

Oreocharis striata (Gesneriaceae), a new species from Fujian, China

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A new species of Gesneriaceae, *Oreocharis striata* Fang Wen & C.Z. Yang from Youxi County, Fujian province, China, is described and illustrated. Its morphological distinctiveness from the somewhat similar *O. lungshengensis*, *O. maximowiczii* and *O. burttii* is discussed. The conservation status of *O. striata* is assessed as Critically Endangered (CR) according to IUCN Red List Category and Criteria.

In the traditional sense, *Oreocharis* used to be a small genus with 29 species (28 species and 5 varieties in China) in the subfamily Didymocarpoideae of Gesneriaceae (Wang *et al.* 1990, 1998, Li & Wang 2004a, Möller *et al.* 2011b). However, it is now known to be one of the most diverse genera in the family, with at least 118 species and 14 varieties (*see* <http://www.ipni.org/ipni/plant-name-searchpage.do>) mainly distributed in China. The species previously placed in *Ancylostemon*, *Bournea*, *Deinocheilos*, *Isometrum*, *Opithandra*, *Tremacron*, *Dayaoshania*, *Paraisometrum* and *Thamnocharis*, and ten species of former *Briggsia* were merged into *Oreocharis* based on molecular and morphological evidence (Möller *et al.* 2011a, 2011b, Chen *et al.* 2013, Tan *et al.* 2013, 2014, Weber *et al.* 2013, Möller *et al.* 2014).

In August 2013, during a field survey for Chinese medicinal herbs of Fujian in Youxi

County, Fujian Province, the authors collected an unknown *Oreocharis*-like species of Gesneriaceae. The basal rosette with leaf blades densely hairy on both sides resembled that of *O. maximowiczii*, which is widely distributed in eastern and southern China (Wang *et al.* 1990, 1998, Li & Wang 2004a, Wei *et al.* 2010). During another visit to the same locality in August 2014, flowering specimens were collected. The flower characteristics hinted that it was likely a member of the redefined *Oreocharis* (Möller *et al.* 2011a, 2011b). The flowers look a bit like those of *O. lungshengensis*, which was once placed in *Isometrum* (Wang *et al.* 1990, 1998, Li & Wang 2004b), having a pale-purple corolla with a spotted and striped interior. After comparing the specimens with other *Oreocharis* species occurring in China and adjacent regions (Vietnam, Thailand), and checking relevant literature (Pellegrin 1930,

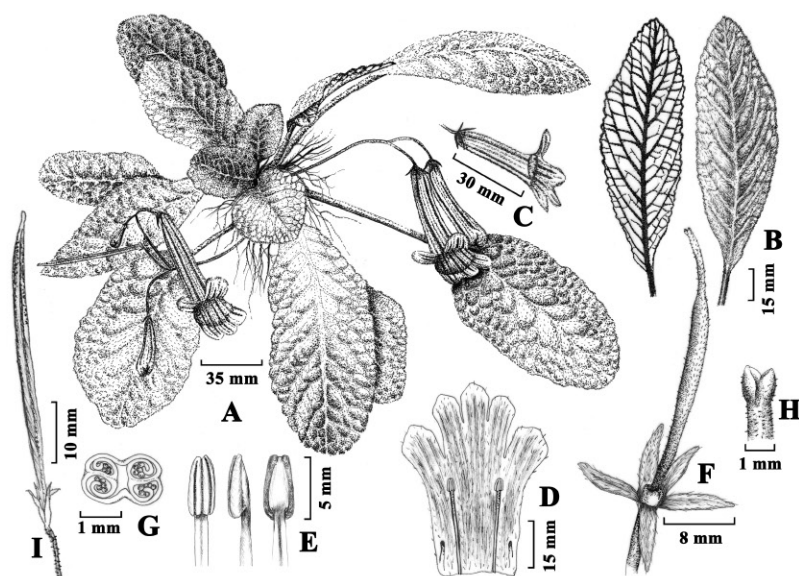


Fig. 1. *Oreocharis striata* (from the holotype). — **A:** Habit. — **B:** Abaxial and adaxial surfaces of leaves. — **C:** Flower. — **D:** Cut-open flower showing stamens and staminodes. — **E:** Frontal, lateral and dorsal view of anthers. — **F:** Calyx, basal disc and gynoecium. — **G:** Cross sections of ovary. — **H:** Stigma. — **I:** Capsule.

Wang *et al.* 1990, Wang *et al.* 1998, Pham-Hoang 2000, Li & Wang 2004a, 2004b, 2004c, Wei *et al.* 2010, Möller *et al.* 2011ab, Puglisi *et al.* 2011, Liu *et al.* 2012, Chen *et al.* 2013, Tan *et al.* 2013, Rossini & Freitas 2014, Tan *et al.* 2014, Tan *et al.* 2015), we concluded that they represented an undescribed species.

***Oreocharis striata* Fang Wen & C.Z. Yang, sp. nova (Fig. 1)**

TYPE: China, Fujian Province, Youxi County, Qingkeng village, growing in moss of sandstone cliff, in broad-leaved forests, 25°57'53"N, 118°10'09"E, alt. 330 m a.s.l., 22 Aug. 2014, in flower, C.Z. Yang *et al.* 35042620130822016 (holotype IBK; isotype IBK, FNU). — **PARATYPES:** Same locality, 13 Sep. 2014, C.Z. Yang *et al.* 35042620140913001–35042620140913005 (FNU).

ETYMOLOGY. The specific epithet is derived from the longitudinal striations in the corolla.

Perennials, acaulescent. Rhizome cylindrical, 1–2 cm long or longer, 0.5–1.0 cm in diameter, glabrous, internodes inconspicuous. Leaves in basal rosette, 10–12. Petiole 2.5–10.5 cm long, 2.5–3 mm in diameter, densely appressed rubiginous villous; leaf blade narrowly elliptic to oblong-elliptic, slightly asymmetric to asymmetric, 5–13 × 3.0–6.5 cm, adaxially densely appressed pubescent, abaxially densely brownish sericeous-woolly on midrib and nerves, apex

obtuse, base cuneate, margin irregularly serrated and crenate; lateral veins in 6–10 pairs or more, all veins conspicuously depressed on adaxial surface and conspicuously raised on abaxial surface. Cymes axillary, inflorescences often 2, 2–5-flowered. Peduncles 6–10 cm long, slender, sparsely puberulent; bracts 2, opposite, narrowly lanceolate, 2–2.5 mm long, 0.5–0.8 mm in diameter, margin entire, apex acute, outside sparsely puberulent, usually withered at blooming. Pedicel 1.8–3.6 cm long, ca. 1 mm in diameter, sparsely puberulent. Calyx greenish brown, 5-parted from base; segments equal, lanceolate, ca. 8.5 mm long, ca. 2 mm in diameter, margin entire, apex acute, outside sparsely puberulent, inside densely puberulous. Corolla bilabiate, reddish purple, inside and outside with 16–18 longitudinally white striations, inside and outside sparsely white puberulous; tube narrowly funnelform, not swollen, 3–3.5 cm long, orifice ca. 1 cm in diameter, base ca. 0.4 cm in diam.; adaxial lip 2-lobed, lobes oblong, ca. 1.2 × ca. 1.0 cm, apex obtuse; abaxial lip 3-lobed to middle, lobes oblong, middle lobe ca. 1.1 × 0.8 cm, lateral lobes equal, oblong and top half triangular, ca. 1.5 × 0.7–0.8 cm, apex obtuse. Stamens 2, free, included, adaxial; filaments adnate to ca. 7 mm above corolla base, from adnated positions of filaments to bottom of corolla raised towards filament direction, width of raised part same as that of filament, linear, ca. 20 mm long,

bottom half glabrous, top half covered with wart-like elevations; anthers basifixed, separated, trapeziform, top and bottom obtuse, dehiscing from straight slits, glabrous, ca. 5 mm long. Staminodes 2, abaxial, adnate to 3.5 mm above corolla base, linear, ca. 5.5 mm long, bottom half glabrous, top half covered with wart-like elevations, apex capitate. Disc cupular, ca. 1.8 mm high, glabrous, margin erose. Pistil puberulous; ovary linear, ca. 2 cm long, ca. 2 mm in diameter, decreased downwardly along axial direction; style ca. 6 mm long; stigmas 2, ovate, apex acute, ca. 1 mm long. Capsule oblong, straight, ca. 4.8 cm long. Flowering in August, fruiting in October.

DISTRIBUTION AND HABITAT. Only known from the type locality. It grows on rock surfaces at the foot of a sandstone hill in a subtropical evergreen broad-leaved forest along a river in the village of Qingkeng (Fujian, China) at an elevation of 330 m a.s.l. The average annual temperature and precipitation in the area are 19.2 °C and 1600 mm, respectively.

PROPOSED CONSERVATION STATUS. *Oreocharis striata* is only known from the type locality. The population covers an area of about 10 × 15 m² and includes about two hundred individuals. According to the IUCN red list categories and criteria (see <http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria>), the species should be considered Critically Endangered, CR A1ac, B1ab (i, ii, iv, v).

Based on the shapes of leaf and flower, *Oreocharis striata* is morphologically close to *O. maximowiczii*, *O. lungshengensis* and *O. burtii* (Wang *et al.* 1990, 1998, Wei *et al.* 2010, Möller *et al.* 2011b). *Oreocharis maximowiczii* is distributed from southern Jiangxi and northern Guangdong to eastern China (Anhui and Fujian), *O. lungshengensis* is known only from northeastern Guangxi, and *O. burtii* from southern Jiangxi and northern Guangdong. There are however clear morphological differences among those species (see Appendix).

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References

- Chen W.H., Wang H., Shui Y.M., Möller M. & Yu Z.Y. 2013: *Oreocharis jingpingensis* (Gesneriaceae), a new species from Yunnan, China. — *Annales Botanici Fennici* 50: 312–316.
- Li Z.Y. & Wang Y.Z. 2004a: *Oreocharis*. — In: Li Z.Y. & Wang Y.Z. (eds.), *Plants of Gesneriaceae in China*: 14–47. Henan Science and Technology Publishing House, Zhengzhou.
- Li Z.Y. & Wang Y.Z. 2004b: *Isometrum*. — In: Li Z.Y. & Wang Y.Z. (eds.), *Plants of Gesneriaceae in China*: 51–59. Henan Science and Technology Publishing House, Zhengzhou.
- Li Z.Y. & Wang Y.Z. 2004c: *Opithandra*. — In: Li Z.Y. & Wang Y.Z. (eds.), *Plants of Gesneriaceae in China*: 113–118. Henan Science and Technology Publishing House, Zhengzhou.
- Liu Y., Xu W.B., Huang Y.S., Peng C.I. & Chung K.F. 2012: *Oreocharis dayaoshanioides*, a rare new species of Gesneriaceae from eastern Guangxi, China. — *Botanical Studies* 53: 393–399.
- Möller M., Forrest A., Wei Y.G. & Weber A. 2011a: A molecular phylogenetic assessment of the advanced Asiatic and Malesian didymocarpoid Gesneriaceae with focus on non-monophyletic and monotypic genera. — *Plant Systematics and Evolution* 292: 223–248.
- Möller M., Middleton D., Nishii K., Wei Y.G., Sontag S. & Weber A. 2011b: A new delineation for *Oreocharis* incorporating an additional ten genera of Chinese Gesneriaceae. — *Phytotaxa* 23: 1–36.
- Möller M., Chen W.H., Shui Y.M., Atkins H. & Middleton D.J. 2014: A new genus of Gesneriaceae in China and the transfer of *Briggsia* species to other genera. — *Gardens' Bulletin Singapore* 66: 195–205.
- Pellegrin F. 1930: Gesneriaceae. — In: Lecomte H. & Humbert H. (eds.), *Flore Générale de L'Indo-Chine*, vol 4: 487–565. Masson et C^{ie}, Paris.
- Pham-Hoang H. 2000: *An illustrated Flora of Vietnam*, vol. 3. — Youth Publishing House, Ho Chi Minh City.
- Puglisi C., Wei Y.G., Nishii K. & Möller M. 2011: *Oreocharis × heterandra* (Gesneriaceae): a natural hybrid from the Shengtangshan Mountains, Guangxi, China. — *Phytotaxa* 38: 1–18.
- Rossini J. & Freitas J. 2014: *Oreocharis yunnanensis*, a new name for the illegitimate *Oreocharis glandulosa* (Gesneriaceae) from China. — *Phytotaxa* 163: 180.
- Tan Y.H., Li J.W., Chen W.H., Wen B. & Möller M. 2014: Additional notes on *Oreocharis yunnanensis*, a species

- of Gesneriaceae from southern Yunnan, China, including morphological and molecular data. — *Phytotaxa* 167: 283–288.
- Tan Y.H., Li J.W., Chen W.H. & Yin J.T. 2015: *Oreocharis tsaii*, a new species of Gesneriaceae from southern Yunnan, China. — *Phytotaxa* 195: 188–192.
- Tan Y.H., Li J.W., Pan B., Wen B., Yin J.T. & Liu Q. 2013: *Oreocharis glandulosa*, a new species of Gesneriaceae from southern Yunnan, China. — *Phytotaxa* 131: 29–34.
- Wang W.T., Pan K.Y. & Li Z.Y. 1990: Gesneriaceae. — In: Wang W.T. (ed.), *Flora Reipublicae Popularis Sinicae*, vol. 69: 125–581. Science Press, Beijing.
- Wang W.T., Pan K.Y. & Li Z.Y. 1998: Gesneriaceae. — In: Wu Z.Y. & Raven P.H. (eds.), *Flora of China*, vol. 18: 244–401. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis.
- Weber A., Clark J.L. & Möller M. 2013: A new formal classification of Gesneriaceae. — *Selbyana* 31: 68–94.
- Wei Y.G., Wen F., Möller M., Monro A., Zhang Q., Gao Q., Mou H.F., Zhong S.H. & Cui C. 2010: *Gesneriaceae of south China*. — Guangxi Science Technology Publishing House, Guilin.

Appendix. Diagnostic characters among *Oreocharis striata*, *O. maximowiczii*, *O. lungshengensis* and *O. burtii*.

Characters	<i>O. striata</i>	<i>O. maximowiczii</i>	<i>O. lungshengensis</i>	<i>O. burtii</i>
Petiole	densely rubiginous villous	densely brown woolly	densely white pubescent	brown sericeous-woolly
Indumentum	adaxially densely appressed pubescent, abaxially densely brownish sericeous-woolly on midrib and nerves	adaxially densely pubescent, abaxially densely pubescent, densely brown woolly along veins	adaxially white appressed villous, abaxially pubescent	adaxially white puberulent, abaxially appressed puberulent, brown sericeous-woolly along veins
Leaf blade margin	irregularly serrated and crenate	serrate	shallowly serrate to serrate	crenulate
Peduncle	sparsely puberulent	sparsely pubescent or brown woolly and glandular pubescent	spreading villous	puberulent
Bracts	outside sparsely puberulent, usually withered at blooming	outside densely brown woolly, usually persistent at blooming	outside white villous, usually persistent at blooming	outside woolly, usually persistent at blooming
Corolla	reddish purple, inside and outside with 16–18 longitudinally white striations, inside and outside sparsely white puberulous	pink to lavender, without striation, outside glabrous to puberulent	pink to purple-red with white checkerboard pattern, outside sparsely glandular puberulent	pink to purple, outside sparsely puberulent
Corolla tube	narrowly funnelform, not swollen	narrowly campanulate to broadly tubular	campanulate-tubular	tubular, not swollen
Stamens and filaments	2, the top half of filaments covered with wart-like elevations	4, filaments glabrous	4, filaments glandular puberulent near apex	2, filaments glabrous
Staminodes	2	1	1	absent
Flowering time	August	April to June	September to October	October