

Appendix 2. Mantel tests (1000 permutations, Pearson' correlation coefficient) between absolute differences in the average song characteristics and the co-occurrence indices (using *Index 5*). Significant correlations are marked in bold. There were no strong correlations.

| Comparison | <i>N</i> | <i>R</i> | <i>P</i> (<i>two-sided</i>) |
|---|----------|----------|-------------------------------|
| Difference in song duration and <i>Index 5</i> | 233 | 0.1577 | 0.0010 |
| Difference in song low frequency and <i>Index 5</i> | 233 | 0.1440 | 0.0010 |
| Difference in song bandwidth and <i>Index 5</i> | 233 | 0.0252 | 0.2070 |
| Difference in song trill rates and <i>Index 5</i> | 233 | 0.0410 | 0.1530 |
| Difference in song frequency inflections and <i>Index 5</i> | 233 | 0.0590 | 0.0250 |