

## Supplementary Materials for

### **A new fossil assemblage shows that large angiosperm trees grew in North America by the Turonian (Late Cretaceous)**

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#### **The PDF file includes:**

Table S1. Comparison of the Cretaceous *Paraphyllanthoxylon* species and the anatomically similar genus *Aplectotremas*.

Legend for data file S1

References (39–51)

#### **Other Supplementary Material for this manuscript includes the following:**

(available at [advances.sciencemag.org/cgi/content/full/4/9/eaar8568/DC1](https://advances.sciencemag.org/cgi/content/full/4/9/eaar8568/DC1))

Data file S1. Cretaceous angiosperm wood fossils used to create Fig. 1 (Excel file).

**Table S1. Comparison of the Cretaceous *Paraphyllanthoxylon* species and the anatomically similar genus *Aplectotremas*.** The specimen from the Ferron Sandstone Member and the type species are in bold (*11–14, 39–51*). Abbreviations: Al = Albian, Ce = Cenomanian, Tu = Turonian, Co = Coniacian, Sa = Santonian, Ca = Campanian, Ma = Maastrichtian; GR = growth rings, (-) indistinct, (+) distinct; PP = perforation plates, (-) simple, (+) scalariform; %S = percent solitary vessels; MVG = maximum number of vessels in radial multiples; MTD = mean tangential vessel diameter (µm; ranges obtained from multiple specimens); VF = vessels frequency (ranges obtained from multiple specimens); Ty = Tyloses: 1 = bubble-like, 2 = segmenting vessel, 3 = sclerotic; AP = axial parenchyma, 1 = rare to scanty paratracheal, 2 = diffuse or diffuse-in-aggregates; 1-r = uniseriate rays, (-) rare, (+) common; MR = maximum multiseriate ray width; RCC = ray cellular composition, 1 = mixed upright & procumbent, 2 = homocellular, procumbent; MU = rows of marginal upright cells associated with rays; 1 = one or rarely two rows of marginal uprights, 2 = commonly two or more rows of marginal upright cells; RF = ray frequency per linear millimeter; Id = Idioblasts: (-) not observed, (+) present, tall cells in rays with dark contents; Crys = Crystals: (-) not observed, (+) present in ray cells. Species marked with an asterisk need revision and may not fit the diagnosis of *Paraphyllanthoxylon*.

Taxon	Specimens	Age	GR	PP	%S	MVG	MTD	VF	Ty	AP	1-r	MR	RCC	MU	RF	Id	Crys
<i>P. alabamense</i>	W5, W11, W18, W19, W21, W24, W27, W28, W34	Tu	+/-	-	30-70	7	83–136	5–14	1/3	1	+/-	4	1	1	4.3–5.5	-	-
<i>P. anasazii</i> *	USNM 507032; TXSTATE 1205; YPM 30147, 30159	Ca–Ma	-	-	33-64	4	74–120	5–24	2	1	+/-	3	2	1	8.5	-	-
<i>P. arizonense</i>	USNM 42263; YPM 30151, 30155, 30156	Ce–Ma	-	-	?	4	143–184	6	1	1	+	7	1	1/2	4	-	-
<i>P. capense</i>	SMB 9084/2	Ca–Ma	-	-	?	6	74	39	1	1	-	?	?	2	7.5	-	-
<i>P. idahoense</i>	Henry Shaw Sch. of Bot. Coll. slides 1482-1484	Ce	-	-	?	4	100	?	1	1	-	4	1	2	?	-	-
<i>P. obirensense</i>	TK 98141	Sa	-	-	52	5	96	27	2	1	-	3	1	?	?	-	-
<i>P. utahense</i>	BYU 2190	Al	-	-	?	5	93	12	2	1	-	5	1	2	9.5	-	-
<i>P. aff. utahense</i>	102/04	Ce	-	-	29	5	84–95	20	1	1	-	7	1	2	?	-	-
<i>P. illinoisense</i> *	SIPC 607.9 (and 9 others)	Ma	-	-	low	8	118	22	2	1	+	6	2	2	?	-	+
<i>P. cf marylandense</i>	LPPU 1747	Sa	-	-	?	6	60–200	29–47	?	1	-	4	1	2	10.5	-	-
<i>P. romanicum</i>	U. of Cluj-Napoca Pbot. Coll. No. 439	Ca–Ma	-	-	12	9	86	?	1	1	-	7	1	1/2	?	-	+
<i>P. bacense</i> *	G.I.R. 26357, 26358	Ma–Pa	-	-/+	?	3	~105	~25	3	2	+	3	1	2	15	-	+
<i>P. sp.</i> *	UNAM LPb No. 50	Ma	-	-	54	4	68	10	?	1	-	5	2	1	10.5	-	-
<i>P. vancouverense</i>	Codon Coll. F-55441	Co	-	-	37	4	118	7	1	1	-	4	1	1	8	+	-
<i>A. halistichum</i>	UPTN 259A	Al	-	-	~20	3	193	?	?	1	?	4	1	?	?	-	-
<b>Ferron log</b>	UF 19462-69143	Tu	-	-	30	11	137	6	1	1	-	5	1	1	7.1	-	-

**Data file S1. Cretaceous angiosperm wood fossils used to create Fig. 1 (Excel file).** Location, identification, minimum diameter estimates, age, and citation information updated from (37). Abbreviations: Fm. = Formation, Gp. = Group, Ap. = Aptian, Al. = Albian, Ce. = Cenomanian, Tu. = Turonian, Co. = Coniacian, Sa. = Santonian, Ca. = Campanian, Ma. = Maastrichtian, Pa. = Paleocene, per = permineralization, char = charcoal.