**Table 3.** Clades of reference in the topologies under equal weighting, and including or excluding character dependencies. The subfamily assignable to such clades and their synapomorphies are given, as well as the genera included. The symbol “-” denotes the exclusion of a terminal.

| **Clade of reference** | **Subfamily assignable** | **Included Taxa (Dependencies)** | **Synapomorphy (Dependencies)** | **Included Taxa (No Dependencies)** | **Synapomorphy (No dependencies)** |
| --- | --- | --- | --- | --- | --- |
| Clade I | Itopsidemoideae | *Tiania* | Char. 0: Stem core tracheids: main tissue (2) -> accessory (1) | *Tiania* | Char. 6: Stele leaf gaps (peripheral invaginations/dissections): prominent (deeper than leaf-trace thickness) (2) -> shallow (shallower than leaf-trace thickness) (1) |
|  |  | *Itopsidema* | Char. 9: Stele metaxylem cylinder spongy, with interspersed parenchyma: absent (0) -> present (1) | *Itopsidema* | Char. 9: Stele metaxylem cylinder spongy, with interspersed parenchyma: absent (0) -> present (1) |
|  |  | *Donwelliacaulis* | Char. 15: Cortex sclerenchymatous outer cortical layer: thicker than parenchymatous layer (2) -> absent (0) | *Donwelliacaulis* |  |
|  |  |  | Char. 26: Tips of petiolar vascular bundle after departure from stem: straight or incurved (0) -> recurved (1) |  |  |
|  |  |  | Char. 32: Sclerenchyma ring: present (1) -> absent (0) |  |  |
| Clade II | Thamnopteroideae | *Thamnopteris* | Char. 2: Stem core parenchyma: main tissue (2) -> absent (0) | *Thamnopteris (- T. splendida)* | Char. 27: Sclerenchyma lining leaf-trace abaxially: absent (0) -> continuous (2) |
|  |  | *Bathypteris* | Char. 27: Sclerenchyma lining leaf-trace abaxially: absent (0) -> continuous (2) | *Bathypteris* |  |
|  |  | *Chasmatopterys* | Char. 31: Scattered sclerenchyma in the inner cortex of the petiole: present (1) -> absent (0) |  |  |
| Clade III | Guairoideae | *Guairea* | Char. 15: Cortex sclerenchymatous outer cortical layer: thicker than parenchymatous layer (2) -> thinner than parenchymatous layer (1) | *Guairea* | Char. 8: Stele internal invaginations into metaxylem cylinder: fewer than peripheral invaginations (1) -> as many as or more than peripheral invaginations (2) |
|  |  |  | Char. 19: Number of leaf-trace protoxylem strands upon departure from stele: one (0) -> two (1) | *Lunea* | Char. 15: Cortex sclerenchymatous outer cortical layer: thicker than parenchymatous layer (2) -> absent (0) |
|  |  | *Osmundacaulis tehuelchensis, O. tasmanensis, andrewii* | Char. 21: Leaf-trace shape immediately after departure from stele: oblong or slightly concave (0) -> strongly concave (1) | *Osmundacaulis richmondii, O. tasmanensis, O. andrewii* | Char. 31: Scattered sclerenchyma in the inner cortex of the petiole: absent (0) -> present (1) |
|  |  | *Shuichengella* |  | *Shuichengella* |  |
|  |  | *Zhongmingella* |  | *Zhongmingella* |  |
|  |  |  |  | *Tiania* |  |
|  |  |  |  | *Itopsidema* |  |
|  |  |  |  | *Donwelliacaulis* |  |
| Clade IV | Osmundeoideae | *Lunea jonesii* | Char. 22: Number of leaf-trace protoxylem strands in central part of cortex: more than two (2) -> two (1) | *Osmundacaulis (- O. richmondii, O. tasmanensis, O. andrewii)* | Char. 22: Number of leaf-trace protoxylem strands in central part of cortex: more than two (2) -> two (1) |
|  |  | *Osmundacaulis kidstonii* | Char. 28: Sclerenchyma in leaf-trace concavity adaxially: lining band (2) -> free mass (1) | *Millerocaulis* |  |
|  |  | *Millerocaulis* | Char. 29: Sclerenchyma in trace concavity special states: solid (0) -> interrupted/scattered (1) | *Todea* |  |
|  |  | *Todea* |  | *Leptopteris (L. estipularis)* |  |
|  |  | *Leptopteris (L. estipularis)* |  | *Claytosmunda* |  |
|  |  | *Claytosmunda* |  | *Osmunda* |  |
|  |  | *Osmunda* |  | *Osmundastrum* |  |
|  |  | *Osmundastrum* |  | *Palaeosmunda* |  |
|  |  | *Palaeosmunda* |  |  |  |