

Table S1. Table of selected megafossils from the late-Barremian to middle Albian that have been explicitly linked with eudicots in the published literature. Note that lobed leaves with smooth margins may have teeth at the apices of lobes.

species [citation]	age (Ma)	habit	leaf org.	size	lobation	margin	teeth	environment
<i>Achaenocarpites capitellatus</i> [82]	113-105	herb	compound	nanophyll	lobed	smooth	glandular	wetland/ floodplain
<i>Archaeofructus</i> spp.[83,84]	127-123	herb	nonlaminar	NA	NA	smooth	Indet.	lacustrine
<i>Iterophyllum lobatum</i> [44]	127-113	herb	simple	microphyll	lobed	smooth	glandular	lacustrine
LC-Microphyll trifoliate[85]	120-113	unknown	compound	nanophyll	lobed	smooth	glandular	lacustrine
<i>Leefructus mirus</i> [86]	124-123	herb	simple	notophyll	lobed	smooth	glandular?	lacustrine
<i>Potomacarpus apeleutheron</i> [24]	125-113	unknown	compound	leptophyll	lobed	smooth	glandular	fine-grained fluvial
<i>Crataegites borealis</i> [87]	113-105	unknown	simple	microphyll	lobed	toothed	glandular	fine-grained fluvial
<i>Sagaria cilentana</i> [88]	109-105	herb	simple	leptophyll	lobed	smooth	glandular	lacustrine
<i>Sinocarpus decussatus</i> [89]	124-123	herb	simple	nanophyll	unlobed	toothed	glandular	lacustrine
<i>Ternaricarpites floribundus</i> [82]	113-105	herb	simple?	nanophyll	lobed	smooth	unknown	wetland/ floodplain
<i>Vitiphyllum</i> spp.[33]	115-109	herb	simple	microphyll	lobed	toothed	glandular	fine-grained fluvial
<i>Fairlingtonia thyrsopteroides</i>	125-109	Herb	Simple	leptophyll	lobed	smooth	glandular	fine-grained fluvial

Table S2. Leaf measurements used to estimate leaf mass per area in *Fairlingtonia thyrsopteroides* based on the equation reported by Royer et al. (2010) for angiosperm herbs ($\log[0.021] \times 0.2204 + 2.245 = \log[75.4 \text{ g} \times \text{mm}^{-2}]$).

	leaf area (mm ²)	petiole width (mm)	PW ² /A
USNM 597572	6.78	0.40	0.024
USGS 9030 23.3	16.27	0.52	0.017
USNM 597570	12.10	0.61	0.031
USNM 597571	23.27	0.67	0.019
USNM 3394	16.54	0.53	0.017
		mean	0.021

Table S3. Sites where *Fairlingtonia* has been collected.

Locality	pollen zone
Intersection of Covington and E. Clement Streets, Baltimore, MD	upper Zone I
Fredericksburg, VA	upper Zone I
near Lorton, VA	Zone I
USGS loc. 9030, Hillside along Highway I-395; Fairlington, VA	Zone I
Road Side near Potomac Run; Stafford Co., VA	lower Zone I
Fish Hut above Dutch Gap; Henrico Co., VA	lower Zone I
Entrance to Trent's Reach; Henrico Co., VA	lower Zone I
Clay ball at base at base of the bluff at Dutch Gap Canal; Henrico Co., VA	lower Zone I
Gray clay beds at base of the bluff at Dutch Gap Canal; Henrico Co., VA	lower Zone I

History of *Fairlingtonia*

Fairlingtonia thyrsopteroides was first described as a new species of fern in the genus *Sphenopteris* by Fontaine from the “Fish Hut above Dutch Gap Canal,” and “Fredericksburg” localities[1]. The specimens from Fredericksburg are lost, but one specimen (Figure 3B) lacks information about where it was collected and has matrix very similar to other fossils from Fredericksburg. This is probably the lost syntype. Berry[2] transferred *S. thyrsopteroides* to *Ruffordia goeppertii* (Dunker) Seward, (also a fern) and noted that the material identified by Fontaine as *Sphenopteris pachyphylla* and *S. spatulata* is indistinguishable from that of *S. thyrsopteroides*. The figured specimens of *S. pachyphylla* and *S. spatulata* were collected from “Entrance to Trent’s Reach”[1]. *Thyrsopteris pachyphylla* Fontaine from the “roadside near Potomac Run” near Lorton, VA also conforms to this species[1]. Doyle and Upchurch[3] figured a specimen from the Dutch Gap locality identified as *Vitiphyllum parvifolium* Fontaine. Assuming Fontaine’s illustrations are accurate, the lost holotype of *V. parvifolium* is not *Fairlingtonia* because the leaves have a pedate to catadromous arrangement of the lobes similar to a simplified *V. multifidum*. However, the size of the stems and leaves are similar to *Fairlingtonia* and Fontaine’s description included a comparison with extant *Synaphea polymorpha* (Proteaceae), which has anadromous leaves. The syntype of *V. parvifolium* (USNM 337551) has leaves that are larger, more dissected, and very similar to *V. multifidum*. Jud[4] figured morphotype PA9 from Fairlington, VA, which also conforms to *Fairlingtonia*.