

**Table S4. Fenghuoshan Fossils**

| <i>Fossil Type</i> | <i>Fossil</i>           | <i>First appearance<br/>(Ma)</i> | <i>Last appearance<br/>(Ma)</i> | <i>Citations</i> |
|--------------------|-------------------------|----------------------------------|---------------------------------|------------------|
| Ostracod           | Cypria                  | 93.5                             | 0.00                            | 6; 26            |
|                    | Cypris                  | 145.5                            | 0.01                            | 10; 15; 24; 33   |
|                    | Eucypris                | 99.6                             | 2.60                            | 6; 17; 22; 46    |
|                    | Kaitunia                | 99.6                             | 65.50                           | 46               |
|                    | Quadracypris            | 145.5                            | 55.80                           | 18               |
|                    | Rhinocypris             | 161.2                            | 99.60                           | 44               |
| Gastropod          | Amnicola                | 199.6                            | 0.00                            | 33; 46           |
|                    | Sinoplanorbis           | 55.8                             | 23.03                           | 30; 38           |
| Charophyte         | Gyrogona qinghaiensis   | 65.5                             | 23.03                           | 45               |
|                    | Obtusochara             | 99.6                             | 33.90                           | 20               |
|                    | Peckichara subsphaerica | 58.7                             | 55.80                           | 33               |
| Sporopollen        | Rhabdochara             | 70.6                             | 28.40                           | 21               |
|                    | Admolia                 | 230                              | 99.6                            | 2                |
|                    | Biretisporites          | 230                              | 1.8                             | 25               |
|                    | Caytonipollenites       | 250                              | 61.5                            | 25               |
|                    | Cedripites              | 345                              | 1.8                             | 25               |
|                    | Cicatricosisporites     | 370.0                            | 0                               | 25               |
|                    | Classopollis            | 280                              | 0                               | 25               |
|                    | Concavisporites         | 345.0                            | 0                               | 25               |
|                    | Concentrisporites       | 230.0                            | 65                              | 25               |
|                    | Converrucosisporites    | 395                              | 0.01                            | 25               |
|                    | Cyanthidites            | 202                              | 65.5                            | 25               |
|                    | Cycadopites             | 360                              | 0                               | 25               |
|                    | Deltoidospora           | 395                              | 0                               | 25               |
|                    | Densoisporites          | 338.0                            | 0                               | 25               |
|                    | Divisisporites          | 230.0                            | 1.8                             | 25               |
|                    | Ephedripites            | 345                              | 0                               | 25               |
|                    | Ephedripites            | 345                              | 0                               | 25               |
|                    | Distachyapites          |                                  |                                 |                  |
|                    | Equisetites             | 280.0                            | 54                              | 25               |
|                    | Exesipollenites tumulus | 275.6                            | 1.8                             | 25               |
|                    | Granulatisporites       | 395.0                            | 0                               | 25               |
|                    | Ischyosporites          | 280.0                            | 1                               | 25               |
|                    | Jiaohepollis            | 230.0                            | 65                              | 25               |
|                    | Klukisporites           | 242.0                            | 0                               | 25               |
|                    | Laricoidites            | 280.0                            | 1.8                             | 25               |
|                    | Laricoidites magnus     | 223.0                            | 1.8                             | 25               |
|                    | Lycopodiumsporites      | 345.0                            | 0                               | 25               |
| Monosulcites       | 345                     | 0                                | 25                              |                  |
| Muerrigerisporis   | 230                     | 5                                | 25                              |                  |
| Pediastrum         | 280                     | 0                                | 25                              |                  |

**Table S4. Fenghuoshan Fossils continued**

| <i>Fossil Type</i> | <i>Fossil</i>             | <i>First appearance<br/>(Ma)</i> | <i>Last appearance<br/>(Ma)</i> | <i>Citations</i> |
|--------------------|---------------------------|----------------------------------|---------------------------------|------------------|
| Sporopollen        | Perinopollenites          | 230                              | 1.8                             | 25               |
|                    | Piceapollenites           | 345.0                            | 0.01                            | 25               |
|                    | Pinuspollenites           | 325                              | 0                               | 25               |
|                    | Podocarpidites            | 280                              | 0                               | 25               |
|                    | Pristinuspollenites       | 230                              | 22.5                            | 25               |
|                    | Pseudopicea               | 345                              | 1.8                             | 25               |
|                    | Pseudopicea rotundiformis | 280.0                            | 1.8                             | 25               |
|                    | Psophosphaera             | 345                              | 0.01                            | 25               |
|                    | Pterisporites             | 230.0                            | 1.8                             | 25               |
|                    | Schizacoisporites         | 299.0                            | 0.01                            | 25               |
|                    | Schizosporites            | 242.0                            | 37.5                            | 25               |
|                    | T. aliquantulus           | 111.0                            | 54.5                            | 25               |
|                    | Tricolpites               | 230.0                            | 0                               | 25               |
|                    | Tricolpopollenites        | 195.0                            | 0.01                            | 25               |
|                    | Tricolporopollenites      | 230.0                            | 0.01                            | 25               |