**S1 Fossil records of the genera *Berryophyllum*, *Castaneophyllum*, *Castanopsis*, *Lithocarpus*, and *Quercus*.**

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| Genus | Species | Preserve type | Age | Localities | References |
| B*erryophyllum* | B*.* dewalquei (Sap. et Mar.) Z. K. Zhou | Leaf | Paleocene | Gelinden Flora, Belgium | Mai, 1995 |
|  |  | Leaf | Eocene | Liaoning, China | Zhou, 1996 |
|  | *B. hainanensis* Liu et Jin | Leaf | Middle Eocene | Hainan Island, South China | This study |
|  | *B. relongtanense* (Colani) Z.K. Zhou | Leaf | Oligocene | Jinggu, Yunnan, China | Zhou, 1996 |
|  | *D. relongtanense* Colani = *B. relongtanense* | Leaf | Mio-Pliocene | Duotang Yunnan | Colani, 1920 |
|  |  | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *B.* sp. | Leaf | Eocene | Yanhua Shandong | Li and Guo, 1982 |
|  | *B. tennesseensis* (Berry) Jones et Dilcher | Leaf | Early Eocene | Southeastern North America | Jones and Dilcher, 1988 |
|  | *B. tenuifolia* Jones and Dilcher | Leaf | Early Eocene | Southeastern North America | Jones and Dilcher, 1988 |
|  | *B. yunnanense* (Colani) Z. K. Zhou | Leaf | Oligocene | Jinggu Yunnan | Zhou, 1996 |
|  |  | Leaf | Miocene | Jianchuan Yunnan | Zhou, 1996 |
|  | *D. yunnanense* Colani = *B. yunnanense* | Leaf | Mio-Pliocene | Duotang Yunnan | Colani, 1920 |
| *Castaneophyllum* | *C. amazonica* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *C. fushunense* (Chen et Wang) Z.K. Zhou | Leaf | Eocene | Fushun Liaoning | Zhou, 1996 |
|  | *C. hainanensis* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *C. lonchitiforme* Kvaček & Walther | Leaf | Oligocene | North Bohermia | Kvaček and Walther, 2010 |
|  |  | Leaf | Oligocene | Saxony | Kvaček and Walther, 2010 |
|  |  | Leaf | Oligocene | Czech Republic | Kvaček and Walther, 2010 |
|  |  | Leaf | Oligocene | Slovenia | Kvaček and Walther, 2010 |
|  | *C. cf. moorii* (Lesq.) Jones et Dilcher | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *C. moorii* (Lesq.) Jones et Dilcher | Leaf | Early Eocene | Southeastern North America | Jones and Dilcher, 1988 |
|  | *C. venosum* (Rossmässler) Knobloch & Kvaček | Leaf | Late Eocene | Czech Republic | Kvaček and Walther, 2010 |
|  | *C. tennesseense* (Berry) Jones et Dilcher | Leaf | Eocene | Tennessee North America | Jones and Dilcher, 1988 |
|  | *Dryophyllum pugetensis* Wolfe = *C. pugetensis* | Leaf | Late Eocene | — | Wolfe, 1966 |
|  | *D.* forma *furcinerve* (Rossmässler) Schmalhausen *= Castaneophyllum* | Leaf | Middle Eocene | Mine Königsaue | Kvaček and Walther, 1989 |
|  |  | Leaf | Late Eocene | Complex Zeitz, Mine Profen, Haselbach | Kvaček and Walther, 1989 |
|  |  | Leaf | Oligocene | German Democratic Republic | Kvaček and Walther, 1989 |
|  | *D.* forma *haselbachense* formaKvaček et Walther *= Castaneophyllum* | Leaf | Early Oligocene | Haselbach Mine | Kvaček and Walther, 1989 |
|  |  | Leaf | Oligocene | East Germany | Kvaček and Walther, 1989 |
|  | *D.* forma *lyellii* (Heer) Kvaček et Walther  *= Castaneophyllum* | Leaf | Oligocene | Bovey Tracey (G. B.) | Kvaček and Walther, 1989 |
|  | *D.* forma *robustum* Kvaček et Walther  *= Castaneophyllum* | Leaf | Middle Eocene | Geiseltal | Kvaček and Walther, 1989 |
| *Castanopsis* | *C. changchangensis* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *C. crepetii* Manchester | Nut | Middle Eocene | Nut Beds Clarno Formation | Manchester, 1994 |
|  | *C. franklinensis* Wolfe | Leaf | Eocene | Washington King County | Wolfe J. A., 1968 |
|  | *C. praefissa* R.Y. Li et B.N. Sun | Leaf | Miocene | Zhejiang Southeast China | Li et al., 2015 |
|  | *C. praeouonbiensis* R.Y. Li et B.N. Sun | Acorn | Miocene | Zhejiang Southeast China | Li et al., 2015 |
|  | *C. presclerophylla* n. sp. | Leaf | Pliocene | Yunnan Southwest China | Wu et al., 2014 |
|  | *C.* sp. | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *C. timensis* (Palib.) Iljinskaja | Leaf | Late Eocene | Central Russia (Kursk region) | Vikulin, 2011 |
|  | *C. (Castanopsis) lemhiensis* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *C. sonomensis* Axelrod | Leaf | Miocene | Western Nevada Pyramid Flora | Axelrod, 1995 |
|  | *Cyclobalanopsis* sp*.* | Cupule | Miocene | Lianghe Yunnan | Tao et al., 2000 |
| *Lithocarpus* | *L. coatsi* Axelrod | Acorn | Eocene | Central Nevada Copper Basin | Axelrod, 1966a |
|  |  | Leaf | Eocene | Northeastern Nevada Copper Basin | Axelrod, 1996a |
|  | *L. changchangensis* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *L. nevadensis* Axelrod | Leaf | Middle Miocene | Western Nevada Pyramid Flora | Axelrod, 1992 |
|  |  | Leaf | Miocene | Western Nevada Pyramid Flora | Axelrod, 1995 |
|  | *L.* sp. | Leaf | Eocene | Central Idaho Thunder Mountain | Axelrod, 1998a |
|  | *L. timensis* Vikulin | Leaf | Late Eocene | Central Russia (Kursk region) | Vikulin, 2011 |
|  | *L. weidei* Axelrod | Leaf | Oligocene | Eastern Idaho Haynes Creek | Axelrod, 1998b |
|  |  | Acorn | Oligocene | Eastern Idaho Haynes Creek | Axelrod, 1998b |
| *Quercus* | *Q. abchasica* Kolak | Leaf | Late Miocene | Southwest Bulgaria Baldevo Formation | Palamarev and Tsenov, 2004 |
|  | *Q. berryi* Trelease | Leaf | Oligocene | Oregon John Day Formation | Meyer and Manchester, 1997 |
|  | *Q. bilobata* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q. castormontis* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q. changchangensis* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *Q. chrgsolepis* Liebmann | Leaf | Pleistocene | Southern California | Axelrod, 1996b |
|  | *Q. consimilis* Newberry | Leaf | Oligocene | Oregon John Day Formation | Meyer and Manchester, 1997 |
|  | *Q. Cyclobalanopsis* sp. | Acorn | Late Pleistocene | Nepal | Bhandari et al.,2009 |
|  | *Q. deweyensis* Axelrod | Leaf | Eocene | Central Idaho Thunder Mountain | Axelrod, 1998a |
|  | *Q. drymeja* Unger | Leaf | Late Miocene | Southwest Bulgaria Baldevo Formation | Palamarev and Tsenov, 2004 |
|  | *Q. dumosa* Nutlall | Leaf | Pleistocene | Southern California | Axelrod, 1996b |
|  | *Q. furuhjelmi* Heer | Acorn | Miocene | Seldovia Point Flora | Wolfe and Tanai, 1980 |
|  | *Q. haugi* Colani | Leaf | Mio-Pliocene | Duotang Yunnan | Colani, 1920 |
|  | *Q. haynesii* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q. hannibali* Dorf. | Acorn | Mio-Pliocene | Central Navada | Axelrod, 1956 |
|  |  | Leaf | Mio-Pliocene | Western Central Nevada | Axelrod, 1956 |
|  | *Q. heterobracteolata* Hui Jia et Bai-Nian Sun | Leaf | Miocene | Zhejiang China | Jia et al., 2015 |
|  | *Q. hiholensis* Borgardt et Pigg | Acorn | Middle Miocene | USA Washington Yakima Canyon | Borgardt and Pigg., 1999 |
|  | *Q. kobatakei* Tanai et Yokoyama | Leaf | Oligocene | East Asia (Japan, North Korea & Primorye) | Tanai, 1994 |
|  | *Q. kodairae* Huzioka | Leaf | Oligocene | East Asia (Japan, North Korea & Primorye) | Tanai, 1994 |
|  | *Q. lakevillensis* Dorf | Leaf | Oligocene | Oregon John Day Formation | Meyer and Manchester, 1997 |
|  | *Q. lemhiensis* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q. lonchitis* Unger | Leaf | Late Miocene | Southwest Bulgaria Baldevo Formation | Palamarev and Tsenov, 2004 |
|  | *Q. lyratiformis* Cockerell | Leaf | Eocene | Central Cordilleran | MacGinitie, 1953 |
|  | *Q. mohavensis* Axelrod | Leaf | Eocene | Central Cordilleran | MacGinitie, 1953 |
|  | *Q. morehus* Kellogg | Leaf | Pleistocene | Southern California | Axelrod, 1996b |
|  | *Q. moyei* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q. paleoargyrotricha* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *Q. paleocarpa* Manchester | Acorn | Middle Eocene | Nut Beds Clarno Formation | Manchester, 1994 |
|  | *Q. paleolamellosa* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *Q. paleomultinervis* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *Q. paleomyrsinifolia* Liu et Jin | Leaf | Middle Eocene | Hainan Island South China | This study |
|  | *Q. palmeri* Engelmann | Leaf | Pleistocene | Southern California | Axelrod, 1996b |
|  | *Q. paraglauca* Hui Jia et Bai-Nian Sun | Leaf | Miocene | Zhejiang China | Jia et al., 2015 |
|  | *Q. pasadorii* Axelrod | Leaf | Oligocene | Oregon John Day Formation | Meyer and Manchester, 1997 |
|  | *Q. peritula* Cockerell | Leaf | Eocene | Central Cordilleran | MacGinitie, 1953 |
|  | *Q. perseaformis* (Ball) LaMotte*.* | Leaf | Oligocene | Oregon John Day Formation | Meyer and Manchester, 1997 |
|  | *Q. pollardiana* (Knowlton) Axelrod | Leaf | Miocene | Western Nevada Pyramid Flora | Axelrod, 1995 |
|  |  | Leaf | Miocene | California Carmel Valley | Axelrod, 2000 |
|  | *Q. praedelavayi* Y.W. Xing et Z.K. Zhou | Leaf | Late Miocene | Xundianxianfeng Basin | Xing et al.,2013 |
|  | *Q. predayana* MacGinitie | Leaf | Eocene | Central Cordilleran | MacGinitie, 1953 |
|  |  | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q. pseudoneriifolia* Vikulin | Leaf | Late Eocene | Central Russia (Kursk region) | Vikulin, 2011 |
|  | *Q. relongtanense* Colani | Leaf | Mio-Pliocene | Duotang Yunnan | Colani, 1920 |
|  | *Q. scudderi* Knowlton | Leaf | Eocene | Central Cordilleran | MacGinitie, 1953 |
|  | *Q. shangcunensis* Liu, Han et Jin | Acorn | Oligocene | Maoming Guangdong | Liu et al., 2019 |
|  | *Q. sichotensis* Ablaev et Gorovoi | Leaf | Oligocene | East Asia (Japan, North Korea & Primorye) | Tanai, 1994 |
|  | *Q. simulate* Knowlton | Acorn | Middle Miocene | Western Nevada Pyramid Flora | Axelrod, 1992 |
|  |  | Leaf | Middle Miocene | Western Nevada Pyramid Flora | Axelrod, 1992 |
|  |  | Leaf | Miocene | Western Nevada Pyramid Flora | Axelrod, 1995 |
|  |  | Leaf | Mio-Pliocene | Western Central Nevada | Axelrod, 1956 |
|  | *Q. snookensis* Axelrod | Leaf | Oligocene | Eastern Idaho | Axelrod, 1998b |
|  | *Q.* sp. | Leaf | Mio-Pliocene | Duotang Yunnan | Colani, 1920 |
|  | *Q.* sp. | Acorn | Late Miocene | Hungary | Hably, 2013 |
|  | *Q.* spp. | Acorn | Oligocene | Oregon John Day Formation | Meyer and Manchester, 1997 |
|  | *Q. subhercynica* Walther & Kvaćek | Leaf | Middle Eocene | — | Kvaček and Walther, 1989 |
|  | *Q. tibetensis* H. Xu, T. Su et Z.K. Zhou | Leaf | Miocene | Eastern Tibet | Xu et al., 2016 |
|  | *Q. ussuriensis* Kryshtofovich | Leaf | Oligocene | East Asia (Japan, North Korea & Primorye) | Tanai, 1994 |
|  | *Q. wislizenii* A. Candolle | Leaf | Pleistocene | Southern California | Axelrod, 1996b |
|  | *Q. yangyiensis* | Leaf | Late Pliocene | Yunnan | He et al., 2014 |
|  | *Q. zeilleri* Colani | Leaf | Mio-Pliocene | Duotang Yunnan | Colani, 1920 |

‘—’ indicates characters not reported or observed.