Adamska A., Kozub L., Kucharzyk J., Łazarski G. & Dembicz I. (2025) Habitat extremity promotes the survival of rapidly declining orchid *Neotinea ustulata* in Poland. – Preslia 97: 217–239.

Supplementary Table S2. Overview and summary statistics of the environmental variables with the sites studied in 2022 ($n = 33$), where *Neotinea ustulata* was observed in Poland (outside mountain ranges) in the 21st century. Please note that the four DCA axes, which were used in all statistical analyses, are not listed below.

Environmental variable	min	max	mean	sd	median
Climate, topography and landscape:					
Mean annual temperature [C°]	8.05	8.75	8.31	0.18	8.35
Diurnal temperature range [C°]	7.5	7.9	7.7	0.1	7.7
Annual temperature range [C°]	27.7	28.6	28.2	0.2	28.2
Annual precipitation amount [mm/year]	537	670.9	608.4	31.6	614.1
Precipitation in the wettest month [mm]	75.9	93.4	85.6	4.1	86.2
Precipitation in the driest month [mm]	23	32.6	28.8	2.2	29.4
Precipitation seasonality [mm]	33.2	41.0	35.1	2.4	34
Mean (monthly) climate moisture index [mm/month]	-24.7	-6.6	-17.1	4.0	-17.9
Vapour pressure deficit [Pa]	458.4	499.3	474.7	9.0	472.8
Elevation [m a.s.l.]	244.5	331.2	281.9	22.7	277.1
Inclination [°]	2	25	9	6	8
Heat-load index	-0.31	0.42	0.05	0.15	0.05
Area of the grassland patch [ha]	0.1	14.7	5.0	5.0	3.9
Soil and microtopography:					
Soil depth mean [cm]	3.0	41.8	12.3	8.5	8.8
Soil depth SD [cm]	0.8	27.6	4.9	5.1	3.4
Max. microrelief [cm]	3	16	7	3	6
Stones and rocks cover [%]	0.0	20.0	1.9	4.6	0.0
Gravel cover [%]	0.0	30.0	2.9	7.8	0.0
Fine soil cover [%]	55.0	100.0	95.2	10.7	99.9
Bare ground cover [%]	0.0	15.0	1.7	2.9	0.5
Nitrogen (total) [%]	0.142	1.002	0.368	0.189	0.334
Potassium [%]	0.211	3.247	0.947	0.633	0.759
Phosphorus (bioavailable) [mg/kg]	2.32	13.43	5.11	2.33	4.98
Soil pH (H_2O)	6.05	7.45	7.03	0.39	7.17
EC (in 1:2.5 solution)[µS/cm]	131.6	607.0	339.0	108.9	351.0
Organic matter content [%]	3.74	19.66	9.48	3.57	8.99
Soil skeleton content (>2 mm)[%]	0.49	33.74	11.70	10.14	9.08
Very coarse sand content (1-2 mm)[%]	0.37	27.95	4.78	6.20	2.54
Coarse sand content (0.5-1 mm)[%]	0.24	13.08	4.28	2.92	4.11
Medium sand content (0.25-0.5 mm)[%]	1.85	47.57	19.22	12.57	16.95
Fine sand content (0.1-0.25 mm)[%]	8.67	39.07	23.97	7.86	23.87
Very fine sand content (0.05-0.1 mm)[%]	0.00	9.53	5.47	2.31	5.69
Coarse silt content (0.02-0.05 mm)[%]	2.83	22.54	8.35	4.29	7.57
Fine silt and clay content (<0.02 mm)[%]	7.75	36.29	22.23	8.01	24.21

Vegetation characteristics:					
Total vegetation cover [%]	72	99	90	7	92
Herb cover [%]	60	95	78	10	80
Cryptogam cover [%]	1	85	40	28	35
Species richness of vascular plants	29	56	39	6	38
Vegetation height mean [cm]	4.8	34.2	12.2	6.5	9.6
Vegetation height SD [cm]	1.2	20.6	4.3	3.9	3.1
Mean EIVE value for moisture (M_EIVE)	2.79	4.14	3.35	0.30	3.34
Mean EIVE value for nitrogen (N_EIVE)	2.77	4.80	3.46	0.45	3.36
Mean EIVE value for reaction (R_EIVE)	5.79	7.54	7.05	0.38	7.12
Mean EIVE value for light (L_EIVE)	5.59	7.57	6.94	0.46	7.00
Mean EIVE value for temperature (T_EIVE)	4.04	4.74	4.41	0.16	4.41
Abandonment and secondary succession:					
Trees and shrubs in surroundings (cover/100 m^2)[%]	0.0	80.0	20.8	27.1	8.0
Shrub cover [%]	0.0	60.0	7.1	15.5	0.3
Litter cover [%]	2.0	93.0	33.3	29.8	25.0
Litter thickness [%]	0.01	5	0.39	0.90	0.10
Abandonment of a land use (binary variable: yes/no)	yes – 20 sites, no – 13 sites				