**Table S8.** Relationship between the stream local descriptors and RLQ axes of the fitted model

|  |  |  |  |
| --- | --- | --- | --- |
| RLQ axes | Local environment descriptor | Std. obs. values | Adj. p-value |
|  | Stream area | -0.916 | 0.38 |
|  | Water transparency | -0.904 | 0.39 |
|  | Water pH | -2.453 | 0.008 |
|  | Water temperature | -2.397 | 0.01 |
|  | Dissolved oxygen | -1.013 | 0.33 |
|  | Water conductivity | 2.162 | 0.01 |
|  | COD | 0.191 | 0.87 |
|  | NO2 | 1.358 | 0.18 |
|  | Total alk | 2.122 | 0.03 |
| Q1 | Alk HCO3 | 2.122 | 0.03 |
|  | Stream grass | 0.188 | 0.81 |
|  | Stream grass+trees | 1.685 | 0.88 |
|  | Stream shrubs | -0.818 | 0.29 |
|  | Stream trees | -0.973 | 0.14 |
|  | Stream aquatic veg. | 0.933 | 0.78 |
|  | Stream grass+rocks | -0.811 | 0.16 |
|  | Stream leaves+roots+rocks | -0.747 | 0.31 |
|  | Stream mud | 1.173 | 0.80 |
|  | Stream mud+rocks | -0.854 | 0.04 |
|  | Stream rocks | 0.000 | 1.00 |
|  | Stream roots+roocks | -0.834 | 0.20 |
|  | Stream area | -1.542 | 0.12 |
|  | Water transparency | -0.781 | 0.46 |
|  | Water pH | 1.301 | 0.20 |
|  | Water temperature | 1.314 | 0.20 |
|  | Dissolved oxygen | 0.496 | 0.65 |
|  | Water conductivity | 1.471 | 0.15 |
|  | COD | -0.105 | 0.91 |
|  | NO2 | 1.110 | 0.28 |
|  | Total alk | 0.612 | 0.58 |
|  | Alk HCO3 | 0.612 | 0.58 |
|  | Stream grass | -0.864 | 0.30 |
| Q2 | Stream grass+trees | 1.036 | 0.90 |
|  | Stream shrubs | 1.403 | 0.88 |
|  | Stream trees | -2.112 | 0.03 |
|  | Stream aquatic veg. | 0.989 | 0.85 |
|  | Stream grass+rocks | -1.087 | 0.04 |
|  | Stream leaves+roots+rocks | -1.078 | 0.19 |
|  | Stream mud | -0.783 | 0.32 |
|  | Stream mud+rocks | 0.354 | 0.69 |
|  | Stream rocks | 0.000 | 1.00 |
|  | Stream roots+roocks | -0.980 | 0.14 |

Q1 = Axis 1; Q2 = Axis 2; Local environment descriptor = Local physicochemical and morphological characteristics; Std. obs. values = Standard observed values; Adj. p-value = Adjusted p-value