

Krzewicka B., Matura N., Adamska E. & Osyczka P. (2020) Species composition of freshwater lichens in temperate mountain streams: the effect of site, habitat and local spatial isolation. – *Preslia* 93: 235–254.

Electronic Appendix 1

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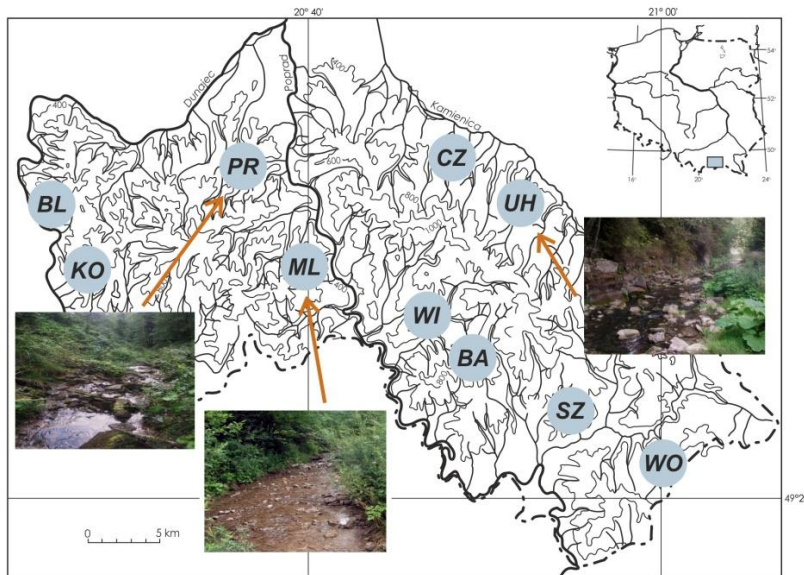


Fig. A1. – Location of the streams in the Beskid Sądecki Mts (Western Carpathians), example illustrations of the sampling sites are also provided.

Streams: *BA* – Potok Baraniecki, *BL* – Potok Bliszczce, *CZ* – Potok Czaczowiec, *KO* – Potok Kozłecki, *ML* – Potok Młodowski, *PR* – Potok Przesietnica, *SZ* – Potok Szczawniczek, *UH* – Potok Uhryński, *WI* – Potok Wierchomlanka, *WO* – Potok Wojkowski

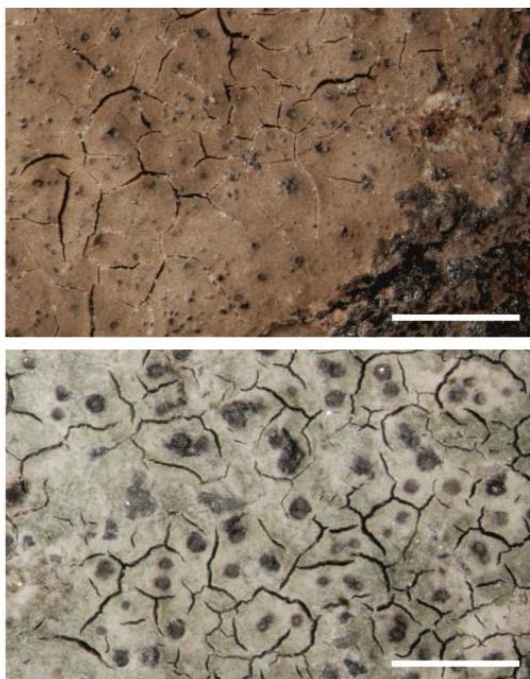


Fig. A2. – Examples of freshwater lichens associated with temperate mountain streams: *Hydropunctaria rheitrophila* (top) and *Verrucaria praetermissa* (bottom). Scale bars – 1 mm.

Table A1. – Habitat parameters of the streams based on measurements obtained from sampling sites, mean±SD and the minimum–maximum range are provided; different letters indicate significant differences ($P < 0.05$) according to the Dunn’s test.

| Stream | pH | | Conductivity ($\mu\text{S}/\text{cm}$) | | Dissolved oxygen content (%) | | Siltation (% of substrate surface) | | Light intensity ($\mu\text{mol m}^{-2} \text{s}^{-1}$) | |
|--------------------|---------|---------|--|---------|------------------------------|-----------|------------------------------------|---------|--|---------|
| | mean±SD | min–max | mean±SD | min–max | mean±SD | min–max | mean±SD | min–max | mean±SD | min–max |
| BA (n=6) | 8.3±0.2 | 8.1–8.5 | 190±24 a,b | 170–230 | 94.5±0.2 b,c,d,e | 94.2–94.7 | 16±2 | 15–20 | 330±185 | 85–630 |
| BL (n=3) | 8.5±0.3 | 8.2–8.7 | 287±29 a,b | 270–320 | 84.6±3.4 a,b,c,d | 81.0–87.6 | 32±20 | 20–55 | 242±116 | 145–370 |
| CZ (n=6) | 8.5±0.2 | 8.3–8.7 | 203±53 a,b | 150–290 | 92.7±2.0 a,b,c,d,e | 90.6–94.6 | 25±17 | 10–55 | 275±183 | 92–585 |
| KO (n=3) | 8.2±0.2 | 8.1–8.4 | 240±20 a,b | 220–260 | 86.9±3.0 a,b,c,d | 83.4–89.0 | 43±20 | 20–55 | 233±135 | 95–365 |
| ML (n=3) | 8.6±0.1 | 8.5–8.7 | 267±32 a,b | 230–290 | 89.0±1.0 a,b,c,d,e | 88.0–90.0 | 22±3 | 20–25 | 287±51 | 250–345 |
| PR (n=3) | 8.3±0.2 | 8.1–8.5 | 157±15 a | 140–170 | 88.7±3.1 a,b,c,d,e | 86.0–92.0 | 16±6 | 10–20 | 212±63 | 145–270 |
| SZ (n=5) | 8.4±0.1 | 8.4–8.5 | 178±23 a | 150–200 | 91.0±1.5 a,b,c,d,e | 89.3–93.0 | 17±11 | 10–35 | 314±199 | 35–590 |
| UH (n=6) | 8.5±0.1 | 8.4–8.6 | 208±44 a,b | 140–250 | 96.4±0.8 e | 95.0–97.0 | 18±9 | 10–35 | 341±193 | 45–635 |
| WI (n=4) | 8.6±0.1 | 8.5–8.6 | 278±67 a,b | 210–340 | 90.3±3.7 a,b,c,d,e | 86.7–94.0 | 21±2 | 20–25 | 400±250 | 125–730 |
| WO (n=4) | 8.5±0.1 | 8.4–8.7 | 368±34 b | 320–400 | 82.8±3.0 a | 79.0–85.5 | 16±2 | 15–20 | 336±243 | 105–660 |

Streams: **BA** – Potok Baraniecki, **BL** – Potok Bliszcz, **CZ** – Potok Czaczowiec, **KO** – Potok Kozłowski, **ML** – Potok Młodowski, **PR** – Potok Przesietnica, **SZ** – Potok Szczawniczek, **UH** – Potok Uhryński, **WI** – Potok Wierchomlanka, **WO** – Potok Wojkowski

Fig. A3. – Non-metric multidimensional scaling (NMDS) ordination diagrams showing patterns of similarity between the sampling sites in terms of lichen species composition in habitat classes *Hab-I*, *Hab-II*, *Hab-III* (A) and study streams (B).

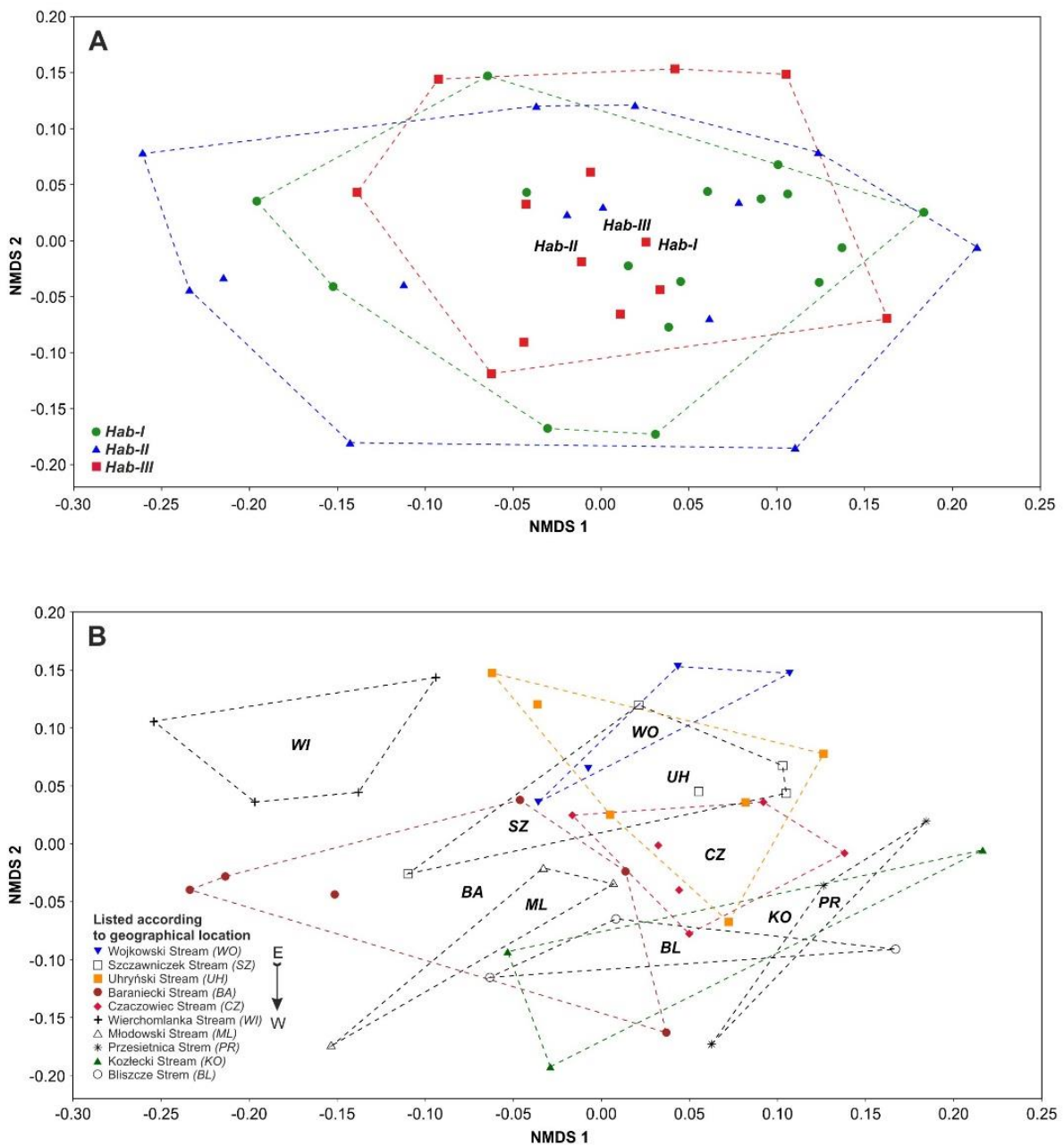


Fig. A4. – Scatterplots showing significant positive correlations ($P < 0.05$) between values of parameters (pH, conductivity of water and light intensity) measured at sampling sites and their distance from stream springs; Pearson coefficients (R) are provided. For conductivity the coefficients were calculated separately for streams with comparable values of this parameter (*BA, CZ, KO, PR, SZ, UH* – first set, black points and *BL, ML, WI, WO* – second set, blue point; see Table S1 for streams abbreviations).

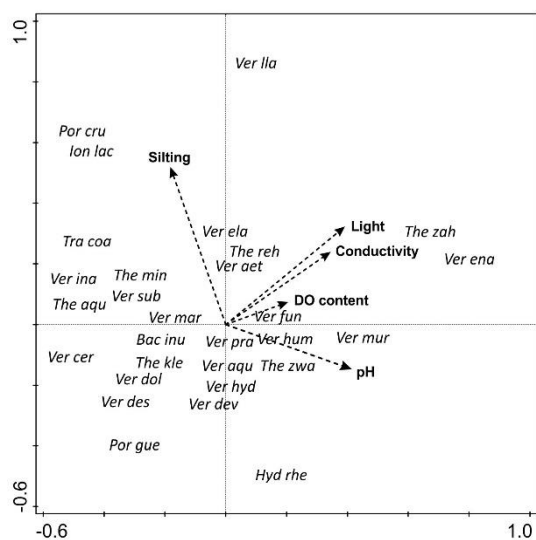
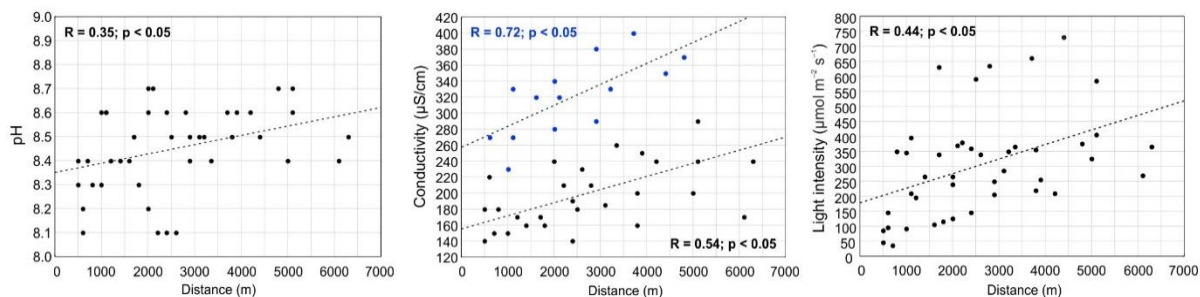


Fig. A5. – Canonical correspondence analysis (CCA) ordination diagram (first two axes) for the abundance of lichen species and habitat parameters of the sampling sites; see Table S2 for stream abbreviations.