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## Staminate inflorescences with *in situ* pollen from Eocene Baltic amber reveal high diversity in *Fagaceae* (oak family)

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**Table S1.** Repository of *Fagaceae* taxa from Baltic amber described and examined in this study.

Fossil-taxon	Name of collection	Institution	Type of fossil	Current collection no.	Former collection no.	Figures
<b><i>Castaneoideae</i></b>						
? <i>Castanea inclusa</i> Conw.	Hoffeins Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.21989 (neotype)	Hoffeins 66-1	Fig. 14A–E
? <i>Castanea inclusa</i> Conw.	Westpreußisches Provinzialmuseum Danzig	lost	detached staminate floret	—	—	Fig. 14F–H
? <i>Castanea inclusa</i> Conw.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24395	G1937	—
? <i>Castanea inclusa</i> Conw.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24396	G3545	—
? <i>Castanea longistaminea</i> (Casp.) Conw.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24371 (neotype)	G1894	Fig. 15A, B, E–H
? <i>Castanea longistaminea</i> (Casp.) Conw.	Westpreußisches Provinzialmuseum Danzig	lost	detached staminate floret	—	—	Fig. 15C, D
? <i>Castanea longistaminea</i> (Casp.) Conw.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24361	G1895	—
? <i>Castanea longistaminea</i> (Casp.) Conw.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24392	G3644	—
? <i>Castanea longistaminea</i> (Casp.) Conw.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24397	G3647	—
? <i>Castanea longistaminea</i> (Casp.) Conw.	Hoffeins Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.21990	Hoffeins 477-2	—
? <i>Castanea longistaminea</i> (Casp.) Conw.	Künnow Amber Collection	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.1979/0669	115	—
Castaneoid, genus indet.	Hoffeins Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.21991	Hoffeins 1145-2	Fig. 16, 17
<b><i>Quercoideae</i></b>						
<b><i>Quercus</i> sect. <i>Cyclobalanopsis</i> or <i>Q.</i> sect. <i>Lobatae</i></b>						
<i>Quercus casparyi</i> Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24402 (holotype)	G9	Fig. 18, 19

Fossil-taxon	Name of collection	Institution	Type of fossil	Current collection no.	Former collection no.	Figures
<b><i>Quercus</i> sect. <i>Lobatae</i></b>						
<i>Quercus subglabra</i> Casp.	Künnow Amber Collection	Museum für Naturkunde Berlin	staminate inflorescence	MB.Pb.1979/0817 (holotype)	—	Fig. 20
<i>Quercus subglabra</i> Casp.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24535	G5172	Fig. 21, 22
<i>Quercus subglabra</i> Casp.	Königsberg Amber Collection (Stantien & Becker)	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24418	3B733	Fig. 23, 24
<i>Quercus multipilosa</i> Sadowski & al.	Königsberg Amber Collection (Stantien & Becker)	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24414 (holotype)	3B729	Fig. 25, 26
<i>Quercus multipilosa</i> Sadowski & al.	Hoffeins Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.21992	Hoffeins 623	Fig. 27, 28
<i>Quercus aimeean</i> Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24389 (holotype)	G.1871	Fig. 29, 30
<i>Quercus aimeean</i> Sadowski & al.	Königsberg Amber Collection (Stantien & Becker)	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24388	3B734	Fig. 31, 32
<b><i>Quercus</i> sect. <i>Protobalanus</i></b>						
<i>Quercus brachyandra</i> (Casp.) Sadowski & al.	Künnow Amber Collection	Museum für Naturkunde Berlin	staminate inflorescence	MB.Pb.1979/0660 (holotype)	105	Fig. 33
<i>Quercus brachyandra</i> (Casp.) Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24385	G1923	Fig. 34, 35
<i>Quercus brachyandra</i> (Casp.) Sadowski & al.	Hoffeins Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.21993	Oe 201	—
<b><i>Quercus</i> section not determined</b>						
<i>Quercus meyeriana</i> (Göpp. & Berendt) Brongn.	Künnow Amber Collection	Museum für Naturkunde Berlin	staminate inflorescence	MB.Pb.1979/0813 (lectotype)	—	Fig. 36
<i>Quercus mucronata</i> Casp.	Künnow Amber Collection	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.1979/0868 (holotype)	—	Fig. 37
<i>Quercus mucronata</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24478	Casp. 68	—
<i>Quercus mucronata</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24408	G1913	—
<i>Quercus mucronata</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24399	G1945	—
<i>Quercus mucronata</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24382	G3580	—
<i>Quercus emanuelii</i> Mai	Bitterfeld Amber Collection	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.2009/0261 (holotype)	—	Fig. 38
<i>Quercus trichota</i> Casp.	Künnow Amber Collection	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.1979/0814 (holotype)	—	Fig. 39
<i>Quercus trichota</i> Casp.	Künnow Amber Collection	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.1979/0667	113	—
<i>Quercus trichota</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24380	G3648	—
<i>Quercus trichota</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24393	G1955	—

Fossil-taxon	Name of collection	Institution	Type of fossil	Current collection no.	Former collection no.	Figures
<i>Quercus trichota</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24530	G1927	—
<i>Quercus trichota</i> Casp.	Königsberg Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.24552	Casp. 72	—
<i>Quercus trichota</i> Casp.	Hoffeins Amber Collection	University of Göttingen	detached staminate floret	GZG.BST.21994	Hoffeins 1145-3	—
<i>Quercus limbata</i> Casp.	Berendt Amber Collection, Berlin	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.1979/0521	—	Fig. 40
<i>Quercus piligera</i> Casp.	Westpreußisches Provinzialmuseum Danzig	lost	staminate inflorescence	—	—	Fig. 41A–D
<i>Quercus taeniato-pilosa</i> Conw.	Westpreußisches Provinzialmuseum Danzig	lost	detached staminate floret	—	—	Fig. 41E–G
<i>Quercus nuda</i> Casp.	Westpreußisches Provinzialmuseum Danzig	lost	staminate inflorescence	—	—	Fig. 42A–C
<i>Quercus nuda</i> Casp.	Künnow Amber Collection	Museum für Naturkunde Berlin	staminate inflorescence	MB.Pb.1979/0656 (holotype)	97	Fig. 42D–I
<b><i>Trigonobalanoideae</i></b>						
Trigonobalanoid sp. 1	Hoffeins Amber Collection	University of Göttingen	staminate inflorescence	GZG.BST.21995	Hoffeins 1145-4	Fig. 43
Trigonobalanoid sp. 2	Hoffeins Amber Collection	University of Göttingen	staminate inflorescence	GZG.BST.21996	Hoffeins 1037-2	Fig. 44
<b><i>Eotrigonobalanus</i></b>						
<i>Eotrigonobalanus convwentzii</i> Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.6895 (holotype)	3B728	Fig. 45, 46
<i>Eotrigonobalanus cf. convwentzii</i> Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24577	SB6	Fig. 47, 48
<i>Eotrigonobalanus longianthera</i> Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence, pollen	GZG.BST.24568 (holotype)	G5400	Fig. 49, 50
<i>Eotrigonobalanus campanulata</i> Sadowski & al.	Königsberg Amber Collection	University of Göttingen	staminate inflorescence	GZG.BST.24419 (holotype)	3B731	Fig. 51
<b>Unresolved affinities</b>						
? <i>Eotrigonobalanoid</i> sp. 1 ( <i>Quercus trichota</i> var. <i>macranthera</i> Conw.)	Westpreußisches Provinzialmuseum Danzig	lost	detached staminate floret	lost	—	Fig. 52A, B
? <i>Eotrigonobalanoid</i> sp. 2 ( <i>Quercus meyeriana</i> sensu Conwentz)	Westpreußisches Provinzialmuseum Danzig	lost	detached staminate floret	lost	—	Fig. 52C, D
<i>Quercus ciliata</i> Casp.	Künnow Amber Collection	Museum für Naturkunde Berlin	detached staminate florets	MB.Pb.1979/0644	78	Fig. 53
Castaneoid or trigonobalanoid ( <i>Quercus meyeriana</i> var. <i>denticulata</i> Conw.)	Künnow Amber Collection	Museum für Naturkunde Berlin	detached staminate floret	MB.Pb.1979/0815 (holotype)	—	Fig. 54

Fossil-taxon	Name of collection	Institution	Type of fossil	Current collection no.	Former collection no.	Figures
? <i>Quercus</i> ( <i>Quercus nuda</i> var. <i>serrulata</i> Conw.)	Künnow Amber Collection	Museum für Naturkunde Berlin	staminate inflorescence	MB.Pb.1979/0816 (holotype)	—	Fig. 55
? <i>Quercus klebsii</i> Casp.	Amber Collection Stantien & Becker	lost	staminate inflorescence	—	—	—
? <i>Quercus capitato-pilosa</i> Casp.	Private Amber Collection Caspary	lost	detached staminate floret	—	—	—

**Table S2.** Repository of herbarium specimens of extant Fagaceae that were examined for this study. Taxon names and sections were updated with Solomon (1983a, 1983b), Hélardot (1987+), Manos & al. (1999), Denk & Grimm (2009, 2010), Hipp & al. (2014) and Tropicos.org (2019+).

Taxon	Herbarium	Barcode	Locality	Figures
<b>Castaneoideae</b>				
<i>Castanea sativa</i> Mill.	Herbarium Göttingen	GOET019899	Cossebaude, Saxony, Germany	Fig. 4A, B
<i>Castanea pumila</i> (L.) Mill.	Herbarium Göttingen	GOET019898	Transylvania County, North Carolina, U.S.A.	Fig. 4C, D
<i>Castanea dentata</i> (Marshall) Borkh.	Herbarium Göttingen	GOET019896	Biltmore, North Carolina, U.S.A.	Fig. 4E, F
<i>Castanopsis indica</i> (Roxb. ex Lindl.) A. DC.	Herbarium Göttingen	GOET019897	Meghalaya, India	Fig. 4G, H
<i>Castanopsis argentea</i> (Blume) A. DC.	Herbarium Göttingen	GOET019894	Java, Indonesia	Fig. 4I, J
<i>Castanopsis tribuloides</i> (Sm.) A. DC.	Herbarium Göttingen	GOET019900	East Himalaya	Fig. 4K, L
<i>Castanopsis fissa</i> (Champ. ex Benth.) Rehder & E. H. Wilson	BHUPM	MB.Pb.HB.45084	Kunming Botanical Garden, Yunnan, China	Fig. 4M, N
<i>Castanopsis cuspidata</i> (Thunb.) Schottky	Herbarium Göttingen	GOET019906	Kyoto, Japan	Fig. 4O, P
<i>Castanopsis orthacantha</i> Franch.	BHUPM	MB.Pb.HB.45085	Kunming Botanical Garden, Yunnan, China	Fig. 4Q
<i>Chrysolepis chrysophylla</i> (Douglas ex Hook.) Hjelmq.	Herbarium Göttingen	GOET019895	Oregon, U.S.A.	Fig. 5A, B
<i>Notholithocarpus densiflorus</i> (Hook. & Arn.) Manos & al.	Herbarium Göttingen	GOET019903	Butte county, Berry Creek, California, U.S.A.	Fig. 5C, D
<i>Lithocarpus dealbatus</i> (Hook. f. & Thomson ex Miq.) Rehder	Herbarium Göttingen	GOET019904	Assam	Fig. 5E, F
<i>Lithocarpus corneus</i> (Lour.) Rehder	Herbarium Göttingen	GOET019907	Hong Kong	Fig. 5G, H
<i>Lithocarpus craibianus</i> Barnett	BHUPM	MB.Pb.HB.45090	Xishuangbanna Tropical Botanical Garden, Yunnan, China	Fig. 5I, J
<i>Lithocarpus polystachyus</i> (Wall. ex A. DC.) Rehder	BHUPM	MB.Pb.HB.45093	Xishuangbanna Tropical Botanical Garden, Yunnan, China	Fig. 5K, L
<b>Trigonobalanoideae</b>				
<i>Trigonobalanus verticillata</i> Forman	Mus. Bot. Berol.	B 10 0743001	Mt. Kinabalu, Malaysia	Fig. 6A–D
<i>Formanodendron doichangensis</i> (A. Camus) Nixon & Crepet	BHUPM	MB.Pb.HB.45097	Xiding Town, Menghai County, Yunnan, China	Fig. 6E–K
<b>Quercoideae</b>				
<b>Quercus sect. <i>Protobalanus</i></b>				
<i>Quercus chrysolepis</i> Liebm.	Herbarium Göttingen	GOET019941	Santa Rita Mountains, Arizona, U.S.A.	Fig. 7A, B

Taxon	Herbarium	Barcode	Locality	Figures
<b><i>Quercus</i> sect. <i>Cyclobalanopsis</i></b>				
<i>Quercus glauca</i> Thunb.	Herbarium Göttingen	GOET019962	Nagasaki, Japan	Fig. 7C–E
<i>Quercus salicina</i> Blume	Herbarium Göttingen	GOET019972	Hong Kong	Fig. 7F, G
<i>Quercus kerrii</i> Craib	BHUPM	MB.Pb.HB.45096	Mt. Padingliangzi, Menghai County, Yunnan, China	Fig. 7H–J
<b><i>Quercus</i> sect. <i>Cerris</i></b>				
<i>Quercus castaneifolia</i> C. A. Mey.	Herbarium Göttingen	GOET019947	Algeria	Fig. 8A, B
<i>Quercus suber</i> L.	Herbarium Göttingen	GOET019969	District Évora, S of Montemor-o-Novo, Portugal	Fig. 8C, D
<i>Quercus cerris</i> L.	Herbarium Göttingen	GOET019942	Sulu, Turkey	Fig. 8E, F
<b><i>Quercus</i> sect. <i>Ilex</i></b>				
<i>Quercus aucheri</i> Jaub. & Spach	Herbarium Göttingen	GOET019943	Yağca, NW of Antalya, Turkey	Fig. 8G, H
<i>Quercus ilex</i> L.	Herbarium Göttingen	GOET019955	Mallorca, Spain	Fig. 8I, J
<i>Quercus coccifera</i> L.	Herbarium Göttingen	GOET019940	Massif de la Gardiole, near Mireval, France	Fig. 8K, L
<b><i>Quercus</i> sect. <i>Lobatae</i></b>				
<i>Quercus agrifolia</i> Née	Herbarium Göttingen	GOET019946	Mandeville Canyon, Santa Monica Mountains, S California, U.S.A.	Fig. 9A, F
<i>Quercus coccinea</i> Münchh.	Herbarium Göttingen	GOET019956	Biltmore, North Carolina, U.S.A.	Fig. 9B, G
<i>Quercus depressa</i> Bonpl.	Herbarium Göttingen	GOET019966	State of Puebla, Mexico	Fig. 9C, H
<i>Quercus crassifolia</i> Bonpl.	Herbarium Göttingen	GOET019958	State of Puebla, Mexico	Fig. 9D, I
<i>Quercus crassipes</i> Bonpl.	Herbarium Göttingen	GOET019959	State of Oaxaca, Mexico	Fig. 9E, J
<i>Quercus falcata</i> Michx.	Herbarium Göttingen	GOET019965	Biltmore, North Carolina, U.S.A.	Fig. 10A, F
<i>Quercus georgiana</i> M. A. Curtis	Herbarium Göttingen	GOET019963	Stone Mountain, Georgia, U.S.A.	Fig. 10B, G
<i>Quercus grahamii</i> Benth.	Herbarium Göttingen	GOET019964	State of Nuevo León, Mexico	Fig. 10C, H
<i>Quercus hypoleucoides</i> A. Camus	Herbarium Göttingen	GOET019960	Arizona, U.S.A.	Fig. 10D, I
<i>Quercus imbricaria</i> Michx.	Herbarium Göttingen	GOET019957	Biltmore, North Carolina, U.S.A.	Fig. 10E, J
<i>Quercus kelloggii</i> Newb.	Herbarium Göttingen	GOET019968	Indian Valley, Plumas County, California, U.S.A.	Fig. 11A, D
<i>Quercus rubra</i> L.	Herbarium Göttingen	GOET019971	Bloomington, Indiana, U.S.A.	Fig. 11B, E
<i>Quercus sartorii</i> Liebm.	Herbarium Göttingen	GOET019970	State of Vera Cruz, Mexico	Fig. 11C, F
<i>Quercus candicans</i> Née	Herbarium Göttingen	GOET019937	Sierra de Tepoxtlán, State of Morelos, Mexico	Fig. 13A, D
<i>Quercus candicans</i> Née	Herbarium Göttingen	GOET019938	State of Hidalgo, Mexico	Fig. 13B, E
<b><i>Quercus</i> sect. <i>Quercus</i></b>				
<i>Quercus robur</i> L.	Herbarium Göttingen	GOET019954	Søby Fredskov, Jutland, Denmark	Fig. 12A, F
<i>Quercus pubescens</i> Willd.	Herbarium Göttingen	GOET019950	Dép. Alpes-Maritimes, Saint-Vallier-de-Theï, France	Fig. 12B, G
<i>Quercus alba</i> L.	Herbarium Göttingen	GOET019944	St. Louis, Missouri, U.S.A.	Fig. 12C, H
<i>Quercus magnoliifolia</i> Née	Herbarium Göttingen	GOET019953	Mexico	Fig. 12D, I
<i>Quercus microphylla</i> Née	Herbarium Göttingen	GOET019952	State of Coahuila, Mexico	Fig. 12E, J
<i>Quercus grisea</i> Liebm.	Herbarium Göttingen	GOET019961	Santa Catalina Mountains, Arizona, U.S.A.	Fig. 13C–H

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