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Towards a floristic inventory of Bat Xat Nature Reserve, Vietnam: Thirteen new national records of vascular plants

Bui Hong Quang, Tran The Bach, Sangmi Eum, Do Van Hai, Nguyen Sinh Khang, Le Ngoc Han, Tran Duc Binh, Nguyen Thu Thuy, Vu Anh Thuong, Ngo Kien Trung, Ya-Ping Chen, Peter W. Fritsch, Chi-Ming Hu, Lu Thi Ngan, John A. N. Parnell, Alexander N. Sennikov, John R. I. Wood, Yi Yang, Andrey N. Kuznetsov, Svetlana P. Kuznetsova & Maxim S. Nuraliev

Summary: The present study reports newly recorded species of vascular plants for the flora of Vietnam found in the recently established Bat Xat Nature Reserve in Lao Cai province, close to the border with Yunnan province of China. Thirteen species belonging to eleven families are reported: Acanthaceae (*Strobilanthes helicta*), Actinidiaceae (*Actinidia melliana*), Amaryllidaceae (*Allium wallichii*), Aquifoliaceae (*Ilex fragilis*), Asteraceae (*Melanoseris leiolepis*), Begoniaceae (*Begonia yuii*), Lamiaceae (*Callicarpa giraldii*, *Clerodendrum peii*, *Scutellaria macrosiphon*), Lentibulariaceae (*Utricularia spinomarginata*), Primulaceae (*Lysimachia septemfida*), Pteridaceae (*Aleuritopteris chrysophylla*) and Symplocaceae (*Symplocos glandulifera*). Some of these species are additionally reported from the neighbouring Hoang Lien National Park. For each species, information on its habitat, phenology, distribution and studied specimens is provided along with the photographs of the reported findings.

Keywords: Hoang Lien National Park, Indochinese Peninsula, Lao Cai province, Southeast Asia, Vietnam-China border area, Y Ty area

Bat Xat Nature Reserve is located in Bat Xat district of Lao Cai province, northwestern Vietnam. It was established in 2016 by the Decision No.1954/QD-UBND of the President of Lao Cai province "On the establishment of Bat Xat Nature Reserve" (DARD 2016) in order to conserve primeval forest ecosystems in the highlands, and in particular, the rare and endangered species of flora and fauna typical of Hoang Lien Son mountain region. The Reserve lies within the coordinates N 22°23'–22°37' and E 103°31'–103°43'. The elevation ranges approximately from 1000 m to 3000 m a.s.l., with the major peaks Bach Moc Luong Tu (Vietnam's fourth highest peak, 3046 m), Nhiu Co San (2965 m) and Lao Than (2860 m). Bat Xat Nature Reserve covers an area of over 18 000 ha; it lies in the territory of five upland communes in the northwest of Bat Xat district: Y Ty, Den Sang, Sang Ma Sao, Trung Leng Ho and Nam Pung, according to the project data (DARD 2016). The Reserve borders Yunnan province of China in the northwest and Lai Chau province of Vietnam in the east and south (DARD 2016).

Topographically, Bat Xat Nature Reserve covers the northern part of Hoang Lien Son mountain range, and thus it shows a significant similarity with the well known Hoang Lien National Park (Nguyen & Harder 1996; Nguyen & Nguyen 1998) as to its landscapes and plant communities. Both these protected areas are located in the Sikang-Yunnan floristic region, which belongs to the Holarctic floristic kingdom (Takhtajan 1986; Averyanov et al. 2003a, 2003b; Fu et al. 2019). For this reason, the flora of this area is more closely related to the floras of subtropical and temperate regions of southern China than to the flora of tropical forests and other habitats covering most of the territory of Eastern Indochina.

The establishment report (DARD 2016) indicates 940 species of vascular plants within Bat Xat Nature Reserve, including 44 species from the Vietnam Red Data Book (Ministry of Science and Technology of Vietnam 2007). Since the publication of the report, many discoveries made in Bat Xat Nature Reserve have been published, including species new to science and new national records. Examples include the newly described *Disanthus ovatifolius* Aver., P.K. Endress, B.H. Quang & K.S. Nguyen (Hamamelidaceae; Averyanov et al. 2017), *Primula gracilituba* C.M. Hu & Nuraliev (Primulaceae; Nuraliev et al. 2020b) and *Shortia rotata* Gaddy & Nuraliev (Diapensiaceae; Gaddy & Nuraliev 2017) and the newly recorded *Phlegmariurus henryi* (Baker) Ching (Lycopodiaceae; Lu et al. 2020), *Collabium yunnanense* Ormerod (Orchidaceae; Averyanov et al. 2020), *Tupistra fungilliformis* F.T. Wang & S. Yun Liang (Asparagaceae; Nguyen et al. 2017), *Edgeworthia chrysantha* Lindl. (Thymelaeaceae; Nguyen et al. 2018), *Deutzia glomeruliflora* Franch. (Hydrangeaceae; Nuraliev et al. 2020a), *Aucuba robusta* W.P. Fang & Soong (Garryaceae; Tran et al. 2018), *Spiradiclis hainanensis* H.S. Lo (Rubiaceae; Lee et al. 2019) and *Leycesteria gracilis* (Kurz) Airy Shaw (Caprifoliaceae; Bui et al. 2019).

Here, we report further collections of vascular plants made in Bat Xat Nature Reserve in 2016–2019 which appear to be new records for the flora of Vietnam. This account contains 13 species belonging to eleven families. For some of these species, we also publish their records from Hoang Lien National Park made by the last author in 2009–2010 and the first author in 2016. All of the newly recorded species except for *Utricularia spinomarginata* occur in southern China. Some of them were regarded to be Chinese endemics, whereas the others were already known to have a wider distribution.

Materials and methods

Specimen collection was performed during expeditions by two research groups, one from the Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology in 2016–2019, the other from the Russian-Vietnamese Tropical Center in 2018–2019. The herbarium specimens were primarily deposited in HN and MW (Seregin 2018), and some duplicates were distributed to BRIT, E, FHO, IBSC, K, KRBI, VNMN. The specimens were identified by using the taxonomic literature cited below and by comparison with specimens available in various world herbaria. In the account provided below, the families are those accepted by the APG and PPG systems (APG IV 2016; PPG I 2016). Families and species are listed in alphabetical order.

Taxonomic treatment

Acanthaceae

Strobilanthes helicta T. Anderson (Fig. 1)

References: Wood (1994: 221), Hu et al. (2011: 405).

Habitat, phenology. Evergreen broad-leaved forests; 1700–2200 m. Flowering in September–November, fruiting in November–January.

Distribution. Nepal, Bhutan, NE India, N Myanmar, China (SE Xizang, Yunnan), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 4 km SSE of Y Ty village, disturbed forest, N 22°37'25" E 103°37'22", 1870 m, 17 October 2018, *Nuraliev M.S. 2338* [FHO, MW: MW0757084, MW0757085].

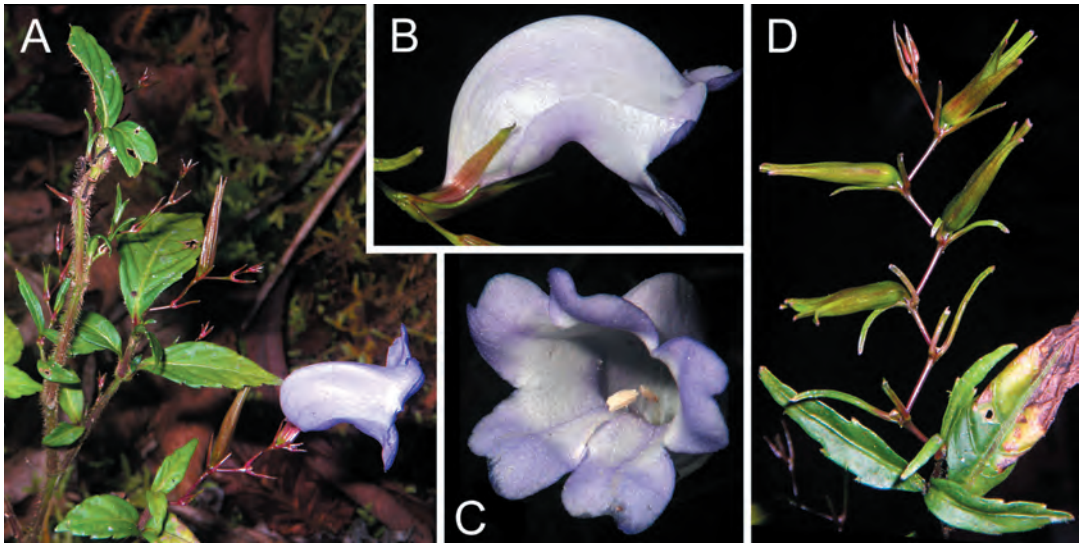

Figure 1. *Strobilanthes helicta*. A – habit; B – flower, lateral view; C – flower, front view; D – inflorescence with young fruits. *Nuraliev 2338*. Photos by M. Nuraliev.

Notes. *Strobilanthes helicta* is distinctive in a number of morphological features. This species is a nearly isophyllous perennial herb with ovate-elliptic, shortly acuminate leaves; inflorescence of axillary spikes, typically one-sided and zigzag, the flowers commonly solitary on rachis; inflorescence bracts small, linear, persistent; calyx subequally 5-lobed to base, the lobes linear-lanceolate, finely acuminate, 13–25 mm long; corolla pale purple or white, bent 90 degrees, strongly saccate, glabrous. Particularly diagnostic are the zigzag axillary spikes and strongly saccate glabrous corolla.

The known intraspecific variation includes the following characters. Plants are usually nearly glabrous, but pubescent forms occur. Occasionally the inflorescence spikes are much reduced and not obvious. Flowers vary in colour.

Several species of *Strobilanthes* Blume have similar, strongly bent, somewhat saccate corollas with zigzag axillary spikes, such as *S. tibetica* J.R.I. Wood and *S. pterygorrhachis* C.B. Clarke, but both have a pubescent corolla, the latter with yellow flowers. Of species found in Vietnam, *S. helicta* is probably closest to *S. atropurpurea* Nees, which has similar, glabrous but less strongly saccate corollas and usually has flowers in the leaf axils (only rarely in zigzag spikes).

Actinidiaceae

Actinidia melliana Hand.-Mazz. (Fig. 2)

References: Li et al. (2007: 346).

Habitat, phenology. Primary broad-leaved evergreen mountain forests and mountain thickets; 200–2000 m. Flowering in May–June, fruiting in (May) June–September.

Distribution. China (Guangdong, Guangxi, Hainan, Hunan, Jiangxi), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Y Ty municipality, Bat Xat Nature Reserve, N 22°36'30.2" E 103°37'28.9", 2007 m, 02 August 2019, *Bui H.Q., Binh T.D. VN-RU 51* [HN, MW]; Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 5 km SSE

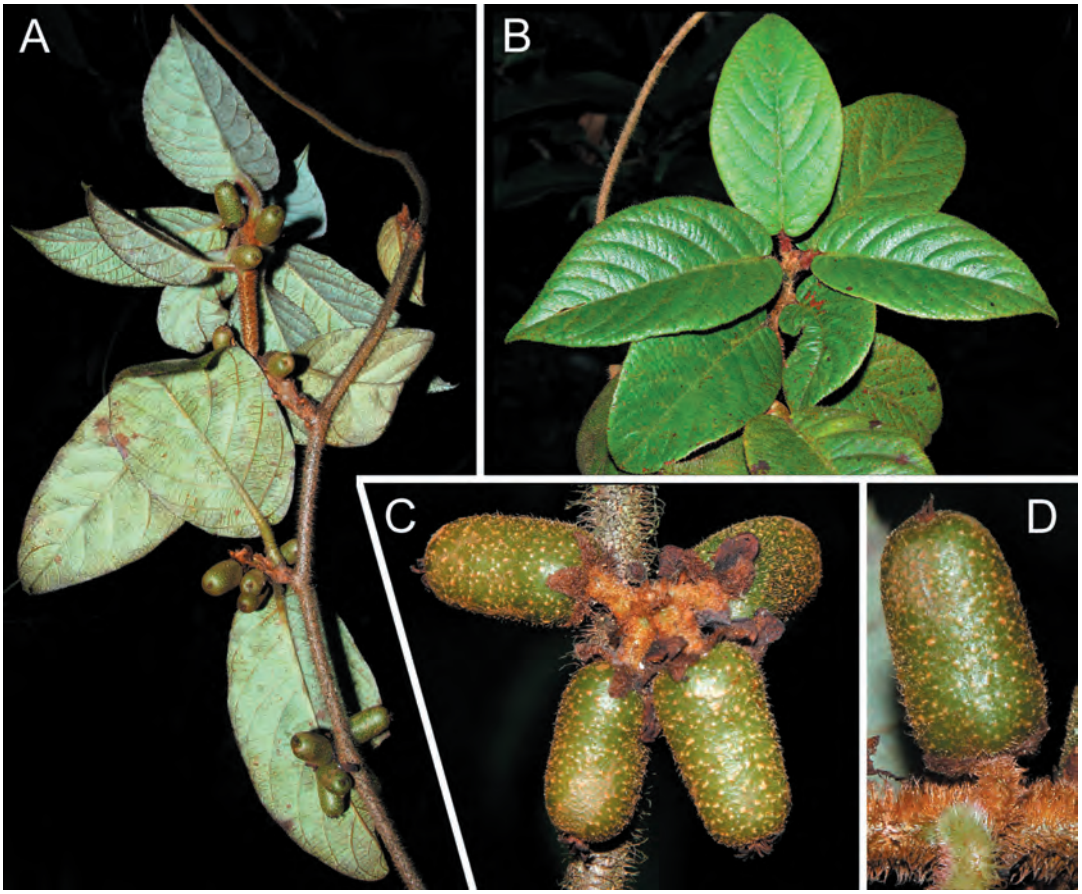

Figure 2. *Actinidia melliana*. A – habit; B – young shoot; C – inflorescence with fruits; D – fruit, lateral view. *Bui, Binh VN-RU 51*. Photos by H.Q. Bui.

of Y Ty village, disturbed forest, near road, N 22°37'20" E 103°38'00", 1780 m, 06 June 2019, *Nuraliev M.S. NUR 2652a* [photo LE: LE01073561].

Notes. According to our observations, *Actinidia melliana* is common in the forest area of Y Ty municipality in Bat Xat Nature Reserve. This species shows morphological similarity with a Chinese endemic *A. hemsleyana* Dunn. *Actinidia melliana* differs from the latter species mainly by white (vs reddish) petals and sparsely (vs densely) tomentose sepals.

Amaryllidaceae

Allium wallichii Kunth (Fig. 3)

References: Chen et al. (2000: 176).

Habitat, phenology. Primary mixed forest on slopes of sandstone mountain, scrub, meadows, stream banks; 2300–4800 m. Flowering and fruiting in July–October (November).

Distribution. Nepal, Bhutan, India, Myanmar, China (Guangxi, Guizhou, S Hunan, SW Sichuan, SE Xizang, NW Yunnan), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Y Ty municipality, Bat Xat Nature Reserve, N 22°35'40.3" E 103°37'13.5", 2576 m, 27 October 2016, *Bui H.Q., Baines R., Luke A., Summers A., Ritchie W., Nguyen V.D., Nguyen S.K. HNE 401* [E, HN].

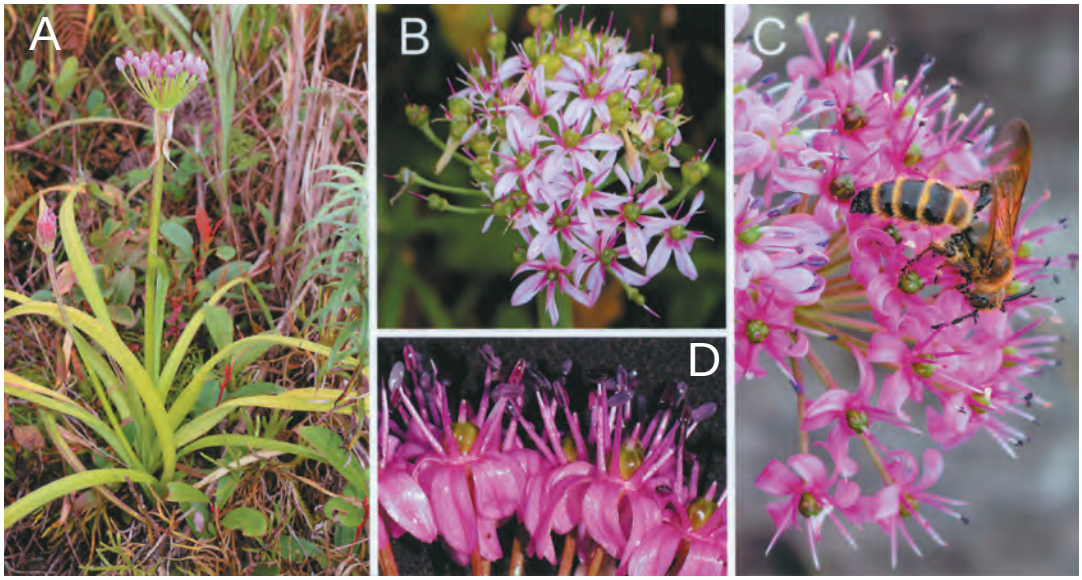

Figure 3. *Allium wallichii*. A – habit; B – umbel; C – flowers visited by a bee; D – flowers, lateral view. *Bui et al. HNE 401*. Photos by K.S. Nguyen.

Notes. In Vietnam, a single population of about 50–60 plants was observed, near a trail in about 3 km of the peak of Nhiu Co San Mountain.

Aquifoliaceae

Ilex fragilis Hook. f. (Fig. 4)
References: Chen et al. (2008: 434).

Habitat, phenology. Mountain forests and grazing land; 1500–3000 m. Flowering in May–June (October), fruiting in September–October.

Distribution. Nepal, Bhutan, India, N Myanmar, China (NW Guizhou, Sichuan, S and SE Xizang, Yunnan), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 5 km SSE of Y Ty village, near trail to Lao Than summit, disturbed area on mountain slope, N 22°37'12" E 103°38'53", 1930 m, 21 October 2018, *Nuraliev M.S. 2369* [MW: MW0757086, MW0757087].

Notes. *Ilex fragilis* is a deciduous holly preferring cool mountain habitats. This species morphologically resembles another deciduous species of *Ilex* L., *I. chapaensis* Merr., which is also found in northern Vietnam and particularly in Hoang Lien Son mountain range. However, *I. fragilis* and *I. chapaensis* are distinctly different in fruit colour (red vs yellowish-green to green) and fruit size (4–6 mm vs 12–20 mm in diam.). Additionally, *I. fragilis* and *I. chapaensis* differ in number of female flowers per flower cluster (several vs solitary) and length of female pedicels (2–6 mm vs 6–12 mm).

The flowering specimen of *I. fragilis* studied here was collected in October, exceeding the previously known flowering period of this species (May–June; Chen et al. 2008). In considering the similar climate in spring and autumn in northern Vietnam, the autumn bloom occurring in

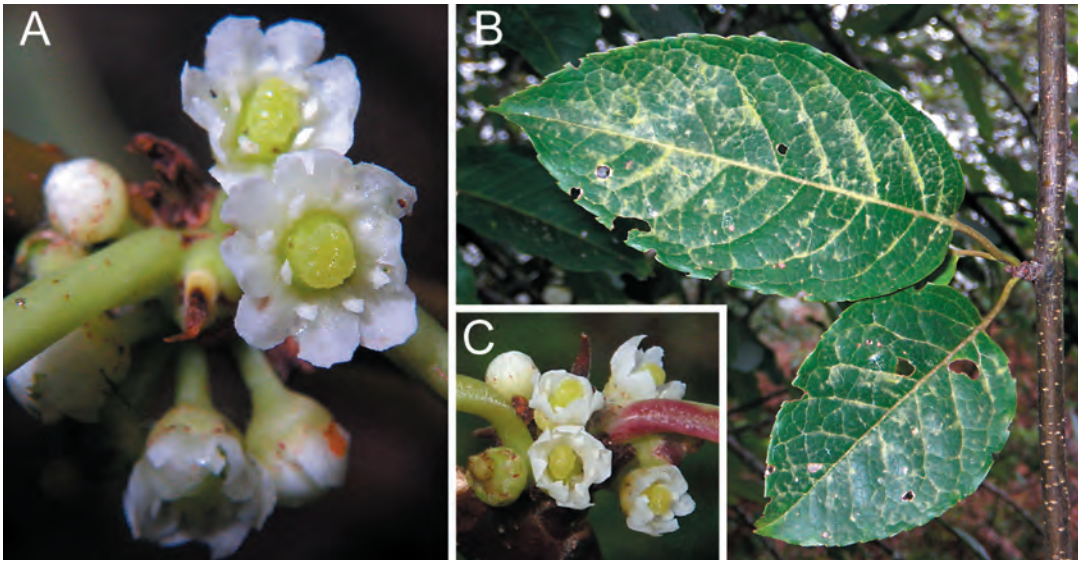

Figure 4. *Ilex fragilis*. A – flowers; B – branch with a brachyblast; C – flower cluster. *Nuraliev 2369*. Photos by M. Nuraliev.

I. fragilis is understandable. In fact, similar cases of off-season flowering have also been observed in *I. nuculicava* S.Y. Hu, which grows in mountain forests in Hainan, China.

In southern Yunnan, China, *I. fragilis* is known to be a common species usually scattered in sunny slopes, forest margins and even waysides. Thus, its occurrence in mountainous northern Vietnam with similar habitats is reasonable and predictable.

Asteraceae

Melanoseris leiolepis (C. Shih) N. Kilian & J.W. Zhang (Fig. 5)

References: Shi et al. (2011: 222), Wang et al. (2013: 18).

Habitat, phenology. Open vegetation on mountain slopes; ca 2500–2600 m. Flowering and fruiting in October.

Distribution. China (Yunnan: Jingdong), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 9 km SE of Y Ty village, near trail to Lao Than summit, summit area, on steep rocky slope, N 22°36'42" E 103°40'53", 2600 m, 21 October 2018, *Nuraliev M.S. NUR 2375a* [photo LE: LE01073042]; same location, 12 June 2019, *Nuraliev M.S. 2716* [MW: MW0757076].

Notes. These plants are referable to the former genus *Chaetoseris* C. Shih, which was characterised by erect stems, multiseriate phyllaries, generally blue flowers and beaked achenes with laterally compressed body. *Chaetoseris* was merged with *Melanoseris* Decne. on the basis of molecular phylogenetic studies (Wang et al. 2013).

The lower leaves of the Vietnamese plant, which are oblong and gradually narrowing towards the base, together with a relatively low number of flowers (ca 15 per capitulum) and inner phyllaries, the latter being glabrous, exclude all other species of the former *Chaetoseris*, but *M. leiolepis* (≡ *Chaetoseris leiolepis* C. Shih). This species was known as a narrow endemic of Yunnan (Shi 1991; Shi et al. 2011).

Figure 5. *Melanoseris leiolepis*. A – shoot prior to flowering season; B – capitulum, lateral view; C – capitulum, front view. *Nuraliev 2716* (A) and *NUR 2375a* (B, C). Photos by M. Nuraliev.

Begoniaceae

Begonia yuii Irmsch. (Fig. 6)
References: Gu et al. (2007: 204), Shui & Chen (2017: 44).

Habitat, phenology. Moist vertical rocks on mountain slopes and along stream banks in valleys, sometimes epiphytic; 1500–2900 m. Flowering in August–October, fruiting in September–October.

Distribution. China (Yunnan: Lincang, Zhenkang), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 5 km SSE of Y Ty village, near trail to Lao Than summit, disturbed area on mountain slope, on moist vertical cliff, N 22°37'12" E 103°38'53", 1930 m, 19 October 2018, *Nuraliev M.S. 2352* [E, MW: MW0757088].

Lamiaceae

Callicarpa giraldii Hesse ex Rehder (Fig. 7)
References: Chen & Gilbert (1994: 9).

Habitat, phenology. Primary broad-leaved evergreen mountain forests. 200–3400 m. Flowering in May–July, fruiting in July–November.

Distribution. China (Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, S Shaanxi, Sichuan, Yunnan, Zhejiang), Vietnam (Lao Cai: Bat Xat Nature Reserve).

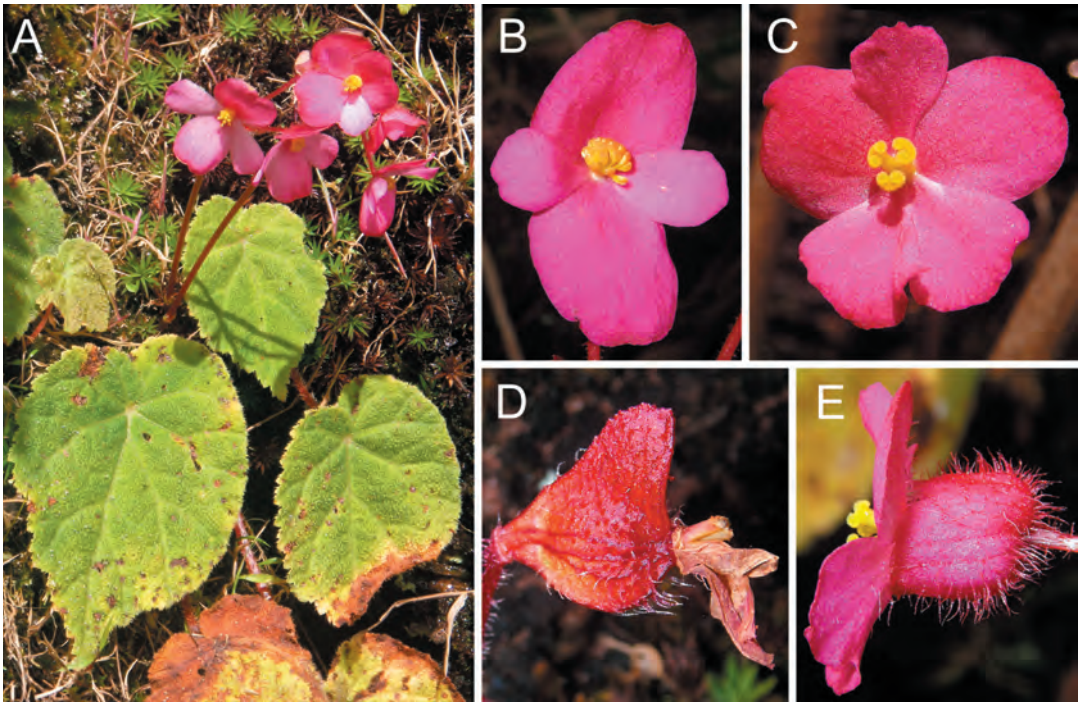

Figure 6. *Begonia yuii*. A – habit; B – male flower, front view; C – female flower, front view; D – young fruit, lateral view; E – female flower with bracteoles, lateral view. *Nuraliev 2352*. Photos by M. Nuraliev.

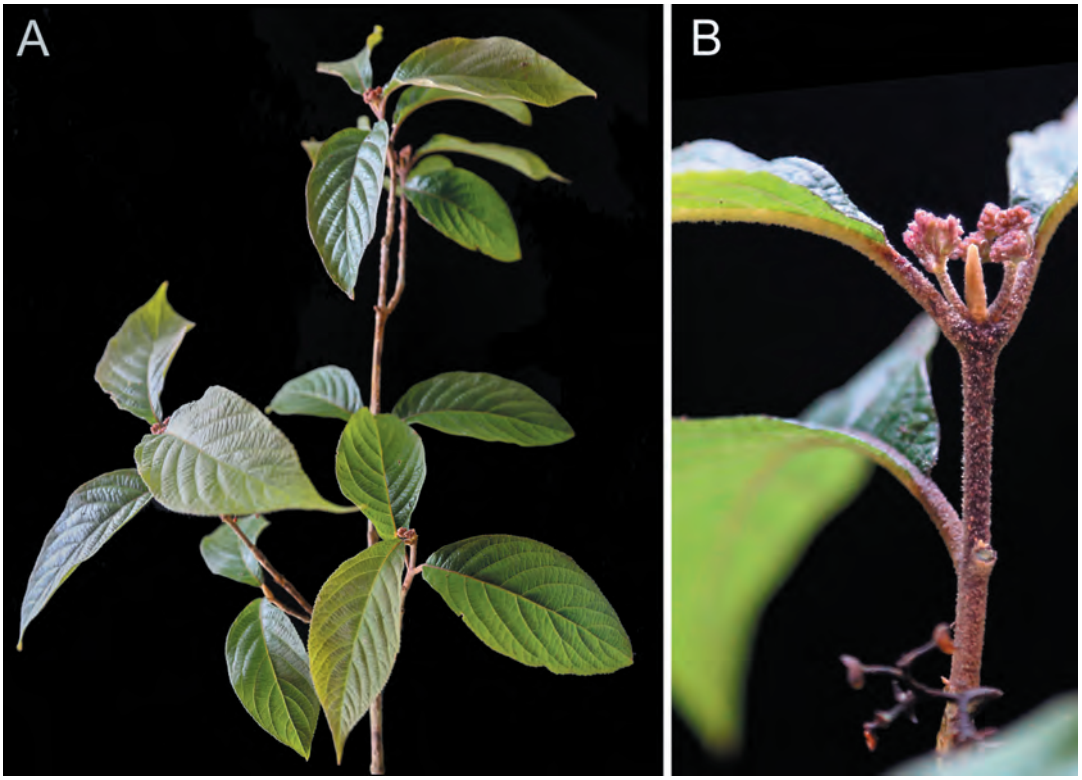

Figure 7. *Callicarpa giraldii*. A – habit; B – shoot with developing inflorescences. *Bach et al. VK 6967*. Photos by H.Q. Bui.

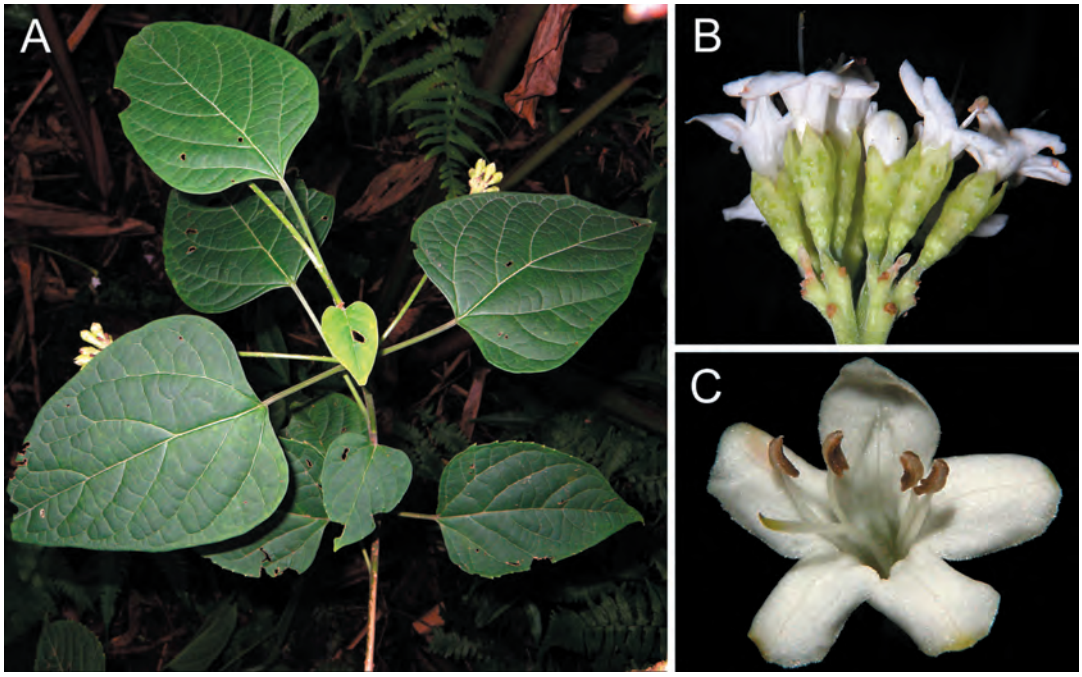

Figure 8. *Clerodendrum peii*. A – branch with inflorescences; B – cyme, lateral view; C – flower, front view. *Nuraliev 2682*. Photos by M. Nuraliev.

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Y Ty municipality, Bat Xat Nature Reserve, N 22°37'37.2", E103°37'34.0", 1987 m, 18 April 2017, *Bach T.T., Bui H.Q., Binh T.D., Son D.H., Thuong V.A. VK 6967* [HN, KRBI].

Clerodendrum peii Moldenke (Fig. 8)
References: Chen & Gilbert (1994: 39).

Habitat, phenology. Primary and disturbed mixed forests on mountain slopes; 1400–2400 m. Flowering and fruiting in June–October.

Distribution. China (S Yunnan), Vietnam (Lao Cai: Bat Xat Nature Reserve and Hoang Lien National Park).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 4 km SSE of Y Ty village, disturbed forest on slope with ginger plantations, N 22°37'15" E 103°37'05", 1940 m, 09 June 2019, *Nuraliev M.S. 2682* [HN, MW]; Lao Cai province, Sa Pa district, San Sa Ho municipality, Hoang Lien National Park, Tram Ton area, near a trail, N 22°20'58" E 103°46'27", 1950 m, 19 June 2009, *Nuraliev M.S. 103* [K, MW: MW0746551].

Scutellaria macrosiphon C.Y. Wu (Fig. 9)
References: Li & Hedge (1994: 86).

Habitat, phenology. Evergreen forests; 1800–2200 m. Flowering in May–December.

Distribution. China (Yunnan: Jinping Xian), Vietnam (Lao Cai: Bat Xat Nature Reserve and Hoang Lien National Park).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 5 km SSE of Y Ty village, near trail to Lao Than summit, disturbed swampy forest, N 22°37'11"

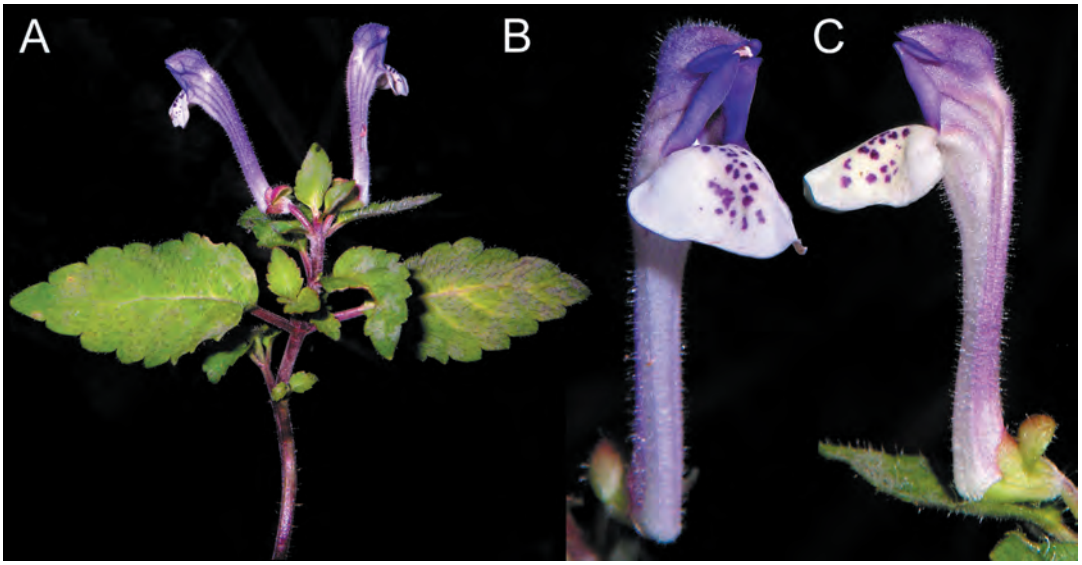

Figure 9. *Scutellaria macrosiphon*. A – flowering shoot; B – flower, front view; C – flower, lateral view. *Nuraliev, Vislobokov 2686*. Photos by M. Nuraliev.

E 103°39'32", 1980 m, 10 June 2019, *Nuraliev M.S., Vislobokov N.A. 2686* [KUN, MW]; Lao Cai province, Sa Pa district, San Sa Ho municipality, Hoang Lien National Park, Tram Ton area, in the forest, 13 June 2009, *Nuraliev M.S. NUR 100e* [photo LE: LE01073048].

Lentibulariaceae

Utricularia spinomarginata Suksathan & J.Parn. (Fig. 10)
References: Suksathan & Parnell (2010: 27), Parnell (2011: 40).

Habitat, phenology. Open wet mossy cliffs in mountain forests and degraded areas; 2000–2650 m. Flowering and fruiting in September–November.

Distribution. Thailand (Phitsanulok: Phu Soi Dao), Vietnam (Lao Cai: Bat Xat Nature Reserve and Hoang Lien National Park).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 7 km SE of Y Ty village, near trail to Lao Than summit, disturbed mountain slope, moist vertical cliff, N 22°37'25" E 103°40'03", 2300 m, 21 October 2018, *Nuraliev M.S. 2378* [MW]; Lao Cai province, Sa Pa district, San Sa Ho municipality, Hoang Lien National Park, Tram Ton area, near a trail, N 22°20'35" E 103°45'30", 2080 m, 19 November 2010, *Nuraliev M.S. 216* [MW: MW0750018, TCD]; Lao Cai province, Sa Pa district, San Sa Ho municipality, Hoang Lien National Park, trail from Tram Ton to Fansipan peak, N 22°19'12" E 103°46'11", 2620 m, 22 October 2016, *Bui H.Q. 125* [HN, MW: MW0755328, MW0755329, TCD].

Notes. This species was previously known only from the type specimen collected in northern Thailand. Among the newly recorded species reported in this paper, this one is most unexpected. Unlike the others, *Utricularia spinomarginata* was known to inhabit exclusively the Paleotropical floristic kingdom. The Vietnamese populations are about 600 km NNE of the type locality of this species; they represent an extension of its known distribution area to the Holarctic kingdom. Data provided here suggest that *U. spinomarginata* is widely distributed across the Hoang Lien

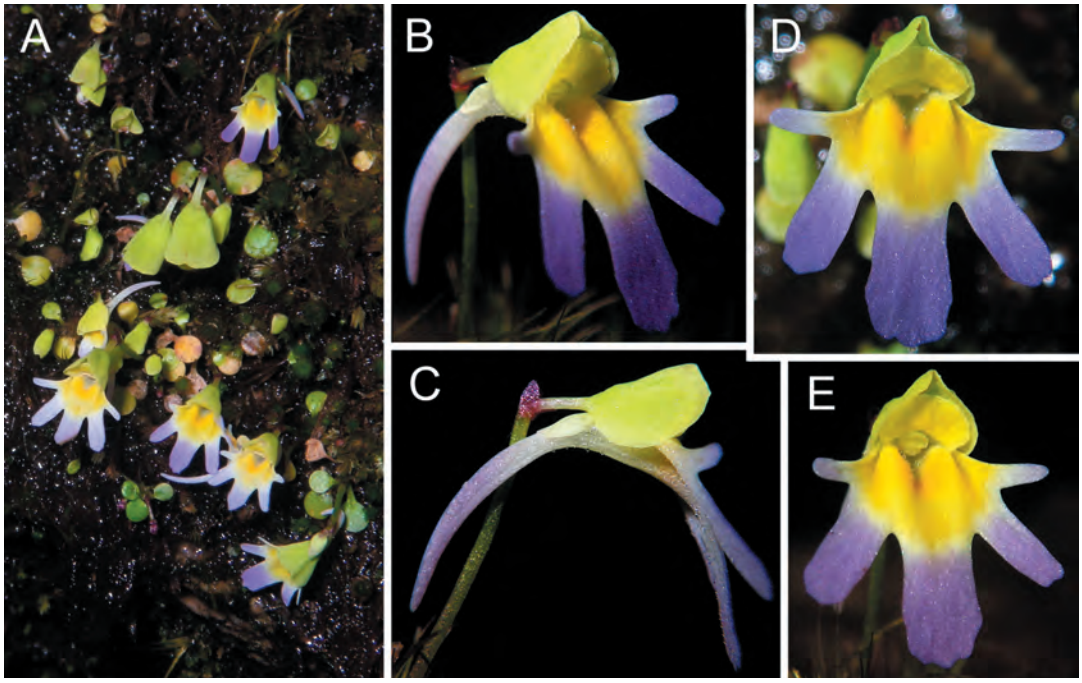

Figure 10. *Utricularia spinomarginata*. A – habit; B – flower, oblique view; C – flower, lateral view; D, E – flower, front view. *Nuraliev 2378*. Photos by M. Nuraliev.

Son range. Identification of species in this spathulate-leaved, lithophytic section of *Utricularia* L. (i.e. section *Phyllaria* (Kurz) Kamieński) depends largely on the morphology of the mature seeds.

Primulaceae

Lysimachia septemfida Ze H. Wang & E.D. Liu (Fig. 11)
References: Wang et al. (2016: 202).

Habitat, phenology. Primary broad-leaved evergreen mountain forests; 2400–2800 m. Flowering in June–July, fruiting in September.

Distribution. China (Yunnan: Nanjian, Xinping), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Y Ty municipality, Bat Xat Nature Reserve, N 22°35'43.3" E 103°37'08.7", 2643 m, 05 July 2019, *Bui H.Q., Binh T.D. VN-RU103* [HN, IBSC, MW].

Notes. The Vietnamese population appears to be the third known location of this species (the others are those of the type and paratype). The observed population is located near a trail about 3 km from the peak of Nhiu Co San Mountain and was observed to consist of 10–15 individuals. No more individuals were found despite special attempts to find this species around the area of the known population.

Pteridaceae

Aleuritopteris chrysophylla (Hook.) Ching (Fig. 12)
References: Zhang et al. (2013: 230), Rai et al. (2015: 361).

Habitat. Crevices and faces of moist rocks; 1000–3000 m.

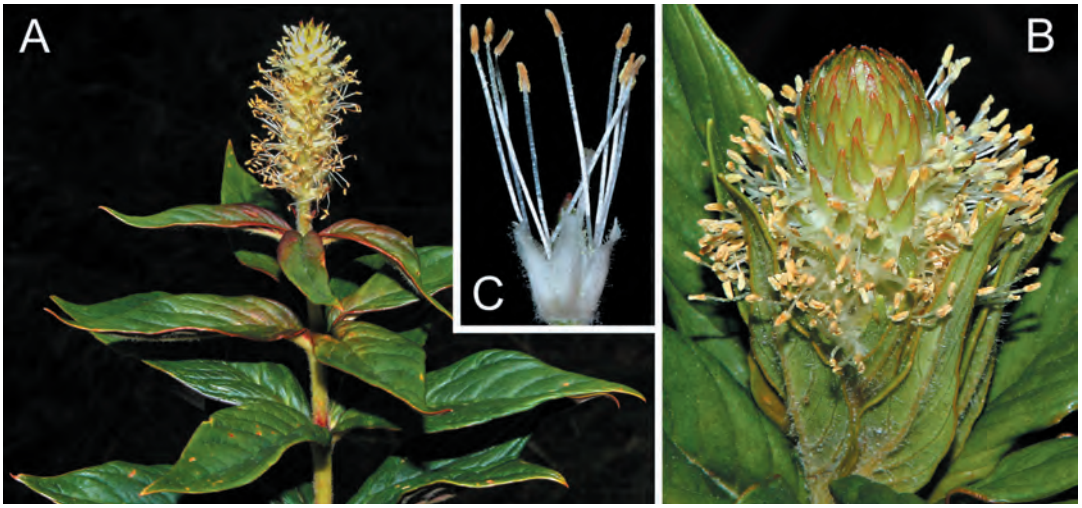

Figure 11. *Lysimachia septemfida*. A – flowering shoot; B – inflorescence at early flowering; C – flower, lateral view. *Bui, Binh VN-RU103*. Photos by H.Q. Bui.

Distribution. Nepal, Bhutan, India, China, Myanmar, Thailand, Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 5 km SSE of Y Ty village, near trail to Lao Than summit, disturbed area on mountain slope, on moist vertical cliff, N 22°37'12" E 103°38'53", 1930 m, 19 October 2018, *Nuraliev M.S. 2354* [MW: MW0757083, VNMN].

Symplocaceae

Symplocos glandulifera Brand (Fig. 13)
References: Brand (1901: 68), Nooteboom (2005b), Wu & Nooteboom (1996: 249), Wu & Raven (2000: 192).

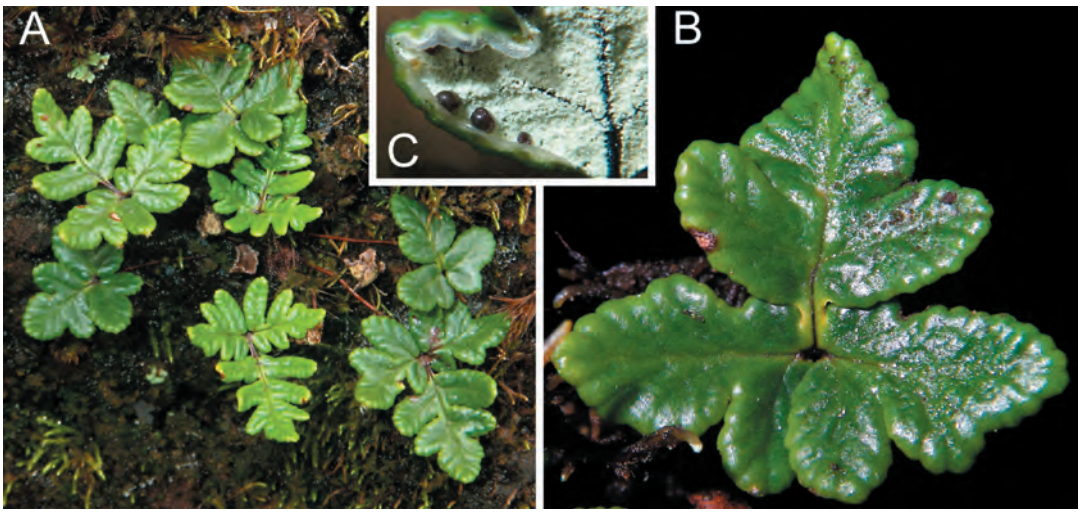

Figure 12. *Aleuritopteris chrysophylla*. A – habit; B – frond, adaxial view; C – frond lobe with sporangia, abaxial view. *Nuraliev 2354*. Photos by M. Nuraliev.

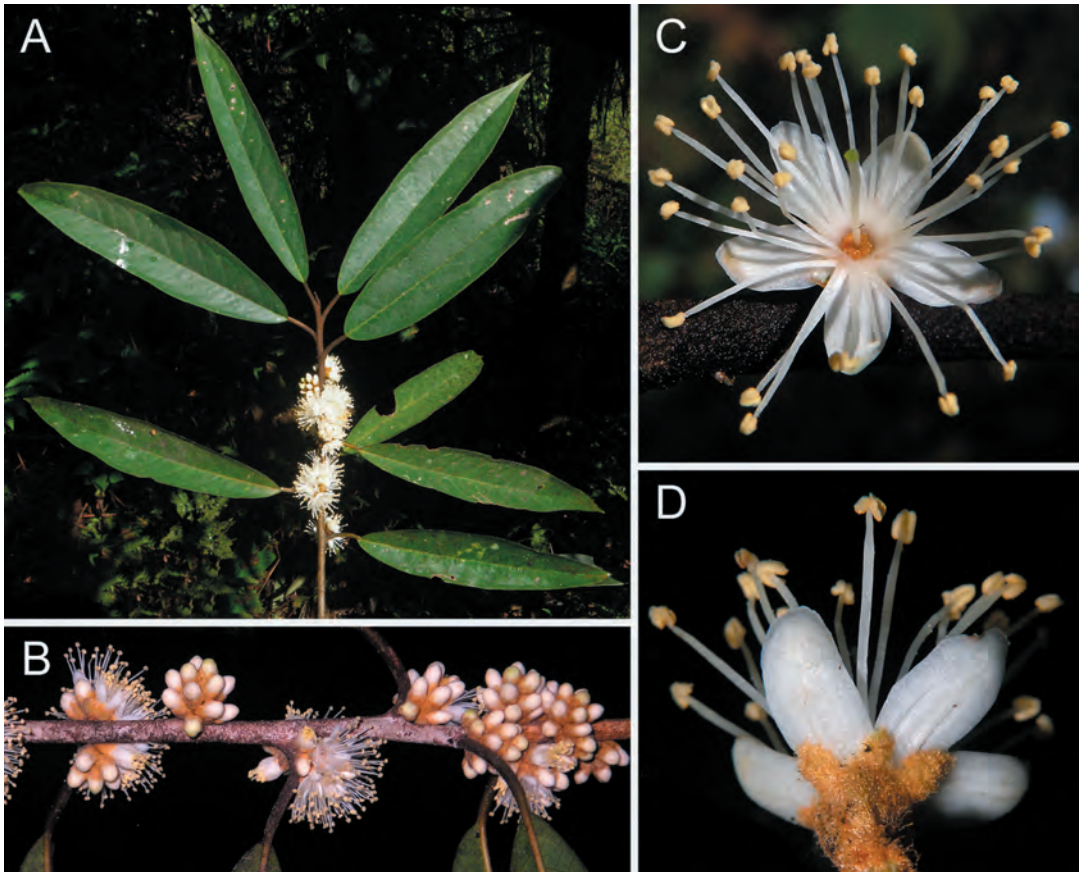

Figure 13. *Symplocos glandulifera*. A – flowering shoot; B – part of a leafy shoot with axillary inflorescences; C – flower, front view; D – flower, view from below. *Nuraliev 2327*. Photos by M. Nuraliev.

Habitat, phenology. Mountain forests; 1400–2000 m. Flowering and fruiting in February–October.

Distribution. China (Guangxi, Hunan, Yunnan), Vietnam (Lao Cai: Bat Xat Nature Reserve).

Studied specimens. Vietnam: Lao Cai province, Bat Xat district, Bat Xat Nature Reserve, 4 km SSE of Y Ty village, disturbed forest, near Homestay A De guesthouse, N 22°37'38" E 103°37'33", 1840 m, 17 October 2019, *Nuraliev M.S. 2327* [BRIT, MW].

Notes. In a comprehensive revision of Old World Symplocaceae, Nooteboom (1975) recognized this taxon as *Symplocos macrophylla* Wall. ex DC. subsp. *sulcata* (Kurz) Noot. var. *glandulifera* (Brand) Noot. but subsequently Wu & Nooteboom (1996) and Nooteboom (2005b, also general concept in 2005a) reinstated it as Brand's (1901) original species level. Until now, *Symplocos glandulifera* has been considered endemic to China, where it is recorded from mixed forests in Guangxi, Hunan and Yunnan provinces (Wu & Nooteboom 1996). It belongs to *S.* [subg. *Symplocos*] sect. *Lodhra* G. Don, a group of ca 142 species distributed throughout the temperate to tropical forests of eastern Asia and adjacent islands to northern Australia, which form a clade in phylogenetic analysis based on DNA sequence data (Fritsch et al. 2008). *Symplocos glandulifera* is part of a subclade within *S.* sect. *Lodhra*, the species of which generally share with

S. glandulifera fasciculate or congested inflorescences, and generally elongate fruits with 1-loculed endocarps and a single straight seed (see Wu & Raven 2000).

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Addresses of the authors:

Bui Hong Quang (co-corresponding author)
Nguyen Sinh Khang
Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology
18 Hoang Quoc Viet, Cau Giay
Hanoi, Vietnam
Graduate University of Science and Technology, Vietnam Academy of Science and Technology
18 Hoang Quoc Viet, Cau Giay
Hanoi, Vietnam
E-mail: bhquang78@gmail.com
nskhang@gmail.com

Sangmi Eum
Nguyen Thu Thuy
International Biological Material Research Center
Korea Research Institute of Bioscience and Biotechnology
Daejeon 305-806, Korea
E-mail: sangeum@gmail.com
thuthuypt098@gmail.com

Tran The Bach
Do Van Hai
Le Ngoc Han
Tran Duc Binh
Vu Anh Thuong
Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology
18 Hoang Quoc Viet, Cau Giay
Hanoi, Vietnam
E-mail: tranthebach@yahoo.com
dovanhaiiebr@gmail.com
lengochan7@gmail.com
tranbinha4@gmail.com
vathuong@gmail.com

Ngo Kien Trung
Bat Xat Nature Reserve
Bat Xat Town, Bat Xat District, Lao Cai
Vietnam
E-mail: trunglc76@gmail.com

Ya-Ping Chen
Yi Yang
CAS Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences
Kunming 650201, China
E-mail: chenyaping@mail.kib.ac.cn
yangyi@mail.kib.ac.cn

Peter W. Fritsch
Botanical Research Institute of Texas, 1700 University Drive, Fort Worth
Texas 76107, U.S.A.
E-mail: pfritsch@brit.org

Chi-Ming Hu
South China Botanical Garden, Chinese Academy of Sciences
Guangzhou 510650, China
E-mail: Huqm@scib.ac.cn

Lu Thi Ngan
Department of Biology, Vietnam National Museum of Nature
Vietnam Academy of Science and Technology
18 Hoang Quoc Viet, Cau Giay
Hanoi, Vietnam
E-mail: vnmngan@gmail.com

John A.N. Parnell
Herbarium, Department of Botany, School of Natural Sciences, and Trinity Centre for Biodiversity Research, Trinity College Dublin, the University of Dublin
Dublin 2, Ireland
E-mail: JPARNELL@tcd.ie

Alexander N. Sennikov
Botanical Museum, Finnish Museum of Natural History
PO Box 7, FI-00014 University of Helsinki
Helsinki, Finland
Herbarium, Komarov Botanical Institute of the Russian Academy of Sciences
Prof. Popov str., 2
197376 St. Petersburg, Russia
E-mail: alexander.sennikov@helsinki.fi

John R.I. Wood
Department of Plant Sciences, University of Oxford,
South Parks Road, Oxford, OX1 3RB, UK
Honorary Research Associate, Royal Botanic Gardens, Kew
Richmond, Surrey, TW9 3AB, UK
E-mail: jriwood@hotmail.com

Andrey N. Kuznetsov
Svetlana P. Kuznetsova
Joint Russian-Vietnamese Tropical Scientific and Technological Center
Cau Giay
Hanoi, Vietnam
A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences
Leninskij prosp. 33
119071 Moscow, Russia
E-mail: forestkuz@mail.ru

Maxim S. Nuraliev (corresponding author)
Joint Russian-Vietnamese Tropical Scientific and Technological Center
Cau Giay
Hanoi, Vietnam
M.V. Lomonosov Moscow State University
Faculty of Biology
Leninskie Gory 1, 12
119234 Moscow, Russia
E-mail: max.nuraliev@gmail.com