

A COMPLETE PLANT OF THE LATE PALEOZOIC LYGINOPTERID, *SPHENOPTERIDIUM GERMANICUM* (WEISS) KERP ET DIMICHELE NOV. COMB., AND A TAXONOMIC REVISION OF THE SPECIES

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A whole-plant specimen of the lyginopterid pteridosperm *Sphenopteridium germanicum* (Weiss) Kerp et DiMichele nov. comb. was discovered at the Late Pennsylvanian (Missourian) Kinney Quarry, New Mexico, complete from roots to a crown of attached leaves. Taxonomic review, based on vegetative and associated reproductive organs, supports Mamay's assignment to *Sphenopteridium* Schimper. Mamay described a new species, *S. manzanitanum* Mamay, vegetatively identical to *Sphenopteris germanica* Weiss, originally described from the lower Permian of Poland. A critical review reveals that *Sphenopteris germanica* should be assigned to *Sphenopteridium* and *S. manzanitanum* is later homonym. The complete specimen has a growth habit consisting of a short, subterranean or surficial, mound-like stem bearing a tuft of ascendant leaves and a vertically disposed taproot, a low-growing, upright form. It is of sufficient size to suggest that this is the mature growth configuration, but it does not represent the maximal size the species could attain, based on excavated leaves much larger than those found in attachment. Based on sedimentary context, the specimen was likely growing along a river or estuary bank, and incorporated whole as the bank eroded and collapsed, resulting in transport of the plant into the embayment in which the Kinney flora and fauna were preserved. *Sphenopteridium germanicum* plants were, thus, relatively small, and low growing; there is no evidence of laterally initiated stems or plantlets that might indicate a clonal growth form. The growth habit reported here is new, enlarging the range of growth architectures known in late Paleozoic plants, and thus spotlights the morphological richness that had evolved by that time, despite significantly lower diversity than that of the modern world. A small plant with roots and three leaves, originally described as *Arnophyton kuesii*, is a juvenile individual of the same species. The latest occurrence of this lyginopterid is the upper Permian of Jordan.