Table S2. Information on 55 stick and leaf insects and two outgroup species used for phylogenetic analysis.

| Family | Subfamily | Species | Accession no. | Reference |
|---|---|---|---|---|
| Aschiphasmatidae | Aschiphasmatinae | *Nanhuaphasma hamicercum* | MZ312646 | [64] |
| | | *Orthomeria smaragdinum* | MZ31264 | [64] |
| Bacillidae | Bacillinae | *Bacillus rossius* | GU001956 | [19] |
| | | *Bacillus atticus* | GU001955 | [19] |
| Heteropterygidae | Dataminae | *Orestes mouhotii* | AB477462 | [66] |
| | | *Orestes guangxiensis* | MW450873 | [22] |
| | Obriminae | *Aretaon asperrimus* | SRR1172270 | [14] |
| | | *Sungaya inexpectata* | OQ682523 | [24] |
| | Heteropteryginae | *Heteropteryx dilatata* | AB477468 | [66] |
| Lonchodidae | Lonchodinae | *Phraortes illepidus* | AB477460 | [66] |
| | | *Phraortes lii* | ON493672 | Directly Submitted |
| | | *Phraortes lianzhouensis* | OQ682528 | [24] |
| | | *Phraortes* sp. Miyako Island | AB477465 | [66] |
| | | *Phraortes* sp. Iriomote Island | AB477464 | [66] |
| | | *Stheneboea repudiosa* | OQ682531 | [24] |
| | | *Megalophasma granulatum* | KY124331 | [67] |
| | | *Eurycantha calcarata* | MW915467 | [68] |
| | | *Carausius* sp. | OQ682524 | [24] |
| | | *Carasisus morosus* | SRR3211828 | [14] |
| | Necrosciinae | *Micadina phluctainoides* | AB477466 | [66] |
| | | *Marmessoidea bispina* | OQ682527 | [24] |
| | | *Sipyloidea sipylus* | AB477470 | [66] |
| | | *Calvisia medogensis* | KY124330 | [67] |
| | | *Lopaphus albopunctatus* | OQ682525 | [24] |
| | | *Lopaphus sphalerus* | OQ682526 | [24] |
| | | *Sosibia gibba* | OM257176 | [65] |
| | | *Sosibia ovata* | OM257177 | [65] |

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|---|---|---|---|---|
| | | *Neohirasea japonica* | AB477469 | [66] |
| | | *Neohirasea stephanus* | OL405132 | Directly Submitted |
| Phasmatidae | Megacraniinae | *Megacrania alpheus adan* | AB477471 | [66] |
| | Extatosomatinae | *Extatosoma tiaratum* | AB642680 | [66] |
| | Phasmatinae | *Acanthoxyla* sp. | SRR2089887 | [14] |
| | | *Clitarchus hookeri* | SRR3080266 | [14] |
| | Clitumninae | *Entoria okinawaensis* | AB477459 | [66] |
| | | *Phobaeticus serratipes* | AB477467 | [66] |
| | | *Ramulus hainanense* | FJ156750 | Directly Submitted |
| | | *Ramulus irregulariterdentatus* | AB477463 | [66] |
| | | *Rumulus artemis* | SRR1172422 | [14] |
| | | *Medauroidea extradentata* | SRR1172394 | [14] |
| | | *Phryganistria guangxiensis* | MW450875 | [22] |
| | Pachymorphinae | *Niveaphasma anulata* | SRR2089878 | [14] |
| | | *Tectarchus ovobsessus* | SRR2089893 | [14] |
| | | *Tectarchus salebrosus* | SRR2089908 | [14] |
| | | *Micrarchus hystriculeus* | SRR1054191 | [14] |
| | | *Micrarchus* sp | SRR1054193 | [14] |
| Phylliidae | Phylliinae | *Cryptophyllium tibetense* | KX091862 | Directly Submitted |
| | | *Cryptophyllium tibetense* | KY124332 | Directly Submitted |
| | | *Cryptophyllium westwoodii* | MW229063 | Directly Submitted |
| | | *Pulchriphyllium bioculatum* | OQ682529 | [24] |
| | | *Pulchriphyllium giganteum* | AB477461 | [66] |
| | | *Pulchriphyllium giganteum* | OQ682530 | [24] |
| | | *Phyllium siccifollium* | ERR392012 | [14] |
| Pseudophasmatidae | Pseudophasmatinae | *Peruphasma schultei* | MW450874 | [22] |
| | | *Peruphasma schultei* | SRR1002984 | [14] |
| Timematidae | Timematinae | *Timema californicum* | DQ241799 | [63] |
| Grylloblattidae | | *Grylloblatta sculleni* | DQ241796 | [63] |

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|---|---|---|---|
| Mantophasmatidae | *Sclerophasma paresisense* | DQ241798 | [63] |