Polyspora

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write about an Asian genus whose species were, originally, included within the North American genus *Gordonia*.

KEY TO INITIALS

CFP Crûg Farm Plants; **KR** Keith D. Rushforth; **KWJ** Ben Kettle, B. & S. Wynn-Jones fifth expedition to northern Vietnam 2007 (Crûg-World of Ferns joint expedition); **CWJ** Finlay Colley and Bleddyn Wynn-Jones expedition to Taiwan 2007; **DJHV 06** Dan J. Hinkley, Vietnam 2006; **WWJ** Peter Wharton, B. & S. Wynn-Jones expeditions to northern Vietnam 2006/7.

Introduction

Polyspora is a welcome addition to the evergreen *Camellia*-like trees and shrubs with spectacular flowers.

In Vietnam, the total number of Theaceae taxa includes 11 genera and about 80 species according to Nguyễn (2017). Since 1999, over 47 new *Camellia* species have been recorded from Vietnam (Baines, 2020), whereas progress with *Polyspora* has been more modest and there are currently 13 species now recorded from Vietnam in the checklist provided by Le *et al*. (2020), which also details five genera and 95 species for Vietnamese Theaceae. The hardier species worth trying out of doors in mild, sheltered areas are from mountains in the far north of Vietnam, although most of the new discoveries are from further south and include pink and red flowered species, such as *P. cuongii* (Le *et al*., 2020) *P. huongiana* (Orel *et al*., 2012) and *P. gioii* (Luu, Nguyễn & Trần, 2015).

Generic concepts

Following molecular investigations, *Gordonia* is restricted to a single (or so) American species, *G. lasianthus*, and possibly *Gordonia brenesii* (Standl.) Q. Jiménez (syn. *G. brandegeei* H. Keng), with the Asiatic taxa now treated under *Polyspora* and the American *Laplacea* reinstated, the latter readily distinguished by basally asymmetric leaves and unisexual flowers (Prince & Parks, 2001; Yang *et al*., 2004; Le Min *et al*., 2020). While Zhang *et al*. (2014) found *Camellia* and *Pyrenaria* are polyphyletic, and attributed this to ancient hybridisation.

Many publications include *Ternstroemia* and its allies within Theaceae, but these are now usually separated as Ternstroemeriaceae or Pentaphylacaceae. Theaceae usually has short anthers on longer filaments, whereas Ternstroemeriaceae has long anthers on shorter filaments. A brief partial summary follows:

Gordonia probably a single species, *G. lasianthus*, evergreen, ovary 5(–7) -locular, seeds winged. South-east USA to north South America. *Gordonia*

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lasianthus has been crossed with *Franklinia alatamaha* to produce × *Gordlinia* (Ranney & Frantz, 2006).

Polyspora evergreen, anthers dorsifixed, ovary 5(–8)-loculed, seeds winged by an apical or lateral extension that is markedly elongated into a wing as in *Acer*. East—south-east Asia. *ca.* 40 species.

Schima sepals deciduous or if persistent not enveloping fruit, fruit globose or oblate, seeds winged by an apparently peripheral extension, not markedly elongated, but forming a partial disk. East India to south China, Taiwan, Japan. *ca.* 20 species.

Stewartia sepals persistent and enveloping the fruit, fruit ovoid to conical, seeds winged. China, Japan, Korea, south-east USA, *ca.* 18 species.

Camellia ovary 3(–5)-locular, fruit a capsule, seeds unwinged. India, east Asia to Malesia. *ca.* 120 species.

Helpful illustrations of these characters, and identification keys can be found in Whitefoord (2011) and Utteridge & Bramley (2014).

Fossil history

Numerous Theaceae fossil fruit, seeds and leaves are known from the Eocene of North America, with frequent new discoveries (Grote & Dilcher, 1989, 1992). Fossil Theaceae are also known from Europe, including the now extinct *Camellia abchasica* Kolakovskyi.

Winged seeds assigned to *Gordonia* s.l., possibly *Polyspora*, are recorded from the early Miocene of Hungary (Erdei & Hably, 2021). At least six European species based on leaves have been assigned to *Gordonia*/*Polyspora* (Erdei & Hably, 2021).

Polyspora **in the wild**

Our first encounter with *Polyspora*, a member of the well-known family of Theaceae, was under the name of *Gordonia*. This was still the case in 1999 with the species we were encountering on our first forays scaling Fansipan, the highest mountain in northern Vietnam and surrounding areas.

We had fleeting glimpses prior to this, but in the forested upper reaches of Fansipan, we had walked through areas where the ground was as thick as snow with the fallen enormous blooms, like poached eggs. These patches were below really dark areas of canopy, with sturdy trunks disappearing into them, more often than not in thick mist. Inevitably on these first forays, there was little time to investigate such inaccessible plants, as was the case on our two subsequent visits, which may give you an inkling as to how much new material we had to investigate on this mountain.

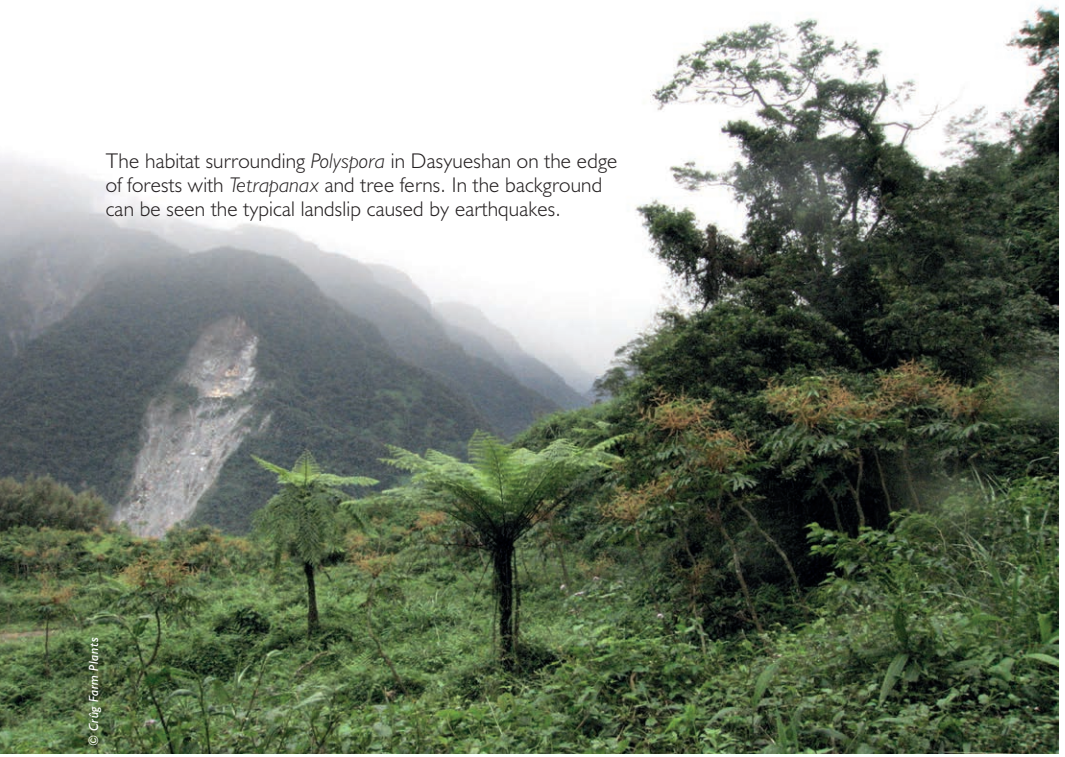
It was not until 2006 that we finally came across accessible plants with seed, while initially teaming up with the late Peter Wharton from University of British Columbia Botanic Gardens, on the lower slopes of Fansipan. Peter

A Sapa shopper carrying a large branch of *Polyspora* on our drive to Seo Mi Tý, on the southern arm of the Hoang Lien Son Mountain Range from Fansipan in the autumn of 2006.

taught me a lot about that area where he had been studying for some time. He pointed out what should have been obvious to me, that the deep valley running parallel to the Hoang Lien Son Mountain Range, between the old hill station of Sapa and Fansipan, the highest point of that range, was 'U-shaped' in cross-section. This, of course, indicated glaciation, which in turn indicates that there should be greater hardiness in the flora of this area. It is exactly why so many unexpected plants from this area have such a high cold tolerance in their genes, rendering them much hardier than plants from hundreds of miles further north into China that have been collected in the past and gained a reputation of being tender.

That year Sue and I made a second visit to the then unknown area of Y Tý, at a lower altitude, but at the northern end of the Hoang Lien Son Range. What we were encountering in all of these locations was a secondary growth, as most of these areas within reach of any tracks (no paved roads in those days) had been logged or stripped after the Vietnam War. The same was the case the following year when Peter and I organized an expedition with The Institute of Ecology and Biological Resources—Vietnam Academy of Science and Technology, when we were able to look at this area in greater depth. Although it was still only secondary growth that we had access to, there was enough seed for us to establish a foundation stock as well as grow to start offering plants for distribution.

The resulting plants have proved to be surprisingly hardy in our maritime climate, the first being planted out on our Mound Garden, which is very



The habitat surrounding *Polyspora* in Dasyueshan on the edge of forests with *Tetrapanax* and tree ferns. In the background can be seen the typical landslip caused by earthquakes.

shallow acidic well-drained soil, in a partially sunny exposed position. It was planted in early October 2010, which is when the western side of the UK received a surprisingly cold spell at the end of October, plunging to -15 °C. There was a similar record low for our region in the following spring. We didn't even notice a blemish on the plant in question, nor on any of the other plants from that area of Vietnam. Encouraged by this we planted several more collections in various parts of our gardens.

I was under the impression that we had collected two species in northern Vietnam, but while studying our maturing plants I am almost convinced that we only have the single species of *Polyspora longicarpa*. All our plants have survived, meanwhile the first planted has found the last couple of summers too hot and dry to thrive. Differing in habit to our other collections in the foliage, having morphed to being much smaller and more or less confined to the branch ends, while producing an abundance of flower buds, which open in sequence throughout our winter, October through April. Meanwhile in our walled garden, where the soil is less acidic, getting on neutral, deeply worked and full of humus, the plants are thriving with large dark green glossy leaves covering small trees to 5 m tall by over 3 m at their base. Some winters are better than others for flowering, but they are far from shy flowerers, both in quantity and size resulting in a good seed set to boot, which only confirms their identity, by their long seed capsules at about 4 cm long.

That same year of 2007 I went on to Taiwan, while Sue accompanied our

collections from the previous two months home, accumulating an excess baggage charge of $850 US. In Taiwan I met up with Dan Hinkley and Finlay Colley, where we were hosted by Taiwan's Natural Science Museum in Taichung. Our first foray with them was to Dasyueshan a mountain forest in the west of Taiwan at 2,000 m, where they conduct many of their experiments. I was surprised to find a sizeable colony of *Polyspora axillaris*, growing in contrasting conditions to those I was becoming used to in Vietnam. An open dry south-facing steep slope mainly of bare rock, populated by shrubby specimens no taller than 2 m, backed by large trees to 20 m tall. The foliage I recorded was only 15 × 3.5 cm, with flowers to 7.5 cm across and seed capsules only 2.5 cm long. Interestingly *Schima superba* was growing in the forest close by.

It was hardly surprising that the progeny from this seed collection did not thrive in our gardens, despite being grown in more sheltered conditions. They were hardy enough, but the growth was too lax despite only forming much smaller plants, which never showed any sign of flowering, although under the protection of a polytunnel we have our first flowering in the spring of 2022.

In 2011 I returned to Fansipan and again saw plenty of young plants in flower, as well as a couple of large trees growing by a river on a new trail towards the second peak, but not at a higher altitude. There is still an opportunity to find seed at higher altitude than the forms we have so far collected.

Species relevant to cultivation

The following notes focus on those species known to have been introduced or attempted in cultivation.

Polyspora axillaris was the earliest species to be described as *Camellia axillaris* Roxburgh ex Ker-Gawler in the *Botanical Register* 4: t.349 (dated 1818, probably published Jan–Feb 1819). The name first appears in an unpublished handwritten manuscript of *Flora Indica* by Roxburgh with later annotations by Roxburgh and Robert Brown, which came into the possession of Joseph Banks, and is still available for consultation in the London Natural History Museum. Roxburgh's *Flora Indica* was published posthumously, in several attempts by colleagues and apparently his sons, between 1820 and 1832. Hence, the first valid publication of the name *Camellia axillaris* is the text by Ker-Gawler and accompanying plate by Sydenham Teast Edwards (1769–1819) in the *Botanical Register.* John Bellenden Ker (1764–1842), usually called Ker-Gawler, was the author of all the descriptions in the first 14 volumes of the *Botanical Register* between 1815 and 1824, and hence the name is attributed to him as author. (Text in subsequent volumes 15–33 was the work of John Lindley.)

Sweet (1830) gives the year of introduction to cultivation in the British Isles as 1816. Dr William Roxburgh (1751–1815) introduced it to the Botanical garden in Calcutta, during his tenure as superintendent from 1793 to 1813. The original material came from Prince of Wales Island or Pulo-Pinang, now

known as Penang Island, on the west coast of the Malaysian peninsula. There exists a specimen, currently regarded by some workers as the holotype, from Roxburgh's herbarium in the Brussels Herbarium collected on 18 January 1803, annotated, '*Hypericum*?' but without locality that may represent this find. William Roxburgh senior probably collected this, although he did not personally collect in the Malay Archipelago, whereas one of his sons, William Roxburgh junior (fl. 1780–1806) did so. This herbarium specimen had once belonged to Carl Martius (1794–1868) and was amongst about 63,000 specimens from Martius' herbarium acquired by Brussels in 1870. Although a connection with *Hypericum* may appear strange to us, *Hypericum* does produce stamens in basally united bundles that is a structural similarity with many Theaceae. Perhaps it reflects the long influence of the Linnaean system.

Plants were cultivated in the nursery of Messers. Reginald Whitley (1754–1835) for whom the Chinese white peony *Paeonia lactiflora* 'Whitleyi' was named. It also grew in a heated greenhouse and first flowered in December 1817 at about 1 m tall for Peter Brames (?-1834) and Thomas Milne (1767–1838) who worked in a nursery in Fulham, London from 1810 to 1833. In 1834, the *Botanical Magazine* reported that the same plant had been grown for several years, and was supposed to have been brought from China by Mr Robarts [sic], along with other camellias. Commenting on hardiness, it quaintly remarked, 'Appears to be rather more impatient of cold than other Camellias, but Mr Milne thinks it will succeed very well in a conservatory.' Subsequent collections from further north and at higher altitude have proved hardier.

Accepted name: *Polyspora axillaris* (Roxb.) Sweet, News Lit. Fashion 2: 205 (1825). Lectotype (designated by Bartholomew & Ming, 2005): The plate in Bot. Reg. 4: t.349 (1818). A sheet at BR, *Roxburgh W. s.n.*, 18 Jan 1803, appears to be original material relating to Roxburgh's *Flora Indica* manuscript, but as it is unlikely to have been seen by Sweet, his description is lectotypified by the accompanying plate. It is possible that duplicates of the Roxburgh collection exist elsewhere.
Synonyms: *Polyspora axillaris* (Roxb.) Sweet, Hort. Brit. [Sweet] 61 (1826), isonym.
Gordonia axillaris (Roxb.) Endl., Cat. Horti Vindob. 2: 365 (1842) cf. D. J. Mabberley in Taxon 33(3): 435 (1984), entry no. (1842).
Gordonia axillaris (Roxb.) D. Dietr., Syn. Pl. [D. Dietrich] 4: 863 (1847), isonym.
Gordonia axillaris (Roxb.) Szyszył., Nat. Pflanzenfam. [Engler & Prantl] 3(6): 185 (1893), isonym.
Gordonia anomala Spreng., Syst. Veg., ed. 16 [Sprengel] 3: 126 (1826).

Illustrations: Bot. Reg. t.349 (1818); Curtis Bot. Mag. 46: t.2047 (1819) & 69: t.4019 (1843); Li (1963: 594, analytical drawing); Bean (1973: monochrome photo 44); Flora of Guangxi 1: 804 (1991), line drawing, as *Gordonia axillaris*; Chen (1991: 148, drawing); Sanchez de Lorenzo C. (2000: 332, foliage) Ming & Bartholomew (2007: 392); Deng & Xia (2007: 185 & photo 334); Huang (2015: 34, foliage, as *G. axillaris*); Liu & Lin (2016: 281); Nguyễn (2017: 138, 322); Morris *et al*., (2017: 113, botanical plate).

Polyspora axillaris from *Curtis Botanical Magazine* 69: t.4019. 1843.
Illustration shows: 1. Pistil; 2. Section of the Germen: magnified; 3. Capsule: nat. size, and 4. Seed: magnified.

Descriptions: Chen (1991: 148); Sanchez de Lorenzo C. (2000: 332); Ming & Bartholomew (2007: 418); Deng & Xia (2007: 185); Liu & Lin (2016: 280-281); Whitefoord (2011).

Distribution: SE China (SE Yunnan: Jianhui) to Indo-China (Vietnam: Sapa), Taiwan. Myanmar (Kachin), (Kress *et al*. 2003; Shui & Chen, 2010). Thickets 100–800(–2300) m.

Polyspora axillaris CWJ 12363 Dasyueshan, western Taiwan.

Distinguished by a combination of: leaf apex rounded, blunt or emarginate, margin smooth or a few well-spaced teeth towards the tip; petiole 10–15 mm long, glabrous. Nguyễn (2017: 306) keys it out by ovary and fruit invariably 5 loculed, leaf apex obtuse, rounded or emarginate; flowers terminal, pink or yellowish-white.

Note. Recorded from NE Thailand by Keng (1972: 144), but this material appears to be *P. longicarpa,* which had not been described at the time Keng produced the *Flora of Thailand* account (Bartholomew & Ming, 2005). Similarly var. *nantoensis* from Taiwan is said to be distinguished by fruits 4 cm long.

Cultivated in China at: SCBG, WHIOB, KIB, XTBG, GXIB, XMBG.

Cultivated in Australia: Sydney BG in 1895, reintroduced 1916, noted as attractive in 1965, new tree planted 1971. An important tree at Blue Mountains BG, where it was plant of the month for June 2012. According to Valder, one of the best small trees for Australian conditions (Morris *et al*., 2017).

Cultivated in N. America: Sonoma BG.

Cultivated in British Isles. Both Tom Hudson (Tregrehan) and B. W-J (Crûg Farm) have abandoned cultivation of the Taiwanese *P. axillaris*, which has smaller foliage than *P. longicarpa*, and a liking for really hot and dry conditions, hence its success in Australia. Plants grown in a tunnel and out of doors in rich soil in a walled garden showed no sign of flowering, and displayed a tendency to be very 'floppy' in habit, probably due to the moisture and lack of heat.

CWJ 12363 was a collection made by B. W-J along with Finlay Colley and

Dan Hinkley in late autumn from Dasyueshan Forest in the west of Taiwan at 2,000 m in 2007. The seed gathered was from an accessible 2 m tall shrub growing from what appeared to be solid rock, as the winged seed had been blown from the surrounding trees that were up to 20 m tall. Back in cultivation at Crûg Farm it formed a densely branched very lax shrub well clothed in thick textured dark green glossy leaves to 15 cm long sometimes shallowly serrated in their extremities, but no flowering.

***Polyspora axillaris* varieties**

Note that *Gordonia axillaris* var. *acuminata* E.Pritz., Bot. Jahrb. Syst. 29(3–4): 473 (1900) is a synonym of *Polyspora speciosa* (see below).

Polyspora axillaris* var. *tagawae (Ohwi) S.S.Ying, Quart. J. Chin. Forest. 20(4): 130 (1987). Type: Taitung, *Liu & Keng 2819* (M, T). Synonym: *Gordonia tagawae* Ohwi, J. Jap. Bot. 13: 337 (1937).

Li (1963) describes this as follows: Capsule oblong-ovoid, 2.5–3 cm long; seeds ovate-rhomboid, compressed, 7–9 mm long × 4–5 mm wide, wings falcate, 12–17 mm long × 6 mm wide.

Distribution: Taiwan, endemic.

Polyspora axillaris* var. *nantoensis (Keng) S. S.Ying, Quart. J. Chin. Forest. 20(4): 130 (1987). Type: Nantou, *Matuda 1920* (holo. T).

Synonym: *Gordonia axillaris* var. *nantoensis* King, Taiwania 1: 226 (1950).

According to Li (1963) this is characterised by the very elongated fruits to 4 cm long. The fruit size is in the range of *P. longicarpa*, but otherwise the plant is unlike *P. longicarpa*.

Distribution: Taiwan, endemic.

Polyspora axillaris* forma *subemarginata (Gagnep.) B.Wynn-Jones & J. M. H. Shaw, comb. nov. Basionym: *Gordonia axillaris* forma *subemarginata* Gagnep., Suppl. Fl. Gen. L'Indo-Chine 1(3): 324 (March 1943). Type: not indicated. Leaves very obtuse, emarginate. Distribution: China (Hainan); Vietnam, summit of Nui Bachma, which is also a locality for *P. tonkinensis*.

Polyspora axillaris* var. *crenata (Gagnep.) B. Wynn-Jones & J. M. H. Shaw, comb. nov. Basionym: *Gordonia axillaris* var. *crenata* Gagnep., Suppl. Fl. Gen. L'Indo-Chine 1(3): 324 (March 1943). Type: not indicated. Twigs more slender. Leaves acuminate or obtuse, thinner, very clearly crenate.

Distribution: Vietnam, Nha Trang; Qui-nhon prov., col de Mangiang.

Polyspora chrysandra

This species was discovered by George Forrest in November 1912, west of Tengyueh near the Yunnan-Myanmar border, growing as a shrub or tree

between 4–10 m (20–30 feet) in height bearing white flowers. Fruits had been collected from the same locality in May 1912. However, it was introduced to cultivation in 1917, as *F. 15559* from fruit collected in August on the western flank of the Tali (Dali) range in Yunnan, while flowers from this locality were collected later in June 1929 (*Forrest 27964*).

Robert Sealy suggested that it most resembled *P. daglieshiana* Craib, a plant known from a few mountains in northern Thailand, including Doi Suthep and Doi Inthanon (Sealy, 1956), but differed by larger, more oblong or oblanceolate, blunter leaves with less toothed margins.

Plants that were tried out of doors in Edinburgh perished, while those in a greenhouse flourished and flowered freely during January and February. Cuttings from ripened shoots rooted fairly easily. Plants also flowered under glass at Wisley (Cowan, 1952).

Accepted name: *Polyspora chrysandra* (Cowan) Hu ex B. M. Barthol. & T. L. Ming, Novon 15(2): 264 (13 July 2005). Type: *G. Forrest 9234*, holo. E, iso. A.

Synonyms: *Gordonia chrysandra* Cowan, Notes Roy. Bot. Gard. Edinburgh 16: 184 (1931).

Polyspora chrysandra (Cowan) S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 364 (25 July 2005), isonym.

Illustrations: Botanical Magazine n. s., t.285 (1956); Ming & Bartholomew (2007: 391); Liu & Lin (2016: 281).

Descriptions: (Sealy, 1956); Bean (1973); Ming & Bartholomew (2007: 418); Whitefoord (2011); Liu & Lin (2016: 281).

Distribution: China (Yunnan (SE Yunnan: Guangnan, Honghe, Mengzi, Shiping, Wenshan, Xichou), SE Sichuan, N Guizhou), Myanmar (Kachin), (Kress *et al*., 2003; Shui & Chen, 2010). Forests and thickets, 1,100–2,400 m.

Distinguished by a combination of: Leaf apex rounded, blunt or emarginate, margin serrate; petiole 3–5 mm long, pubescent with hairs flat against surface. Differs from *P. axillaris* mainly in smaller flowers 5 cm or so wide, and smaller *ca*. 10 cm long, thicker leaves. (Bean, 1973).

Cultivated in China at: KIB, XTBG.

Cultivated in N. America: Sonoma BG.

Cultivated in British Isles: Previously RBG Edinburgh; RHS Garden Wisley; RBG Kew. (Cowan, 1952: 159).

Polyspora hainanensis*/*balansae

The epithet *hainanensis* emphasises that this species was, in the opinion of its author, Chinese botanist Zhang Hongda (also known as Chang, Hung Ta, 1914–2016), endemic to Hainan Island, off the coast of Guangdong. It is accepted as such in the *Flora of China* treatment (Bartholomew & Ming, 2005; Ming & Bartholomew, 2007). However, Le *et al.* (2020) include *P. hainanensis* as a synonym of *P. balansae* (Pit.) Hu, a species initially described as *Gordonia balansae* by Pittier in the first volume of the original French language *Flore*

generale de L'Indo-chine published in 1910. It was based on a collection by a French botanist Benedict (Benjamin) Balansa (1825–1892), for whom it is named, from north Vietnam in forest on Mount Bavi, pres du Sougi. Hainan is geographically not far from Vietnam so this similarity of *Polyspora* from the two localities is not particularly surprising. Quite obviously, the name *G. balansae* from 1910 has date priority over *G. hainanensis* from 1983, so if this synonymy stands up to scrutiny the plants in cultivation will need a change of name.

Accepted name (tentative): *Polyspora hainanensis* (Hung T. Chang) C. X. Ye ex B. M. Barthol. & T. L. Ming, Novon 15(2): 264 (2005). Type: T. Q. YU 11206, hoho. SYS.

Synonyms: *Gordonia hainanensis* Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1983(2): 111 (1983).

Polyspora hainanensis (Hung T. Chang) C. X. Ye ex S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 364–365 (2005), isonym.

Illustrations: Ming & Bartholomew (2007: 392); Liu & Lin (2016: 282, flower); Grimshaw & Bayton (2009: 648, foliage); Nguyễn (2017: 133).

Descriptions: Chen (1991: 148); Ming & Bartholomew (2007: 418–419); Grimshaw & Bayton (2009: 649); Liu & Lin (2016: 282).

Distribution: Perhaps endemic to Hainan, Guangdong, China (as *Polyspora hainanensis*), and also known from Bavi, northern Vietnam (as *P. balansae*). Forests 300–1,500 m.

Distinguished by a combination of: leaf oblong, 2–3 cm wide, apex pointed to acuminate, leaf underside and new twigs glabrous; flowers around 4 cm across; capsule 1–3.5 cm long. Nguyễn (2017: 305–306) keys it out by ovary and fruit variably 3–5 loculed, leaf lateral veins 7–8 pairs, flowers white, 4 cm across, and distinguished *P. hainanensis* by ovary with a variable number of 3–5 locules from *P. balansae* with ovary invariably 3-loculed.

Cultivated in British Isles: Tregrehan, Cornwall.

Cultivated in New Zealand: Eastwoodhill Arboretum.

Polyspora longicarpa

Despite its wide distribution this species was only named in 1983. Chinese botanist, Zhang Hongda also known as Zhang, Hong Da, and Chang, Hung Ta (1914–2016) who worked at Sun Yat-Sen University in Guangzhou described it.

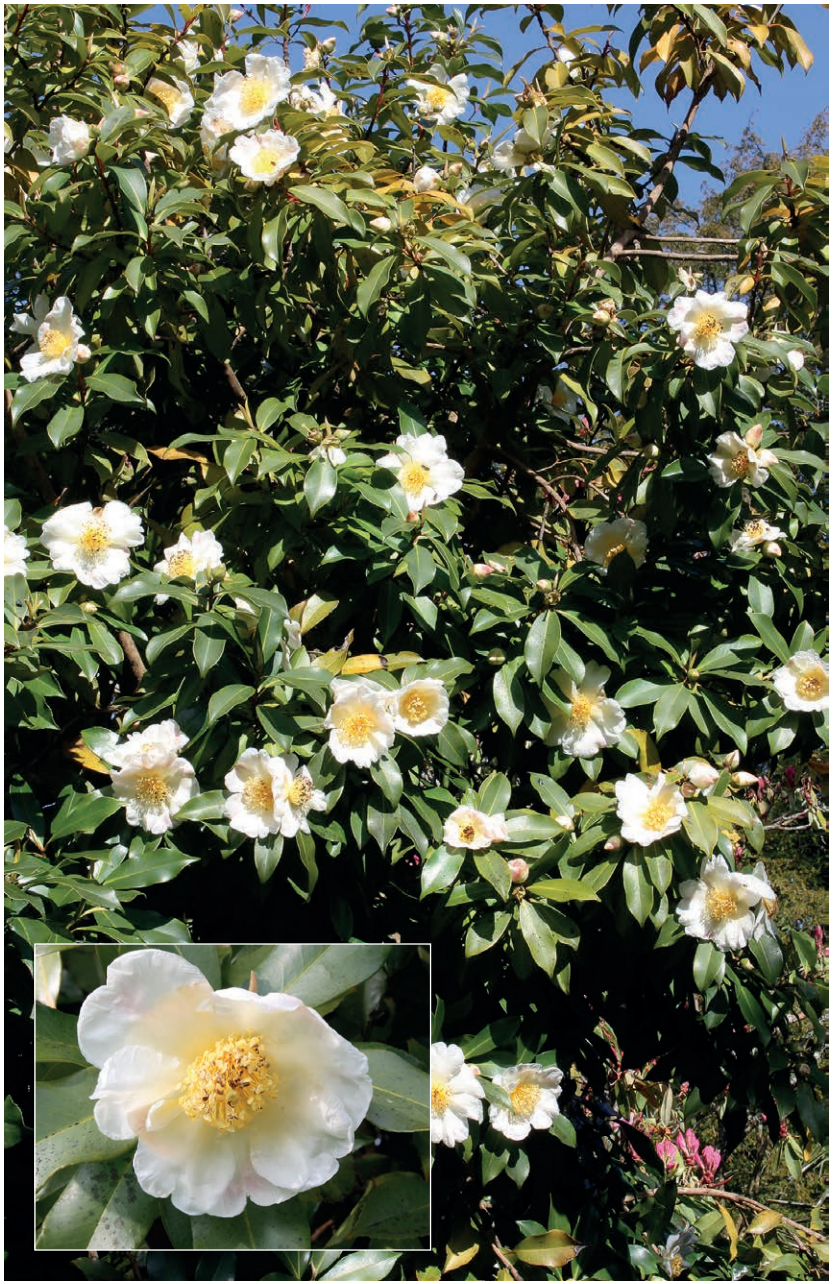
One introduction was by Bruce Bartholomew, Senior Researcher at the Botany Department at the California Academy of Sciences, who made a collection of *Polyspora longicarpa* during a botanical expedition to Yunnan, China. Plants grown from seed he collected were planted out at the Strybing Arboretum of San Francisco Botanic Garden in 1998.

Accepted name: *Polyspora longicarpa* (Hung T. Chang) C. X. Ye ex B. M. Barthol. & T. L. Ming, Novon 15(2): 265 (13 July 2005). Type: *J. Chen* 2–77, holo. KUN.

Synonyms: *Polyspora longicarpa* (Hung T. Chang) C. X. Ye ex S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 365 (25 July 2005), isonym.

Gordonia longicarpa Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1983(2): 111 (1983).
Gordonia tiantangensis L. L. Deng & G. S. Fan, J. Trop. Subtrop. Bot. 7(3): 193 (1999).
Polyspora tiantangensis (L. L. Deng & G. S. Fan) S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 365 (2005).
Illustrations: Huang (2015: 35, foliage & flower, as *Gordonia longicarpa*); Liu & Lin (2016: 281); Nguyễn (2017: 141); Baines (2020: 62, colour photo); McNamara & Bartholomew (2021: t.986, & dissection 230).
Descriptions: Ming & Bartholomew (2007: 419); Liu & Lin (2016: 281); McNamara & Bartholomew (2021: 231).
Distribution: China (SE Yunnan: Funing, Hekou, Jinping, Luchun, Pingbian; SW Yunnan), N Myanmar, NE Thailand, N Vietnam (Shui & Chen, 2010). Forests 1,000–2,500 m. Records of *P. axillaris* from NE Thailand by Keng (1972: 144) appear to represent *P. longicarpa* (Bartholomew & Ming, 2005). Similarly *P. axillaris* var. *nantoensis* from Taiwan, is distinguished by long fruits (Li, 1963).
Distinguished by a combination of: leaf apex pointed to acuminate, leaf underside and new twigs pubescent; capsule 4–5 cm long. Nguyễn (2017: 306) distinguishes *P. longicarpa* by a fixed number of 5 locules per ovary; young twigs pubescent, acute leaf blade apex, and flowers white, axillary.
Cultivated in China at: SCBG, KIB, XTBG.
Cultivated in Ireland: National Botanic Gardens, Kilmacurragh. KR 7646
Cultivated in N. America: Sonoma BG, San Francisco BG, University of California BG at Berkeley. Windcliff, Washington State, Dan Hinkley collection. Bubelis (2016) notes a cultivar 'MonSaPaRby' ascribed to *P. longicarpa* is available in the USA. It was introduced in 2015 by Monrovia, who also used a trademark, FULLMOON. This has subsequently been listed as a name, but it should be noted that trademarks are not plant names, just devices used to market goods (Trehane, 2001). The cultivar name of the clone is 'MonSaPaRby'.

Cultivated in the British Isles: Crûg Farm has these accessions.
WWJ11604 A collection from the lower slopes of Fansipan, found on the Trum-Tron Pass at around 2,000 m at the start of the 2006 expedition, Peter Wharton & Bleddyn Wynn-Jones. From an evergreen tree 6 m tall with dark green narrowly elliptic to oblong leaves, 12 × 3 cm. with 4 × valvate woody capsules with long-winged seed, flowers large white. 4 m tree in the walled garden.
BSWJ11704 From a seed collections gathered close to the Chinese border in the very north of Vietnam at Y Tý in the autumn of 2006, when Bleddyn and Sue Wynn-Jones went to assess this new area which had barely been botanised previously. Gathered from 3 m tall secondary growth with leaves to 17 cm long serrated, from a north facing slope. Seed capsules elongated.
BSWJ11708 From a seed collections gathered close to the Chinese border in the very north of Vietnam at Y Tý in the autumn of 2006, when Bleddyn and Sue Wynn-Jones went to assess this new area which had barely been botanised



Polyspora longicarpa KR 7646 in cultivation at National Botanic Gardens, Kilmacurragh, Ireland.

Left and below, *Polyspora longicarpa* WWJ 11894 planted in early October 2010 at Crûg Farm Plants is now a 4m tree.

Opposite, *Polyspora longicarpa* WWJ 11934, a particularly large and colourful specimen growing in Y Tý close to the boder with southern Yunnan in 2007.

previously. Gathered from 3 m tall secondary growth with leaves to 25 cm long serrated in the upper 2/3, from a north facing slope full of other shrubs with secondary growth. 4 m shrub base Mound.
BSWJ11750 Collection details as above for 11708. 5 m tree in the walled garden.
WWJ11880 seed propagated from large shrubs with smaller deep glossy green leaves that were not serrated. Collected 2007 on Fansipan, capsules elongated.
WWJ11894 From Seo Mi Tý, on the southern arm of the Hoang Lien Son Mountain Range from Fansipan in the autumn of 2007, where Peter Wharton and Bleddyn Wynn-Jones found a colony growing on a fairly flat 'plateau' surrounded by forest, the highest area there, which has virtually been deforested apart from the odd shrub. 4 m tree upper Mound.
WWJ11934 From a seed collection gathered close to the Chinese border in the very north of Vietnam at Y Tý, by Bleddyn Wynn-Jones and Peter Wharton in the autumn of 2007 when they organised an expedition with The Institute of Ecology and Biological Resources-Vietnam Academy of Science and Technology. It was the first expedition to this new area which had not been botanised before. An outstanding form with large flowers to 17.5 cm across, some with a hint of pink.
KWJ12226 From a seed collection gathered on a trek through the Hoàng Liên Son mountains in the north of Vietnam in 2007. Gathered by Ben Kettle and

Bleddyn Wynn-Jones, from small shrubs to 3 m tall growing on the river bank running south from the centre of the range on our trek to the second peak. There is a 3 m shrub near barn number 2 in the woodland.
DJHV06041 A Dan Hinkley collection, similar to WWJ11894, collected autumn 2006 in northern Vietnam.
Note 1. *Polyspora tiantangensis* is a variant from around Changning, Yunnan, with 6-8 locules in the ovary and capsule, it is tentatively accepted in *Flora of China* (Ming & Bartholomew, 2007). The name could be useful if this variant comes into cultivation. Plants with invariably 7-locular ovaries are known from further south in Vietnam and Laos as *P. gigantiflora* (Gagnep.) Orel *et al*. McNamara & Bartholomew (2021) treat *P. tiantangensis* as a synonym of *P. longicarpa,* and are followed in the synonymy above.
Note 2. *Polyspora yunnanensis* Hu, Bull. Fan Mem. Inst. Biol. Bot. 8: 135 (1938) is a synonym of *Camellia taliensis* (W. W. Sm.) Melch. According to Grimshaw & Bayton (2009: 648) plants of the *Camellia* are sometimes seen in cultivation labelled as *Polyspora yunnanensis*. Plants of *Polyspora longicarpa* are also sometimes labelled *P. yunnanensis* (Tom Hudson notes).

Polyspora speciosa
The original collection from Maup'o shan, im Urwald, Sichuan, was made on

Polyspora longicarpa KWJ 12226 growing on Hoàng Liên Son trail in Vietnam in 2007.

3 Sep 1891 by C. Bock & A. von Rosthorn 754 (cited as 454). It is most unfortunate that the type specimen previously kept at Berlin was destroyed in the war.

According to Ming & Bartholomew (2007) *Polyspora speciosa* was described from plants collected in Chongqing, (from 1954 Chongqing was in Sichuan, but from 1997 a separate Municipality), where the local variant has larger, more deeply serrated leaves. Plants from farther south, in south-east Yunnan and south Guangxi, have smaller leaf blades with more shallow marginal serrations and smaller flowers, and at times have been misidentified as *P. tonkinensis*.

Roy Lancaster photographed plants with flowers during October that he encountered in Sichuan growing in a steep gully between Leshan and Emei, suggesting it might be *G. szechwanensis* but was unable to collect any material (Lancaster, 1989: 88, 91). He described them as straight stemmed evergreen trees to 9 m or more high, with 23 cm long glossy green above, glaucous below leaves that were coppery-red when young.

Accepted name: *Polyspora speciosa* (Kochs) B. M. Barthol. & T. L. Ming, Novon 15(2): 265 (2005).

Synonyms: *Thea speciosa* Kochs, Bot. Jahrb. Syst. 27(5): 597 (1900). *Gordonia axillaris* var. *acuminata* E. Pritz., Bot. Jahrb. Syst. 29(3–4): 473 (1900).

Gordonia acuminata Hung T.Chang, Acta Sci. Nat. Univ. Sunyatseni 1983(2): 112 (–113) (1983), nom. illeg., later homonym.

Gordonia szechuanensis Chang, Iconog. Corm. Sinicorum Suppl.2: 469. Nom. inval. without Latin desc.

Polyspora acuminata S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 364 (2005).

Gordonia kwangsiensis Hung T. Chang, Acta Sci. Nat. Univ. Sunyatseni 1983(2): 112 (1983) (1983), epithet sometimes as *gwangsiensis*.

Polyspora kwangsiensis (Hung T. Chang) C. X. Ye ex S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 365 (2005).

Illustrations: Lancaster (1989: 91, as *G. szechwanensis*); Ming & Bartholomew (2007: 391); Huang (2015: 34, foliage, as *G. acuminata*).

Descriptions: Ming & Bartholomew (2007: 419).

Distribution: China, Guangxi, Guizhou, S to SW Sichuan, Yunnan (SE Yunnan: Funing, Hekou, Luchun, Malipo, Mengzi, Pingbian, Wenshan, Xichou), Vietnam (Shui & Chen, 2010). Forests from 1,200–2,000 m.

Distinguished by a combination of: leaf oblong-elliptic, 3–7 cm wide, apex pointed to acuminate, leaf underside and new twigs glabrous; flowers at least 5 cm or more across; capsule 1–3.5 cm long.

Cultivated in China at: SCBG, SZBG, GXIB.

Cultivated in N. America: Sonoma BG; Washington Park Arboretum. University British Colombia BG, 3AC6 *Polyspora speciosa* 2015-0062.01 CDHM 14692. Only collection to survive out of five (three taxa).

Cultivated in British Isles: Crûg Farm has these accessions as *P.* cf. *speciosa*.

Polyspora longicarpa DJHV 06041 seed set in cultivation at Crûg Farm Plants.

KWJ12204 From Seo Mi Tý, on the southern arm of the Hoang Lien Son Mountain Range from Fansipan in the autumn of 2007, where Ben Kettle and Bleddyn Wynn-Jones found a colony growing on a steep hillside overlooking the river running south from the centre of the range on the trek to the second peak. Leaves to 20 × 7.5 cm dark green and glossy, from a tree of 7 m tall.

KWJ12211 From a seed collection gathered on a trek through the Hoàng Liên Son mountains in the north of Vietnam in 2007. Gathered by Ben Kettle and Bleddyn Wynn-Jones, from a large shrub to 5 m tall with oblong

shallowly serrated leaves with light veining, growing on the river bank running south from the centre of the range on our trek to the second peak.

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Polyspora speciosa CDHM 14692 in cultivation at University of British Colombia Botanic Gardens, Vancouver. Canada.

A note on *Polyspora tonkinensis*

The species *Polyspora tonkinensis* (Pit.) B. M. Barthol. & T. L. Ming, Novon 15(2): 266 (2005).

Synonyms: *Polyspora tonkinensis* (Pit.) S. X. Yang, J. Trop. Subtrop. Bot. 13(4): 365 (2005), isonym. *Gordonia tonkinensis* Pit., Fl. Indo-Chine [P. H. Lecomte *et al*.] 1: 348 (1910).

Illustration: Nguyễn (2017: 323).

Distribution: China (S. Guangxi, SE Yunnan), and N. Vietnam.

Distinguished by a combination of: ovary invariably with 5 locules, young twigs glabrous, flowers 1–2 cm across, leaf margin entire (Nguyễn, 2017: 306). This is said to differ from *P. speciosa* with flowers 8–10 cm across and leaf margin apically serrate, and *P. axillaris* with flowers 7–10 cm across, and leaf margin usually entire (Ming & Bartholomew, 2007).

There is some uncertainty regarding this taxon. In the preparatory paper for the *Flora of China* account, Bartholomew & Ming (2005) transfer *Gordonia tonkinensis* to *Polyspora* and designate a lectotype (*R. P. Bon 60* (P) from Ninh-binh, northern Vietnam). They distinguished it from *P. speciosa* (with terminal buds large, purplish-red, glabrous; petiole 2.5–2 cm; flowers 8–10 cm across and style *ca*. 2 cm long), by terminal buds small, white sericeous; petiole 8–15 mm, flowers 5–6 cm across, style *ca*. 1.5 cm long. However, in the *Flora of China* account (Ming & Bartholomew, 2007) *P. tonkinensis* is included without comment as a synonym of *P. axillaris*. There is a note under *P. speciosa* explaining that south of the type locality, in south-east Yunnan and south Guangxi, plants with smaller leaf blades with more shallow marginal serrations and smaller flowers have been identified incorrectly as *P. tonkinensis*.

On the other hand, subsequent floristic accounts for *Polyspora* in Vietnam continue to uphold both *P. tonkinensis* and *P. axillaris*, but exclude *P. speciosa* (Nguyễn 2017; Le *et al*., 2020). Whereas Shui & Chen (2010) list several localities for *P. speciosa* in SE Yunnan immediately adjacent to the border with Vietnam, which strongly suggests that this taxon occurs in Vietnam, but likely under another name.

Dũng, Nguyễn *et al*., (2016) provide a key to Vietnamese species and distinguish *P. axillaris* with white flowers from *P. tonkinensis* with orange flowers, but do not mention *P. speciosa*.

This along with the *P. hainanensis*/*balansae* query suggests that more revisionary studies on *Polyspora* in the region are required.

Cultivation

Apart from the Taiwanese accessions of *P. axillaris* which like hot, dry sunny positions such as occur in a Mediterranean climate zone, the other species so far introduced require a more humid, moist environment. They grow as understorey trees and shrubs at higher altitudes, so benefit from some shade and shelter particularly from cold winds in temperate zone winters.

Propagation is from cuttings and seed.

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