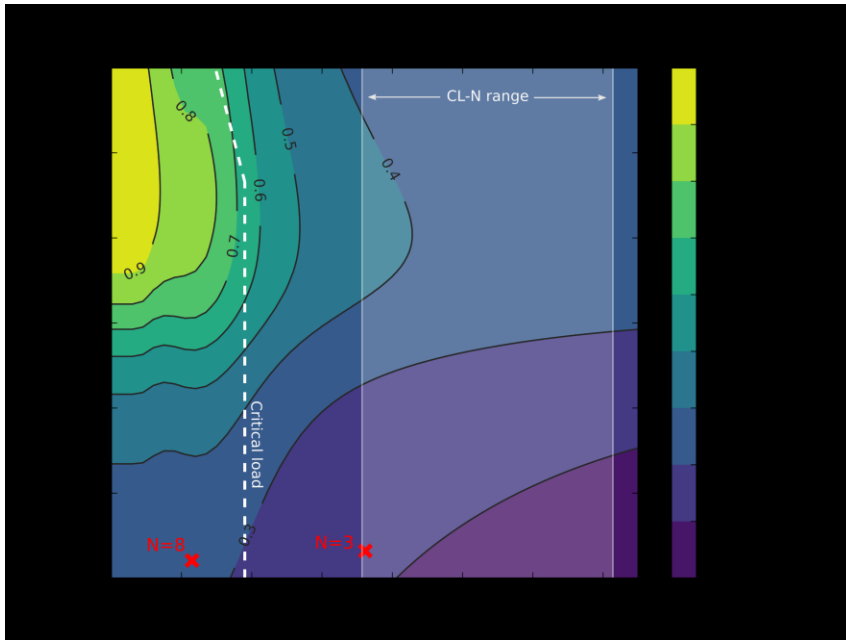
# biodiversity critical loads for Irish habitats: preliminary results

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- PROPS-CLF
- ten habitats (4010, 4030, 4060, 6210, 6230, 6410, 6430, 6510, 7130 and 91A0)
- ~400 relevés with soil data (C and N observations)
- threshold (plim4CLs set to 0.667)
- PROPS only used for positive indicator species
- results presented as an 'average' per habitat

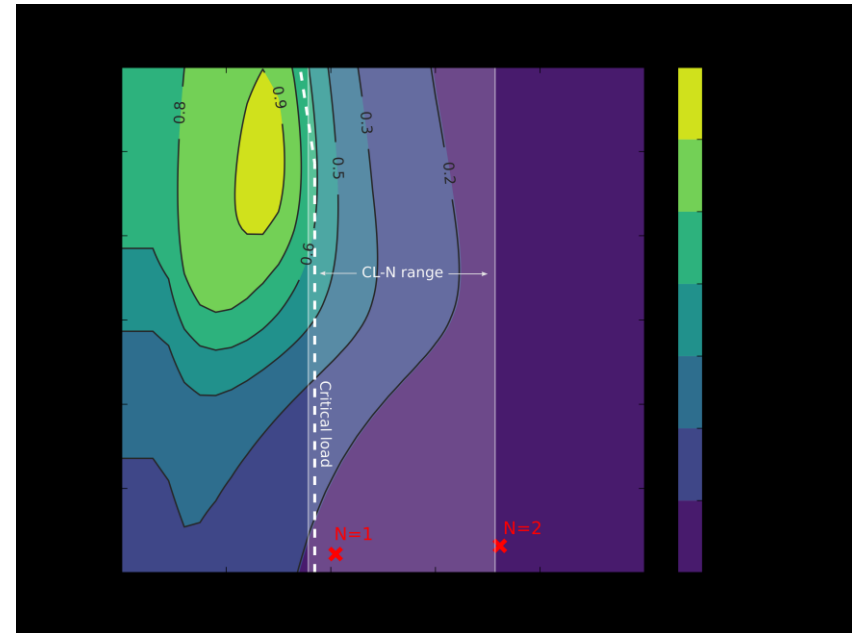


objective: to evaluate  $CL_{emp}N$  ranges for Irish habitats  
 $CL_{emp}N$  | TITAN | PROPS-CLF



**PROPS-CLF: preliminary results suggest that biodiversity critical loads are broadly consistent with empirical critical loads for some habitats (4010, 4030, 4060, 6210, 6230, 6510 and 7130) but inconsistent for others (6410, 6430 and 91A0).**

**$CLS_{max}$  generally insensitive except for 6210, 6430, 6510**



**the recommend ranges for empirical critical loads of nutrient nitrogen ( $CL_{emp}N$ ) may be further refined for habitats in Ireland based on biodiversity critical loads (PROPS-CLF) and change-points in vegetation communities along an atmospheric nitrogen deposition gradient (TITAN).**

Annex I Code	TITAN community change-point <sup>§</sup>						PROPS-CLF		empirical critical loads	
	Relevés	Species	# z- taxa (# PI)	# z+ taxa (# PI)	sum z- CP	sum z+ CP	CLN <sub>max</sub> (kg N ha <sup>-1</sup> yr <sup>-1</sup> )	Relevés	CL <sub>emp</sub> N (kg N ha <sup>-1</sup> yr <sup>-1</sup> )	EUNIS code
4010	231	131	12 (8)	8 (2)	4.9	9.1	5.3	11	10–20	F4.11
4030	164	123	19 (0)	6 (1)	4.1	12.0	7.4	9	10–20	F4.2
4060	97	89	20 (9)	5 (1)	5.5	7.6	4.8	4	5–15	F2
5130	191	142	26 (12)	22 (0)	4.8	6.5	–	–	10–20	(F4.2)
6210	507	275	67 (7 9) <sup>¥</sup>	38 (4 9)	8.3	8.5	16.5	52	15–25	E1.26
6230	108 <sup>¤</sup>	156	15 (0 1)	14 (0 2)	3.9	6.5	15.4	42	10–15	E1.7
6410	366	182	22 (2 4)	24 (2 5)	6.3	11.9	56.0	195	15–25	E3.51
6510	125	105	11 (0 1)	13 (1 2)	7.5	8.7	21.8	26	20–30	E2.2
7130	247	120	22 (15)	7 (0)	4.9	13.7	5.2	3	5–10	D1
8210	37	92	5 (1)	3 (0)	5.7	6.1	–	–	5–10	(E4.2)
91A0	319	206	65 (18)	10 (1)	8.8	15.2	140.1	26	10–15	G1.8

<sup>§</sup> See Wilkins K, Aherne J, Bleasdale A, 2016. Vegetation community change points suggest that critical loads of nutrient nitrogen may be too high. Atmospheric Environment.

<sup>¥</sup> Number of high quality indicator species | and high quality plus general indicator species with a significant change in abundance.

conclusion | preliminary results from PROPS-CLF suggest that biodiversity critical loads are broadly consistent with empirical critical loads (although for some habitats, e.g., 91A0 [G1.8], PROPS-CLF does not appear to work).

As such, in combination with vegetation community change-points they can be used to refine the recommend  $CL_{emp}N$  ranges for habitats in Ireland

Annex I Code	EUNIS code	$CL_{emp}N$ (kg N ha <sup>-1</sup> yr <sup>-1</sup> )	IE $CL_{emp}N$ (kg N ha <sup>-1</sup> yr <sup>-1</sup> )
4010	F4.11	10–20 <sup>§</sup>	5
4030	F4.2	10–20	10
4060	F2	5–15	5
5130	(F4.2)	(10–20)	–
6210	E1.26	15–25	20
6230	E1.7	10–15	15
6410	E3.51	15–25	25
6510	E2.2	20–30	30
7130	D1	5–10	5
8210	(E4.2)	(5–10)	(5)
91A0	G1.8	10–15	10

§ recommend revised  $CL_{emp}N$  range of 5-15 kg N ha<sup>-1</sup> yr<sup>-1</sup>