**Supplementary table 2:** Read and OTU counts in each co-occurance network and orphan read phylum.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Network** | **No. of Reads** | **No. OTUs (GMYC only)** | **GMYC p-value** | **No. OTUs (GMYC plus posterior probabilities)** |
| **Orph.Alveolata** | 59 | 11 | <0.001 | 17 |
| **Orph.Annelid** | 323 | 7 | <0.05 | 43 |
| **Orph.Fungi** | 442 | 39 | <0.001 | 70 |
| **Orph.Mollusc** | 306 | 8 | <0.001 | 35 |
| **Orph.Nematode** | 447 | 52 | <0.001 | 94 |
| **Orph.No hits** | 15 | 10 | >0.05 | 13 |
| **Orph.Opiskonta** | 9 | 3 | >0.05 | 3 |
| **Orph.Panarthropoda** | 382 | 31 | <0.001 | 74 |
| **Orph.Platyhelminthes** | 64 | 14 | <0.05 | 23 |
| **Orph.Rhizaria** | 57 | 16 | <0.001 | 20 |
| **Orph.Rotifera** | 10 | 2 | >0.05 | 3 |
| **Orph.Stramenopiles** | 106 | 2 | >0.05 | 63 |
| **Orph.Viridiplantae** | 43 | 11 | >0.05 | 20 |
| **Network 122** | 59 | 6 | <0.01 | 11 |
| **Network 15** | 61 | 12 | <0.001 | 14 |
| **Network 178** | 92 | NA | n.s. | 74 |
| **Network 194** | 22 | 14 | <0.001 | 14 |
| **Network 232** | 23 | 13 | <0.001 | 14 |
| **Network 282** | 10 | NA | n.s. | 9 |
| **Network 288** | 13 | 3 | <0.05 | 7 |
| **Network 290** | 52 | 16 | <0.01 | 26 |
| **Network 311** | 23 | 13 | <0.01 | 14 |
| **Network 317** | 48 | 12 | <0.01 | 23 |
| **Network 330** | 10 | 5 | <0.01 | 5 |
| **Network 332** | 21 | 7 | <0.01 | 9 |
| **Network 339** | 164 | 36 | <0.001 | 46 |
| **Network 351** | 40 | 16 | <0.01 | 19 |
| **Network 352** | 13 | 4 | <0.05 | 7 |
| **Network 37** | 231 | 32 | <0.001 | 53 |
| **Network 378** | 25 | 4 | <0.05 | 9 |
| **Network 381** | 45 | NA | n.s. | 32 |
| **Network 385** | 15 | 6 | <0.05 | 8 |
| **Network 393** | 14 | NA | n.s. | 10 |
| **Network 396** | 11 | 5 | <0.01 | 6 |
| **Network 404** | 74 | 17 | <0.01 | 25 |
| **Network 435** | 11 | NA | n.s. | 11 |
| **Network 478** | 91 | 27 | <0.001 | 30 |
| **Network 484** | 68 | 38 | <0.05 | 41 |
| **Network 486** | 12 | NA | n.s. | 7 |
| **Network 490** | 90 | 25 | <0.001 | 29 |
| **Network 495** | 32 | 5 | <0.001 | 6 |
| **Network 504** | 55 | 16 | <0.001 | 20 |
| **Network 520** | 49 | 21 | <0.001 | 25 |
| **Network 536** | 67 | 11 | <0.001 | 18 |
| **Network 538** | 58 | 21 | <0.001 | 21 |
| **Network 541** | 129 | 21 | <0.05 | 35 |
| **Network 542** | 90 | 9 | <0.001 | 16 |
| **Network 543** | 45 | 10 | <0.01 | 15 |
| **Network 544** | 41 | 13 | <0.05 | 15 |
| **Network 549** | 19 | 7 | <0.05 | 7 |
| **Network 555** | 139 | 32 | <0.001 | 37 |
| **Network 557** | 135 | 10 | <0.001 | 20 |
| **Network 559** | 23 | 10 | <0.001 | 12 |
| **Network 566** | 44 | 14 | <0.001 | 18 |
| **Network 586** | 10 | NA | n.s. | 7 |
| **Network 596** | 28 | 17 | <0.05 | 18 |
| **Network 86** | 19 | 4 | <0.05 | 5 |
| **Network 305** | 10 | NA | n.s. | 3 |
| **Total- Orphans** | **2263** | **206** |  | **478** |
| **Total- Co-occurance Networks** | **2331** | **532** |  | **851** |
| **Total** | **4594** | **738** |  | **1329** |