Table S1: Contrasts between sites in 2020 after GLMs from Table 1. Bold font indicates significant relationships.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Models | Contrasts | Estimates | SE | Z | *P* |
| Aquatic invertebrates | S1u - S2u | 0.057 | 0.138 | 0.414 | 1.0e+00 |
|  | S1u - S3r | -0.319 | 0.122 | -2.61 | 9.5e-02 |
|  | S1u - S4r | 0.216 | 0.144 | 1.501 | 6.6e-01 |
|  | S1u - S5r | 0.234 | 0.136 | 1.716 | 5.2e-01 |
|  | S1u - S6d | -0.324 | 0.122 | -2.646 | 8.6e-02 |
|  | **S2u - S3r** | **-0.376** | **0.124** | **-3.023** | **3.0e-02** |
|  | S2u - S4r | 0.159 | 0.146 | 1.09 | 8.9e-01 |
|  | S2u - S5r | 0.177 | 0.138 | 1.278 | 8.0e-01 |
|  | **S2u - S6d** | **-0.381** | **0.125** | **-3.058** | **2.7e-02** |
|  | **S3r - S4r** | **0.535** | **0.131** | **4.086** | **6.3e-04** |
|  | **S3r - S5r** | **0.552** | **0.122** | **4.519** | **9.1e-05** |
|  | S3r - S6d | -0.005 | 0.106 | -0.048 | 1.0e+00 |
|  | S4r - S5r | 0.018 | 0.144 | 0.122 | 1.0e+00 |
|  | **S4r - S6d** | **-0.54** | **0.131** | **-4.117** | **5.5e-04** |
|  | **S5r - S6d** | **-0.557** | **0.122** | **-4.551** | **7.8e-05** |
| Riparian vegetation | S1u - S2u | 0.275 | 0.189 | 1.455 | 6.9e-01 |
|  | S1u - S3r | -0.011 | 0.182 | -0.059 | 1.0e+00 |
|  | S1u - S4r | 0.066 | 0.183 | 0.36 | 1.0e+00 |
|  | S1u - S5r | -0.278 | 0.176 | -1.577 | 6.1e-01 |
|  | S1u - S6d | -0.386 | 0.176 | -2.19 | 2.4e-01 |
|  | S2u - S3r | -0.286 | 0.154 | -1.862 | 4.3e-01 |
|  | S2u - S4r | -0.209 | 0.154 | -1.356 | 7.5e-01 |
|  | **S2u - S5r** | **-0.554** | **0.147** | **-3.773** | **2.2e-03** |
|  | **S2u - S6d** | **-0.662** | **0.147** | **-4.512** | **9.4e-05** |
|  | S3r - S4r | 0.077 | 0.146 | 0.525 | 1.0e+00 |
|  | S3r - S5r | -0.268 | 0.138 | -1.942 | 3.8e-01 |
|  | S3r - S6d | -0.376 | 0.138 | -2.729 | 7.0e-02 |
|  | S4r - S5r | -0.344 | 0.139 | -2.481 | 1.3e-01 |
|  | **S4r - S6d** | **-0.452** | **0.139** | **-3.263** | **1.4e-02** |
|  | S5r - S6d | -0.108 | 0.13 | -0.832 | 9.6e-01 |
| Riparian invertebrates | **S1u - S2u** | **-0.538** | **0.143** | **-3.766** | **2.3e-03** |
|  | **S1u - S3r** | **-0.566** | **0.143** | **-3.969** | **1.0e-03** |
|  | S1u - S4r | -0.177 | 0.146 | -1.215 | 8.3e-01 |
|  | S1u - S5r | -0.309 | 0.145 | -2.134 | 2.7e-01 |
|  | S1u - S6d | -0.122 | 0.148 | -0.826 | 9.6e-01 |
|  | S2u - S3r | -0.028 | 0.137 | -0.208 | 1.0e+00 |
|  | S2u - S4r | 0.36 | 0.141 | 2.564 | 1.1e-01 |
|  | S2u - S5r | 0.228 | 0.139 | 1.64 | 5.7e-01 |
|  | **S2u - S6d** | **0.415** | **0.143** | **2.912** | **4.2e-02** |
|  | S3r - S4r | 0.389 | 0.14 | 2.769 | 6.2e-02 |
|  | S3r - S5r | 0.257 | 0.139 | 1.846 | 4.4e-01 |
|  | **S3r - S6d** | **0.444** | **0.143** | **3.114** | **2.3e-02** |
|  | S4r - S5r | -0.132 | 0.143 | -0.924 | 9.4e-01 |
|  | S4r - S6d | 0.055 | 0.146 | 0.378 | 1.0e+00 |
|  | S5r - S6d | 0.187 | 0.145 | 1.291 | 7.9e-01 |

Table S2: Posthoc tests of main effects after PERMANOVAs (see Table 3 for more details on associated models). Bold font indicates significant relationships.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| from | to | *P* of Aquatic invertebrates | *P* of Riparian vegetation | *P* of Riparian invertebrates |
| 2020 | 2021 | **1.0e-03** | **1.0e-03** | **1.0e-03** |
| 2020 | 2022 | **1.0e-03** | **1.0e-03** | **1.0e-03** |
| 2021 | 2022 | **1.0e-03** | **1.0e-03** | **1.0e-03** |
| S1 | S2 | **2.7e-02** | **1.0e-03** | **2.5e-03** |
| S1 | S3 | **1.5e-03** | **1.0e-03** | **1.5e-03** |
| S1 | S4 | **2.4e-02** | **1.0e-03** | **1.5e-03** |
| S1 | S5 | **1.5e-03** | **1.0e-03** | **1.5e-03** |
| S1 | S6 | **1.5e-03** | **1.0e-03** | **1.5e-03** |
| S2 | S3 | **1.5e-03** | **1.0e-03** | **2.5e-02** |
| S2 | S4 | 4.6e-01 | **1.0e-03** | **1.5e-03** |
| S2 | S5 | **2.7e-03** | **1.0e-03** | **1.5e-03** |
| S2 | S6 | **1.5e-03** | **1.0e-03** | **2.5e-03** |
| S3 | S4 | **1.5e-03** | **1.0e-03** | **9.2e-03** |
| S3 | S5 | **1.5e-03** | **1.0e-03** | **1.5e-03** |
| S3 | S6 | **1.5e-03** | **1.0e-03** | **1.5e-03** |
| S4 | S5 | **1.0e-02** | **1.0e-03** | **1.2e-02** |
| S4 | S6 | **1.5e-03** | **1.0e-03** | **1.5e-03** |
| S5 | S6 | **1.5e-03** | **1.0e-03** | **1.5e-03** |

Table S3: Posthoc tests of interactions after PERMANOVAs (see Table 3 for more details on associated models). Bold font indicates significant relationships.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| from | to | *P* of Aquatic invertebrates | *P* of Riparian vegetation | *P* of Riparian invertebrates |
| 2020\_S1u | 2020\_S2u | 2.4e-01 | **1.1e-03** | **5.7e-03** |
| 2020\_S1u | 2020\_S3r | **6.2e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S1u | 2020\_S4r | **1.2e-02** | **1.1e-03** | **5.1e-03** |
| 2020\_S1u | 2020\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S1u | 2020\_S6d | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S1u | 2021\_S3r | **6.2e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S1u | 2021\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S1u | 2021\_S6d | **7.3e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S1u | 2022\_S1u | **7.3e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S1u | 2022\_S2u | **6.6e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S1u | 2022\_S3r | **5.8e-03** | **1.1e-03** | **1.1e-02** |
| 2020\_S1u | 2022\_S4r | **6.2e-03** | **2.1e-03** | **4.8e-03** |
| 2020\_S1u | 2022\_S5r | **6.2e-03** | **1.1e-03** | **6.2e-03** |
| 2020\_S1u | 2022\_S6 | **6.2e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S2u | 2020\_S3r | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S2u | 2020\_S4r | 7.5e-01 | **1.1e-03** | **6.2e-03** |
| 2020\_S2u | 2020\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2020\_S6d | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S2u | 2021\_S3r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2021\_S5r | **1.8e-02** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2021\_S6d | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2022\_S1u | **7.3e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2022\_S2u | 9.0e-02 | **1.1e-03** | **5.1e-03** |
| 2020\_S2u | 2022\_S3r | **1.0e-02** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2022\_S4r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2022\_S5r | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S2u | 2022\_S6 | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S3r | 2020\_S4r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2020\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2020\_S6d | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2021\_S3r | **8.1e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2021\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2021\_S6d | **5.8e-03** | **1.1e-03** | **5.7e-03** |
| 2020\_S3r | 2022\_S1u | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2022\_S2u | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S3r | 2022\_S3r | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S3r | 2022\_S4r | **6.6e-03** | **1.1e-03** | **5.7e-03** |
| 2020\_S3r | 2022\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S3r | 2022\_S6 | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2020\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2020\_S6d | **5.8e-03** | **1.1e-03** | **5.7e-03** |
| 2020\_S4r | 2021\_S3r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2021\_S5r | **7.3e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2021\_S6d | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2022\_S1u | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2022\_S2u | 5.9e-02 | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2022\_S3r | **7.3e-03** | **1.1e-03** | **5.7e-03** |
| 2020\_S4r | 2022\_S4r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2022\_S5r | **6.2e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S4r | 2022\_S6 | **6.2e-03** | **1.1e-03** | **5.7e-03** |
| 2020\_S5r | 2020\_S6d | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2021\_S3r | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2021\_S5r | **1.9e-02** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2021\_S6d | **8.1e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2022\_S1u | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2022\_S2u | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2020\_S5r | 2022\_S3r | **5.8e-03** | **1.1e-03** | **6.2e-03** |
| 2020\_S5r | 2022\_S4r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2022\_S5r | **6.2e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S5r | 2022\_S6 | **5.8e-03** | **1.1e-03** | **5.7e-03** |
| 2020\_S6d | 2021\_S3r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2021\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2021\_S6d | **2.2e-02** | **1.1e-03** | **5.1e-03** |
| 2020\_S6d | 2022\_S1u | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2022\_S2u | **8.1e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2022\_S3r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2022\_S4r | **6.2e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2022\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2020\_S6d | 2022\_S6 | **5.8e-03** | **2.1e-03** | **5.1e-03** |
| 2021\_S3r | 2021\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S3r | 2021\_S6d | **7.3e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S3r | 2022\_S1u | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S3r | 2022\_S2u | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S3r | 2022\_S3r | **5.8e-03** | **1.4e-02** | **5.7e-03** |
| 2021\_S3r | 2022\_S4r | **6.2e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S3r | 2022\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S3r | 2022\_S6 | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2021\_S5r | 2021\_S6d | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S5r | 2022\_S1u | **6.2e-03** | **1.1e-03** | **6.2e-03** |
| 2021\_S5r | 2022\_S2u | **9.0e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S5r | 2022\_S3r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S5r | 2022\_S4r | **5.8e-03** | **1.1e-03** | **6.2e-03** |
| 2021\_S5r | 2022\_S5r | **8.1e-03** | **1.9e-02** | **7.2e-03** |
| 2021\_S5r | 2022\_S6 | **5.8e-03** | **1.1e-03** | **6.2e-03** |
| 2021\_S6d | 2022\_S1u | **6.2e-03** | **1.1e-03** | **5.1e-03** |
| 2021\_S6d | 2022\_S2u | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S6d | 2022\_S3r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S6d | 2022\_S4r | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S6d | 2022\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2021\_S6d | 2022\_S6 | **5.8e-03** | **5.1e-03** | **4.8e-03** |
| 2022\_S1u | 2022\_S2u | **1.4e-02** | **1.1e-03** | **4.8e-03** |
| 2022\_S1u | 2022\_S3r | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S1u | 2022\_S4r | **5.8e-03** | **1.1e-03** | **5.1e-03** |
| 2022\_S1u | 2022\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S1u | 2022\_S6 | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S2u | 2022\_S3r | **1.2e-02** | **1.1e-03** | **4.8e-03** |
| 2022\_S2u | 2022\_S4r | 1.4e-01 | **1.1e-03** | **5.1e-03** |
| 2022\_S2u | 2022\_S5r | **5.8e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S2u | 2022\_S6 | **8.1e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S3r | 2022\_S4r | **9.0e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S3r | 2022\_S5r | **6.6e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S3r | 2022\_S6 | **6.2e-03** | **1.1e-03** | **4.8e-03** |
| 2022\_S4r | 2022\_S5r | **6.2e-03** | **1.1e-03** | **6.2e-03** |
| 2022\_S4r | 2022\_S6 | **5.8e-03** | **1.1e-03** | **6.2e-03** |
| 2022\_S5r | 2022\_S6 | **5.8e-03** | **1.1e-03** | **5.7e-03** |

Table S4: Pairwise Jaccard dissimilarities between all samples, sites, years and ecological communities. See csv file called ‘TableS4.csv’.

Table S5: Posthoc tests of main effects after PERMDISPs. Bold font indicates significant relationships.

|  |  |  |  |
| --- | --- | --- | --- |
| Contrasts | *P* of Aquatic invertebrates | *P* of Riparian vegetation | *P* of Riparian invertebrates |
| 2020-2021 | 0.212 | **0.001** | **0.001** |
| 2020-2022 | 0.901 | **0.009** | **0.001** |
| 2021-2022 | 0.256 | 0.056 | **0.018** |
| S1u-S2u | 0.101 | **0.001** | 0.545 |
| S1u-S3r | 0.231 | 0.999 | 0.568 |
| S1u-S4r | 0.063 | **0.001** | 0.944 |
| S1u-S5r | 0.319 | **0.001** | 0.707 |
| S1u-S6d | 0.311 | **0.001** | **0.012** |
| S2u-S3r | 0.381 | **0.001** | 0.244 |
| S2u-S4r | 0.452 | 0.053 | 0.505 |
| S2u-S5r | 0.801 | 0.605 | 0.272 |
| S2u-S6d | 0.865 | **0.042** | **0.002** |
| S3r-S4r | 0.106 | **0.001** | 0.434 |
| S3r-S5r | 0.738 | **0.001** | 0.827 |
| S3r-S6d | 0.714 | **0.001** | **0.013** |
| S4r-S5r | 0.346 | **0.042** | 0.589 |
| S4r-S6d | 0.406 | 0.945 | **0.001** |
| S5r-S6d | 0.954 | **0.02** | **0.01** |

Table S6: Posthoc tests of interactions after PERMDISPs. Bold font indicates significant relationships.

|  |  |  |  |
| --- | --- | --- | --- |
| Contrasts | *P* of Aquatic invertebrates | *P* of Riparian vegetation | *P* of Riparian invertebrates |
| S1u2020-S1u2022 | 0.685 | 0.574 | **0.032** |
| S1u2020-S2u2020 | 0.237 | 0.429 | 0.06 |
| S1u2020-S2u2022 | 0.265 | 0.166 | **0.005** |
| S1u2020-S3r2020 | 0.867 | 0.169 | 0.268 |
| S1u2020-S3r2021 | 0.988 | 0.773 | **0.001** |
| S1u2020-S3r2022 | 0.453 | 0.97 | **0.001** |
| S1u2020-S4r2020 | 0.165 | 0.067 | 0.364 |
| S1u2020-S4r2022 | 0.533 | 0.055 | **0.014** |
| S1u2020-S5r2020 | 0.513 | 0.906 | 0.338 |
| S1u2020-S5r2021 | 0.274 | 0.081 | **0.001** |
| S1u2020-S5r2022 | 0.78 | **0.046** | **0.002** |
| S1u2020-S6d2020 | 0.409 | 0.142 | **0.005** |
| S1u2020-S6d2021 | 0.61 | 0.578 | **0.001** |
| S1u2020-S6d2022 | 0.065 | **0.007** | **0.001** |
| S1u2022-S2u2020 | 0.117 | 0.438 | **0.001** |
| S1u2022-S2u2022 | 0.142 | **0.04** | 0.096 |
| S1u2022-S3r2020 | 0.519 | **0.046** | 0.504 |
| S1u2022-S3r2021 | 0.59 | 0.846 | **0.001** |
| S1u2022-S3r2022 | 0.268 | 0.493 | **0.001** |
| S1u2022-S4r2020 | 0.074 | **0.003** | **0.001** |
| S1u2022-S4r2022 | 0.28 | **0.001** | 0.243 |
| S1u2022-S5r2020 | 0.279 | 0.423 | **0.001** |
| S1u2022-S5r2021 | 0.152 | **0.003** | **0.002** |
| S1u2022-S5r2022 | 0.901 | **0.002** | **0.039** |
| S1u2022-S6d2020 | 0.225 | **0.017** | **0.023** |
| S1u2022-S6d2021 | 0.993 | 0.563 | **0.001** |
| S1u2022-S6d2022 | **0.026** | **0.001** | **0.001** |
| S2u2020-S2u2022 | 0.749 | 0.409 | **0.001** |
| S2u2020-S3r2020 | 0.144 | 0.666 | **0.017** |
| S2u2020-S3r2021 | **0.038** | 0.428 | **0.001** |
| S2u2020-S3r2022 | 0.644 | 0.268 | **0.001** |
| S2u2020-S4r2020 | 0.451 | 0.163 | 0.218 |
| S2u2020-S4r2022 | 0.476 | 0.292 | **0.001** |
| S2u2020-S5r2020 | 0.626 | 0.224 | 0.162 |
| S2u2020-S5r2021 | 0.785 | 0.343 | **0.001** |
| S2u2020-S5r2022 | 0.104 | 0.169 | **0.002** |
| S2u2020-S6d2020 | 0.919 | 0.553 | **0.001** |
| S2u2020-S6d2021 | **0.01** | 0.779 | **0.001** |
| S2u2020-S6d2022 | 0.175 | **0.024** | **0.001** |
| S2u2022-S3r2020 | 0.175 | 0.481 | 0.106 |
| S2u2022-S3r2021 | 0.112 | 0.077 | **0.002** |
| S2u2022-S3r2022 | 0.501 | **0.047** | **0.002** |
| S2u2022-S4r2020 | 0.706 | 0.59 | **0.001** |
| S2u2022-S4r2022 | 0.409 | 0.962 | 0.823 |
| S2u2022-S5r2020 | 0.49 | **0.018** | **0.001** |
| S2u2022-S5r2021 | 0.979 | 0.897 | **0.027** |
| S2u2022-S5r2022 | 0.133 | 0.707 | 0.159 |
| S2u2022-S6d2020 | 0.724 | 0.589 | 0.308 |
| S2u2022-S6d2021 | **0.039** | 0.242 | **0.003** |
| S2u2022-S6d2022 | 0.506 | 0.164 | **0.001** |
| S3r2020-S3r2021 | 0.718 | 0.156 | **0.003** |
| S3r2020-S3r2022 | 0.402 | 0.087 | **0.006** |
| S3r2020-S4r2020 | 0.105 | 0.161 | 0.059 |
| S3r2020-S4r2022 | 0.477 | 0.328 | 0.175 |
| S3r2020-S5r2020 | 0.407 | **0.019** | 0.057 |
| S3r2020-S5r2021 | 0.233 | 0.428 | **0.017** |
| S3r2020-S5r2022 | 0.522 | 0.14 | **0.039** |
| S3r2020-S6d2020 | 0.375 | 0.8 | **0.04** |
| S3r2020-S6d2021 | 0.228 | 0.34 | **0.004** |
| S3r2020-S6d2022 | **0.01** | **0.004** | **0.002** |
| S3r2021-S3r2022 | 0.22 | 0.634 | 0.454 |
| S3r2021-S4r2020 | 0.065 | **0.023** | **0.001** |
| S3r2021-S4r2022 | 0.251 | **0.03** | **0.005** |
| S3r2021-S5r2020 | 0.238 | 0.716 | **0.001** |
| S3r2021-S5r2021 | 0.139 | **0.034** | 0.123 |
| S3r2021-S5r2022 | 0.604 | **0.017** | 0.346 |
| S3r2021-S6d2020 | 0.23 | 0.104 | **0.035** |
| S3r2021-S6d2021 | 0.217 | 0.637 | 0.286 |
| S3r2021-S6d2022 | **0.002** | **0.003** | **0.029** |
| S3r2022-S4r2020 | 0.329 | **0.02** | **0.001** |
| S3r2022-S4r2022 | 0.87 | **0.023** | **0.012** |
| S3r2022-S5r2020 | 0.971 | 0.84 | **0.001** |
| S3r2022-S5r2021 | 0.547 | **0.032** | 0.44 |
| S3r2022-S5r2022 | 0.239 | **0.01** | 0.597 |
| S3r2022-S6d2020 | 0.779 | 0.06 | 0.119 |
| S3r2022-S6d2021 | 0.072 | 0.459 | 0.143 |
| S3r2022-S6d2022 | 0.119 | **0.002** | **0.013** |
| S4r2020-S4r2022 | 0.239 | 0.446 | **0.003** |
| S4r2020-S5r2020 | 0.292 | **0.001** | 1 |
| S4r2020-S5r2021 | 0.707 | 0.408 | **0.001** |
| S4r2020-S5r2022 | 0.071 | 0.793 | **0.002** |
| S4r2020-S6d2020 | 0.493 | 0.196 | **0.001** |
| S4r2020-S6d2021 | **0.019** | 0.056 | **0.001** |
| S4r2020-S6d2022 | 0.851 | 0.392 | **0.001** |
| S4r2022-S5r2020 | 0.899 | **0.001** | **0.001** |
| S4r2022-S5r2021 | 0.442 | 0.928 | **0.049** |
| S4r2022-S5r2022 | 0.238 | 0.469 | 0.164 |
| S4r2022-S6d2020 | 0.687 | 0.409 | 0.268 |
| S4r2022-S6d2021 | 0.062 | **0.039** | **0.004** |
| S4r2022-S6d2022 | 0.05 | **0.006** | **0.001** |
| S5r2020-S5r2021 | 0.555 | **0.003** | **0.001** |
| S5r2020-S5r2022 | 0.246 | **0.001** | **0.001** |
| S5r2020-S6d2020 | 0.786 | **0.006** | **0.001** |
| S5r2020-S6d2021 | 0.073 | 0.305 | **0.001** |
| S5r2020-S6d2022 | 0.098 | **0.001** | **0.001** |
| S5r2021-S5r2022 | 0.133 | 0.453 | 0.966 |
| S5r2021-S6d2020 | 0.782 | 0.55 | 0.326 |
| S5r2021-S6d2021 | 0.056 | 0.096 | 0.065 |
| S5r2021-S6d2022 | 0.5 | **0.015** | **0.004** |
| S5r2022-S6d2020 | 0.229 | 0.204 | 0.505 |
| S5r2022-S6d2021 | 0.857 | **0.028** | 0.127 |
| S5r2022-S6d2022 | **0.015** | 0.118 | **0.044** |
| S6d2020-S6d2021 | 0.101 | 0.206 | **0.02** |
| S6d2020-S6d2022 | 0.298 | **0.004** | **0.001** |
| S6d2021-S6d2022 | **0.002** | **0.001** | 0.524 |

A group of colorful bars

Description automatically generated with medium confidence

Figure S1: Distribution of the four most abundant families of aquatic invertebrates, riparian vegetation and riparian invertebrates within each sampling site. Note that y-axes are displayed in the log10 scale.

A graph of different colored bars

Description automatically generated with medium confidence

Figure S2: Distribution of the four most abundant taxa (species or morphospecies) of aquatic invertebrates, riparian vegetation and riparian invertebrates within each sampling site. Note that y-axes are displayed in the log10 scale. For the sake of visual clarity a code is provided for plant species: Schedonorus arundinaceus, Dumort., 1824 (717533); Holcus lanatus L., 1753 (102900); Rubus fruticosus L., 1753 (119097); Dactylis glomerata L., 1753 (94207); Poa trivialis L., 1753 (114416); Agrostis capillaris L., 1753 (80591); Poaceae Barnhart, 1895 (187444); Persicaria maculosa Gray, 1821 (112745); Phalaris arundinacea L., 1753 (112975); Agrostis stolonifera L., 1753 (80759); Juncus effusus L., 1753 (104173); Bidens tripartita L., 1753 (85986); Erigeron canadensis L., 1753 (96749); Urtica dioica L., 1753 (128268); Elytrigia repens, Desv. ex Nevski, 1934 (96046).