# **Supplemental Tables**

**Table S1. Soil Nematode Composition and Quantity at Different Altitudes in Tianshan Wild Fruit Forest, Xinjiang (n/ind. (100 g)-1)**

**Table S2.** **Chemical properties of wild fruit forests in the Tianshan Mountains under different altitudinal gradients**

**Table S1. Soil Nematode Composition and Quantity at Different Altitudes in Tianshan Wild Fruit Forest, Xinjiang (n/ind. (100 g)-1)**

|  |  |  |  |
| --- | --- | --- | --- |
| Group | Trophic group | NUM | Elevation |
| JC | MS |
| E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） | E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） |
| **Bacterial-feeding** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Acrobeles* | Ba2 | G1 | **180.69**  | 43.52  | 88.60  | **189.24**  | 54.39  | 18.06  | 56.72  | 86.84  | 84.80  | 93.47  | 84.68  | 40.89  |
| *Acrobeloides* | Ba2 | G2 | 71.03  | 32.74  | 42.57  | 55.62  | 85.49  | 43.91  | 45.43  | 46.16  | 62.96  | **134.05**  | 68.95  | 14.22  |
| *Cervidellus* | Ba2 | G3 | 2.95  | 103.00  | 87.65  | 63.73  | 14.59  |  | 63.09  | 43.06  | 36.02  | 80.84  | 7.87  | 9.51  |
| *Prismatolaimus* | Ba3 | G4 |  | 30.96  | 84.97  | 90.61  | 14.25  |  | 67.08  |  | 60.38  | 79.59  |  |  |
| *Plectus* | Ba2 | G5 |  | 47.91  | 12.07  | 69.13  | 1.19  |  | 32.20  | 27.26  | 23.50  | 31.98  |  |  |
| *Panagrolaimus* | Ba1 | G6 | 8.89  | 7.84  | 87.64  | 5.70  | 27.23  | 18.61  | 2.94  | 4.23  | 51.16  | 19.75  |  |  |
| *panagrellus* | Ba1 | G7 |  | 26.10  | 40.75  |  |  |  | 29.06  | 23.81  | 19.25  | 16.59  |  | 4.92  |
| *Chiloplacus* | Ba2 | G8 | 47.46  | 1.96  |  |  |  | 8.12  | 3.81  | 1.24  |  | 3.03  |  | 33.03  |
| *Wilsonema* | Ba2 | G9 |  | 13.87  | 23.19  | 7.07  |  |  | 13.19  | 7.51  | 7.62  | 12.30  |  |  |
| *Rhabditis* | Ba1 | G10 | 11.01  |  |  | 6.11  | 23.62  | 1.76  | 4.24  | 1.28  |  | 2.62  |  | 5.51  |
| *Cephalobus* | Ba2 | G11 | 1.48  | 4.94  |  | 1.51  | 10.09  | 5.40  | 1.34  | 2.98  | 13.20  | 1.36  |  | 1.19  |
| *Eucephalobus* | Ba2 | G12 |  |  | 2.25  | 1.66  |  | 4.70  | 3.17  |  | 2.06  |  |  | 3.17  |
| *Anaplectus* | Ba2 | G13 |  |  |  |  | 7.29  |  |  |  |  |  |  |  |
| *Pelodera* | Ba1 | G14 | 1.48  | 1.18  | 1.34  |  |  |  | 2.77  |  |  |  |  |  |
| *Bastiania* | Ba3 | G15 |  |  |  |  |  |  | 1.42  |  | 3.59  |  |  |  |
| *Teratocephalus* | Ba3 | G16 |  | 1.56  |  |  |  |  |  |  | 1.53  |  |  |  |
| *Monhystera* | Ba2 | G17 |  |  |  | 1.57  |  |  |  |  |  |  | 1.27  |  |
| *Geomonhystera* | Ba2 | G18 |  | 1.37  |  |  |  |  |  |  |  |  |  |  |
| *Odontolaimus* | Ba3 | G19 |  |  |  |  |  | 1.23  |  |  |  |  |  |  |
| *Diploscapter* | Ba1 | G20 | 0.61  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Group | Trophic group | NUM | Elevation |
| JC | MS |
| E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） | E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） |
| **Fungal-feeding** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Aphelenchus* | Fu2 | G21 | 69.72  | 111.27  | 73.58  | 68.35  | 63.96  | 63.26  | 57.86  | 52.30  | 94.49  | 44.22  | 27.91  | 55.49  |
| *Paraphelenchus* | Fu2 | G22 |  | 50.02  | 95.37  | 35.46  | 38.04  | 16.73  | 17.16  | 58.58  | 79.94  | 15.97  | 20.20  | 11.43  |
| *Aphelenchoides* | Fu2 | G23 | 10.62  | 17.52  | 21.60  | 3.27  | 33.86  | 20.15  | 21.44  | 35.43  | 44.38  | 6.72  | 11.82  | 10.98  |
| *Tylencholaimus* | Fu4 | G24 |  | 22.61  | 8.79  | 17.15  |  |  | 13.75  | 7.26  | 11.09  | 4.39  |  |  |
| *Diphtherophora* | Fu3 | G25 |  | 6.93  | 19.19  | 5.70  |  |  | 4.24  | 15.29  | 2.93  | 23.53  |  |  |
| *Dotylaphus* | Fu2 | G26 |  |  | 33.54  |  |  |  |  |  | 1.53  |  |  |  |
| *Dorylaimoides* | Fu4 | G27 |  |  | 3.08  |  |  |  | 2.73  | 6.09  | 2.21  | 9.00  |  |  |
| *Ditylenchus* | Fu2 | G28 | 5.04  | 1.18  |  |  |  | 1.30  | 1.18  |  |  | 1.60  | 1.27  | 10.22  |
| *Tylencholaimellus* | Fu4 | G29 |  |  |  | 6.60  |  | 1.76  | 1.48  | 3.57  |  |  |  |  |
| *Campydora* | Fu4 | G30 |  |  |  |  |  | 1.76  | 4.24  | 5.04  | 1.46  |  |  |  |
| *Fungiotonchium* | Fu2 | G31 |  | 1.30  |  |  |  |  |  |  |  |  |  |  |
| **Plant-feeding** |  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| *Paratylenchus* | Pl2 | G32 | **180.99**  | **135.92**  | **163.47**  | **275.44**  | **277.64**  | **53.60**  | 84.98  | **117.29**  | **228.81**  | **82.65**  | **261.47**  | **107.24**  |
| *Merlinius* | Pl3 | G33 | 104.52  | 112.07  | 45.31  | 219.31  | 47.37  | 31.68  | 19.21  | 48.84  | 97.16  | 32.87  | 95.13  | 46.03  |
| *Coslenchus* | Pl2 | G34 | 119.15  | 57.43  | 92.51  | 58.56  | 60.94  | 19.60  | 44.72  | **117.82**  | 23.39  | 69.08  | 44.41  | 70.07  |
| *Basiria* | Pl2 | G35 | 17.49  | 25.00  | 28.16  | 46.27  | 130.96  | 51.74  | 25.49  | **151.77**  | 14.39  | 45.84  | 133.79  | 18.01  |
| *Helicotylenchus* | Pl3 | G36 | 5.79  | 70.24  | 87.09  | 7.27  | 29.43  | 47.75  | 12.33  | 10.67  | 69.27  | **177.59**  | 7.83  | **95.57**  |
| *Malenchus* | Pl2 | G37 | 18.73  | 63.18  | 20.69  | 49.55  | 23.13  | 15.51  | 63.31  | 44.19  | 7.04  | 61.67  | 35.73  | 16.19  |
| *Boleodorus* | Pl2 | G38 | 43.30  | 9.59  | 42.63  | 32.18  | 15.85  | 3.65  | 63.47  | 20.65  | 36.28  | 74.75  | 34.89  | 36.80  |
| *Criconemella* | Pl3 | G39 | 60.51  | 5.93  | 1.22  | 3.15  | 10.46  | 19.84  | 52.23  | 3.66  | 4.11  |  | 78.86  | 81.82  |
| *Rotylenchus* | Pl3 | G40 | 3.54  | 49.96  | 27.57  |  | 28.09  | 10.93  | 8.55  | 6.78  | 39.91  | 38.23  |  | 89.48  |
| Group | Trophic group | NUM | Elevation |
| JC | MS |
| E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） | E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） |
| *Filenchus* | Pl2 | G41 |  | 23.13  | 7.80  | 72.71  | 7.11  | 1.17  | 36.27  | 31.43  | 5.14  | 34.64  | 43.51  | 9.89  |
| *Macroposthonia* | Pl3 | G42 |  | 1.60  |  |  | 26.61  |  | 98.36  |  |  |  | 123.73  | 1.25  |
| *Pararotylenchus*  | Pl3 | G43 | 12.84  | 40.43  | 9.95  |  |  | 2.69  | 13.96  | 6.85  | 39.47  | 48.65  |  | 45.62  |
| *Ogma* | Pl3 | G44 |  | 50.22  | 11.21  | 2.90  | 28.31  |  | 7.95  | 15.48  | 12.34  | 15.40  |  | 4.54  |
| *Nagelus* | Pl3 | G45 | 3.46  | 2.74  |  | 9.40  | 2.86  | 20.97  | 10.93  | 11.47  |  |  | 36.78  | 13.75  |
| *Quinisulcius* | Pl3 | G46 |  | 18.91  | 11.96  | 17.87  |  | 3.99  | 8.79  |  | 21.85  |  | 6.94  | 3.56  |
| *Tylencholaimus* | Pl3 | G47 |  | 10.42  | 10.75  | 8.10  | 1.23  | 2.59  | 1.59  | 2.62  | 8.36  |  |  | 7.68  |
| *Rotylenchulus* | Pl3 | G48 | 7.16  | 8.73  | 4.22  | 5.10  | 5.23  | 1.51  |  |  | 8.19  |  |  | 9.57  |
| *Criconemoides*  | Pl3 | G49 | 0.70  | 1.96  | 1.59  |  |  | 19.15  | 5.21  |  |  |  | 10.32  | 4.54  |
| *Tylenchus* | Pl2 | G50 |  |  | 4.50  | 4.00  |  | 5.16  | 7.70  | 2.43  |  | 6.99  |  | 3.10  |
| *Hemicycliophora* | Pl3 | G51 | 0.70  |  | 4.67  | 1.51  | 1.43  | 1.17  |  |  |  | 4.96  |  | 10.53  |
| *Hemicriconemoides* | Pl3 | G52 | 0.70  | 12.22  |  |  |  |  |  |  | 8.23  |  |  |  |
| *Pratylenchus* | Pl3 | G53 |  |  | 5.33  | 3.08  |  |  | 11.35  |  |  |  |  |  |
| *Neothada* | Pl2 | G54 | 7.70  |  | 2.25  |  |  |  | 1.48  | 4.96  |  |  |  |  |
|  *Lelenchus* | Pl2 | G55 | 1.47  |  |  |  |  | 2.35  |  | 1.26  |  |  |  | 6.39  |
| *Geocenamus* | Pl3 | G56 |  |  |  |  |  |  |  | 5.14  |  |  |  | 6.15  |
| *Aglenchus* | Pl2 | G57 |  |  |  | 4.85  |  | 1.30  |  |  | 1.46  |  | 1.59  |  |
| *Crossonema* | Pl3 | G58 |  | 1.37  |  |  |  |  |  | 4.76  |  |  |  |  |
| *Cephalenchus* | Pl2 | G59 |  |  |  | 3.40  |  |  |  |  |  |  |  |  |
| *Dolichorhynchus* | Pl3 | G60 |  |  |  | 3.01  |  |  |  |  |  |  |  |  |
| *Amplimerlinius* | Pl3 | G61 |  |  |  |  | 1.46  |  |  |  |  |  |  | 1.23  |
| *Paratrichodorus* | Pl4 | G62 |  | 1.74  |  |  |  |  |  |  |  |  |  |  |
| Group | Trophic group | NUM | Elevation |
| JC | MS |
| E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） | E1（1480m） | E2（1401m） | E3（1351m） | E4（1305m） | E5（1252m） | E6（1207m） |
| *Heterodera* | Pl3 | G63 |  |  | 1.49  |  |  |  |  |  |  |  |  |  |
| **Predators-Omnivores** |  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| *Discolaimium* | Pr5 | G64 | 11.51  | 8.17  | 11.72  | 14.99  | 23.99  | 23.64  | 4.09  | 8.96  | 32.99  | 5.66  | 3.19  | 3.83  |
| *Dorylaimellus* | Pr5 | G65 |  | 29.55  | 6.47  | 23.46  | 1.43  |  | 13.03  | 16.60  | 12.16  | 7.53  |  | 6.68  |
| *Mylonchulus* | Pr4 | G66 |  |  | 2.25  | 17.22  | 65.60  |  |  |  |  | 10.44  |  | 1.59  |
| *Microdorylaimus* | Pr4 | G67 | 8.60  |  | 6.39  | 2.30  | 10.23  | 4.81  | 7.28  | 1.20  | 25.08  |  | 2.57  |  |
| *Pungentus* | Pr4 | G68 | 3.42  |  |  |  | 8.22  | 13.15  |  |  | 2.06  | 2.96  | 35.08  | 1.34  |
| *Paraxonchium* | Pr5 | G69 |  | 1.60  | 11.25  | 4.90  | 11.63  | 1.76  | 2.68  | 4.97  | 5.88  | 4.02  | 3.62  |  |
| *Thonus* | Pr4 | G70 |  | 2.03  | 1.22  | 1.70  |  |  | 23.98  | 1.38  | 1.55  |  |  |  |
| *Eudorylaimus* | Pr4 | G71 |  |  |  |  |  | 2.99  |  |  |  |  | 23.47  | 2.37  |
| *Torumanawa* | Pr5 | G72 |  |  | 4.66  | 1.45  | 1.43  |  | 6.71  | 2.57  | 1.46  | 4.51  |  | 3.17  |
| *Monochromadora* | Pr3 | G73 | 6.67  | 1.18  | 4.66  |  | 2.37  | 1.30  | 3.17  |  |  |  |  | 1.33  |
| *Discolaimus* | Pr5 | G74 |  |  |  |  |  |  | 7.06  | 4.24  |  | 1.67  |  | 1.19  |
| *Mesodorylaimus* | Pr5 | G75 |  |  |  |  | 1.43  |  | 2.94  |  |  | 1.74  |  | 5.01  |
| *Parkellus* | Pr4 | G76 |  |  |  |  | 1.43  | 7.46  |  |  |  |  | 1.30  |  |
| *Dorydorella* | Pr4 | G77 |  |  | 1.89  |  |  | 1.76  |  |  |  | 1.40  |  |  |
| *Laimydorus* | Pr5 | G78 | 1.48  |  |  |  |  | 3.03  |  |  |  |  |  |  |
| *Axonchium* | Pr5 | G79 |  |  |  |  | 1.46  |  | 1.48  |  |  |  |  | 1.33  |
| *Sectonema* | Pr5 | G80 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 1.74  | 　 | 　 |
| Total individuals |  | 501.29  | 687.89  | 542.37  | 835.10  | 766.38  | 356.64  | 605.60  | 530.17  | 683.21  | 665.92  | 939.80  | 646.77  |
| Total group number | 　 |  | 21 | 25 | 29 | 26 | 27 | 28 | 29 | 25 | 23 | 22 | 19 | 32 |

Note: The dominant taxa are shown in bold. Dominant genera >10 %; common genera, 1% ~ 10%; rare genera < 1%.

**Table S2.** **Chemical properties of wild fruit forests in the Tianshan Mountains under different altitudinal gradients**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Habitat | Altitude | Soil organic carbon(g/kg) | Total nitrogen (g/kg) | Total phosphorus (g/kg) | Total potassium (g/kg) | Nitrate nitrogen (mg/kg) | Ammonium nitrogen (mg/kg) | Available potassium(mg/kg) | Available phosphorus(mg/kg) | pH | Electrical conductivity | Soil moistureContent (%) |
| *Juglans cathayensis*forest | 1480m | 88.03  | 7.75  | 0.18  | 19.84  | 1.30  | 9.81  | 874.13  | 16.33  | 7.92  | 250.00  | 0.37 |
| 1401m | 122.70  | 10.73  | 0.17  | 19.88  | 19.36  | 19.35  | 925.97  | 12.84  | 6.64  | 162.00  | 0.44 |
| 1351m | 113.48  | 13.76  | 0.19  | 19.72  | 30.91  | 23.44  | 905.96  | 14.17  | 7.29  | 205.00  | 0.49 |
| 1305m | 108.78  | 11.15  | 0.19  | 19.40  | 20.62  | 18.94  | 753.73  | 16.92  | 6.66  | 141.00  | 0.48 |
| 1252m | 103.38  | 15.13  | 0.23  | 19.71  | 33.99  | 15.65  | 869.05  | 36.86  | 7.62  | 276.00  | 0.43 |
| 1207m | 85.89  | 7.88  | 0.22  | 20.64  | 18.48  | 11.20  | 766.03  | 16.71  | 6.81  | 170.00  | 0.32 |
| *Malus sieversii* forest | 1480m | 78.01  | 7.78  | 0.16  | 20.07  | 13.19  | 15.80  | 694.42  | 11.16  | 7.65  | 178.00  | 0.32 |
| 1401m | 87.14  | 7.69  | 0.19  | 21.04  | 2.13  | 4.20  | 747.31  | 10.30  | 6.99  | 65.00  | 0.28 |
| 1351m | 85.56  | 8.45  | 0.21  | 21.23  | 37.50  | 16.28  | 1186.96  | 15.21  | 6.85  | 222.00  | 0.38 |
| 1305m | 114.55  | 12.61  | 0.20  | 19.52  | 41.87  | 21.06  | 781.35  | 19.01  | 6.63  | 217.00  | 0.43 |
| 1252m | 112.77  | 12.63  | 0.23  | 19.49  | 19.15  | 16.67  | 895.95  | 20.33  | 7.38  | 215.00  | 0.41 |
| 1207m | 85.39  | 10.85  | 0.22  | 20.85  | 17.50  | 14.61  | 895.46  | 17.32  | 7.76  | 244.00  | 0.29 |