Man M., Malíček J., Kalčík V., Novotný P., Chobot K. & Wild J. (2022) DaLiBor: Database of Lichens and Bryophytes of the Czech Republic. – Preslia 94: 579–605.

Supplementary Table S2. – Environmental factors used for species' distribution modelling: To describe the main environmental gradient of Bohemian Switzerland National Park for the distribution modelling, we computed six spatial layers with a resolution of 10 m. We chose this resolution because we used Sentinel 2A multispectral data which are available in the finest grain of 10 m. From satellite multispectral data we computed **normalised difference vegetation index (NDVI)** (Huete et al. 2002) to characterise the properties of life green vegetation. We computed NDVI through Google Earth Engine (GEE) (Gorelick et al. 2017). Because the majority of training records come from the year 2018; we used mean NDVI from vegetation season (June till September 2018) derived from cloudless Sentinel 2A scenes. Since we maintained a resolution of 10 m, we downscaled also the 5th generation of digital terrain (DTM) and 1st generation of digital surface models (DSM) of the Czech Republic, provided by the State Administration of Land Surveying and Cadastre, Land Survey Office, Czech Republic, https://www.cuzk.cz - originally available in resolution 2 m. To downscale DTM and DSM, we used b-spline interpolation (Lee et al. 1997). Topographic analyses including downscaling were carried out using SAGA GIS software version 6.4.0 (Conrad et al. 2015). DTM itself was directly used in species' distribution modeling representing the **elevation**. The spatial difference between DTM and DSM represents the **canopy height model**, the proxy for canopy height that affects local microclimate (Kašpar et al. 2021). Besides elevation itself, we derived other three potentially ecologically-relevant topographic factors. As a proxy for energy income, we computed **potential insolation** for the period from 28 February to 28 November. We used the central latitude of the Czech Republic (49.5°). Insolation was computed once per seven days and, each day, it was computed for every hour starting at 8 a.m. and ending at 8 p.m. We used the default settings in SAGA GIS version 6.4.0 for other parameters(Böhner & Antonić 2009, Conrad et al. 2015) To express the position relative to the surrounding terrain, we calculated the **topographic position index** as the difference between plot elevation and the mean elevation of the surrounding terrain within ten search circle radii (50, 100, 150, 200, 250, 300, 350, 400, 450, 500 m). We used multiscale of search radii to capture close and also distant surrounding terrain (Guisan et al. 1999). We computed also the **topographic wetness index** as an approximation of soil moisture. For that, however, we did need to hydrologically pre-processed DTM. Thus, we removed the sinks with the combination of depression filling and breaching technique (Lindsay & Dhun 2015). Next, from the hydrologically-correct DTM, we derived a raster of flow accumulation using the top-down approach, with a multiple flow direction method, no threshold for linear flow, and flow dispersion of 1.1 (Freeman 1991). Finally, we used the flow accumulation and local slope (Zevenbergen & Thorne 1987) to calculate the topographic wetness index (Kopecký et al. 2021). Mean, minimum and maximum are based on 803 points representing P. alpinum, D. majus presence (n=73) and random background (n=730).

	Units	**mean**	**min; max**
normalised difference vegetation index	-	0.75	0.27; 0.91
elevation	m	335.2	145.0; 521.7
canopy height model	m	18.69	0.00; 36.48
potential insolation	W/m^2	1264.8	249.7; 1681.9
topographic position index	m	-0.41	-23.63; 20.02
topographic wetness index	-	5.48	1.89; 19.68

References:

Böhner J. & Antonić O. (2009) Land-surface parameters specific to topo-climatology. – In: Hengl T. & Reuter H. I. (eds.), Geomorphometry, pp. 195–226, Elsevier, Amsterdam.

Conrad O., Bechtel B., Bock M., Dietrich H., Fischer E., Gerlitz L., Wehberg J., Wichmann V. & Böhner J. (2015) System for Automated Geoscientific Analyses (SAGA) v. 2.1.4. – Geosci. Model Dev. 8: 1991–2007.

Freeman T. G. (1991) Calculating catchment area with divergent flow based on a regular grid. – Comput. Geosci. 17: 413–422.

Gorelick N., Hancher M., Dixon M., Ilyushchenko S., Thau D. & Moore R. (2017) Google Earth Engine: Planetary-scale geospatial analysis for everyone. – Remote Sens. Environ. 202: 18–27.

Guisan A., Weiss S. B. & Weiss A. D. (1999): GLM versus CCA spatial modeling of plant species distribution. – Plant Ecol. 143: 107–122.

Huete A., Didan K., Miura T., Rodriguez E. P., Gao X. & Ferreira L. G. (2002) Overview of the radiometric and biophysical performance of the MODIS vegetation indices. – Remote Sens. Environ. 83: 195–213.
Kašpar V., Hederová L., Macek M., Müllerová J., Prošek J., Surový P., Wild J. & Kopecký M. (2021) Temperature buffering in temperate forests: Comparing microclimate models based on ground measurements with active and passive remote sensing. – Remote Sens. Environ. 263: 112522.
Kopecký M., Macek M. & Wild J. (2021) Topographic Wetness Index calculation guidelines based on measured soil moisture and plant species composition. – Sci. Total Environ. 757: 143785.
Lee S., Wolberg G. & Shin S. Y. (1997) Scattered data interpolation with multilevel b-splines. – IEEE Trans. Vis. Comput. Graph. 3: 228–244.
Lindsay J. B. & Dhun K. (2015) Modelling surface drainage patterns in altered landscapes using LiDAR. – Int. J. Geogr. Inf. Sci. 29: 397–411.
Zevenbergen L. W. & Thorne C. R. (1987) Quantitative analysis of land surface topography. – Earth Surf. Process. Landforms 12: 47–56.